



# Grammatization: Bernard Stiegler's Theory of Writing and Technology

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## Abstract

This article explicates and probes the ways in which media theorist Bernard Stiegler drew on histories and theories of writing in order to enrich the study of digital culture. For digital rhetoricians, Stiegler's notion of "grammatization" is particularly striking in that it suggests the beginnings of a theoretical framework for orienting rhetorical inquiry amid the interminable sea-change of new devices, software packages, and product features. Grammatization cultivates a perspective that is complimentary to *and ultimately distinct from* those associated with electracy, augmentation, remediation, and other canonical terms that rhetoricians and compositionists often borrow from media studies in order to frame their analyses of digital writing technologies. This alternative approach, which Stiegler's own work models, can help digital rhetoricians to distinguish "the long-term processes of transformation from spectacular but fleeting technical innovations" (Stiegler, 1998, p. 21) and—going beyond Stiegler—to identify robust categories of analysis and production integral to a variety of contemporary rhetorical situations. To further demonstrate the scholarly value grammatization poses for rhetorical inquiry on writing technologies, the article concludes by comparing Stiegler's examination of online video platforms to two compositionists' recent analyses of YouTube.

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"During [the] period that gave birth to the West, therefore, the question was to know what interpretation to give to that form of grammatization that was unfolding at that time. . . Today, this question remains intact."

—Bernard Stiegler, *Decadence of Industrial Democracies*, p. 40

## 1. Permanent innovation

Have you ever wondered, upon completing an essay about new technology X, how relevant the piece will be when it actually gets published? In August 2013, Apple board members voiced concerns about the company's pace of innovation, insisting that it had been over two years since the release of their last "game-changing product" (Pachal, 2013). While a two-year lapse may be cause for complaint in Silicon Valley, two years is perhaps the average work span of an academic article from draft to publication. In some cases it is much longer still. Alas, the pace of scholarship is slow—appropriately so—and the rate of technological change is literally exponential. This equation can be troubling

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for those of us who write about digital writing technologies. Sometimes it feels like we are playing the stock market or even gambling, pinning our research careers to whatever stream of technical invention we think (and hope) will matter most for the future of writing, rhetoric, literacy, and pedagogy. Of course, the *we* I am evoking here is also growing rapidly. Each year of the new millennium has contributed even more new devices and software than the previous year, and every year more humanities scholars ransack their disciplinary traditions in order to make sense of digital culture. Assuming these two trends continue, perhaps the more pertinent question is this: How can scholarly inquiry on emerging media and writing technologies thrive in an era of permanent innovation?

The notion of “permanent innovation” plays a fundamental role in Bernard Stiegler’s three-volume series, *Technics and Time*, which several media theorists (Crogan, 2010; Frabetti, 2011; Hansen, 2004; Robertson, 2013) regard to be among the most important books of the past twenty-five years.<sup>1</sup> Simply put, permanent innovation names a historical condition in which technical invention outpaces cultural adaptation (Stiegler, 1998, p. 15). This is not to suggest that technology and culture are divisible; for Stiegler, all social practices and institutions have a technological basis. Precisely because of this interdependence, the adoption of a new cultural technology precipitates the obsolescence, to greater and lesser degrees, of traditions that were developed in conjunction with the affordances of a becoming-obsolete technology. While this sort of technocultural evolution is evident throughout history, technical invention became infused with entirely unprecedented levels of resources and investments starting with the industrial revolution, during which economic incentives abounded to transform scientific knowledge from an academic pursuit into a lucrative industrial research and development enterprise (Stiegler, 1998, p. 40). As such, industrial technical invention has come to outpace conceptual innovation in other social systems such as law, government, and education.

The computer revolution continues to intensify this rift as industrial activities turn toward the production of information technologies that archive, manage, and structure individual and collective memory. The rapid evolution of global networks increasingly disorients and scrambles the traditions, conventions, and practices that have defined national institutions over previous centuries. Stiegler (1998) described this widespread sense of disorientation:

[W]e are experiencing the deep opacity of contemporary technics; we do not understand what is being played out in technics, nor what is being transformed therein, even though we unceasingly have to make *decisions* regarding technics. . . [I]n day to day technical reality, we cannot spontaneously distinguish the long-term processes of transformation from spectacular but fleeting technical innovations. (p. 21)

In other words, we often struggle to pinpoint exactly what is new about new media and, even more importantly, we have difficulty determining which novel aspects will be the most transformative and consequential for cultural development.

In what follows, I contend that Stiegler’s work marks the leading edge of current efforts to draw on histories and theories of writing in order to enrich the study of emerging media and digital culture. Whereas his remarks on permanent innovation identify a problem many of us encounter all too often, his concept of *grammatization* suggests the beginnings of a theoretical framework for orienting rhetorical inquiry amid the interminable sea-change of new devices, software packages, product features, etc. In looking at the way Stiegler examines specific writing/media technologies—and first understanding the theoretical exigencies motivating his method—we can be in a better position to generate insights that will remain relevant and suggestive even after the examples we reference (a website, device, app, etc.) have faded out of general use, or disappeared entirely.

Of course, Stiegler’s approach is not the only model with which digital rhetoricians may grapple with constant change. Readers familiar with Gregory Ulmer’s grammatological texts will notice profound affinities between his and Stiegler’s comparable objectives. Both draw heavily on Jacques Derrida as they discuss (and invent) new media practices in the context of previous technocultural shifts. One might also wonder if Stiegler’s concept of grammatization differs significantly from Jay Bolter and Richard Grusin’s (2000) notion of remediation (which is indebted to Marshall McLuhan’s, 1988, “tetrad of media effects”). Indeed, each approach aims to understand the effects and affordances of emerging media via critical comparisons with more established media. Addressed to the field of computers and

<sup>1</sup> As one of the earliest American readers of Stiegler, Mark Hansen (2004) has gone so far as to claim that the wake of Stiegler’s research “has the consequence of transforming cultural studies into *technocultural studies*” (para. 5). And yet, because most of Stiegler’s major texts have only recently appeared in English, his work remains a relatively untapped resource for contemporary media theory in America, and researchers in rhetoric and composition have published next to nothing about him thus far.

writing, the central tasks of this article are to introduce Stiegler's work, outline its relations to more familiar theories, and specify the distinct value grammatization holds as a framework for studying writing technologies. Focusing on grammatization can help digital rhetoricians “distinguish the long-term processes of transformation from spectacular but fleeting technical innovations” (Stiegler, 1998, p. 21), and, most importantly, help us to identify robust categories of production and analysis integral to a variety of contemporary rhetorical situations. Electracy and remediation, I will argue, have only circled around this latter task.

## 2. Grammatization, grammatology, and electracy

Before defining grammatization, I should note a broad implication that follows from Stiegler's premises concerning techno-human relations. One of the supreme benefits of his still expanding oeuvre is that it seems to reconcile, theoretically at least, a dilemma that has hampered the humanistic study of technology ever since the inception of media studies, technorhetoric, computers and writing, etc.<sup>2</sup> Stiegler postulated that to study emerging media and writing technologies was to attend to the constitutive forces that condition the possibilities of human becoming, which were always shifting from epoch to epoch, especially in permanent innovation societies. Accordingly, his realignment of techno-human relations put writing at the epicenter of contemporary and projected cultural and ontological transformations. Humans, as a species, were not born into the world already equipped with mature cognitive capacities; these capacities developed over time in a transductive relationship with Neolithic technics, and they are still developing today hand in glove through our collective play with contemporary technics. Informed by philosopher Gilbert Simondon, Stiegler routinely defined technics as *organized inorganic matter*.<sup>3</sup> The term refers both to the history of fabricated objects (e.g., flint, hammers, pencils, computers) and to the domain of *techné*: the techniques and practices involved in making (something with) technology. Technics are more than merely a part of the environment humans inhabit; technics constitute—not determine—our experience on every possible level, from retention to anticipation, and from cultural history to genetics.

Contrary to media theorists more familiar to rhetoric and writing scholars, such as N. Katherine Hayles, Stiegler refused to conserve any afterimages of a master-slave dialectic wherein humans still maintain control over technologies through their habits of usage. In fact, he insisted that the very question of techno-human relations must be posed differently: it is not a matter of asking whether the human controls technology or whether technical evolution determines human evolution. Theories of co-evolution, after all, profess nothing but a mutual determinism. Following Jacques Derrida, who was his teacher, Stiegler (2010a) asserted that “the static oppositions of Western metaphysics must be replaced by dynamic compositions: one must think in terms, not of hierarchies or totalizing systems, but of processes.” (p. 69). Beyond the dialogic sense of co-evolution, Stiegler circumvented the persistent opposition between humanity and technology that proponents of technogenesis still employ.<sup>3</sup> Instead, critical attention starts by studying the constitutive processes that underwrite so-called humans and technologies—before considering them as separate, already-constituted entities. These constitutive processes, in Stiegler's lexicon, are called *processes of grammatization*.

<sup>2</sup> With the rise of media studies as an autonomous intellectual discipline, leading scholars seeking to establish the field's history have consistently tried to reclaim the “founders” of the field from allegations of technological determinism. For instance, media historian Adrian Johns (2004), in his foreword to Walter Ong's book on Peter Ramus (heralded as “one of the crucial founding texts of modern media theory” [Johns, 2004, p. xii]), cautiously qualified Ong's persistent linkage between the rise of printing and the cultural pedagogy of Ramism. Johns (2004) celebrated what he calls Ong's “refusal to countenance a technologically driven narrative,” as he insisted that Ong “took care to identify Ramism and printing as byproducts of the more fundamental history of Western attitudes to space” (p. xi). In other words, Johns (2004) identified new scientific ideas about space as “the real cause” of the cultural change associated with Ramism, and that the mechanisms of printing were but its “symptoms, or perhaps... catalysts” (p. xi). And yet, one is hard pressed to square up Johns's reasoning here with arguments made by Ong later in his career, namely that writing (as a technology) restructures consciousness.

<sup>3</sup> Despite her assertions that humans and technics co-evolve, Hayles's (2012) anthropocentric conclusions and her hasty assimilation of theoretical terms to ordinary language suggest that she conserved traditional ideas about humans and technology, albeit in a more fragmented or distributed manner. If we regard digital technology as a highly evolved set of tools that is currently affecting human evolution, we are still imagining that technologies are exterior to and separate from our capacity for attention, perception, or communication; the technological exterior affects our human interior and co-evolves with it, and vice versa—but nowhere does this dialogical framework address the very constitution of the inside and the outside, the split between humans and technology. In this respect, the dialogics of Hayles' technogenesis duplicated the augmentation-oriented relationship depicted in the master-slave dialectic of technological determinism. See Chapter Four in *How We Think* (Hayles, 2012).

Stiegler's position can be understood as the latest advance in the field of grammatology, which commonly aims to theorize emerging media parallel to the history and theory of writing (broadly conceived to include virtually any act of technical inscription). His *Technics and Time* series effectively revived the central concerns of a litany of grammatological thinkers during the 1960s to the 1980s: classicists and historians of writing (Leroi-Gourhan, Havelock, Goody), French philosophers and literati associated with *Tel Quel* (Derrida, Barthes, Kristeva), and North American media theorists (Ong, McLuhan, Ulmer). Ulmer's (1985) succinct account of grammatology's emergence as a transdisciplinary field provides an initial vantage point for assessing the unique character of Stiegler's intellectual contributions and a basis for elaborating the scholarly value of the concept of grammatization. According to Ulmer, grammatology developed in three phases, all of which remain in progress. First, the historical phase featured a variety of archeological and paleontological investigations into the evolution of writing systems. These historians of writing attempted to account for the actual invention of writing in ancient civilizations, as well as devise elaborate taxonomies for categorizing the world's writing systems, almost as if taking inventory of different species of plants or animals. Racing to gather new empirical facts surrounding the origins of particular writing systems, early historians of writing rarely paused to consider the theoretical significance of writing, nor did they question inherited assumptions about which activities and artifacts counted as writing. For this reason, Derrida—the first theoretical grammatologist—embarked on a “point-by-point repetition, of the history of writing into a theory of writing” (Ulmer, 1985, p. 17). As he deconstructed the metaphysical opposition of speech and writing, Derrida assembled something of a counter-history, wherein non-phonetic systems like hieroglyphics function as emblems with which he theorizes writing in general (i.e., arche-writing), beyond the limits of phonocentric discourse.

Stiegler's project, as I will explicate further, might be described as a complex variation of grammatology that, although centered on contemporary technics, routinely enacts a *point-by-point techno-historicization of the theory of arche-writing and the logic of supplementarity*. In this sense, Stiegler negotiated historical and theoretical grammatology, which is also to say that he, like Ulmer, indicated a wealth of connections between Anglo-American and French grammatologists (whose texts rarely reference one another). Most obviously, though, Stiegler and Ulmer both appropriate and extend Derrida's work—but each does so in a different way. Ulmer (1985) explored how Derrida's writing process might have served as a rhetorical relay for developing “a mode of writing, and ultimately of pedagogical practice” to inform humanities research and teaching amid the rise of networked, audiovisual media (p. 5). Throughout *Applied Grammatology* (and in several later books), Ulmer's primary mission was to build a poetics extracted from the textual strategies of poststructuralist philosophers and the aesthetic tendencies of avant-garde artists; many of whom, he believed, anticipated or suggested something fundamental about thought and expression in the age of digital media (i.e., electracy). Derrida's theory of the signature, for instance, propelled Ulmer's invention of the *mystory*. Crucially, as Ulmer explicated *Of Grammatology* with unparalleled precision, his underlying interest in doing so usually related to inventing new academic practices. After citing Derrida's (in)famous redefinition of “writing,” Ulmer (1985) stipulated the analytical focal point through which his inquiry would *apply* the insights of this expansive (trans)discipline:

All these manifestations of writing, so visibly different, share an irreducible and invisible element—the *gramme*. . . . A grammatologist may be able to bring this range of materials together within a field of study, but my concern in this book is with grammatology's own compositional practices. (p. 10, my emphasis)

Over the past decade, Stiegler has emerged to play the role of this nameless grammatologist against which Ulmer defined his own agenda. Stiegler offered a distinctly hybrid historical-theoretical grammatology from which we can learn and apply lessons other than the ones Ulmer found in Derrida's writing. Stiegler, even more than Derrida, professed to see life in the world—human becoming, historical change, social organization—as the evolution and play of *gramme* (the Greek word for “written mark”). What atoms are to physicists, *gramme* are to Stiegler.

On the basis of Derridean grammatology, we can gain a sense of what grammatization signifies in Stiegler's work. The term applies to processes by which a material, sensory, or symbolic flux becomes a *gramme*, which—broadly conceived—can include all manners of technical gestures that maintain their iterability and citationality apart from an origin or any one particular context.<sup>44</sup> For Stiegler, the shift from cuneiform to phonetic symbols is a process

<sup>44</sup> Stiegler's theory of grammatization is profoundly indebted to Derrida's early grammatological texts on writing. From a grammatological stance, writing—understood as *arche-writing*—is always already “orphaned and separated” from any hermeneutical authority, and it functions via spacing, iterability, citationality, dissemination, and difference—which Derrida (1988) referred to collectively as “nuclear traits” of all writing (p. 8). No

of grammatization, the shift from hand-tools to factory machines is a process of grammatization, and so is genetic engineering—cells and organs become replicated and revised like a kind of alphabet. In every case, a continuous flux (e.g., speech, the body, the genome) becomes broken down into a system of discrete elements (e.g., alphabetic characters, mechanical systems, recombinant DNA sequences). And, in every case, the latter’s emergence always disrupts, transforms, and reconfigures the former.

Consider a few examples of grammatization, from alphabetic writing to ubiquitous computing (ubiquomp). Alphabetic writing breaks down the flux of speech into a finite system of recognizable characters that are, on the one hand, iterable and modular, and on the other hand, capable of orthographic stability (Stiegler, 2010a, p. 70). The rise of a new set of gramme alters the basic conditions of rhetorical activities. Gradually, the introduction of alphabetic writing furnished the Greeks with a new form of tertiary retention (or technical memory), and hence a new medium for educational practices. The students of early manuscript cultures (an elite group, to be sure) could inscribe the word into relative permanence, and do it without emotional identification, regular recitation, or a harmonious and mimetic style (the essential technics of oral poetry). Sharing the burden of memory with alphabetic writing materials, they were able to move from acts of recitation to exercises in abstraction (Havelock, 1963). More generally, grammatization “is the production and discretization of structures;” the formalization of a new gramme accrues through *metonymic invention*, whereby a part becomes detached from the whole of a continuous flux (Stiegler, 2011, p. 173). Remediation, by contrast, describes media evolution in terms of *metaphorical representation* of a prior medium (a distinction I return to in Section 3). Interpretations of grammatization processes are rooted in two questions: What flux gets broken down? And, what new set of gramme emerges? The concept of grammatization, moreover, stipulates the necessity of thinking about technologies and techniques together. As processes of grammatization break down an otherwise continuous flux, certain gestures or traces become detached from the initial continuity and (in)form a technology capable of performing certain techniques or functions independently of any supposed point of origin. In this sense, the technics of writing—the technologies and techniques it makes manifest—supply the basic operating logic that continues to orient permanent innovation, from nineteenth-century factories to the latest advancements in wearable computing. Whereas Ulmer drew upon Derrida’s grammatology in order to craft a poetics and pedagogy of “picto-ideo-phonographic writing,” Stiegler stretched grammatological theory even further, adapting it into a basis for understanding all manner of technical systems beyond those traditionally regarded as writing or communication technologies. In our age of ubiquomp, this move is incredibly pertinent. Increasingly, more everyday objects are becoming *smart objects*, everyday practices are becoming digitally supplemented, and technics in every domain are becoming *mnemotechnics* (i.e., systems capable of capturing, storing, and sharing information). From an expanded notion of writing, Stiegler prompted us to recognize the expansive array of contemporary artif(acts) that now operate as gramme.

This suggestive dimension of Stiegler’s (2012a) thought stems from his belief in a general interplay of gramme and gestures: “To separate the question of language, alphabet, photograph, cinematograph, audio recording, and so on from all the questions of gestures is a very big error.” Words, images, sounds: these are not the only gramme. According to Stiegler, some of the most important processes of grammatization—historically and especially today—involve the becoming-gramme of territories, bodies, and even cells. In addition to writing by virtue of bodily gestures, our seemingly non-discursive bodily gestures—by virtue of machines—can produce writing of sorts, to the extent that such gestures are broken down from the flow of muscular continuity, detached from our bodies and iterable in their absence. For instance, the gesture or action of hammering a nail can be performed by a discreet and replicable machinic configuration, just as the letters of the alphabet can be arranged to record a speaker’s every word. In *grammatizing* the laborer’s gesture, industrialization precipitates proletarianization, or “the loss of know-how” on the part of laborers (Stiegler, 2010a, p. 71). For Stiegler, industrialization thus constitutes a pivotal stage of grammatization, which becomes intensified by digitization as industrial resources and investments center on the programming of behavioral models engendered through the production and commoditization of audiovisual media. Whereas prior grammatization processes dealt primarily in the “sphere of language, of *logos*” throughout much of writing’s history, industrialization “came to invest [in] the sphere of bodies,” and the age of mass media turned mechanization toward “apparatus-dependent reproducibilities of the visible and the audible” (Stiegler, 2010a, p. 70). Today, runners

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signification, not even communication via spoken language, would be possible without functioning as *writing* in this sense—without being capable of becoming orphaned and separated from any single signified referent or the horizon of any single author’s or reader’s experience (Derrida, 1988, p. 9). For a thorough discussion of arche-writing in Derrida’s work, see Raul Sánchez’s *The Function of Theory in Composition Studies* (2005).

wearing a Nike+ sensor generate a digital data visualization as they run; each stride produces an indexical trace recorded and stored on an online database. They run, and their running *generates* computing, writing, or data in real-time. In addition to more traditional mnemotechnics, grammatization now engulfs all manner of machines, which variously enable and delimit a general writing of particular gestures and embodied activities. Defining all writing technologies as *pharmakon*, Stiegler (2011) warned that hyperindustrial investment in digital machines was contributing to a *general proletarianization of the consumer's existence* to an even more pervasive extent than the industrial investment of factory machines effected a proletarianization of the worker's labor. Nevertheless, in addition to this disconcerting ramification, the pervasive networks of gramme and gesture emerging with wearable computers and biotechnologies mark new rhetorical/media ecologies that introduce unusual and, perhaps, promising affordances for multimedia composition.

Ultimately, Stiegler's grammatological analysis of (hyper)industrial activities suggests an altogether different account of technical evolution and techno-human relations than the familiar notion of augmentation, which models all technologies as prosthetic extension of innate human capabilities. Conceived as processes of grammatization, the organization of inorganic matter that technologies are results *not* from "an extension of man" but an appropriation, a *writing*, defined by its disjunction from the continuity of a flux or movement, human or otherwise. Once disjointed and inscribed autonomously as inorganic matter, the movement becomes a gramme and, therefore, unfolds by the logic of the supplement and the nuclear traits of (arche-)writing. Theories rooted in augmentation cannot account for the autonomous, iterability of technics and their originary, constitutive force within the development of cultural practices, social organization, and even the human body itself.

While the assumption of augmentation underlies a prominent strand of composition research—which I have elsewhere called "digital tools scholarship" (Tinnell, 2012)—the theories of writing and technology advanced by Derrida and Ulmer are exempt from that critique. But they are not altogether beyond criticism. Before considering Stiegler's critical departure from Derrida (which may be surprising given his adherence thus far), I want to specify another contrast between Stiegler and Ulmer, in order to cast a further point at which their diverging inquiries might ultimately intersect to benefit computers and writing scholarship. Here is my basic conclusion, divulged in advance: attending to emerging processes of grammatization amid ongoing technical innovation is complementary, even fundamental, to the intellectual and pedagogical agenda of electracy. Ever since *Applied Grammatology*, an overarching goal driving Ulmer's (1985) research has been to "bring the language and literature disciplines into a more responsive relationship with the era of communications technology in which we are living" (p. 4). Stiegler's mode of engaging histories and theories of writing speaks to this ambition, however, the two thinkers employ different frameworks for mapping significant changes. Ulmer's insights are articulated over a tripartite matrix spanning three major apparatuses. Stiegler's emphasis on grammatization processes offers a nomadic way to traverse minor technocultural shifts, and his micro-level method of inquiry seems to address a degree of fluidity and heterogeneity that may elude applications of Ulmer's macro-level lens.

Building off pioneering research in orality-literacy studies, Ulmer adds electracy to the schema; typically, he invokes historical insights concerning the transition from orality to literacy as a basis for constructing theoretical questions critical to the current transition from literacy to electracy. His latest book, *Avatar Emergency*, began with the premise that, just as "the entry into writing produced the experience of 'selfhood,'" the digital revolution is giving rise to a new form of identity experience, which he called *avatar* (Ulmer, 2012, p. xi). Ulmer (2012) charted this emergence in terms of the tripartite apparatus schema: "Avatar is to electracy what 'self' is to literacy, or 'spirit' to orality" (p. x). Furthermore, another premise that structured Ulmer's grammatological inquiry is that major changes in communication technologies produce or condition new social institutions and cultural practices, in addition to new forms of identity experience. Hence, if avatar is supplementing or even supplanting the experience of selfhood—which literate metaphysics and schooling cultivated—then we need to develop new venues and practices for education designed to accommodate and cultivate this emergent experience. The heuristic or *heuristic* principle of Ulmer's theoretical-applied grammatology is to move between the three apparatus in search of literate practices (e.g., genres of composition, systems for deliberative rhetoric, inference paths—which many scholars fail to regard as technologically situated) that now demand to be rethought or developed anew relative to the electrate apparatus.

While Stiegler occasionally referred to literacy as an epoch, his primary strategy for identifying and explicating technocultural shifts was to target grammatization processes that revealed the emergence of new gramme (via the breakdown of an established flux). The immensely broad periods that one may call orality, literacy, or electracy play host to (and are inflected by) a great diversity of grammatization processes. While it may be convincing and productive to equate an epoch with one definitive identity experience, it would be quite reductive to claim that literacy or electracy

only has one gramme. Indeed, Stiegler (2011) contended that the onset of permanent innovation “requir[es] an entirely new thought of what an epoch in fact is, and in particular it must be thought precisely as a process rather than as a stasis” (p. 13). We might say, then, that an epoch is really an umbrella term for a more or less related set of grammatization processes that give rise to a configurable set of different gramme, none of which is singularly definitive in itself.

Undoubtedly, much more remains to be written about the overlap in Ulmer and Stiegler’s respective oeuvres, both of which are still unfolding. Here, I simply wish to emphasize the different ways in which they construct generative analogies between distinct technocultural periods. In fact, what I see in the differences above is a suggestion that Stiegler’s methodology may complement Ulmer’s tripartite framework, as well as the computers and writing scholarship that draws upon it. Starting from the orality-literacy-electracy schema, digital rhetoricians can then identify processes of grammatization whereby new gramme (i.e., new units of production and analysis) reveal themselves and, in doing so, serve as critical anchors to ground theoretical inquiry at historical nexuses of *techne* and *episteme*. Attesting to particular gramme—the varied contexts of their emergence and their unique implications for rhetorical thinking—may lead computers and writing scholars to speak to a greater degree of heterogeneity than the three epochs alone.

For example, Collin Brooke’s fundamental distinction between *text* and *interface*, which hearkens to epochal oppositions between literacy and electracy, might be further elaborated by more inductive engagements with various processes of grammatization accruing amid the evolution of different kinds of interfaces. Brooke (2009) insisted that new media challenge “our field’s unit of analysis,” which is also a unit of production or composition: text (p. 22). Since its emergence as an academic discipline, rhetoric and composition (and English studies in general) has anchored itself in the analysis and production of textual objects. As we move further into the twenty-first century, Brooke (2009) believed that textual objects were giving way to networked interfaces (p. 23). Of course, the identification of basic shifts in rhetorical units, such as the move from text to interface, seems very simple. Why does it matter, then? If we recall an implication of Stiegler’s work—that gramme mark the intersection of *techne* and *episteme*—then these fundamental units can be seen as the *cardinal categories* that orient rhetorical theories and practices in various historical periods. In other words, while technology does not determine rhetoric, we are inevitably oriented by the basic terms (e.g., units, gramme, etc.) through which we conceptualize (artif)acts of writing and communication. If scholars fail to theorize the rise of new units (or gramme) of analysis and production, then rhetorical engagements with emerging media will always be hampered by the assumptions bundled into traditional units that are no longer commensurate to current technocultural conditions.

In noting the significance of Brooke’s claim, however, we must also recognize its vagueness. *Text* and *interface* are perhaps two of the slipperiest terms in English studies today, in the wake of postmodernism and the digital humanities. Furthermore, computer scientists and interaction designers develop interfaces according to conceptual paradigms that are defined in direct contrast to other paradigms; for instance, Mark Weiser’s (1991) vision for ubicomp (i.e., ad-hoc networks of smart objects/environments) is at once a defiant critique of personal computing (e.g., desktops, laptops, pocket PCs). In Weiser’s influential manifestos, the basic tenets of personal computing serve as a list of outcomes *to be avoided*. In acknowledging such clear tensions at play in “the digital field”—new media, interface, etc.—one cannot help wonder if these terms are at risk of becoming floating signifiers. I do not mean to deny the important influence of Brooke’s assertion, as scholars in the field have no doubt heeded his call. Text and interface are quite crucial as broad, umbrella units, but they are hardly substantial enough to support the kinds of rigorous distinctions needed when teaching or commenting about specific digital writing technologies amid permanent innovation. The notion that new media must be studied and created in terms of interface needs to be unpacked through rhetorical explorations into more *particular interface-units* that are forming heterogeneously across increasingly diverse mediascapes. In the second half of this article, I discuss contemporary examples from Stiegler’s work that models a way for digital rhetoricians to pursue this task. Before leaving off from this crucial distinction—between relatively homogeneous/static epochs and the more heterogeneous/processual sense of gramme that variously constitute a given period—it is worth noting how Stiegler’s penchant for the latter leads him to challenge and critique his mentor.

### 2.1. Stiegler’s departure from Derrida

*Picto-ideo-phonographic writing*—Ulmer’s expansion or generalization of writing at the core of electracy—has effectively done for writing theory and pedagogy what Derrida’s critique of phonocentrism did for the study of Western metaphysics. Taken together, their work presents a powerful basis for teaching non-traditional modes of composition and for attending to writing beyond its marginalized status as a secondary support system (qua augmentation). Interestingly,

Stiegler set out to deconstruct the very aspect of Derrida's thought that Ulmer applied: Stiegler leveled a substantial critique at Derrida's own critique of phonocentrism. I turn now to briefly examine this important source of tension between Derrida and Stiegler's respective projects, in order to further delineate Stiegler's contribution to grammatology and its implications for theoretical inquiry on writing technologies.

What above all links Stiegler's concept of grammatization to Derrida's (and Ulmer's) grammatological texts is a quintessentially Derridean rationale that propels each of their projects: the logic of supplementarity. Supplements, such as writing technologies, are *originary* to human becoming; the exteriority of technics exceeds and conditions the interior life of the mind, "the already-there inhabits invention itself" (Stiegler, 2009, p. 42). At the same time, this issue of supplementarity<sup>5</sup> also clues us into Stiegler's *departure* from Derrida—a departure that, I think, actually revitalizes the relevancy of grammatology to contemporary research in rhetoric, writing, and media studies. If Derrida's logic of supplementarity furnishes the general insight that technics (techne) condition the possibility of theory (episteme), then Stiegler's history of supplements proposed that we can study this very process and build knowledge of technics in general by comparing the emergence and circulation of gramme across different media ecologies. Early in Stiegler's career, Derrida questioned Stiegler's fundamental ambition,<sup>6</sup> postulating that it may be impossible to study technics as an object of theoretical knowledge given the premise, which they both shared, that technicity conditions the very possibility of critical reflection. How can one presume to know the very conditions that make knowledge possible? Notwithstanding the gravity of Derrida's aporia, new media scholars have every motive to try to gauge the impacts of contemporary technics as they unfold, especially those of us who endeavor to teach students to think about and compose with the rhetorical affordances of emerging writing/media technologies. Let us turn, then, to Stiegler's counterargument.

Taking the Derridean critique of phonocentrism as a focal point for his own critique of Derrida, Stiegler outlined a set of investments and tendencies evident in Derrida's project that lead Derrida to neglect the specificity of linear writing. For instance, Stiegler (2009) identified in Derrida's grammatological work an "essential tendency" to guard against the "always-immanent return" of phonocentric impulses, which in turn created the impression that it is "impossible to state any specificity that would not immediately claim superiority [for the *phoneme* over the gramme]" (p. 30). Stiegler (2009) then extracted what he called the "heuristic principle" driving Derrida's grammatology, which can be broken down into a pair of interdependent imperatives:

- 1) To establish "the question of arche-writing. . . beyond the restricted concept of writing";
- 2) To "disturb and *destabilize* linear writing's specificity" in an effort to "efface all metaphysical privileging accorded to speech, through the very writing that is truest to it [i.e., the phonocentric, restricted concept of writing as alphabetic writing]." (p. 30)

In other words, Derrida blurred the specificity of linear writing and tried to circumvent phoneticization (i.e., the grammatization of speech) because he equated these phenomena with the metaphysics of presence. He wanted to bypass the metaphysics of presence by theorizing arche-writing and the logic of supplementarity. Stiegler, on the other hand, took the logic of supplementarity as a starting point for understanding how episteme is variously shaped by techne throughout history.

Phoneticization is thus more of an object of inquiry in Stiegler's texts and less a target for deconstruction. He committed himself to the *techn(ont)ological specificity* of linear writing and the cultural impacts of its phoneticization. It was a process of grammatization studied alongside others in a manifold history of orthographic supplements, any of which may serve as an analogical lens for identifying new gramme today. To Stiegler's mind, Derrida's resolution to critique phonocentrism effectively overdetermined his interpretations of writing systems; Derrida (1978) equated alphabetic writing strictly with the linearity and presence of the voice, while he cast other forms like dreams (i.e., physical writing) in an altogether different scene of writing "which puts words on stage without becoming subservient to them. . . a model of writing irreducible to speech which would include, like hieroglyphics, pictographic, ideogrammatic, and phonetic elements" (p. 209). In Stiegler's estimation, greater fluidity existed between these forms of writing, between arche-writing and *vulvar* systems of notation. Stiegler (2009) mobilized the history of alphabetic writing in

<sup>5</sup> The issue of supplementarity has become a pivotal point in commentators' debates (Bennington, 1996; Frabetti, 2011; Roberts, 2006) about Stiegler's intellectual relationship with Derrida, as well as an apparent source of tension in the published conversations between the two thinkers.

<sup>6</sup> See Derrida and Stiegler's conversation in *Echographies of Television* (2002).

his philosophy by privileging its “orthographic character” over its phonetic dimension, insisting that “it is a matter of recording rather than the voice” (p. 13). This shift in emphasis linked alphabetic writing with subsequent recording technologies, repositioning it as a paradigmatic initiator of exact recording and not (only) as a phonetic monopoly over nonlinear writing and “the pluridimensional character of symbolic thought” (Ulmer, 1995, p. 8). In this sense, by stressing the *exact recording* of the voice rather than the exact recording of the *voice*, one can *construct orthographic continuums* between different processes of grammatization evident in early picto/ideo-graphic writing, alphabetic writing, industrial machines, photography, cinema, digital media, and biotechnology. Such is the heuristic principle driving Stiegler’s work.

Constructing orthographic continuums, instead of furthering Derrida’s vulgar/arche divide, enabled Stiegler to describe all manner of ancient and contemporary technics as if they were distinct iterations of arche-writing. While Stiegler’s method adhered to Derrida in its refusal to treat writing technologies in the tradition of augmentation (as secondary support systems or mere tools), Stiegler nevertheless endeavored further to generate an episteme of techne—directly challenging Derrida. Amid permanent innovation, one can approach changes in techne from the standpoint of Stiegler’s episteme (i.e., grammatization), in order to identify which processes of change actually disrupt established gramme and, in so doing, contribute the emergence of new gramme. Such becomes the criteria by which to evaluate and describe the (lack of) significance that any given permutation bears for the history and future of writing and rhetoric. If an apparent technological innovation does not markedly disrupt the history of supplementarity, or extend its logic to new domains, then it will not likely hold significance for digital rhetoric moving forward.

While Stiegler’s discussions of grammatization do not mention rhetoric per se, his persistent remarks on memory, invention, techne, and temporality serve as obvious relays for turning his concepts more explicitly to disciplinary foci in computers and writing. To that end, while lacking the space to pursue these relays here, we can start to formulate some basic questions to make the concept of grammatization more operational for digital rhetoric. What gramme are emerging with the multitudes of digital technologies spreading and evolving from year to year? For that matter, how does one go about the process of pinpointing the onset of new gramme instead of just commenting on whatever digital innovation made headlines this week? And, as generative nexuses between techne and episteme, how do these emerging gramme appear to (re)shape the basic conditions of rhetorical activity? In Section 3.1, I will show how Stiegler answers these questions with regards to YouTube (or, more precisely, the process of grammatization that YouTube exemplifies). First, to set the stage for our consideration of YouTube as a process of grammatization, I point out how grammatization compares and contrasts from another relevant theory of media history—*remediation*—and from remediation-oriented scholarship in digital rhetoric that also examines YouTube.

### 3. Grammatization, remediation, and digital rhetoric

At this point, I anticipate that many readers may be inclined to liken the concept of grammatization to the more familiar idea of *remediation*, since both are process terms that employ comparisons among different media to comment on technical evolution. Assuming some resonance is more or less clear, I want to move directly to an area of disagreement. The two theories profess conflicting viewpoints about what is *new* in new media. In defining remediation, Bolter and Grusin (2000) insisted that the novelty lay purely in the specific strategies by which emerging technologies represent more established ones (and vice-versa):

Digital visual media can best be understood through the ways in which they honor, rival, and revise linear-perspective painting, photography, film, television, and print. *What is new about new media* comes from the particular ways in which they refashion older media and the ways in which older media refashion themselves to answer the challenges of new media. (p. 15, my emphasis)

As we have seen, grammatization also presumes an ecological view of technical invention and the complex entanglements through which all forms of media develop. Without denying inevitable influences that media history has on an emerging medium, Stiegler’s approach goes further to presume that distinct phases of innovation found new sets of gramme (i.e., “written marks” that are unique in kind, not only different in degree). When taken up in the domain of digital rhetoric, the fundamental differences between each theory furnish divergent paths for critical inquiry and conceptual invention. Ultimately, I believe these paths to be complementary, and I aim to demonstrate this below through a comparative analysis of recent scholarship about YouTube.

If remediation (like Henry Jenkins's notion of *convergence*) identifies the reciprocal flow of forms, techniques, and content among various media technologies, then grammatization foregrounds the breakdown of continuous flows and the sets of discrete elements that emerge disjunctively in the process. Whenever one medium represents another, the newer medium develops by means of breaking down the flow of information organized by the older medium and remapping that flow on the basis of new units of production and analysis. Remediation is only half of the story, or one way of telling it. Writing does not, for instance, simply hold a mirror up to speech (Sánchez, 2005); (artifacts of writing forge a new relationship to verbal language that effectively reorients the flow of speech as much as it represents it. Forms intrinsic to writing, such as the list or the paragraph, have informed the development of speech patterns and habits of mind that were not widely practiced before the spread of literacy (Goody, 1977). Any medium can only be distinguished as a medium to the extent that it develops a unique gramme or set of gramme. In objecting to the "modernist rhetoric" of the new, Bolter's (2008) analysis of new media discourse drew a firm divide between remediation theorists and "essentialist" theorists; he accused the essentialists of willfully neglecting the vitality of old media in the creation and operation of new media (which was, to be sure, a welcomed criticism of the presentism that plagued much early scholarship on new media, and continues to plague tech journalism to this day). In Bolter's assessment, theorists either believe that nothing is completely unique and unprecedented about new media (we only have novel combinations and reconfigurations), or they believe new media harbor original capacities and affordances that we must apprehend without expecting much guidance from previous traditions and practices.

Grammatization, however, works rigorously on both sides of this dichotomy, oscillating between precedent and novelty. Media evolution is conceived as a matter of metonymic invention, whereby some part becomes detached from a continuous whole. This part, now discrete and iterable apart from the whole, acts as a gramme, which is to say it embodies the technics of writing, manifesting the logic of supplementarity within new spheres of practice. The "double logic" of remediation, on the other hand, calls attention to *hypermediacy* and *immediacy*, or the ways in which "[o]ur culture wants to both multiply its media and to erase all traces of mediation" (Bolter & Grusin, 2000, p. 5). From the standpoint of remediation, navigating and understanding digital innovation is a matter of tracing the metaphorical representations that supposedly drive this multiplication of media, all the while presuming that what may appear to be immediate is actually a subtle representation/collage of established media forms. Noting the different logics that propel grammatization and remediation leads to a very pragmatic realization: whereas grammatization puts histories and theories of writing (qua gramme) at the epicenter of digital innovation, in a manner that links nuclear traits of writing expansively with the becoming of contemporary technologies, remediation funnels any understanding of new media to neatly codified definitions of what writing has been, what film has been, what television has been, etc.

In light of this difference, grammatization seems to better complement ongoing work in digital rhetoric that aims to rethink the basic terms of classical and modern rhetorical theory. Moreover, complementary to related efforts demonstrating the technological dimension of traditional rhetorical principles and writing genres, a comprehensive grasp of grammatization puts rhetoricians in a better position to root out retrofit appeals by scholars who insist upon approaching and evaluating digital practices via assumptions and values presumed to persist in spite of technological change. A foundational text for both of these theoretical initiatives, Brooke's (2009) book *Lingua Fracta* critiqued research across rhetoric and composition that sought to apply Bolter and Grusin's concept of remediation as an explanatory framework. Like the historical narratives that pervade comparative media studies,<sup>7</sup> rhetoric and composition scholarship guided by the premises of remediation seeks out an earlier medium to function as a point of origin from which to understand a newer medium. In this sense, Brooke (2009) argued, "[remediation] defers [the question of a new media rhetoric] to older media" (p. 19). By contrast, grammatological analogies, which juxtapose the history and technics of writing with the present state of digital media, refer to older media with the aim of pinpointing: 1) disruptive or unprecedented aspects of emerging technologies, and 2) urgent tasks for theorists and practitioners concerned with

<sup>7</sup> Terms like *remediation*, *convergence*, and *technogenesis* are often put into the service of mere academic exercises. One delves into the historical circumstances of an older medium in order to show that, in fact, something was developed in this older medium that is vaguely fundamental to the basic operations of contemporary digital technologies. We learn that the jacquard loom and the difference engine were among the first machines to employ binary code based on sheer presence and absence; that telegraphy anticipates the shift from natural language to increasingly complex and artificial code groups, which have since become endemic to the modern computer (Hayles, 2012, p. 142). But these history lessons—these myths of origin—do not reveal much about new media. Indeed, critiques could be level against this mode of comparative media studies similar to the one Derrida (1997) leveled against early historians of writing such as I. J. Gelb: the researcher enters the history of technical evolution with the intent to trace older media operation to a conventional understanding of new media, which in turn yields little insight into what is new about new media.

the cultural development of such technologies. Comparing different processes of grammatization becomes a generative ground for conceptual invention, not a means of legitimating a myth of origin.

As a theory and a method, grammatization counters the intellectual limits Brooke associated with rhetorical applications of remediation. Brooke (2009) concluded that remediation worked best when scholars were dealing with “combinations [of media] that have already occurred and acquired some degree of cultural stability” (p. 21). This penchant to look for the old in the midst of the new, this failure to account for transformative dimensions of contemporary techn(ont)ologies, is one of the reasons why the field, as Brooke showed, has been quick to see the affordances of digital writing environments in the image of traditional academic genres—a maneuver that reinforces the value of rhetorical frameworks rooted in the discursive economy of print and therefore “prevents or forestalls any exploration of how [new media] might differ from more familiar, traditional media” (Brooke, 2009, p. 21). By contrast, grammatization thrives as a generative heuristic for studying emerging media that are ripe with indetermination and radically open to cultural development. Grammatization reflects on the history of writing and technology, qua the technics of writing, in order to gain insight into new units of analysis and production emerging across heterogeneous innovations in new media—which digital rhetoric must account for before it can claim to invent practices of new media.

To illustrate these critical differences, I move to show how two remediation-oriented analyses of YouTube compare to Stiegler’s recent examination of the platform. The procedure will be to point out the older media to which the former scholars defer the question of YouTube’s rhetoricity (while noting the insights they offer), then to highlight the shift in gramme manifest by online video platforms that is revealed in Stiegler’s research—and to indicate how this realization complements and complicates the remediation studies of YouTube. Again, according to the remediation framework, to understand an emerging medium is to trace its genealogy, to note the ways in which it inherits and re/presents the technical, social, and expressive dimensions of previous media. In keeping with this logic, digital rhetoricians often appeal to remediation in order to contextualize the emerging composing practices of new media authorship associated with (or potential to) certain kinds of multimedia software. Here, the question of how to create digital content becomes foregrounded, whereas such concerns are often marginal and underdeveloped in the work of media theorists.

As such, remediation rhetorics tend to focus on the genealogy of creative practices associated with different forms of media; the chief objectives are to indicate the rhetorical value of previous genres and concepts, as well as to think through some ways in which those genres and concepts might be productively reconfigured in light of emerging conditions. For example, Justin Hodgson’s (2010) article “Reculturalizations: ‘Small Screen’ Culture, Pedagogy, and YouTube” appropriated keywords from the critical vocabulary of film studies and repurposed them as rhetorical terms fit to the objectives of multimedia composition pedagogy (e.g., teaching students how to “write with video”). His essential heuristic throughout the article was to liken filmmaking techniques such as transitions and fades to composition practices more typically covered in writing courses. Fading to black, in between clips or at the end of a piece, constitutes “a video ‘writing’ ellipses of sorts” (Hodgson, 2010, p. 11). A two-fold pedagogical benefit is evident in this tactic. One’s fluency with grammatical conventions and stylistic devices normally associated with print texts constitutes pragmatic entryways into composing with video; conversely, students who are more familiar with or interested in video-based fades than print-based ellipses can hereby transpose their awareness of the former onto the latter. Valuable and efficient as this technique is for the classroom, Hodgson’s essay failed to deliver on its own imperative to invent new concepts designed to inform rhetorical practices in digital environments like YouTube.

Though Hodgson (2010) declared, “composing is radically changing in relation to ‘small screen’ culture” (p. 4), his attempts to locate and specify the nature of this change only referred back to qualities already prevalent in print media. His initial assertion that, with YouTube, rhetorical invention becomes a matter of remixing and composing with found materials is later neutralized by his comment, harking back to Derrida’s notion of citationality, that this ongoing engagement with found materials has been “the condition of and academic practice associated with alphabetic texts for quite some time” (Hodgson, 2010, p. 8). Similarly, his point that, in addition to speech and alphabetic writing, rhetorical figures are also at work in images has been observed by scholars studying visual media as early as Renaissance painting.<sup>8</sup> Because this mode of comparative analysis revels in points of convergence—without attempting to develop any radical distinctions between the writing/media technologies in question—the article purported a general equivalence, equating the production and analysis of online video with the composing conventions of established forms, genres, and practices.

<sup>8</sup> See Michael Baxandall’s *Giotto and the Orators* (1986).

Whereas Hodgson imported the language of film studies into composition pedagogy to support rhetorical invention in video writing, Virginia Kuhn (2010) targeted copyright policies associated with YouTube's content identification system that have stunted the circulation of her students' projects. Her article "The YouTube Gaze: Permission to Create?" countered the idea that Web 2.0 platforms are completely amenable to the individual user and the content s/he creates. In fact, citing Foucault, Kuhn (2010) asserted that YouTube functions as a digital panopticon—a twenty-first century remediation of Jeremy Bentham's infamous prison design. Pressured by media conglomerates, YouTube maintains an automated system to monitor video content for instances of copyright infringement. Beyond simple copyright protection, Kuhn (2010) argued that the system's omnipresent and opaque nature carried atmospheric ramifications as "a form of surveillance and censorship" whereby "producers begin to check themselves, censoring their own digital expression" (p. 1). Because students' ability to cite and remix existing footage is intrinsic to media literacy education (and typically recognized under fair use policies), Kuhn urged teacher-scholars to join the fight to "disarm the YouTube gaze and intervene in issues of digital expression," so that public discourse on the site may become more robust and critical, and that it might in turn establish a commendable precedent for other online platforms (p. 13).

Hodgson and Kuhn's respective inquiries are valid and both clearly establish worthwhile initiatives for digital rhetoricians to pursue; however, in professing remediation, they bypass some fundamental considerations that elide the more familiar issues toward which they gravitate. Hodgson demonstrated the applicability of film studies' canonical terms to the emerging pedagogy of video writing; Kuhn elucidated YouTube's panoptic fidelity to traditional broadcasting entities. In each case, the basic units of production and analysis were not questioned. Granted, the language of YouTube's interface remediates that of mass media, creating the impression that, as a registered user, you have a "channel" through which you can "broadcast yourself." But Kuhn's emphasis on these terms distorted the platform's grammatological constitution: uploaded videos occupy an entirely different media ecology than that of broadcast television. Uploaded videos do not carry the same currency as broadcast programs—you cannot benefit from bottom-up production and then expect to have top-down control over the media you have produced via remixing other found footage. In objecting to the control exerted by mass media entities, Kuhn herself seemed to reinscribe a proprietary ethic in the process, namely in her desire to command her own videos as if they were broadcast programs, protected from certain interventions in the manner of a view-only channel. In this sense, her plea for free expression was also a request for control, as if to curb the authority of traditional broadcasting networks while absorbing the broadcaster's author functions. Here, we can identify a problem with approaching online video through the lens of remediation: by anchoring YouTube in the view-only, proprietary culture of mass media, Kuhn harbored attitudes toward her own (students') videos that resembled the system she meant to circumvent. Likewise, while Hodgson's borrowing of terms from film studies was a helpful way to jumpstart discussions of video in the composition classroom, this pedagogical strategy could have easily lead students to believe that making videos for the Web was basically equivalent to film-making. As Stiegler's (2010b) alternative analysis of YouTube suggested, uploaded videos are not films any more than they are broadcast television programs. Online video platforms found a new unit of analysis and production, a new gramme.

### 3.1. YouTube as a process of grammatization

What are we really studying, then, when we study YouTube or any other digital writing/media technology? In Stiegler's 2010 essay "The Carnival of the New Screen," YouTube functioned as a node with which to establish an analogical network for tracing the emergence of techniques transversal to any single brand of hardware or software. On the basis of grammatization, to study platforms like YouTube was to study a momentary "stabilization of technical evolution," an iteration of arche-writing (Stiegler, 1998, p. 31). As such, Stiegler (2010b) treated YouTube as a cipher into the broader emergence of a new gramme. The cultural and conceptual resonance (and dissonance) between networked video sharing and parallel situations along an orthographic continuum propelled the invention/discovery of the new gramme and also channels remarked on its significance of as a distinct unit of production and analysis.

To begin, Stiegler described YouTube as the culmination of a grammatization process initiated by home video (i.e., VCRs) and intensified by the spread of personal camcorders during the 1980s. References to these technologies entered his discourse as markers indicating crucial benchmarks in the general public's evolving relationship with what he called "audiovisual temporal flux" (i.e., flows of moving sound-images). VCRs in the home allowed people to navigate moving images; these simple operations now taken for granted (e.g., pause, rewind, mute, etc.) were

basic conditions necessary for “the appearance of a more reflective and less consumerist gaze” (Stiegler, 2010b, p. 41). Of course, personal camcorders and Web 2.0 platforms bring increased access to production, distribution, and promotion—one can feasibly record footage at will and deliver it instantly to viewers across the world. The erosion of the producer/consumer split, however, was not Stiegler’s primary focus. Beyond this cliché, he was most interested in describing the technocultural conditions conducive to “the production of a *new kind of deep attention*” and “the formation of new processes of collective individuation” (Stiegler, 2010b, p. 56). Stiegler articulated these philosophical objectives in response to popular anxieties that democracy might suffer as images take over printed texts’ traditional role as the dominant mode of expression and communication. Prominent figures from Jurgen Habermas to Al Gore have stressed the centrality of literate activities to the modern public sphere; they worried that an image-driven culture would devolve into a society of spectacle. Stiegler, too, shared these concerns, but he became more optimistic and opportunistic as he reevaluated them in light of the history of writing.

Stiegler (2010b) wagered that the grammatization process culminating in YouTube was altering our relation to moving sound-images as substantially, perhaps, as the invention of alphabetic characters changed early literate societies’ relation to spoken language. In establishing this parallel, Stiegler was not imploring us to see YouTube in the image of phonetic alphabets; rather, it was imperative that we keep the technical invention and cultural development of the alphabet in mind as we aim to spur the cultural development of audiovisual media for three reasons:

- 1) The invention of writing serves as a rich source of precedents to help us identify and prioritize tasks for conceptual invention relative to the cultural development of networked audiovisual media (which is still in its infancy).
- 2) This analogy provides a broader historical basis on which to assess present attitudes toward image-driven cultures.
- 3) Oscillating between each of these moments in this orthographic continuum enables us to more readily grasp the most consequential novelties manifest in emerging mediascapes.

Stiegler thus extended the scope of his YouTube analysis to include three early forms of writing: the advent of cuneiform in Mesopotamia, Egyptian hieroglyphics, and alphabetic writing in Greece. With these comparisons, Stiegler showed that the major technical inventions throughout the history of writing did not engender philosophical thinking or a culture of critical reflection immediately upon their adoption in ancient societies. Stiegler (2010b) claimed that “in its first stages of development, writing doesn’t produce any reflexivity” (p. 44), as he pointed out that cuneiform was performed exclusively by an elite class of scribes whose primary tasks focused on accounting and administrative recordkeeping.

Eventually, though, these systems of notation and inscription—as they evolve toward abstraction, efficiency, and phonetization (as noted in Section 2)—become the basis of “the regime of psychic and collective individuation that makes the appearance of the law as such possible” and provide the necessary conditions for democratic citizenship and bodies of knowledge such as geometry, history, philosophy, rhetoric, and logic (Stiegler, 2010b, pp. 44–5). What this historical commentary suggests, when considered in the context of digital video platforms born during the Web’s second decade, is that new habits of mind and forms of expression will arise (through experimentation and cultivation) as audiovisual networks continue to develop. For Stiegler, the urgent question that new media scholars must face up to now—which he again derived from the analogy to early writing—is this: what circuits of psychic and collective individuation might facilitate the cultivation (or revitalization) of deep attention, deliberative democracy, and intergenerational exchange in today’s permanent innovation societies?

YouTube—or, more accurately, the process of grammatization we can ascertain from its emergence—shows that electronic and digital media have not hopelessly handed over culture to the culture industry. In short-circuiting processes of collective individuation, the consumerist model of the cultural industry is the threat to democracy—not audiovisual production in and of itself, which is ultimately a *pharmakon* (Stiegler, 2010b). Indeed, these new technologies appear to be evolving in ways similar to those of alphabetic writing; from the introduction of home video to today’s digital video networks, more and more people can break down, manipulate, annotate, and revise flows of audiovisual media. Moreover, the bottom-up production of metadata introduced in Web 2.0 platforms displaces the cultural industries’ “calendar organization for program access,” which to a large extent shaped the calendarity of mass media cultures (Stiegler, 2010b, p. 52). Instead, platforms like YouTube offer on-demand access to *stocks of footage*, as opposed to “the *flows* of programs that constitute radio and television channels” (Stiegler, 2010b, p. 52). Stocks of footage are the new gramme supported by audiovisual media sharing networks—the rhetorical unit available for general analysis and composition. In fact, flows of programs are not and never were a gramme in this sense because they short-circuit the

interlocution that is “the life of language” (Stiegler, 2012b, p. 483). Before platforms like YouTube, the audiovisual temporal flux was experienced largely as a medium without gramme, much like writing during the conditions of scribal culture. In both cases, productive and reflective participation was extremely limited due to the complexity of codes and a scarcity of technical resources. The technocultural development of a new gramme (e.g., alphabetic characters, stocks of footage) is what transforms the medium into an everyday social practice, a cherished mode of aesthetic experience, and an essential vehicle of deliberative democracy.

#### 4. Conclusion: Grammatization beyond Stiegler

Although Stiegler identified this grammatological shift from flows of programs to stocks of footage, he did not consider the rhetoricity of the latter. This is where digital rhetoricians might take up the question of grammatization beyond Stiegler. While it may be sufficient for media theorists to broadly describe the historical and cultural significance of emerging media technologies, rhetoricians must push the issue toward production. What does it mean to compose with this new unit, this new gramme? Contrary to flows of programs, stocks of footage operate more like alphabetic characters and words, in that they, too, possess what Derrida called the nuclear traits of (arche-)writing: iterability, citationality, structural absences, etc. In this respect, describing YouTube as a process of grammatization entails the remediation of alphabetic writing qua the logic of supplementarity (not to be confused with Bolter and Grusin’s emphasis on hypermediacy and immediacy). But the alphabetic analogy also clues us in on an important difference: audiovisual stocks are infinite. From ideograms to phonetic letters, early writing marched toward abstraction and economy, progressively chiseling away at the imagistic correspondence between the written signifier and the visual context of its signified. Eliminating the trace of these visual correspondences, and reconfiguring letters around sonic rhythms, was the key to creating a finite alphabet that was small enough to carry a gentle learning curve and flexible enough to support a multitude of exigencies. Networks of audiovisual stocks, by contrast, are expansive and singular; they preserve the very semiotic indexes that finite alphabets efface and, more than film or photography, position each audiovisual stock for general interlocution. Granted, audiovisual media production relies on well-worn conventions recycled from other composition practices; still, recognizing the gramme of this techne as stocks of footage lends added perspective to our rhetorical activity. Through YouTube, one works with and combines ready-made, discrete elements to create definite rhetorical or aesthetic sequences—but the set of audiovisual characters remains open, concrete, and unlimited. To upload a video is both to create a finite sequence *for viewing* and to add new characters to the available means of audiovisual stock *for writing*. This same double value carried by stocks of footage in YouTube can be observed in a multitude of other digital video, audio, and image networks.

As one of electracy’s emerging gramme, audiovisual stocks and the rhetoricity they afford are constitutive of seemingly disparate interfaces and a wide range of social practices elemental to digital cultures. On the basis of grammatization, as the YouTube example suggests, close analyses of particular new media platforms can ultimately produce concepts and insights that resonate beyond the hype cycle of those platforms. The platform is studied as a cipher into the broader evolution of technocultural processes and forms, the metonymic invention of new gramme accruing through the breakdown of more established gramme. Amid permanent innovation, grammatization orients rhetorical inquiry around disjunctive intersections between the history of writing/media technologies and contemporary technics, in addition to the family resemblances that anchor the remediator’s investigation around points of origin and inheritance.

Furthermore, because Stiegler’s orthographic continuums extend the logic of supplementarity to all forms of technics, grammatization extends the sphere of grammatological inquiry to phenomena that, while not traditionally associated with acts of communication or memory, are nonetheless entering the scene of writing as we continue to install computation and Internet-connectivity into a multitude of everyday objects (e.g., phones, watches, glasses, cars, magazines, etc.). Indeed, digital rhetoricians who move to consider the implications of the coming technocultural paradigm (i.e., ubicomp) would do well to consider Stiegler’s premises concerning the formative interplay between gramme and gestures, media and bodies, and technology and geography. This emerging class of interfaces differs from desktop predecessors in kind, not only in degree: neither a myth of origin nor an epochal notion of “the interface” will sufficiently prepare digital creatives tasked with composing multimedia for tomorrow’s post-desktop media ecologies. Identifying grammatization processes unique to contemporary technics, from YouTube to ubicomp, can give us a more distinct and differentiated sense of the manifold information flows that constitute digital cultures, as well as the new units of composition available to rhetors in the age of electracy.

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## References

- Baxandall, Michael. (1986). *Giotto and the orators: Humanist observers of painting in Italy and the discovery of pictorial composition*. New York, NY: Oxford University Press, USA.
- Bolter, Jay. (2008). Remediation and the language of new media. *Northern Lights*, 5(1), 25–37.
- Bolter, Jay, & Grusin, Richard. (2000). *Remediation: Understanding new media*. Cambridge, MA: MIT Press.
- Brooke, Collin Gifford. (2009). *Lingua fracta: Towards a rhetoric of new media*. Cresskill, NJ: Hampton Press.
- Crogan, Patrick. (2010). Bernard Stiegler: Philosophy, technics, and activism. *Cultural Politics*, 6(2), 133–156.
- Derrida, Jacques. (1978). Freud and the scene of writing (Alan Bass, Trans.). In Jacques Derrida (Ed.), *Writing and difference*. (pp. 246–291). Chicago, IL: Chicago University Press.
- Derrida, Jacques. (1988). *Limited inc.* (Jeffrey Mehlman and Samuel Weber, Trans.). Evanston, IL: Northwestern University Press.
- Derrida, Jacques. (1997). *Of grammatology*. (Gayatri Chakravorty Spivak, Trans.). Baltimore, MD: Johns Hopkins University Press.
- Frabetti, Federica. (2011). Rethinking the digital humanities in the context of ordinary technicity. *Culture Machine*, 12, 1–22.
- Goody, Jack. (1977). *The domestication of the savage mind*. New York, NY: Cambridge University Press.
- Hansen, Mark. (2004). ‘Realtime synthesis’ and the différance of the body: technocultural studies in the wake of deconstruction. *Culture Machine*, 6. Retrieved from <http://www.culturemachine.net/index.php/cm/article/view/9/8>.
- Havelock, Eric. (1963). *Preface to Plato*. Cambridge, MA: Harvard University Press.
- Hayles, N. Katherine. (2012). *How we think: Digital media and contemporary technogenesis*. Chicago, IL: University of Chicago Press.
- Hodgson, Justin. (2010). Reculturalizations: “Small screen” culture, pedagogy, & YouTube. *Enculturation*, 8. Retrieved from <http://enculturation.net/reculturalizations/>.
- Johns, Adrian. (2004). Foreword. In J. Ong Walter (Ed.), *Ramus, method, and the decay of dialogue: From the art of discourse to the art of reason* (pp. i–xiii). Chicago, IL: University of Chicago Press.
- Kuhn, Virginia. (2010). The YouTube gaze: Permission to create? *Enculturation*, 8. Retrieved from <http://enculturation.net/the-youtube-gaze>.
- Pachal, Pete. (2013). Report: Apple board ‘concerned’ about pace of innovation. *Mashable*.. Retrieved from <http://mashable.com/2013/08/09/apple-innovation/>.
- Roberts, Ben. (2006). Stiegler reading Derrida: The prosthesis of deconstruction in technics. *Postmodern Culture*, 16(1).
- Robertson, Benjamin. (2013). The grammatization of scholarship. *Amodern*, 1. Retrieved from <http://amodern.net/article/the-grammatization-of-scholarship>.
- Sánchez, Raul. (2005). *The function of theory in composition studies*. Albany, NY: State University of New York University Press.
- Stiegler, Bernard. (1998). *Technics and time, 1: The fault of Epimetheus*. (Richard Beardsworth & George Collins, Trans.). Stanford, CT: Stanford University Press.
- Stiegler, Bernard. (2009). *Technics and time, 2: Disorientation*. (Stephen Barker, Trans.). Stanford, CT: Stanford University Press.
- Stiegler, Bernard. (2010a). Memory. (Mark Hansen, Trans.). In W. J. T. Mitchell, & Mark Hansen (Eds.), *Critical terms for media studies*. (pp. 64–87). Chicago, IL: University of Chicago Press.
- Stiegler, Bernard. (2010b). The carnival of the new screen: From hegemony to isonomy. In Pelle Snickars, & Patrick Vonderau (Eds.), *The YouTube reader*. (pp. 40–59). Stockholm, Sweden: National Library of Sweden.
- Stiegler, Bernard. (2011). *The decadence of industrial democracy*. (Daniel Ross, Trans.). Malden, MA: Polity Press.
- Stiegler, Bernard (2012a, April 26). On Friedrich Kittler. *Bernardg.com*. [Audio podcast]. Retrieved from <http://bernardg.com/podcast/bernard-stiegler-mark-hansen-and-wjt-mitchell-friedrich-kittler-episode-7>
- Stiegler, Bernard. (2012). Teleologies of the snail. In Ulrik Ekman (Ed.), *Throughout: Art and culture emerging with ubiquitous computing*. (pp. 479–492). Cambridge, MA: MIT Press.
- Tinnell, John. (2012). Post-media occupations for writing theory: From augmentation to autopoiesis. In I. Dobrin Sidney (Ed.), *Ecology, writing theory, and new media: Writing ecology*. (pp. 122–142). New York, NY: Routledge.
- Ulmer, Gregory L. (1985). *Applied grammatology: Post(e)-pedagogy from Jacques Derrida to Joseph Beuys*. Baltimore, MD: Johns Hopkins University Press.
- Ulmer, Gregory L. (2012). *Avatar emergency*. Anderson, SC: Parlor Press.