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Methodological Nearness and the Question of Computational Literature

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Abstract

The rise of the use of computational methods in both the study and production of literature poses questions about how to best read works of electronic literature which engage a wider sphere of human context beyond the literary text itself. Taking a cue from modes of "distant reading" that have taken advantage of computational methods in order to pursue empirical and sociologically-influenced readings of traditional textual corpora, the liminal case of "ambient literature" is examined. As a form of electronic literature developed out of the field of ubiquitous computing, ambient literature presents a literature which is intimately connected to the situation of the reader, offering a text whose meaning is both variable and specific to the conditions of its engagement. Having confronted analogous issues in other domains, traditions of research in human-computer interaction offer methodological insight into how such works might be read. Developing an account of how literary texts may be read from a distance through user studies, an ethnomethodological analysis of the experience of these hybrid works of electronic literature is advanced. By drawing connections between literary studies and human-computer interaction, new methods which focus on the analysis of the experience of multiple readers as they encounter works of electronic literature establish opportunities for future research into the contextual, embodied, and computational nature of literature today.

Andrew Piper starts a recent article on the computational modeling of plots in modern novels by wondering aloud, "What would it mean for a novel to turn us as we turn its pages? How are we not simply moved, but transformed — turned around — through the novel's combination of gestural and affective structures?" [Piper 2015, 63]. In wondering this, he is pre-figuring his own argument linking the development of new computational methods for literary analysis to new forms of literary understanding, that the possibilities offered by computerization toward the re-imagination of the shape of literary works might influence our appreciation of what literature is. What I want to do in this article is to radicalize Piper's assertion that "technology impacts argument not solely through the new truths it produces, but also in the ways it changes our affective attachments to the texts that we read" [Piper 2015, 93]. I want to do so by examining the entangled prospects for both literature and the analysis of literature as posed by the rapid uptake of computerization in both the analysis and, importantly, the production of new kinds of literary texts. What I want to propose is that the computational and algorithmic basis that is shared between distant reading and new forms of electronic literature instigates interlocking epistemic and methodological problematics for each. In each, there is a necessary re-appraisal of the critical distances at work, both as they are actively employed by readers, but also as they are afforded by the texts. 1

As a recent focus section of an issue of *PMLA* [Dimock 2017] shows, there is a sustained interest in the diverse epistemic possibilities afforded by the collection of methods grouped under the banner of "distant reading." While there is no specific definition of what distant reading means (even within Franco Moretti's influential account, several distinct approaches are taken up), it can today be most identified with a range of approaches (such as network analysis, topic modeling, and word vectors, among many others) that examine literature or text in general according to both its meaningful and informational properties [Jänicke et al. 2015]. As Ted Underwood details, the kinds of stereotypical algorithmic and computational approaches identified with distant reading are not just the result of the rise of computerization, but are undergirded by a longer and more deeply set connection to sociological approaches to the study of literature: what has been termed distant reading comes to support more than just a quantitative explanation of works, but comes to make possible a layered approach to the interpretation of literature, with analysis supported 2

through a variety of secondary modes of reading [Underwood 2017] [Bode 2017]. The computerization of the study of literature that is linked to distant reading is less about foreclosing possibilities than opening the way for new kinds of readings drawn in from other traditions.

At the same time, however, that advances in computational technique have made new modes of literary analysis viable in regard to a wider set of questions, they have also made possible new kinds of electronic literature which pose a series of challenges to these computational and algorithmic approaches. Such literary forms (ranging from transmedia branching narratives to locative literature) incorporate computational techniques which augment the physical form of the book and welcome a host of dynamic and extra-textual aspects into literature. These literatures, more than just sharing a computational foundation with advances in distant reading, also, like distant reading, explicitly invite a sociological accounting of their function. The case of “ambient literature” [Dovey 2016] — which utilizes techniques developed in the field of ubiquitous computing [Weiser 1991] in order to create explicit and dynamic links between the digital literary text and the lived context of the reader — offers an opportunity to examine the limits of both old and new approaches to literary analysis. As a liminal case, this loosely defined set of literary practices invites new methodological approaches which evoke new critical distantances for the study of literature and computerization. 3

Using both distant reading and the challenges posed by something like ambient literature as a guide, this article argues that the developing influence of computerization necessitates a re-consideration of what reading can mean in the study of literature and that methods developed in HCI offer a model for what these new forms of reading might look like. In advancing an approached derived from the ethnomethodological analysis of computing, what is detailed here is an account of reading dynamic and conditional electronic texts through an analysis of how individual readers come to experience and make sense of the texts. In this way, this paper draws on the sociological foundations of distant reading and its sense of a mediated engagement with literature as a guide for helping to consider the contemporary entanglement between literature and computing. 4

The Case of the Unreadable Text

In order to frame the methodological challenge raised by a computational literature, let's quickly look at two distinct examples of works which might be characteristic of ambient literature. The first is a work by Duncan Speakman, *It Must Have Been Dark By Then*, which by using a smartphone app, a pair of headphones, and a physical book, invites readers to follow a path through the city that is partially of their own design, and partially algorithmically constructed by the app. Through audio presented by the application, readers hear stories about contemporary changes to the landscape and are directed to read passages from the book which intersect with the stories being told in the audio. The experience of the work comes in the way that readers are encouraged to examine the world around them, tracing the resonances that are instigated by the relationship between their particular surroundings and the accounts of migration and landscapes altered by climate change and shifting social organization. In this, the stable linguistic text of the work is augmented by the arbitrary (yet still specific) surrounding within which each individual reader is algorithmically guided by the application. As the implications of the work rely on the particular confluence of the stable text with the specific surroundings of the reader, there is never a possibility for a single canonical reading of the text, only for the specific and particular encounter of any given reader. Each reader’s own location within a wider geographical terrain of human infrastructures has a bearing on the text of the work. 5

The second example to be discussed here inverts this relationship between the stability of the text and the algorithmic exchange with the situation of the reader. Based in a smartphone’s mobile browser, Kate Pullinger’s *Breathe* is an online work that presents a reader with a narrative text that is dynamically altered based on when and where the work is read. The conditional text of the narrative changes with each reading, depending where the reader is, the time of day, the season, and so on. Developed in partnership with Google’s Creative Lab in Sydney, the work relies on a number of different APIs to draw information from a range of databases into the work, based on the context of the reader. As time passes, databases are updated with new information, or the reader changes location, the text of the work is altered. It presents a literary text that is bound up with the living conditions of the socio-technical networks within which the reader is enmeshed. 6

Both of these works, each in their own way, presents a kind of text that is “unreadable” to the literary critic. No one person is ever given access to all the versions of the text, nor does there necessarily exist some account of all the possibilities. They are not just algorithmically unavailable, as in the case of combinatorial works like Raymond Queneau’s *Cent mille milliards de poèmes* which presents a text which, for *practical* purposes, is infinite, but these are works which are physically unavailable, with the imagined reader never having access to the possibility of the range of variance of the text. On the one hand, Speakman’s work opens the “text” of the work up to whatever surroundings are offered by the location of the reader, welcoming the physical infrastructure of the world to be included in the reader’s experience, whatever that infrastructure might be. On the other hand, Pullinger’s *Breathe*, in its reconfiguration of the text proper based the location, time, and day of reading, presents an almost infinite number of possible readings, each linked to the specific conditions of the reader. In each case, the work itself comes as a compound of the authorial text, the presence and situation of the reader, and the kind of algorithmic work which mediates between them. For *It Must Have Been Dark By Then*, the situation of the reader is defined by their physical presence with their movements through space guided by the application, while in *Breathe*, this situation is derived as the piece pulls information from databases to complete the work. These are texts that, in their algorithmic adaptation to the particular and specific conditions of the reader, resist an authoritative reading, computationally assisted or otherwise. 7

Reading Computerization

As evidenced by the case of ambient literature, the forms of the works we read, and how we read them, have been changed by the possibilities offered by computerization. This totalizing view of the computational turn in literature in the 21st century is one put forward by N. Katherine Hayles who writes that “literature in the twenty-first century is computational. . . . almost all print books are digital files before they become books; this is the form in which they are composed, edited, composited, and sent to the computerized machines that produce them as books” [Hayles 2008, 43]. There is almost no literature produced today that is not implicated by computerization. 8

Further to this, the analytic challenges of the rise of computational methods for the work of literary analysis are not just for those working with specifically computational methods in the digital humanities. The influence of computing goes beyond the practical consideration of how books are made and has come to inflect every aspect of literary research. As J. Hillis Miller has put it: “The whole minute to minute process of my professional life as a student of literature has been utterly changed by the computer in a few short years” [Miller 2007, 16]. In saying this, he is referring to the everyday availability of email, word processing, electronic documents, databases, and so forth — changes that coincide with and helped to spur the explosion of interest in the digital humanities. As Hoyt Long and Richard Jean So note (echoing [Underwood 2014]) regarding the prevalence of the invisible algorithmic substrata of academic work: “Each time we enter a search term into Google Books or some other digitized corpus, we are interacting with these algorithms” [Long and So 2016, 236]. 9

For literary studies, the rise of distant reading presents one prominent expression of the ubiquity of computerization. Closely identified with the work of Franco Moretti [Moretti 2013], distant reading is focused on the experimental[1] analysis of most often large and generally quantitative sets of data derived from various corpora or individual texts. It is important to keep in mind that, as Andrew Goldstone has pointed out, while it may today be usually taken to refer to a computational approach, Moretti initially described distant reading as making use of “a patchwork of other people’s research, without a single direct textual reading” [Goldstone 2017, 48]. 10

As much as it has been helped by the rise of computational methods, distant reading is not synonymous with the digital humanities. As Underwood argues [Underwood 2017], the origins of distant reading can be traced to an era of pre-digital research, with a line able to be drawn from Janice Radway’s [Radway 1984] sociological study of the actual experience of readers of romance novels to the present computationally-enabled methods. For Underwood, what serves to undergird distant reading is its commitment to analytic techniques developed out of quantitative sociology more than the digital humanities (or as it was previously known, “humanities computing”). In this, more than an appeal to any kind of computational underpinning, distant reading puts forward a call for a “scientific” and evidence-based analysis of literature such as was and still often is the aim of sociology.[2] 11

Whatever the final methodological outcome for distant reading as it is applied to various new kinds of literature might be, what is clear is the end result of such methods is an empirical one. As Moretti put it in a response to Geoffrey Winthrop-Young's [Winthrop-Young 1999] review of some of his earlier, pre-distant reading works: "'Possible' does not mean 'probable,' or 'actual': here, too, empirical research must have the last word" [Moretti 1999, 42]. That is, distant reading is concerned with the facts of what is actually there, a concern highlighted by Moretti's [Moretti 2000] attention to the importance of being able to plumb what Margaret Cohen [Cohen 1999] termed the "great unread" body of literature that remains untouched by literary analysis. 12

In this way, despite following Lawrence Rainey's dictum, "the best reading of a work may, on some occasions, be one that does not read it at all" [Rainey1998, 106], distant reading actually has much in common with the New Critical close reading which sought to analyze only the evidence from the text itself. Each have an affinity for the analysis of only that which is actually present in a text and eschew the inclusion of exterior facts as part of the central claims of their respective empirical efforts [Bode 2017]. The claims of computational veins of distant reading rest on empirical evidence from the text itself that may be "transformed from the continuous flow of our everyday reality into a grid of numbers that can be stored as a representation of reality which can then be manipulated using algorithms" [Berry 2011, 2]. With the quantization of the literary object into discrete units able to be managed as part of an information processing system [Berry 2011], for distant reading, the literary text is able to be treated as a document (or collection of documents) [Liu 2009] to be analyzed according to any number of varying schema which often include characteristics of both close and distant reading [Jänicke et al. 2015]. The work of computational analysis becomes the evidential framework from which the analysis of literature works. As Ryan Heuser puts it in a discussion of the use of word-vectors in literary research: "word vectors provide the close reader with a framework, language, and method of exploring the semantic implications at work in an analogy" [Heuser 2016, 2]. As Paul Fleming puts it in describing the computational study of literature: "In this combined method, one approach does not serve as the check for the other, quasi confirming or denying its results (as the instance of final validity); rather, they recursively refine and hone each other, as in the return to one approach offers insights that, in turn, modify the other" [Fleming 2017, 440]. 13

Reading the (Post)digital

This recursive transformation of reading in light of computerization is not only instigated by methodological development. Just as computerization has popularized new methods of literary analysis, so too has it made new types of literature possible which in turn require new methodological approaches [Hayles 2008]. 14

While the whole of electronic literature is far too vast and heterogeneous to serve as a platform from which any kind of methodological claim may be made here, I want to put forward the example "ambient literature" [Dovey 2016] and use this developing form as a means to highlight the connection between literary studies and methods developed in human-computer interaction as they invoke a kind of distant reading. What makes any discussion of a general sense of electronic literature even more difficult is that what might be considered the founding and most concise definition of electronic literature that it is that which is "digital born" [Hayles 2008, 3] conflicts (as noted above) with the idea that almost all literary works today have their start in electronic form, composed on a word processor. 15

This apparent definitional contradiction leads the way toward what has been termed the "post-digital." While its status as a loose periodization discourages a specific account of its features, it is enough to say that in the ubiquity of digital means of production, the push toward the digital turns back on itself, encouraging an aestheticization of media which exceeds the kind of discrete and quantized ordering on which digital works rely, while at the same time relying on digital tools in order to both create and offer a counterpoint to such non-digital works [Cramer 2014]. Without using the term, this is something discussed by Hayles, analyzing Jonathan Safran Foer's *Tree of Codes* as an example of the ways in which the kinds of embodiment on which such post-digital works often rely confound both close and distant readings [Hayles 2013]. In this, these works resist a traditional close reading of the text as their effects extend beyond the linguistic content of the text, an experiential aspect of the work that likewise resists the kind of quantization necessary for much distant reading (of the computational sort). 16

This kind of textual embodiment and blurring of the lines between "reading" and "experience" is highlighted in the 17

conceptual formulation of ambient literature. First described by Jon Dovey in a volume on the cultural developments stemming from the rise of ubiquitous computing, ambient literature is a hybrid form of electronic literature, merging hypertext fiction, interactive fiction, and locative narratives, among other forms [Dovey 2016]. It builds on these forms in order to integrate a dynamic sense of a reader's context into the experience of reading the work through computational techniques established in ubiquitous computing.

18 Proposed by Mark Weiser, ubiquitous computing (ubicomp) projects a proximate future in which computing takes place all around us, quietly functioning in the background in order to help us in our daily lives [Weiser 1991]. Alternatively termed “ambient intelligence” or “pervasive computing,” ubicomp offers a vision of the computational world in which mundane tasks are relegated to the background of experience, allowing human actors to engage in important, creative, and enjoyable activities without having to be interrupted by the complexities of computer interfaces.[3] It is computing that is woven into the fabric of human activity and social existence.

19 Expanding the concept of a contextual literature which responds and engages with the situation of the reader beyond a locational or immediate sense of context, works of ambient literature take advantage of the information communication networks which complement “human traffic and the flow of goods in and around our cities. These systems are large scale, city wide, national, and global; they are dynamic, responding to what people do; they integrate embodied and imaginary experiences, material, and mediating objects. In short, they begin to become complex systems, which increase our opportunities for new forms of reading and listening experience” [Dovey 2016, 140]. In this appeal to a literature that is placed within a living sociological context as part of the source for its effectiveness, ambient literature can be distinguished from other, less embedded forms of locational media or art, such as much of the work of artists like Janet Cardiff and George Bures Miller, which engages the immediate context of the audience, without drawing networked connections to a wider sphere of social action, data, and infrastructure. This is a distinction that holds for other examples of alternate reality or mixed reality works as well.[4]

20 What is important for considering ambient literature within the frame of the post-digital that bridges between electronic literature proper and the wider world is that, as Dovey puts it, it examines “what might happen when data aspires to literary form. It asks how can situated literary experiences delivered through pervasive media systems produce moments where the individual reader or listener is repositioned and offered new ways to experience and understand their moment within the complexity of the urban informatic flow?” [Dovey 2016, 140]. In this way, ambient literature offers the literary analog to distant reading: it is not an informationally-grounded analysis of literature, but an informationally-grounded literature.[5] Just as distant reading might build upon a foundation of information processing, but still rely on the scholarly work of interpretation,[6] works of ambient literature build on this informational setting while still remaining firmly and primarily textual (as distinguished from games, which are “not primarily textual”[7]). That is, as much as they are activated by the presence and context of the reader as they read the works as part of a wider socio-technical field,[8] these works rely on the literary text in order to evoke the reader’s entanglement within this field.

21 As Hayles puts it: “When a literary work interrogates the inscription technology that produces it, it mobilizes reflexive loops between its imaginative world and the material apparatus embodying that creation as a physical presence” [Hayles 2002, 25]. For works of ambient literature, more than just leveraging inscription technology toward highlighting the circulation between ideas and physical presence, this “material apparatus” of the work comes to be the wider world of contemporary society and its informational infrastructures.

22 As much as works of ambient literature might be identified according to such material apparatuses, and as such might be seen to be prime candidates for a kind of ludological analysis, works of ambient literature, unlike games, do not “require us to actively manipulate their components” [Murray 2005] (paraphrasing Aarseth), with these works instead being configured by the context in which they are engaged. While there is a baseline level of interaction in works like *Breathe* or *It Must Have Been Dark By Then*, the experience is shifted by the situation of the reader more so than any active interaction.[9]

23 While it is possible for the features and characteristics of the text of works of ambient literature to be enumerated as part

of a critical analysis, or individual reports of an individual experience might highlight an example of how a work may play out as in traditions of ludology, there remains a challenge as to how it is possible to begin to approach anything like an empirical analysis of these works as a whole as they come to include the experience of the reader in them. At the heart of this problem lies ambient literature's status as a kind of "writing for probability" [Dovey 2016, 150] that "depends on ambiguity" [Dovey 2016, 152]. The vast field of situated context which a work of ambient literature might potentially encounter (and thusly incorporate into its meaning) leaves a wide berth open to multiple interpretations.

24 These are works which share what Rita Raley identifies as the "reiterable practice" [Raley 2013, 26] of works which rely on interactive text displays, populated by contributions to the text via SMS by passing readers. Like this form of "TXTual practice", it can be possible to conceptualize ambient literature as works which are "performed in different times and places" and "might share the same structure, but they would not have the same content in the sense that external forces would shape each event differently" [Raley 2013, 26]. However, unlike what Raley describes as TXTual practice, works of ambient literature rely on the building of *tacit* communities of practice in order to shape the content of the work (through databases or the physical infrastructure of an environment), instead of the more directly evidenced "micro-communities" at work in the co-construction of digitally-mediated public texts.[10]

25 In reaching out and specifically engaging wide networks of socio-technical relations and relying on contemporary network infrastructures rather than immediate ones, these literary works repeat a question posed by Patrick Jagoda when he asks: "How do we understand networks when we treat them as forms through which people daily encounter, manage, and construct quasi-anonymous forms of being — whether the ambient reciprocities afforded by social media such as Facebook or uncertain feelings about the vicissitudes of the global economy?" [Jagoda 2016, 7]. This question concerning the "ambient reciprocities" of networks lays at the heart of ambient literature, particularly as the networks engaged by these works are not just traditional networks of people or data, but are rather broader networks of context.

26 For researchers and others trying to understand these kinds of works, what does it mean when the form of a work relies on distributed networks, unknown and uncontrollable contexts, and the interactive completion of a work by readers? This is the difficulty that poses a challenge to both traditional and computational approaches to literary research. As these works rely on the enacted context of the reader as it is embedded within wider contexts of global communication networks, in each instance, works of ambient literature are always different with different implications and different meanings. How can they be reliably read?

Reading the User Study

27 What I want to argue here is that by treating the literary object of electronic literature as much as a piece of literature as a piece of software to be interacted with, it becomes possible to engage a kind of distant reading of these unique and variable literary works. In doing so, critics are able to engage these works as the overdetermined objects they are, attending to their combined digital, historical, cultural, social, material, and textual lineages.

28 The idea of studying human interactions with computers has a rich history, one which at many points seems to mirror the kinds of changes that can be found in the shifting approaches to reading in literary studies. Starting in earnest as a form of software psychology the goal of which "was to establish the utility of a behavioral approach to understanding software design, programming, and the use of interactive systems, and to motivate and guide system developers to consider the characteristics of human beings" [Carroll 1997, 63], HCI started with an explicit attention to the empirical investigation of human behavior around technology. Taking a cue from human factors research, particularly the approach developed by the industrial designer Henry Dreyfuss, iterative user testing came to be a hallmark of the interaction design process [Dreyfuss 1955]. For HCI, it was not enough to design innovative computer systems: the design of these systems was to be guided by studies of how users actually engaged such systems, with the results from these studies feeding back into the work of design.[11]

29 Entwined with this empirical attention to human users, the history of HCI is colored by the scale and scope of its attention. Starting from concerns for how to simply get hardware to be functional and extending through a cognitive consideration of a single user at a computer terminal, toward a social space of collaborative work, and finally to the

cultural uses of computing [Kamppuri et al. 2006] [Grudin 1990], computing (and the study of interacting with computers) can be seen to expand both as computational techniques increase in sophistication and as additional domains come to be the subject of such computerization.

30 As computing spread to areas beyond specialized and expert systems, the question of how to conceptualize use beyond an individual user seated in front of a computer terminal necessitated new approaches. In a critique of the positive ontological framing of the Cartesian cognitivism used to undergird early work in HCI, Lucy Suchman proposed a situated account of cognition, saying that "behavior can only be understood in its relations with real-world situations" [Suchman 1993, 74]. That is, the context of the interaction came to be at least equally important to (if not more important than) the psychological function at work.[12] This reevaluation of the methods used in human-computer interaction research directed researchers away from (though not entirely) lab-based studies of psychology and cognition and toward more *in situ* studies. Through the use of ethnographic and other methods developed from the social sciences and anthropology, human-computer interaction research began to capture not only static, representative, and formalized information practices, but also the situated, contextual, and meaningful awareness that the movement of information itself illustrated. While HCI has continued to expand the sphere of its concerns, addressing cultural, historical, and aesthetic aspects of computation, Susanne Bødker [Bødker 2006] [Bødker 2015] has argued that these situated methods and an attention to user studies remain a valuable part of HCI research. Just as with distant reading, though the scale and scope of examination changed, the core of the enterprise stays the same.

Reading Experience

31 As has been detailed above, in Speakmans' *It Must Have Been Dark By Then,* what comes to be included in the authored text of the work is extended by the algorithmic function of the smartphone application beyond the text proper. In it, readers are asked to seek out categories of things present in their surroundings (an apartment block, a barrier, water, etc.) and to transpose the specifics discussed in the narratives onto their immediate experience. For Speakman's piece, the specific buildings, trees, horizons, people, etc. that a reader comes into contact with in the duration of the piece are fodder for literary effect, with the authorial text coming to be inscribed upon and altered by the contexts of the reader. While Speakman, as the author of the piece, remains central, the work is opened up to the particular contextual conditions of the reader.

32 In its second wave, this is the position in which HCI found itself. There was an explicit recognition that the situation of use wasn't simply determined by the specifics of the system with which users interacted. The success or failure — the meaning of system — was determined, in large part, by the other conditions of work that were present: "Even so many work situations do not consist solely of work at the desktop. Many other artefacts are used in changing configurations with and around the computer. Most user interface design has failed to recognize this, and accordingly we are still stuck with the idea that new design should replace existing artefacts, rather than exist together with them" [Bødker 2006, 1]. As John McCarthy and Peter Wright approach Sherry Turkle's examination of people's experience of the internet: "People differ in many ways, including how they integrate computers into their lives" [McCarthy and Wright 2004, 15]. The specifics of any interaction come to be determined by the situation of use and the individual history of the user.

33 For McCarthy and Wright, what comes to matter for human computer interaction is the *experience* of technology, a widening sphere which comes to include everything from "what work is and what it is likely to be; our orientation to fun and leisure; possible futures for education; boundaries between private and public, between home and work, and between knowledge and information; and even our own sense of what it is to be ourselves, people situated in an increasingly strange relationship with time, place, and other people" [McCarthy and Wright 2004, 23]. For ambient literature, the context that is brought to the work by the reader opens itself up to a similarly broad set of sociological determinations and engagements.

34 The imperative for understanding these conditions which color user engagement has been answered most often in HCI through programs of contextual inquiry [Beyer and Holtzblatt 1997] toward the aim of an ethnomethodological analysis [Button 2003] [Dourish and Button 1998]. Often coupled with an ethnographic method (identified by its qualitative, thick description of the perspectives experienced by the subjects of the study), ethnomethodology refers to the analytic

perspective of the “investigation of the rational properties of indexical expressions and other practical actions as contingent ongoing accomplishments of organized artful practices of everyday life” [Garfinkel 1967, 11]. The constitution of these indexical practices is not given by a pre-defined social structure, but is enacted by individuals who, by the efforts put into their activities, come to be “members” in common social accomplishments of intelligibility. Literature which incorporates the reader’s wider field of social being into the work can be understood to likewise engage in this work of creating social meaning.

35 Rather than being focused on the societal facts that guide social interactions, ethnomethodology focuses on the negotiation of the meaning of social interactions. Like close reading, it looks to delve into the present surface of a social text and come to understand what goes on in the processes of making such a text meaningful or effective. For thinking about ambient literature through such an analytic lens, an ethnomethodological approach is focused on the explication of the functional processes by which meaning is enacted as part of the situated context of the text.

36 In the study of ambient literature, what this means is a focus on the ways in which the text of the work and the wider contextual (social, locational, cultural, etc.) forms with which it engages come to enlist the reader in a process of meaning-making. In the attention toward the text of the work as is the aim of literary studies, there is a kind of inversion of a ethnomethodological practice in that it is here concerned with how the text writ large engages in the practical action of accomplishment rather than how individuals form social meaning. In this, an ethnomethodological approach is utilized in order to understand the function of the work, this as a work is constituted by the experience of the participant.[13] The aim is to first come to understand the manner by which the work engages in the “artful practices of everyday life” in communion with the given cultural, social, and situated context of the reader and then to come to understand the specific experience of the reader.

37 What ethnomethodology comes to offer is the opportunity to not only understand the meaningful function of works of ambient literature, but a chance to engage in a close reading of the experience of the work. It is this experience of the work that provides the proper object of an empirical study of these kinds of works. This reading is conducted through a series of “reader studies” which, modeled on user studies, offer the text up to multiple readers in order to capture their engagement with a work. These readers might be interested participants already primed for the experience of electronic literature or a more generally representative population, but what matters is that there is an attention toward the enactment of the work of ambient literature by multiple users, in multiple contexts, and on multiple occasions, with the record of their experience of the work (collected through observation of and interview with participants) coming to form the basis of a critical “reading” of the text.

38 The quasi-ethnographic methodological approach of a deep investigation of the motives, reactions, opinions, and general situation of the readers to the works supports an ethnomethodological analysis of the ways in which a work comes to make its meaning.[14] The investigation into readers’ experience of the work is not limited to what goes on in the given text, but as the text of the work itself is extended to include the wider contextual world of its enactment, the investigation must necessarily approach the mechanics of the network of factors at work that lead to the production of meaning. In this, there is an importance given to the entirety of readers’ experience of a work, including any paratext, infrastructure, technologies, or other networks which come to play a role.

39 This ethnomethodological approach constitutes a different kind of analytic reading practice in which the experience of participants is “read” as part of the study of literature. The “reading” of literary analysis comes in the form of a user study in which real readers are studied as they really engage with the texts.[15] For these works for which the ultimate text experienced by readers is unavailable, it is only through this distant method of reading the experiences of participating readers that a full picture of the work is able to be developed.

Reading Distance

40 Such an ethnomethodological approach developed from HCI follows on both distant reading’s empirical orientation, its sociological foundations, and its frequent use of secondary experiences of a text. However, ethnomethodology is differentiated from the approaches that form the early core of distant reading particularly in that it presents a largely

(though not exclusively) qualitative account of the constitution of social action rather than being founded on a largely (through again, not exclusively) quantitative description of its objects. So, while these digitally-founded works of ambient literature might elude a computational distant reading due to their explicit inclusion of an extra-textual and non-quantifiable context as part of the literary text, an ethnomethodological approach as developed from HCI is able to provide insight into these works, even as they present a variable text that is particular to the situation of the reader.

41 This method presents a hybrid approach to reading that is illustrative of combinations of interpretive and programmatic readings as found in many other examples of distant reading. It is *close* in the attention to detail and examination of the mechanics of the text (as represented in the experience of the reader), but it remains *distant* in that it is derived from information coming second hand. It is distant in that it extends its analysis beyond the text itself, but it is close in that these extra-textual aspects of the experience of the reader are part of the text itself.

42 Perhaps most provocatively, this kind of method presents a radicalization of Moretti's infamous conjecture on literature that "literary history will quickly become very different from what it is now: it will become 'second hand': a patchwork of other people's research, without a single direct textual reading. Still ambitious, and actually even more so than before (world literature!); but the ambition is now directly proportional to the distance from the text: the more ambitious the project, the greater must the distance be" [Moretti 2000, 57]. Beyond looking toward multiple existing critical engagements, we look to multiple readings of works by a number of readers. Unlike reader response theory or cognitive studies of literature which might also take on some aspect of a user study (the further development of which Hayles recommends in her account of Foer's erasure), this method of reading through the experience of other readers takes on a sociological, rather than psychological approach.[16]

43 As a mode of literary analysis, this approach is indebted to the perspective given in Peter Middleton's *Distant Reading*, where he takes a quasi-ethnomethodological approach toward a reading of the entirety of the "long biography" of a poem [Middleton 2005]. In this, Middleton's version of distant reading is distinct from something like Moretti's, while still preserving an empirical and sociological intention. Where Middleton examines the life of well known works of literature from a largely historical perspective, what I am proposing here is a fully contemporary account of present day readers and their experience of works as they exist and are enacted today. Where Middleton might rely on an analysis of existing interpretations of a work by other readers, an ethnomethodological account in the tradition of HCI research calls for an active engagement with the actual situations of the meaningful occurrence of a work. While Middleton's focus on 20th century poetry guided his approach, the challenges of the study of electronic literature require a different approach to ethnomethodological research that incorporates the influence of HCI. Nevertheless, the focus on both the really-existing conditions of a work's reception and the reliance on the experience of a work by readers remains a strong common core between these two approaches.

44 Coming to a work at a distance through a qualitative method such as ethnomethodology, it remains possible to address the "obscurity, difficulty, strangeness, and the upwelling of the unknown in a text are themselves part of the signification" [Middleton 2005, 168], allowing the question of interaction with a work to be, as Bødker had it speaking of HCI, one of "multiplicity, context, boundaries, experience, and participation" [Bødker 2006, 1]. As Brian Reed points out, the perspective developed by Middleton favors a more multifaceted account of the experience of a text [Reed 2012]. What is gained from approaching a text as an occasion for a user study is that a user study (and the approach described here) provides insight that is distinct from any single narrative. For Middleton, this "history of responses, uses, memories, expectations and other actions (much more heterogeneous than literary criticism usually acknowledges) constitutes the only singularity it has" [Middleton 2005, 5]. The same can be said of the experience of ambient literature.

Methodological Nearness

45 What makes the figure of a computational and algorithmic distant reading so striking, beyond its being embroiled with a wider span of computerization movements [Kling and Iacono 1988], is that it calls for, as Ryan Heuser and Long Le-Khac [Heuser and Le-Khac 2011] point out, a new kind of reading, a new interpretive mode by which the meaning of texts is understood. For works of ambient literature, this movement moves in the opposite direction, but is the same

move: new works of computationally derived literatures require new modes of reading. In each case, the method of reading requires proximity to that which is being examined. Largely, the distant reading of the digital humanities works to bring a vast corpus nearer, to "to pursue big questions we've always wanted to ask with evidence not from a selection of texts, but from something approaching the entire literary or cultural record" [Heuser and Le-Khac 2011, 79]. For us here, looking at these works of electronic literature which tap into the fabric of our collective data and algorithmic-obsessed lives, this method of reading the experience of a number of different readers as they come to make sense of the works brings us nearer to the transient and serendipitous nature of works which are never the same, but are always specific and not random. This mode of distantly reading an ethnomethodological account of the experience of readers, one which focuses on the implications and possibilities of the work and not the social or psychological formation, reinforces the humanistic foundations of any kind of reading.

Any empirical method of reading, or any reading that follows along a logic of semiotics, rotates on this interpretive moment. As Heuser and Le-Khac put it in their study of word vectors, it is necessary to distinguish between signals which are available to computers and the concepts that are "the phenomenon we take a signal to stand for" [Heuser and Le-Khac 2011, 81]. They go on to say that "[i]n the digital humanities, the interest and impact of our arguments are based on concepts, but computers can only measure signals, which are always smaller than concepts" [Heuser and Le-Khac 2011, 81]. In turn, they cite Dan Cohen in his assertion that for work in the digital humanities, one has to be careful in simply using the terms developed in pre-digital work: new scales of work require new concepts [Cohen 2010]. More than this, however, Lisa Marie Rhody reminds us that Moretti's invocation of distant reading enjoins us to look instead of read, with such an approach reigniting "long-standing philosophical, political, and cultural tensions in its attempt to transcend socially constructed boundaries between the temporal and spatial arts" [Rhody 2017, 661]. 46

However, here, in looking at ethnomethodology a kind of distant reading, the signals which are received from empirical research are not smaller than concepts, they are simply another layer of concept. What is received is not simply a numerical account of a phenomena (as if capturing a numerical account of anything is ever a simple matter), but a phenomenological one. In this case, the newness of the concepts required in this work of the digital humanities comes in the lattice of concepts that is developed and built, an assemblage fitting to the more widely socio-technical for of the works examined. There is an introduction of the question of scale not just as a matter of scope, but also of depth and magnitude. 47

James F. English and Ted Underwood raise this explicit question of scale as they identify a cluster of scalar constructs which serve to orient literary studies: "Certain temporal spans (century, literary period, artistic generation), geocultural categories (national literature, regional literature, diasporic or exilic literature), formal entities (protagonist, genre, individual work), and so forth supply us with the basic units we need to organize our research projects and structure our intellectual and institutional divisions of labor" [English and Underwood 2016, 277]. As they note, the history of literary studies is the story of the contraction and expansion of the scale of study, from the text itself out to the surrounding context. Where previously there might have been a call to attend to only the text of a work of literature itself, it becomes possible to see a revived "attention to the history of books and manuscripts and textual variants, to systems of print and publication, institutions of sale and circulation, practices of reading and reception" [English and Underwood 2016, 279]. For us, looking at an algorithmic literature which is able to invisibly draw in wider socio-technical networks, it becomes possible to add to Underwood and English's examples. 48

These different literary materials (information networks, data, urban infrastructures, databases, algorithms, and the specifics of their experience) bring with them both a different scale and different texture. In describing their concept of "literary pattern recognition," Long and So invoke something that "brings together close reading, cultural history, and machine learning so that they supplement one another" [Long and So 2016, 267]. In this, Long and So highlight the effectiveness of working at different scales, of the ways that these different kinds of literary textures can be felt. For works of ambient literature, as they engage the specificity of the socio-technical context of individual readers in particular and irrevocable ways, there is a call to understand the multiple expressions of these works through a distant reading of the experience of others. Just as a computational distant reading opens the patterns it reveals to interpretation, so too does a computational literature. There is a nearness to the distant method at work. 49

This nearness is on display when Andrew Piper says, in reference to the uses of computational modeling in literary analysis: “technology impacts argument not solely through the new truths it produces, but also in the ways it changes our affective attachments to the texts that we read” [Piper 2015, 93]. In many ways, this is Piper’s answer to his quoted rheumination that started the present article: “What would it mean for a novel to turn us as we turn its pages? How are we not simply moved, but transformed — turned around — through the novel’s combination of gestural and affective structures?” [Piper 2015, 63]. 50

Placing this alongside Dovey’s initial provocation of the idea of ambient literature in which such works can be seen to ask “how can situated literary experiences delivered through pervasive media systems produce moments where the individual reader or listener is repositioned and offered new ways to experience and understand their moment within the complexity of the urban informatic flow?” [Dovey 2016, 140], it is possible to chart out the links that bind not only ambient literature to a kind of distant reading, but also the affective connections that resonate across a computational field of socio-technical effect. 51

As literature comes to embrace the kinds of contextual variability made possible by ubiquitous computing, it becomes necessary to adopt new methodologies for analysis that are able to capture the embodied, situated, and experiential nature of the works. By reading electronic literature through an ethnomethodologically-oriented user study, it is possible to engage in a reading that is simultaneously close and distant, one that is founded on both the experiences of readers at large and on the interpretations of an expert reader. In doing this, in these cases, literary studies takes up a method nearer to the computational object of its attention. 52

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Notes

[1] Underwood makes the point that, as much as the work of distant reading might still differ from other empirical sciences, “the best distant readers do in practice approach their projects as experiments. (We don’t wander around aimlessly counting things.) But the experimental structure of our research is not always foregrounded when we write it up for publication. An article organized in social scientific fashion (methods, then results, then conclusions) might not be warmly received by an audience of literary critics who are used to rhetorical panache. It can be more effective to pretend that your work grew in a casually discursive, thesis driven way, and then happened to be illustrated with some scatterplots you had lying around” [Underwood 2017, par. 36].

[2] As Bruno Latour points out: “Sociology has been obsessed by the goal of becoming a quantitative science. Yet it has never been able to reach this goal because of what it has defined as being quantifiable within the social domain” [Latour 2010, 147]. As will be developed, it is perhaps even more appropriate to attempt to move away from the quantitative social sciences and adopt other sociological methods as there is in literary analysis often an effort to understand questions of the occurrence of meaning which stand beyond easy quantification.

[3] This utopian vision of ubiquitous computing was not without critique or comment. For instance [Langheinrich et al. 2002] details the economic, privacy, surveillance, and ethical implications of ubiquitous computing, [Bell and Dourish 2006] question the ultimate achievability of what was taken to be Weiser’s initial vision for ubicomp, and [Chalmers and Galani 2004] question the hermeneutic-phenomenological framing on which much research into ubicomp has relied.

[4] While a work like Erik Loyer's similarly app-based *Strange Rain* effects a certain kind of literary ambience, merging text with an interactive environment, it does not connect readers to the really-existing emergent and networked context of the reader. Again, it is this explicit focus on the interweaving of these works into large sociological networks that distinguish works of ambient literature from other kinds of situated and even embodied textual interactions, as in the case of Romy Achituv and Camille Utterback's *Text Rain* in which readers interact with a projection screen on which they can catch text as it falls. There, there is a distinctly embodied interaction with a text, but not in a way which (explicitly)

engages these wider networks of social and cultural networks of support. Even something as textual and situated such as Caitlin Fisher's augmented reality work *Circle*, as it presents an augmented reality overlay across a prepared terrain, offers a good study in contrast to works of ambient literature which, at their best, do not just peg texts to a situated terrain, but instead involve the terrain within the text.

[5] In its concern for the literary uses of information, this ubiquitous version of ambient literature shares a common theoretical (though not historical) basis with the “ambient literature” of authors such as Tan Lin or Sam Riviere who explore the ways in which informational objects may be restructured into traditional (non-electronic) works.

[6] David Blei puts this directly in his explication of the use of topic modeling for the study of literature: “the statistical models are meant to help interpret and understand texts; it is still the scholar’s job to do the actual interpreting and understanding.” [Blei 2012]

[7] As Espen Aarseth puts it: “Games are not 'textual' or at least not primarily textual. . . . We might say that the rules of chess constitute its 'text,' but there is no recitation of the rules during gameplay, so that would reduce the textuality of chess to a subtextuality or a paratextuality. A central 'text' does not exist — merely context.” [Aarseth 2004, 48] Of course, as works of ambient literature look to explicitly invoke the reader’s context as part of the work, Aarseth’s analysis of games seems to circle back to a primary concern of works of ambient literature, without setting up an exact isomorphism between the two categories. Works of ambient literature remain equally concerned with both “text” and “context.”

[8] Alan Kirby provides an account of the implications of this kind of literature in his conception of “digimodernism.” Distancing the importance of this kind of active involvement with a text from a poststructuralist or metaphorical account of the co-production of meaning, he says that, “the digimodernist text in its pure form is made up to a varying degree by the reader or viewer or textual consumer. This figure becomes authorial in this sense: s/he makes text where none existed before. It isn’t that his/her reading is of a kind to suggest meanings; there is no metaphor here. In an act distinct from their act of reading or viewing, such a reader or viewer gives to the world textual content or shapes the development and progress of a text in visible form. This content is tangible; the act is physical” [Kirby 2009, 51].

[9] While there have been arguments made for a more inclusive sense of ludological analysis which includes social forms and not simply the immediate materials of the games themselves [Montola 2011], such approaches have only been applied specifically to games themselves and the social construction of game specific concepts such as game worlds and rules.

[10] Here, a work like Blast Theory’s *Rider Spoke* provides a middle ground between Raley’s TXTual practice and ambient literature: In it work, participants are directed to record personal stories tagged to geospatial coordinates, leaving them “there” for other participants to hear. In this, there is a reliance on a micro-community for the production of content, but in a way that is more closely (and more invisibly) woven into a socio-technical infrastructure, leaving the micro-community less visible to itself.

[11] While I am arguing here that methods taken up and developed in HCI research are necessary for the contemporary study of new forms of electronic literature, there are some important differences between the aims of research in human computer interaction and the aims of literary studies. Primarily among these is that HCI is oriented not toward the study of existent phenomena, but toward the enactment of new technological paradigms through the process of design. That is, research in HCI is expected to produce some outcomes for future design, rather than pure analysis of what exists. This is something that was considered explicitly in relation to ethnographic work in a series of articles by Paul Dourish [Dourish 2006] [Dourish 2007], who, responding to reviewers who demanded the inclusion of specific recommendations for design that might be generated out of ethnographic work, noted that these ethnographic works have value in that they “provide us with new ways of imagining the relationship between people and technology. They provide us with ways of approaching design. However, they typically go beyond specific instances of design. More to the point, they draw, in general, on the fundamental repudiation of a traditional separation between designer and user, between technology and practice” [Dourish 2006, 548].

[12] One of the most famous examples that reinforces this comes in the 1990s from research around the design of computerized systems for aircraft control [Bentley et al. 1992] [Stix 1994] [Kling 2007]. The aim was to replace antiquated paper systems with computer displays to help controllers better perform their work. In this case, the existing formal workflow described by the controllers which involved the passing of paper slips with flight information around the control booth as aircraft moved in and out of certain zones left out the importance that the physical visibility of the paper slips themselves played in supporting the controllers’ situational awareness of where other controllers were tracking aircraft as they looked around the room. Initial design work for computerized control systems which captured the specific informational content of the paper slips but neglected to incorporate the important role that the slips themselves played in supporting awareness proved to be a failure. It was only through subsequent ethnographic analysis of work practices that the source of the failure of the system design work was discovered.

[13] In this, ethnomethodology has much the same aim as some varieties of close reading as they are concerned with the “the examination of an artifact to see how it was made and how it worked” [Smith 2016, 60]. Like an ethnomethodological approach, close reading encourages “a respect for the stubbornness of texts, which resist easy comprehension or description in terms of expected themes and motifs. The close reader

needs to be willing to take seriously the difficulties of singular, unexpected turns of phrase, juxtapositions, and opacity. Close reading teaches an interest in the strangeness or distinctiveness of individual works and parts of works" [Culler 2010, 22]. Like close reading, ethnomethodology encourages digging into the present surface of a given text.

[14] In his rough sketch of a kind of phenomenal reading, Brian Reed presents an account of a reading which is concerned with developing what Merleau-Ponty termed "an account of space, time, and the world as we 'live' them" [Merleau-Ponty 1962, vii]. What is particularly of interest in this approach is the perspective taken on the "perceiving subject" which has a "history and an array of attributes and affiliations that uniquely inflect his or her experience of the world or, to put it more accurately, that prompt the world to disclose itself to him or her in a unique way" [Reed 2012, xxi]. For Reed, these kinds of narrative accounts of the experience of a text allow for the conveying of the "intricacy, contingency, and richness of perceptual and affective experience" [Reed 2012, xxi].

[15] This approach is not unlike that taken up on a smaller and more reflexive scale by Jessica Pressman, Mark C. Marino, and Jeremy Douglass in their own *Reading Project* in which they collectively chart their own experiences of reading William Poundstone's *Project for Tachistoscope {Bottomless Pit}*. Presenting a challenging text that through its presentation attempts to escape an easy reading, Poundstone's project presents readers with a dynamic text. Of course, the readers of the *Reading Project* are professional readers in that they were reading for the specific purpose of analysis. In some ways, it presents similar challenges as do works of ambient literature in that "[i]ts fast-flashing aesthetic is seemingly incompatible with the slow, sustained contemplation of close reading and other traditional methods of literary analysis" [Pressman et al. 2015, xiii].

[16] Such a method accords with the decline in the view, as noted by Reed, that "academics, believing that they brought to light what had been 'hidden, repressed, deep,' implicitly cast themselves as diagnosticians, detectives, and truth speakers, thereby lending their profession seriousness and social significance" [Reed 2012, xviii]. By opening the interpretation of a work up to multiple viewpoints (oftentimes selected at random, and often from subjects standing not in appreciation of the genre and often hostile to the works), any monolithic rendering of a work is resisted.

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