

Reading ambient literature: Reading readers

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Abstract:

As new forms of electronic literature come to engage the context and presence of the reader as part of the literary text itself, new methods for scholarly readings of these texts become necessary. Building on approaches developed in the field of human-computer interaction, this paper presents an ethnomethodological perspective on the study of new media. Utilizing reader observation and interviews in order to understand how a variety of readers in a variety of situations come to engage with these kinds of variable texts, this research looks at how researchers are able to develop a coherent “reading” of these dynamic texts through the analysis of reader reception of the works. Using the study of two works of “ambient literature” that take advantage of contemporary information networks and techniques developed from ubiquitous computing as an example, this paper describes the methodological approach that is used to understand these kinds of contextually-driven works. This work provides a model for how it is both possible and, in some cases, necessary to engage a diversity of readings of a single work from a number of different experiential perspectives in order to come to understand how the meaning of any work is developed.

Keywords: Ambient Literature, Electronic Literature, Ethnomethodology, User Study, Algorithms

One sign that a book has literary value is that it can be read in a number of different ways. . . . Though a work of literature can be read in a number of ways, this number is finite and can be arranged in a hierarchical order; some readings are obviously “truer” than others, some doubtful, some obviously false, and some, like reading a novel backwards, absurd. That is why, for a desert island, one would choose a good dictionary rather than the greatest literary masterpiece imaginable, for, in relation to its readers, a dictionary is absolutely passive and may legitimately be read in an infinite number of ways. (Auden 1962, 4)

Introduction

Walking along a back street in central London a reader leans against a concrete planter, shielding themselves from the June sun, keeping one eye on a slim black-clad volume, the other on the passing crowd. Separated from the world by a pair of over-the-ear headphones, the reader drifts between where they are and where the text puts them: in an icy, desolate, half-populated apartment block in Latvia. The stillness of the sparse landscape of the text contrasts and blends with the rush of London. Audio in the headphones directs the reader to move, to find a new place to read, to find a new background against which their experience of the written text can be laid.

Somewhere else, in a bedroom across the world, a reader's eyes remain fixed on the display of their phone. They turn it in their hand, tilting it back and forth; they poke at the screen as virtual pages of text slide along under their fingers. The text addresses them directly, to the presentness of their situation: it knows their street and where they had been last week. It haunts them with the surety of a surveillance state, the text matching the dreary morning as the sun begins to rise. As the reader glances out their window as the sun rises through the rain, the faint dawn light also seeps into view of the protagonist, as she too basks in the wet weather.

These brief vignettes represent two examples of the experience of works of ambient literature (Dovey 2016; Marcinkowski 2018), a developing form of electronic literature that incorporates the situation of the reader, in various ways, into the experience of a "literary text." These works build on traditions of locative media (Hight 2010; Wilken and Goggin 2015; Raley 2010) and ubiquitous computing (Weiser 1991) with the aim of creating reading experiences that are responsive to the local conditions of the reader. More than just responding to a direct indexicality of place in which the text relies on a direct connection to a specific place, these are open works that invite the readers' situation and surroundings, wherever and whatever they may be, to play a part in the text. Building on techniques developed in so-called calm computing (Weiser and Brown 1997), works of ambient literature use digital systems to quietly and seamlessly integrate a textual apparatus into the conditions of its experience. While these works are not site specific, they nevertheless rely on a specificity of the situation within which they are experienced, wherever that may be.

While works of ambient literature are the result of programmatic and algorithmic platforms, they are not defined by the formal properties of such a structure alone. They are not purely algorithmic, as in the case of an analog example such as Raymond Queneau's *Cent mille milliards de poèmes* (One hundred thousand billion poems). A work of avant garde experimentation, Queneau's text presented a book of ten fourteen-line sonnets in which each page was cut into strips so that the reader could recombine the lines of the poems into a vast number of reconfigured verses. In this, it presented an open-ended and reconfigurable text that is able to be defined by the possibilities offered by the shuffling of lines. Unlike Queneau's work (which is bounded by the text itself, however vastly reconfigurable), the structure of these works of ambient literature is that they use a developed computational and algorithmic structure in order to open the works up to the

world, bringing the specific conditions of their experience into the works themselves in a less bounded way. In this, works of ambient literature are not random, but are instead fitted to the particular situation of their reception. The challenge for understanding these works and simultaneously of understanding audiences' experience of them, is that they are different with every reading, even as each reading follows a similar text. While the text proper of the work may remain roughly the same, these works are structured so that their implications are altered as they interlock with the world around them.

It is this fundamental integration of these works into the situated conditions of their experience that comes to pose a challenge for understanding these works and their audiences. Embedded within shifting social worlds of literary expectation and technological interaction, they are not texts that can be understood through a single reading. In their variability, they offer no canonical edition for either readers or researchers.

1.1 The Problem of the Unreadable Text – How to Read Literary Algorithms

A closer look at two of these texts makes the details of this problem more explicit.

Kate Pullinger's *Breathe* is a short story that is meant to be read in the web browser of a smartphone. Developed in collaboration with Visual Editions and Google Creative Labs, the work makes use of a series of novel gestural interfaces to advance the reader through the story. Readers tap, swipe, rub, and tilt the phone to read a story that comes to haunt the reader with its incorporation of various details of their life. Using a series of APIs and the sensors in the smartphone, the text is populated with locations, weather, seasons, times, and other features that correspond to the situation of the reader. Tapping into Google's location databases, the story comes to make reference to the reader's local surroundings as they currently exist, referencing businesses, schools, cafes, and so on. In this, the text not only changes based on the season, time of day, local weather, and so on, but also changes based on the specific location of the reader and contemporary databases of information about that location. That is, by using Google's continually-updated databases of information about businesses, points of interest, etc., the text of *Breathe* comes to be woven into the really-existing social conditions of the world. It is a text that is anchored to the present through a networked mediation of information technology, databases, and algorithms.

Duncan Speakman's *It Must Have Been Dark By Then* presents a starkly different kind of literary interaction, but one that nevertheless presents similar challenges. As a work that is comprised of both a physical paper book and a smartphone app, *It Must Have Been Dark By Then* presents a guided reading experience in which readers are sent out with the printed book and a smartphone app which uses an audio track to direct the reader to walk, consider their landscape, and read passages from the book at certain intervals. Able to be read anywhere, this non-site-specific piece engages whatever landscape might be at hand for the reader, drawing it into a travel narrative focusing on migration, climate change, and their human toll. It is a work that, while guided by a stable central text, activates the capacities of the reader's surroundings to heighten their connection with both the landscape and the text. The variable "text" of the landscape comes to be combined with the static text of the

book and app to present the readers a third, hybrid text to read. As the path along which participants move is algorithmically derived based on readers' individual choices – how long to walk, how far, what direction, etc. – each reader is presented with a different text with which to concern themselves. For one reader, the text is activated through its superposition against crowds and a sweltering sun, for another, it is activated against an autumnal backdrop of empty blocks of council flats.

Each of these works, *Breathe* and *It Must Have Been Dark By Then*, present different examples of how the case of ambient literature comes to be defined by the possibilities that come to exist as the relationship between the reader and a text is mediated by computational structures. For *It Must Have Been Dark By Then*, the computational algorithms of the work serve to move the bodies of readers through a physical landscape that brings unique information into the narrative. In the case of *Breathe*, the algorithms that make the work reach out to a panoply of databases to draw information into the text. For each, the algorithmic enactment of the text of the work serves as the fulcrum between the reader and the wider world, functioning as the central point that mediates between the two. In one case, this comes as an immediate experience of the physical world, while in the other, this comes through a world deferred in cybernetic databases and larger socio-technical structures. Among the readers, algorithms, and real and virtual worlds within which they exist, there is no single text. These are works that, as they invite in the particulars of the situation of the reader through these varied algorithmic accounts, present a text which remains unreadable in any stable sense. Linked to the specific conditions of the reader, these are texts that come to be transformed through each reading, not just as a matter of interpretation (as in a post-structuralist or hermeneutic account), but as a matter of the material configuration of the social and technical networks that are engaged and incorporated into the works. These are works that, at bottom, reject any consistent reading: they are always different and always open to the wider world.

Breathe, in particular, provides a stark example of this unreadability. The text of the work changes based on the location, time, weather, and season under which it is read. To produce an exhaustive account of the text, a reader would have the impossible task of not only reading the text at every location on the globe, but also to read it at all times of day, across seasons, and in all types of weather. This is not to mention the constant shifting of businesses, cafes, restaurants, schools, and stations that populate the databases that are drawn on to create the conditional text on which the work relies. It is a work that is tied into the social-material fabric of our contemporary lives. As places and other cultural-geographic markers come in and out of existence, databases are updated, and the field of the work changes. Where a hermeneutic account of textual interpretation relies on an ever-shifting and always escaping sense of the situation of the cultural moment of interpretation¹, through their networked and computational structures, these works make this field of the cultural background of the interpretation of a work real. They are not just always open to new meanings, but, built on the shifting sands of a contemporary culture of networked

representation, these works remain ungraspable outside of the present situation. In a real and important way, the experience of the text can never be repeated.

1.2 The Problem of the Variable and Literary Text

So, what can be done to understand these works and how the texts might encourage a certain kind of reading on the part of readers? If no central stable object can be pinned down, what are we to make of the situation given by these works? What informs the development of meaning for readers?

This problem of understanding what audiences might encounter in variable and changing works is not new (Bell et al. 2018; van Looy and Baetens 2003; Pressman, Marino, and Douglass 2015). The complications of a variable text can be seen to be an integral part of hypertext narrative (Coover 2000, 1992; Landow 2006), where the possibility for a variable text was taken as an opportunity to go beyond the confines of a linear narrative. With hypertext, authors are afforded the freedom of escaping a simple linearity, giving readers a chance for multiple paths and multiple endpoints, all while retaining some semblance of a linear flow. What distinguishes the variability of ambient literature from experiments in hypertext is the way that works of ambient literature do not present a challenge to narrative linearity (the works to be examined here are each linear and unbranching). Instead, their variability comes in the way that a linear path is uniquely embedded into the situation of its experience. They are works that utilize algorithmic structures and computational systems to layer the experience of the narrative along a variable terrain.

Even game studies, as they work between the poles of ludological and more straightforward narrative analysis (Pearce 2005; Frasca 2003; Murray 2005), exemplifies this challenge of a variable work, positing unique solutions. For a game like *World of Warcraft*, which relies on a dynamic and open field of social interaction, researchers come to rely on alternate methods for understanding the conditions and implications of gameplay. For these kinds of works, researchers have taken up an ethnographic style of analysis, particularly founded on Sherry Turkle's (1995) path-making model, with such approaches coming to diagnose the social interactions and communities that are built in the online spaces made by the games (Boellstorff et al. 2012; Nardi 2010). In the thick description of player interactions and motivations, these studies attend to the sociological and normative conditions present (Boellstorff 2006), but do not approach a study of the textual material of the experience itself. Instead, they focus on the analysis of the particular subcultures at play and the interactions that exist between players with the game narrative serving only as a scaffolding.

Games, however, unlike works of literature, are not “primarily textual.” Their emergent conditions result from a different set of foundations. As Espen Aarseth (2004) 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. (p. 48)

That is, despite any shifting fields of social interaction or particular dynamic interaction found in games, the “text” of the game remains stable, even as the experience changes. The variability of a game comes in the variability of context not of the central text. This question of the interplay of text and context, beyond invoking poststructuralist framings (Derrida 1997), highlights a central problematic for works of ambient literature in the comingling of text and context.

In their claim toward a literariness, these works of ambient literature follow Rita Raley (2010) as she argues against Marie-Laure Ryan’s (2006) injunction that in order to be truly literary, interactive narratives must “limit user participation to a largely observatory role, rather than placing the user in the role of the experiencer” (p. 125). Instead, Raley (2010) argues that “[i]nteractive narrative, a broad category that encompasses everything from text-adventure games to mobile narratives, needs to situate the participant as an ‘experiencer’ rather than a voyeur” (p. 313). That is, to be understood as interactive literature, the participant must have some connection to the occurrence of the work beyond simply watching it go by. For works of ambient literature, their claim to literature rests on the activation of a shared experience of what literature might be and might be enacted. As Stanley Fish (1980) puts it discussing literature in general: “Literature . . . is the product of a way of reading, of a community agreement about what will count as literature” (p. 93). In this, works of ambient literature do not rehearse a Jakobsonian dualism that places ordinary language in contrast to literary language, but instead rely on the continued production (and experience) of a literary community. Like with Raley’s definition of what makes interactive narrative literary or not, it is the experience of the literariness as it is shared among a community, with these works of ambient literature taking this as their foundational and functional concern.

So, while the specific technological form of ambient literature may be novel (relying on smartphones, digital networks, sensor networks, satellite communication), in its engagement with a wider world around the reader, it simply re-casts a standard literary view along a new platform. Ambient works explicitly invoke the situation of their reading rather than just relying on the tacit networks brought to them by the reader, in a way that is nothing but literary. As Marjorie Perloff (2012) quotes Pierre Bourdieu (1987) on the question of literature:

[T]he “subject” of the production of the artwork—of its value but also of its meaning—is not the producer who actually creates the object in its materiality, but rather the entire set of agents engaged in the field. (p. 205)

As will be seen in the pieces that will be examined, works of ambient literature enact this engagement with a field that extends beyond the “object in its materiality” of the work itself.

In their engagement of a broad set of agents, works of ambient literature do not perform a kind of “electronic remediation” that attempts to “emphasize the difference” (Bolter and Grusin 2000, 46) between the digital world and other media or forms of experience. Instead they seek to achieve a kind of post-digital (Cramer 2014) continuity between the effects of the digital interventions and the “real” world. As textual things, they share a common basis with recent examinations of ebooks, studies that highlight the link between digital and non-digital texts (Rowberry 2018, 2017). It is possible to see the idea of ambient literature as a platform, able to be “manipulated to create works of art unique to that particular hardware and software configuration through its affordances and constraints” (Rowberry 2017, 291).

Across performance studies, game studies, and other fields, the issue of the analysis of the variable text has been dealt with in a number of ways. One particular example of this is the analysis of William Poundstone’s *Project for Tachistoscope (Bottomless Pit)*. As a (now primitive) work of Flash-based electronic literature, the text of the work is intermingled with an ever-shifting set of iconographic and sonic features. Like the works of ambient literature discussed here, it presents a different experience to each reader. Unlike these works, it remains bounded by the authorial construction of the work: the algorithms that dictate its function only draw on a certain set of words and images, even as they are open to infinite reconfiguration.

What makes Poundstone’s work a particularly compelling example to work against here is the attempt at a collective reading of this dynamic text by Jessica Pressman, Mark C. Marino, and Jeremy Douglass (2015). Looking at Poundstone’s text in various and multiple ways, they work to find some shared understanding of the text that is able to be sustained across their various readings. Even as Poundstone’s work remains distinct from ambient literature in the bounded set from which it draws, it and Pressman, Marino, and Douglass’s reading remains a guide for how to approach variable works.

While Pressman, Marino, and Douglass’s analysis focuses on placing multiple, specialist readings into conversation with one another, what I want to put forward here is that works of ambient literature are best examined through a form of study modeled from user studies in human-computer interaction (HCI) in which the reception of a piece of software is examined according to a number of different user perspectives, as they are embedded within real-world contexts of use. Fitting to ambient literature’s roots in research in the field of ubiquitous computing, such an approach takes “readers” as “users” in order to begin to ground a reading of the experience of these works and to understand how these “unreadable” texts can be read through a conglomeration of experiences of readers.

2. Sociology Not Psychology

The history of user studies in HCI is rooted in what came to be termed “software psychology.” This early paradigm in the study of human-computer interaction posited that in order to design software that was “easy to learn and easy to use” it was necessary to understand the psychological and cognitive conditions of users (Carroll 1997). However, as computing became to be less of an individual endeavor and bound up with an increasing range of everyday practices, approaches for the study of HCI moved from being concerned with individual psychology and came to focus instead on the social interactions that informed and framed interactions with computer systems (Grudin 1990). Toward this, the field of HCI took up new methods from the social sciences in order to understand how groups of users came to understand and make sense of novel systems of computing. In doing this, distinct approaches in HCI developed that looked beyond an analysis of the individual user, looking instead toward a broader question of the socio-technical configuration at work in computing (Ackerman 2000). The question of HCI became focused not on a single moment of use, but on an analysis of systems of use that extended beyond the computer itself.

One approach, ethnomethodology, had a particular impact on the study of these social uses of computing in that it focused on the processes of meaning making that are present in interactions. Based on an approach first introduced by the sociologist Harold Garfinkel (1967), ethnomethodology was less of a strict method than it was a general approach to the question of sociology, asking how individuals come to produce and reproduce social forms through everyday practices. Instead of looking at how social factors might influence computing, researchers looked toward how computer interactions might come to play a role in the instantiation of social forms as groups of users used computer systems for communication and the accomplishment of goals (Dourish and Button 1998; Button and Dourish 1996), building on these insights in order to design new systems. For something like ambient literature, the process of reading is not a straightforward practice of decoding textual meaning. It is a negotiation with an algorithmic text as it is embedded within a larger network of social action. As such, it becomes helpful to consider the study of works along the lines followed by HCI in its application of ethnomethodology: to look at how meaning is made through these novel forms of techno-literary practice.

There is a distinction drawn between the approach developed here in response to works of ambient literature and something like reader response theory (Tompkins 1980) or even reception theory (Hamilton and Schneider 2002). That is, instead of focusing either on a specific moment of individual reader psychology or on the social reception of a work, there is an emphasis here on the examination of engagement with the work as it exists across a span of material interactions: there is a focus not just on the work itself, but also the conditions and interactions that surround it. Similarly, the approach taken here diverges from cognitive accounts of reading (for example, Bell et al. 2018 or Kuzmičová 2013), for similar reasons: it is not the aim to understand reading in a more generalizable sense, but instead to understand the particular conditions set up by these specific works. The specifics

of the given systems at play are not suitable for a generalizable conclusion, only one that provides an edifying wisdom (Dourish 2006).

In its attention to the specific interactions that contribute to the bottom-up generation and recognition of social meaning, ethnomethodology finds common ground with other similarly formed methodological/theoretical approaches such as Actor Network Theory (Law and Hassard 1999; Latour 2005) and Assemblage Theory (DeLanda 2016). Like these other approaches, ethnomethodology focuses its attention on the really-existing conditions that are to be examined, looking not toward an abstraction of findings, but toward a particular understanding of the specifics of the situation in question. In this, the findings of ethnomethodological investigations are neither reproducible nor repeatable outside of impossibly identical situations.

For the kinds of mobile technologies that constitute the object of works of ambient literature, this focus on the sketching out of the particular practices that contribute to the generation of meaning exemplifies Jason Farman's (2012) Mobile Interface Theory. In it, Farman argues that the continuous evolution and transformation of mobile technologies necessitates the privileging of practices over specific materials. Since mobile technologies are so quick to change, it is only possible to look at what is done with them – the particulars of any interface are too quick to chart. With their focus on the situation of the reader, rather than a specific set of technologies, works of ambient literature exemplify the way that mobile technologies present "a set of relations that serve as the nexus of the embodied production of social space" (Farman 2012, 62).

For understanding works of ambient literature, with their surface of maximal variability, the concern is not for the practices themselves, but the specificity of the construction of the meaning of the works as it is displayed by actual use and reading. The attention is not on the technological conditions, but on the ways by which the cluster of contemporary technologies that contribute to the function of ambient literature contributes to the specific kinds of meanings that are developed. What is to be addressed here is the entanglement that exists in these works between their formal variability and the meanings that are able to be drawn from them. From this, it is then possible to begin to examine what might be the common threads that exist for readers of these works.

3. Method: Reading Readers

Building from this approach, the two works of ambient literature discussed here were made available to audiences and the audiences' engagement with the works was examined. While both *Breathe* and *It Must Have Been Dark By Then* share a common foundation in that they engage the situation of the reader, they diverge in the ways in which they achieve such an engagement. With the cooperation of the authors, each work was shared with audiences as finished pieces. In each case, the works were presented to readers in as naturalistic conditions as possible, with audiences experiencing them as they would even if there was no program of research around them.

It Must Have Been Dark By Then was made available to audiences at the British Library in London and at literary festivals around the UK, with interested participants able to book a place in advance or simply drop in at a table set up in a public area. Of the twenty-eight participants we interviewed, about half of them had booked in advance, having some knowledge and interest in participatory or locative narrative works, with the other half comprised of interested library patrons and tourists who were intrigued by a new experience. Participants were given a rough outline of what the work entailed, a set of headphones, a smartphone with the application loaded on it, and the printed book, and sent out to do the experience. Normally lasting about an hour, the work directed readers to take an outward journey that eventually returned them to their starting point, where they were then interviewed about their experience. Throughout the course of their experience, the movements of the readers were visually monitored by researchers, recording their activities according to a paper checklist that focused on the material interactions of the readers.

As a work read in the web browser of a smartphone, *Breathe*, in contrast to *It Must Have Been Dark By Then*, is meant to be read in the privacy of one's own home, resisting the dominant trend of location-based works to encourage participants to wander the city. In this, it invites an intimate engagement with location, one based on familiarity. After responding to a call for participation, participants were sent a link to the web page featuring *Breathe*, instructions on how to set up a time to be interviewed, and a brief set of questions to encourage reflection on their experience that could serve as a memory aid. Twelve participants were then interviewed via Skype or by telephone anywhere from a few minutes to several days after reading the piece. Like with *It Must Have Been Dark By Then*, the sample of participants was comprised of a mix of those interested in innovative narrative and those simply interested in trying something new. They were drawn from readers from around the globe, with all interviews conducted in English. For both of the pieces examined, audiences' ages ranged from university students to retirees.

For each of the pieces, we engaged in semi-structured interviews with participants, normally lasting between fifteen and twenty minutes. In the interviews, we asked participants about their experience of the works, how they responded to specific elements of the work, and whether they ran into any difficulties. We also asked them about other aspects of the works in order to encourage them to reflect on their experience. In total, forty interviews were conducted between the two works. Audio recordings of the interviews were transcribed (Marcinkowski and Spencer 2018) and the interviews coded using an open coding scheme, with specific attention being paid to facets of readers' experiences that illustrated their approach toward understanding the work as they were integrated into the specific experience of their situation. This coding clustered around issues of the reception of the works, the specific events that took place in the course of readers' experiences, personal connections to the work, critical reflections spurred on by the experience, the technologies engaged, reader immersion and attention, the role of locations in the works, and reflections on the media itself. In the case of the research presented here, a level of theoretical

saturation (Rowlands, Waddell, and McKenna 2016; Bowen 2008) was achieved, with audience responses clustering around forms discussed in subsequent sections even while the particulars of their experience of these variable works remained multiple.

The aim of the analysis of interviews was to develop an understanding, stemming from a familiarity with the mechanics and themes of the works themselves, of how they were engaged by audiences, an understanding that, ultimately, points toward the meaning of the work itself. By reading a number of readers' experiences with the works, it becomes possible to examine the processes by which these works become intelligible to readers, as part of a wider social field of interaction such as is characteristic of a literary work (Fish 1980; Perloff 2012). In offering readers two different works, the aim is to be able to examine the methodological and generic problem posed by these kinds of works, rather than an analysis of just a single work. That is, like Farman's (2012) approach to mobile technologies, this methodological approach examines the form of ambient literature as it exists within a social sphere, rather than treating it as either an individual work or reader experience. The purpose of this method is, in light of the variability of the works themselves, not to provide an account that is generalizable to a population, but rather one that is generalizable to a theoretical perspective (Lee and Baskerville 2003).

4. The Personal Surface of the Lens

In our interviews with readers (Marcinkowski and Spencer 2018), we found that readers were not unaware of the possibility that the text might be open to multiple readings. For readers, there was a recognition that their own experience of the text was colored by their own personal contributions and situations. Reports of such experiences highlight the variability of the experience of the text. Even for *It Must Have Been Dark By Then*, with its stable central text, the particulars of the immediate experience of the work as readers moved through the world had a startling impact. Just consider these two reports from different readers, each responding to the same section of the text when readers are pointed to a place that they are to consider their "oasis":

Then the whole story, the sense of- with the precipitation bit in it, it was a desert. It was the oasis at that point, and then I set out walking through the grass and all these butterflies and moths started flying up. It was like this lush vegetation, which was completely the opposite to the story, but it made that sense of loss even bigger, because this is what we are losing, actually.
[Participant S34]

It was just a weird coincidence that the place where it said I was supposed to have my oasis was in the middle of the Brunswick Shopping Centre, which is somewhere I think I've only walked past once, maybe, in my whole life. I don't know it. I'm really unfamiliar with it, and it's all very, very built up architecture and shopping. I walked through there and it said, "You're now at

your oasis." Literally, as my foot stopped, at that moment, I was next to this water feature, this water fountain. It seemed like this really beautiful serendipity of horrible contrasting built-up architecture with nature, suddenly it was connecting to the audio. [Participant S29]

In these extracts, it is possible to see how the same moment in the text is played out against different backgrounds with different results. In the first, the beauty of the natural world comes to contrast with the starkness and desolation described in the piece, while for the other participant, the artificial environment of their experience resonates with a story of anthropocentric climate change.

For readers, these kinds of interactive, participatory, and dynamic aspects of the works bring the experience of the content of the text (a ghost story in the case of *Breathe*, a chronicle of economically and environmentally influenced population movement, in the case of *It Must Have Been Dark By Then*) into close proximity with the lived experience of the reader. As one participant put it, the experience of the work was "stretched out and [had] been hung between the actual world [and the fictional world], so that the actual reality here became part of that reading experience" [Participant S34]. For another, the dynamic and specific relationship with the situation of the reader served to "almost break the gap between the reader and writer" [Participant B12]. For readers, it is this resonance among the formal, computational aspects of the work, the explicit content of the works, and the personal subjective position of the reader that came to be seen to lay the groundwork for readers' reaction to the works, linking them with their own personal, subjective conditions.²

Reflecting on *It Must Have Been Dark By Then*'s thematic of population movements, one reader brought their own family history to bear on the work, and noted the resonance that the contemporary theme of the work had with the historical division of India and Pakistan: "It made me think about a journey that my dad made in 1947 at Partition. And it was like I had that memory in my head and when I looked at things I kept thinking about that story" [Participant S28]. The open framing of the work that allowed readers to be aware of their own part in the construction of the meaning of the text encouraged readers to make links between the content or structures of the work and their own histories.

For other readers, the specificity of the text's reference helped to highlight the ghostly thematic of *Breathe*, with the network-driven texts coming to have different results depending on the personal associations given by the reader:

It said, "I am here. I am on Thorpe Street." I genuinely went, "Oh, that's so weird" to all my colleagues. I went, "That's really creepy." Everyone went, "Oh yes, that's weird." Then, the next one that it picked up, "I could pick your face out of a crowd." I think it picked Bullring, the shopping centre. I was like, "Okay. That kind of works." Then, the orange voice, or the yellow voice, said, "Yes, and then I saw you at Asda [a supermarket chain]." That is just the least

sinister thing that it could have said. That I thought was quite amusing.
[Participant B8]

It is up to the individual proclivities of the reader as to whether they find a supermarket the stuff of nightmares, but it is with moments like these that the limits of algorithmic texts can begin to be seen. As a text reaches beyond its own limits and into the personal conditions of the reader, it risks making the wrong move or begins to pull back the curtain on the invisible algorithmic system operating in the background.

In this way, the interviews with participants highlighted the variability of the texts as they interacted with the situations of the readers. It is from this base of variability that it becomes possible to begin to draw out further theoretical implications from the data. While there is not a central and abiding reading of the works that can be articulated across all the various readers' experiences, with each reader's reading of the text remaining different, it is possible to begin to come to grips with the processes by which readers engage the meaning of these works.

5. Readers Anticipating Algorithms

Across these two discreet works, what develops in the reports from readers is a central axis along which their various experiences develop. Even as readers' experiences diverge both within and between the two pieces, there is a common basis for the way that the dynamism of the works comes to be understood. Taken in aggregate, the variety that the works present offers a view into the emergent conditions presented by these forms of ambient literature. While the works themselves remain variable, common forms of the generation of meaning from the texts emerge.

While the experience of the works remains "primarily textual," the common thread among readers can be seen to be their *anticipation* of the dynamism of the text, the expectation of some algorithmic variability in their experience of reading. In the way that readers looked toward the possibility of some unexpected development in the works, for some technological innovation to deliver some novel form of experience, readers' development of the meaning of the texts was driven by this sense of anticipation. Readers leaned into the possibility offered by the algorithmic structure, looking for an understanding of the mechanics both of the text and of a technological world more broadly.

While the algorithmic function of the works came to hold a central place in the common experience of the works, it remained hidden behind the experience of the text itself. Readers were able to gain a sense of the impact of the algorithmic structures that govern the works, but this algorithmic structure itself was experienced only through the way that it colors the narrative text. For something like games, on the other hand, the rule-based text remains front and center in the experience of the work. As Aarseth (2004) put forward: To play a game is to know the rules of the game and to be explicitly engaged with them. For works of ambient literature, the primary fulcrum of the work comes in the ambiguity that arises as the primary text is affected (and effected) by the computational systems on which

it rests. These systems are not primary to the experience of the work but are hidden behind the experience of the text. They are not directly felt by readers who experience them because they are only mediated through the text.

These are not predefined works in which all the elements are defined beforehand. The works can be seen to be figuring themselves out at the same time as audiences are trying to understand them. In the case of *It Must Have Been Dark By Then*, as the horizon of the landscape opens up through the progress of the reader, the work is itself being built up. In *Breathe*, the database queries that populate the details of the story come as the reader engages the text. As the reader looks forward to understanding what is happening in the work, the work itself is being assembled. It is this unknowingness on the part of the text and the reader that comes to define the readers' experience.

In this way, the experience of readers of these two works of ambient literature resonates with the position put forward by Rita Raley (2010) in her analysis of her own situated works:

When the subject participating in a mobile narrative has her perception interrupted—by people entering the train or obstructing her path—that interruption necessarily punctures an immersive experience that is at once technological and phenomenological. The subject supposedly in control of her imaginative experience thus becomes compelled to regard her body as open and responsive to external influence. She also becomes compelled to consider the relations between text and environment. A composed experience is not a fully programmed experience. When a participant receives a text commanding her to look around, there is a sense in which that command is more open than closed, at least insofar as there is an interpretative gap between instruction and execution. That gap is the site of ambivalence, the uncertainty of meaning, and thus open to improvisation and experimentation. (p. 313-314)

It is Raley's consideration of the "relation between text and environment" that gets at the core issue for understanding how works of ambient literature are made meaningful. For readers, it is the way that this gap between text and environment is navigated by the uncertain algorithmic foundation of the works that gives them their meaning.

This sense of unknowing or of guessing at the algorithmic function of the works was a constant point of feedback from participants. As the participant who (above) encountered a fountain in a shopping center as their "oasis" put it:

I thought, "Was I supposed to turn up there? Was I supposed to have arrived there? Was that actually written in, somehow? Did I subliminally pick up that that's where I was supposed to be heading towards?" I don't know, but it was a really nice coincidence. [Participant S29]

In *Breathe*, these kinds of serendipitous events invited a questioning of the tacit rules that came to govern the responsiveness of the text:

I think it makes you curious so you go back and forth and you try to figure it out. You don't just go through it like a normal book, but you try to figure, "Oh, how did that happen? When is this going to happen and why, and can I make it do it again?" It makes you quite curious and you try to figure it out, which maybe goes against the flow and atmosphere but I don't know how to change that. Because it makes you curious. It's such curious form of a book and you try to understand the mechanics, and maybe that destroys the illusion a bit. [Participant B9]

These works come to be understood in the way that the algorithmic textures of the work are felt out by the reader. Readers are themselves aware not only of the personalization of the text, but also of its unreadability. As one participant noted:

You see it showed up in that, every now and then it would throw in like, "I saw you walking past [name of high school]," or something similar referring to where I live and everything. So, those were definitely inserts into the story itself, but otherwise I don't know. I don't really know if there was anything that changed. I don't know if the story changes from reader to reader. [Participant B3]

For them, there is a specific recognition of the value of the repeated experience of the work under different conditions. For readers who have already engaged with a repeated reading of *Breathe*, this repeated reading come to serve as the basis by which the variability of the work comes to be recognized.

The end of the story said move and then read *Breathe* again – is what the last page of the app suggested. Which certainly made me think about how my physical location was impacting my reading experience and if I had chosen to read this on a rainy day, how that would impact my reading experience which is maybe not something I think about with traditional books. [Participant B12]

Without this close and repeated reading, the variable details of the work can be lost to the reader. The connection to the work is deepened through this engagement as there is a recognition of the systems at work in the making of the story. The algorithmic structure of the works, responding to certain conditions, allows readers to engage not only with the work itself, but also what might be possible.

In this consideration of the ways in which these works each engage the expectations of readers – with the algorithmic basis of the works shifting in unknown ways below the surface of the text – readers' experiences are not unlike those reported in the field of literary foregrounding studies (Miall and Kuiken 1994; van Peer 2007a). Examining the structures present in literary works that serve to either fulfill or disrupt readers' expectations surrounding certain semantic, generic, narrative, or typographic forms present in a work (van Peer 1993; Bálint et al. 2016), literary foregrounding theory looks to the ways that this sense of expectation plays a part in creating absorbing and engaging works. Such a pattern has been linked to an affective response in works, with this kind of effect being fundamental to the consideration of literary works. As David S. Miall and Don Kuiken (1994) put it: "the sequence defamiliarization-feeling-re-familiarization is distinctive to literary response" (p. 405).³

For works of ambient literature, it is possible to see how these works dynamically engage readers' sense of what is possible in a work. As one participant put it:

I felt like I was trying to predict what it was going to do. It asked for permission right at the beginning if it could use my location. As soon as that happened, I felt like I couldn't quite get into the story. I was waiting for it to use my location as I had given it permission to do. [Participant B11]

Like Willie van Peer's (1993) analysis of the role that typography might play in literary foregrounding, it is possible to see the material and technological structures of these works play a similar role.

Unlike traditions of literary foregrounding, however, what these works of ambient literature display is not simply a psychological state that is activated in readers, but rather, the experience of readers shows how such a movement is founded as part of the socio-material structures that are enlisted in order to make these works function. They do not simply engage a sense of narrative expectation, but perform such a task along the formal and technological conditions of the work. For readers, this is engaged at multiple levels, ranging from a sense of narrative expectation to the broader networks of technological possibility. As readers, they do not just engage the text itself, but the wider field of socio-technical relations upon which the texts rely. From urban infrastructures to communication networks to conceptions of contemporary technological progress, the open and variable structures present invite readers to work to reach out and anticipate what might be possible in the works.

Unlike the kinds of exploration anxiety noted in discussions of games and branching narrative in which readers or players feel a sense of regret in the opportunities missed as a result of their decisions (Mawhorter et al. 2014), the possibility for alternate readings of works of ambient literature are not linked to the choices made by readers as part of the experience, but are simple an effect of the situation in which they are read.

The thematic that comes to be developed out of the experience of these works can be found in the ways that readers feel out the texture of the algorithms that drive these works. They are works that are founded on the rendering of a palpable sense of anticipation for readers as they look toward the uniqueness of their own experience. In this, the empirical analysis of readers that is presented here folds back so as to reinforce the problematic at hand: these are works that are unreadable in any totalizing fashion, as the conditions necessary for the central thematic of these works require constant renewal and reconsideration. They are bound up in the present conditions of their reading in fundamental ways. The possibility of a canonical reading of these texts is always found in another reading.

6. Conclusion

If we return to the epigraph from Auden (1962) that started off this discussion, it is possible to understand how these works of ambient literature function as his ideal reading for a desert isle: “one would choose a good dictionary rather than the greatest literary masterpiece imaginable, for, in relation to its readers, a dictionary is absolutely passive and may legitimately be read in an infinite number of ways” (p. 4). Works of ambient literature are just such things. Like Auden’s dictionary, they are endlessly re-configurable considerations of text. Such a reconfiguration is not a recombination of chance or the pure perception of a playful algorithm. These works offer a set of terms and themes that are recombined and activated by the situation of the reader. The function of the algorithm requires both the content provided by the text and the situation provided by the reader. Unlike Auden’s dictionary, the infinity of the works comes not from their recombination, but in their engagement with a wider, living world. It is this engagement, per both Stanley Fish and Marjorie Perloff, that marks off the bounds of the literary.

As works of new media, these works of ambient literature are, at their core, anticipatory works that involve readers in work’s unfolding as part of a wider world. The algorithmic basis of the works sets up an open structure that leaves readers to feel out and anticipate their function. For the works examined here, such anticipation cuts across at least two distinct levels. As has been noted above, readers lean into the work, with part of the process of reading coming to be an anticipation of its function and a diagnosis of its intents. The surprise and unknowingness of the possibilities offered by the works plays into the themes developed. At the same time, at a higher level, these works also engage a more general anticipatory logic as they make use of contemporary technologies, encouraging readers to associate these works with a sense of ever-continuing technological progress, by which they remain unsure of what might be possible in the works. That is, there is both an anticipation relating to the specific implications of the individual work as they are connected to the personal situation of the reader, and an anticipation tied to a wider experience and belief in the increasing power of commercial technologies.

What these works present is an infinitely variable form of text that is anchored to the experience and world of the reader through a series of computational algorithms. Both

of the works examined here present a narrative that is algorithmically linked to the situation of the reader in different ways. For *Breathe*, the computational structure of the work mediates between the reader and vast databases of geospatial data that are used to mold the work to their particular setting. For *It Must Have Been Dark By Then*, the computational structure directs the readers to move through spaces in particular ways, taking in the information written in the landscape. In each case, the specificity of the dynamic localization of the work is handled differently: for one, the algorithm opens the work to a variability found in databases, while in the other, to a variability of the urban landscape. In each, the recognition of this algorithmic movement of a reader's attention serves as the central pivot of the effectivities present in the work.

The variation of audiences' experiences that are formed by this algorithmic interaction would be invisible to a single reading of the text. In order to properly understand readers' engagement with these works of ambient literature, it is necessary to gain insight from a number of readers and to read across their experiences in order to distill a central thematic fulcrum by which these kinds of works can be understood.

By applying an ethnomethodologically-influenced method of analysis to groups of users as they experience works of ambient literature, it is possible to derive a coherent account of a central thematic of these variable and situated works. Even as these kinds of works resist any consistent reading to the degree that they can be considered properly unreadable, by modeling this approach on traditions of research in the area of human computer interaction, it is possible to develop a deeper, if yet still partial, understanding of these works and their audiences. Still primarily textual, the text of these works come to be experienced and understood through a lens of a reader's anticipatory engagement with the algorithms and systems that make these works possible. By reading the experience of readers, it becomes possible for researchers to develop richer insights into the function of these novel works of literature.

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Notes:

¹ As Hans-Georg Gadamer (2004) put it: "To acquire an awareness of a situation is, however, always a task of peculiar difficulty. The very idea of a situation means that we are not standing outside it and hence are unable to have any objective knowledge of it. We always find ourselves within a situation, and throwing light on it is a task that is never entirely finished. This is also true of the hermeneutic situation—i.e., the situation in which we find ourselves with regard to the tradition that we are trying to understand" (p. 301).

² The impact and importance of this kind of link between the personal circumstances of the reader and a text has been well established (Kuzmičová and Bálint, forthcoming), particularly in the areas of Romantic poetry (Sikora, Kuiken, and Miall 2011, 2010) and children's interaction with stories (Kucirkova et al. 2013; Kucirkova, Messer, and Whitelock 2013).

³ A recent special issue of *Language and Literature* (van Peer 2007b) presents a number of empirical studies of readers through the lens of foregrounding theory.