Poetry in Digital Media:
Investigating the Remediation of Poetry
through Critical and Creative Practice

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Abstract

This interdisciplinary thesis investigates the effect of digital mediation on poetry structured around the materiality of the page and vocal performance, which is generally regarded as the mainstream poetics of modern and contemporary poetry. This is opposed to poetry that builds upon what Loss Pequeño Glazier calls 'digital poetics,' which is the kind of poetry that has been more widely written about in relation to digital media. The thesis approaches this investigation through two interconnected methods. The first is a critical analysis of four smartphone applications as inventive methods of publishing poetry texts and recordings, which considers how the affordances of digital media create a playful, exploratory encounter with the poem. The second is a portfolio of experimental digital reading interfaces for poetry, creative digital remediations of existing works of contemporary poetry, and original poems written in response. The original poems are presented in both standard manuscript form and as a digital collection. Together, these two elements of the thesis form an exploration of how the technical medium of a poem affects the poem's form and the reader-audience's approach to it. In moving between critical analysis and creative practice, and between creative remediation and creative writing, the thesis offers new ways of considering poetry's relationship to our contemporary media ecology.

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PART ONE:
Critical Thesis

Introduction

This doctoral research project began in September 2017 and was funded by the Northern Bridge consortium through the AHRC's National Productivity Investment Fund, which granted studentships to doctoral candidates working with partner organisations. The project was conducted in partnership with the independent poetry publisher Bloodaxe Books, following a Knowledge Transfer Partnership in 2016, during which I worked with Bloodaxe editor Neil Astley to digitise some of their audio recordings and develop several audio-enhanced e-books. This work, along with the industry-focussed nature of the project funding, would inform the initial stages of the research project very heavily, and influence the direction of the later, more experimental, stages of the project.

Working in partnership with Bloodaxe, as well as working closely with the Newcastle Centre for the Literary Arts at Newcastle University, and undertaking a three-month placement at the British Library, all involved adapting the research activities to the briefs of external stakeholders in the project. Towards the beginning of the project, my creative work was largely focussed on developing technical solutions – as in the development of the *Bloodaxe Poetry* and *Crossings* mobile apps – but as the project developed, this evolved into more experimental and artistic use of programming, as well as incorporating digital creative practice into my own poetry-writing. As is shown in the portfolio of work, these three strands always ran concurrently throughout the whole project, but with a gradual shift in focus as it progressed. Through this process of drawing together elements of digital publishing, digital creative practice and creative writing, this research project aims to generate new insights into the status of poetry in the contemporary mediasphere.

In a 2011 interview for the *Journal of Electronic Publishing*, digital poet and MIT Professor of Digital Media Nick Montfort expresses a belief in the need for new approaches to digital publishing, in order to produce 'a type of publishing that engages computation, not just the display of texts.'[1] Montfort is speaking in this context as a writer interested in the expressive potential of digital media when used as a medium for literary content. For Montfort, in a

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[1] Nick Montfort, quoted in James J. Brown, Jr., 'The Literary and the Computational: A Conversation with Nick Montfort', *The Journal of Electronic Publishing* 14.2 (2011), n.p. <https://quod.lib.umich.edu/j/jep/3336451.0014.206/--literary-and-the-computational-a-conversation-with-nick?rgn=main;view=fulltext> [accessed 2nd August 2021]

world increasingly saturated by new kinds of digital technology, 'the standard e-book is the starting point, not the limit, of what computers can do for literary reading.'[2] In the decade since that interview, digital technology and media have become even further integrated into our everyday lives. While broadband internet and laptop computers were commonplace in 2011, especially in the global North, the popularisation, and eventual ubiquity, of smartphones and tablet computers that began in the early 2010s would profoundly change the way that we communicate, socialise, work, and generally conduct our day-to-day lives.

Although this then-nascent technology is not explicitly mentioned in Montfort's interview, it is possible that a sense of a change in how we might encounter literature digitally is partly what motivates his comments on electronic publishing. The rise in smaller form-factor devices like the smartphone, the tablet computer and the e-reader have indeed had a deep impact on the distribution and consumption of texts, though a large part of this has been a vast expansion in the circulation of the 'standard e-books' that Montfort mentions, as well as more widespread, easier access to text on the web via mobile browsers. But, alongside this, new forms of writing and reading have emerged with these technologies. Social media posts, instant messaging, and short-form 'quick-read' articles are all forms of text that have developed through the spread of digital media and handheld devices in particular. These new forms of reading are often highly multimodal, combining text with image, animation and their own specific visual grammars to create meaning.

The process by which new media, like the mobile device, simultaneously absorb and transform the features of older media is described by Jay David Bolter and Richard Grusin as 'remediation'.[3] In this process, some elements of older media are borrowed for their familiarity and convenience, while other elements of the new medium are brought to the centre of our attention. When Montfort expresses a desire to see digitally published texts that go beyond 'the standard e-book', he is referring to the ways that the most common e-book formats – MOBI, ePub, PDF – remediate the model of the printed codex in a way that largely replicates the layout and structuring conventions of print publishing. John Cayley refers to the e-book as an 'inherently skeuomorphic' form for this reason, one that attempts and generally

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[2] Ibid.
[3] Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA: The MIT Press, 2000), p. 45

succeeds at 'not [being] experienced as fundamentally distinct when compared with reading from print.'[4]

But use of the mobile device goes beyond just remediating and converging multiple older media for consuming written and audiovisual texts. It has also taken on a role in the lives of most of its users that would once have been occupied by a series of individual machines or objects. Through this technological convergence, the mobile device has followed and surpassed the trajectory, noted by Bolter and Grusin at the beginning of the 21st century, of communication technology eventually merging the television, telephone and computer.[5] In our current digital habitus, the mobile device is now simultaneously a networked computer, telephone, video and audio player, camera, compact mirror, alarm clock, journal, library, and map, to name but a few. This is true also of our other digital media devices, our laptops and smart TVs, all of which are multi-functional in ways that mean that they might be used for wildly different purposes at any given moment. This makes using these devices very often an exercise in frequent task-shifting, made up of short, disconnected bursts of attention.

Poetry, on the other hand, is generally regarded as a literary form that rewards a closer, slower form of attention. Sharon Cameron describes poetry, in particular the lyric, as aiming for a kind of 'stasis', which can 'slow temporal advance to the difficult still point of meaning.'[6] Similarly, the poet Dom Bury, speaking about poetry's relationship to modern life in particular, sees the poem as occupying a 'deeper space' in the reader amid a bombardment of voices and opinions from other sources.[7] This is in many ways antithetical to how our relationship with digital media is generally perceived, since we are, as N Katherine Hayles explains, more likely to make use of 'hyper attention' in these situations – a much more fragmented and transitory way of interacting with media than is generally suited to reading and listening to poetry.[8] While lyric poetry, as a relatively short form of literature, ostensibly suits short bursts of attention, it is still generally regarded as a form – like literature in general – that rewards focussed, undistracted attention, rather than the more fragmentary, multi-tasking approach that is seen as a hallmark of hyper attention.

[4] John Cayley, 'Aurature at the End(s) of Electronic Literature', *electronic book review* (2nd May 2017) <https://electronicbookreview.com/essay/aurature-at-the-ends-of-electronic-literature/> [accessed 2nd August 2021]
[5] Bolter and Grusin, p. 224
[6] Sharon Cameron, *Lyric Time: Dickinson and the Limits of Genre* (Baltimore: Johns Hopkins University Press, 1979), p. 25
[7] Dom Bury, 'Launch reading by Dom Bury, Jenna Clake & Tishani Doshi', live online event for Bloodaxe Books [01:13:10] (Bloodaxe Books, 20th April 2021) <https://www.youtube.com/watch?v=QMEg_DYj_wU&ab_channel=BloodaxeBooks> [accessed 2nd August 2021]
[8] N Katherine Hayles, 'Hyper and Deep Attention: The Generational Divide in Cognitive Modes', *Profession* (2007), pp. 187-99 (p. 187-8).

Within this thesis, I examine ways that the affordances of new media, and in particular those that are not normally associated with the remediation of literary reading, can affect the encounter with poetry. My use of the term 'affordances' here is drawn from the fields of new media studies and human-computer interaction, and, when used in these settings, refers to the specific set of actions that it is possible to perform with an object. As activities such as reading and hearing poetry are performed through devices with a greater variety of affordances – and as some of the affordances of the older media fall away in the process – it is necessary to assess how these changes might affect the way that the work is consumed. Considerations such as page-layout or the shape and design of a book are replaced by, or occur alongside, the kind of haptic interactions that the reader might have with the text on-screen, or whether a poem is available offline or only through an internet connection.

This topic is explored through a critical examination of poetry published via mobile applications, and through interdisciplinary creative practice that combines developing experimental new methods of presenting poetry with writing poetry in response to this process. By doing this, I approach the idea of remediation not as a passive process in which new media inevitably retain or change certain aspects of older media, but as a process shaped by the active decision-making of designers, developers and artists as creative choices are made based on their suitability for specific kinds of content. This is particularly apt for a project focussing on poetry, as careful consideration of the material qualities of the poem within a specific medium – how it will appear on the page, how it will sound read aloud – is a key element in the writing and reading of poetry. Remediation, in this thesis, is then both an object of study and a creative research method in itself, which is an ambiguity that will be returned to in the discussion of the portfolio of work below.

Critical Thesis Summary

In the critical thesis, the mobile applications that make up the main case studies represent methods of remediation that embrace a level of experimentation beyond that of the typical e-book or online journal. Mobile devices are a ubiquitous but also very recent technology. Because of this, digital publication methods that use their specific affordances in innovative ways are of interest when we wish to understand how digital media can affect the reception of

poetry, and how we access and relate to culture more broadly. The thesis first examines how poetry's relationship to media has been conceived over the twentieth and twenty-first centuries and how this affects its relationship to digital media. It then takes one specific example of a new digital medium – the mobile device – and examines how remediation into that environment affects the poem as a reading text. To conclude, the thesis uses the observations on the poem in the mobile app to reflect on how newer media forms can affect the perception of poetry's medial ontology and how the integration of poetry more closely into our use of these devices might affect attitudes towards the device itself.

Within poetry, mobile applications make up a small but significant proportion of digital publishing. These apps vary widely in both their design and the types of poetry that are distributed through them. The majority are free to download and use, and so do not represent a revenue stream for their publishers beyond the inclusion of advertising within the app interface or, more indirectly, any book sales that might result from a reader encountering a poet's work on the app. Mobile apps containing poetry come in several varieties. Some are produced by, or in partnership with, established poetry publishers, such as Faber's *The Waste Land* app.[9] Others are produced by journals or other poetry-related organisations. The literary magazine *Popshot*, for instance, publishes all of its issues through its mobile application, as well as in print and PDF e-book format.[10] Likewise, the Poetry Foundation has an app, *Poetry*, which contains a vast number of poems from the public domain and the *Poetry* magazine archives.[11]

Other apps are the outputs of research or artistic projects, such as the *Dial-a-Poem* app, created as part of the 'Crossed Lines' project at Nottingham Trent University. Poets working within the sphere of digital literature have also occasionally made mobile applications a part of their work, such as Stephanie Strickland's *V:Vniverse* or *ABRA* by Amaranth Borsuk, Kate Durbin and Ian Hatcher.[12] Besides those apps that are explicitly designed for delivering poetry and other literary work, there are also more generic mobile applications – for instance, video streaming services such as YouTube or TED Talks – where poetry might make up

[9] 'The Waste Land on the App Store', *The App Store* (Apple Inc., 2020) <https://apps.apple.com/gb/app/the-waste-land/id427434046> [accessed 2nd October 2021]

[10] 'Popshot magazine', *Apps on Google Play* (Google, 2021) <https://play.google.com/store/apps/details?id=com.chelseamag.popshot&hl=en_GB&gl=US> [accessed 5th October 2021]

[11] 'Poetry Mobile App', *Poetry Foundation* (Poetry Foundation, 2021) <https://www.poetryfoundation.org/foundation/mobile> [accessed 2nd October 2021]

[12] Stephanie Strickland, 'V : WaveTercets / Losing L'una & Vniverse App', *Stephanie Strickland* (Stephanie Strickland, 2017) <http://www.stephaniestrickland.com/tercets> [accessed 2nd October 2021]; Amaranth Borsuk, Kate Durbin and Ian Hatcher 'ABRA – a living text', *ABRA* (Ian Hatcher, 2014) <http://www.a-b-r-a.com/> [accessed 2nd October 2021]

some of the content. Other apps combine the reading and writing of poetry by allowing user-created poetry to be submitted and then read by others.

There is, then, no shortage of poetry to be found within the various online app stores, and the app format has been embraced by a range of different parties interested in sharing both older and contemporary work. Because of this, and because of the distinctive visual, haptic and interactive features that are part of the mobile application as a medium, it is important to consider the app seriously as a publishing method in its own right. As smartphones and tablet computers have become ubiquitous in everyday life, more and more of our access to culture and information has been filtered through these devices and the applications running on them. Commentators from a wide range of perspectives remark upon how ubiquitous computing has resulted in many people feeling constantly inundated with ever-updating information – from news sources, social media feeds, emails, et cetera – and this flow of information is in part facilitated by the rise of the portable digital device. Eric Falci notes that poetry has often been seen as having a strong role to play in 'times of crisis.'[13] By increasing our access to information and encouraging through their design a constant attentiveness to updates, smartphones play a major part in communicating a perpetual sense of crisis to many of their users. Examining how the poem is presented via the mobile device has the potential to generate new insights into how a different kind of contemplation might be fostered on a device that is often associated with brief snapshots of attention or with compulsive anxiety.

However, despite the range of literary-focused mobile applications, the app remains an under-examined channel for literature, and for poetry in particular. Most critical and scholarly work on apps in the literary sphere centres around either apps for children, and how the remediation of the picture book affects comprehension of the content, or around interactive literary works that are created specifically for the app format. By contrast, only one of the apps studied in this thesis – *Poems in the Air* – represents the first publication of the poems contained within it. For all of the other apps, the poems were previously published in print form, and were written for that medium. This thesis, then, seeks to redress the lack of attention that the app, as a distinct medium with specific affordances, has received as a method of literary publishing. The research considers the potential shown by this new mode

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[13] Eric Falci, *The Value of Poetry* (Cambridge: Cambridge University Press, 2020), p. 17

of publishing and what this might mean for how poetry is perceived in digital media in the future.

One of the main tasks undertaken in the critical thesis is the development of a methodology suitable for properly examining these kinds of poetry publication, which, for the most part, take a poem written with a specific, more familiar kind of poetics and very consciously and directly incorporate types of attention and interaction that are unusual for such literary work. To do this, I draw upon and extend N Katherine Hayles' notion of media-specific analysis, combining this with a fine-grain model of media from multimodality studies that enables me to think about how the poetic content and the specific technical features of the digital environment work together in producing their effects. This approach is developed and discussed in Chapter 1, before being applied to the four case studies discussed in Chapter 2. Chapter 3, along with the commentaries to the creative work (see below), reflects upon what has been revealed about the relationship between pre-digital poetry and digital media through the application of this methodology.

Creative Thesis Summary

In the creative work, this consideration is then continued through the remediation of poems and the writing of new poetry. The aim in the creative work is to extend the characteristics found in the critical case studies, and to explore new ways of using the affordances of digital media in the display of poetry. The creative work takes the same structure as its starting point – the pre-digital poem presented through digital media – but explores the effect of this remediation in new ways. Through the creation of interfaces to poems and writing new poetry, the creative portfolio is intended to present work that occupies a border between print-and-performance based poetry and digitally-native e-literature. Moving from the creation of interfaces to digitally-influenced poetry writing, the creative thesis as a whole identifies and explores edge cases between the poetics of digital literature and of print literature.

Despite Bloodaxe's long history of engaging with poetry's existence beyond the printed page – for example, through the release of audio recordings and enhanced e-books – they do not publish poets whose work directly engages with digital culture at the technical level, and so artistically innovative digital publications do not make up a part of their publishing output.

This is opposed to some smaller, newer publishing organisations like Visual Editions, SpringGun Press, and New Binary Press. The kind of publishing that Bloodaxe engages in, and the types of poets that they publish, instead generally reinforces an idea of poetry being based around the structure of the printed page and vocal performance. So, when making interfaces in partnership with Bloodaxe – firstly by creating a mobile app to showcase their poets, and later by developing experimental displays using poetry published by them – I was consistently working with poetry that was not written primarily for a strongly interactive, computationally-led digital environment.

This is also the kind of poetry I am most engaged with both critically and as a creative writer. Prior to the beginning of this research project, my practice as a poet and my work as a web and app developer had been very separate. Writing poetry has always been for me a page- and performance-based process, despite my creative engagement with digital media in other aspects of my working life. Considering the effect of digital media on poetry through creative practice has then involved a process of working out not only how page-based poetry can move into a digital environment from a publishing perspective, but also how a page-based creative practice can be reworked to more closely incorporate working with digital media.

As well as being presented as a conventional manuscript of poems, the creative writing in this thesis is also included within an annotated portfolio of work, which is both hosted online and reproduced within this document. The portfolio comprises the poetry in its digital forms along with the interface-creation work that developed alongside it. The 'annotated portfolio' as a method of presenting work was developed by Human-Computer Interaction researchers Bill Gaver and John Bowers. The annotated portfolio is well suited to a project of this type as it calls attention to the 'family resemblances' between ostensibly discrete projects.[14] This is provided by the annotations to the work itself, which in this portfolio come in the form of short pieces of written commentary that expand upon some of the ideas explored in the work, as well as the thematic connections that a piece has to other elements of the portfolio and to the critical thesis.

When creating the digital interfaces for poetry, I was guided by a method of creative digital practice developed by Nick Montfort called 'exploratory programming', which is designed to

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[14] Bill Gaver and John Bowers, 'Annotated Portfolios', *Interactions* 19.4 (2012), pp. 40-9 (pp. 48-9)

encourage the incorporation of programming into the work of humanists and artists. Montfort explains that exploratory programming 'is distinct from developing software to specification' and is instead a more open-ended, heuristic approach to applying computational methods to artistic practice and humanities research.[15] Computation is used in an exploratory manner to create sketches, prototypes and rough models with the aim of revealing something unexpected, rather than aiming for a predetermined result, as in most development and design roles. In this sense, programming is incorporated into the research or artistic practice as a tool that assists in the kinds of intellectual discoveries associated with that kind of work. In this project, it is applied to existing works of poetry in the creation of digital interfaces, and to drafts of my own writing, as a way of writing poetry in a more media-responsive manner. In both kinds of work, the writing of code to process and display poetry texts leads to insights about their structure and the way that language does or could function within them. A more in-depth discussion of exploratory programming, the nature of the annotated portfolio and their suitability for this project can be found in the Introduction to the portfolio itself. (See pp. 119-24)

Through exploration of form, language, and mediation in the interfaces and poems, and reflection upon the process of creation in the portfolio commentaries, I aim to present new insights into the relationship between poetry and its media. Many of these insights were formed through the interface-development process: the writing of code, and repeated testing of different versions of a computer program. This aspect of the creative inquiry is difficult to communicate directly and remains largely intangible when the project is presented as a written thesis. The commentaries within the portfolio are partly an attempt to offset this by explicating some of the development process and its impact on the rest of the project.
The amount of intellectual and creative labour involved in the digital side of the project is also communicated by the source code for many of the interfaces and digital instantiations of the poems, links to which can be found in the appendices to this thesis.[16] I have included this both as documentation of the work and so that the projects might be extended or re-worked by other poets interested in incorporating digital media into their work at a formal level.

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[15] Nick Montfort, 'Exploratory Programming in Digital Humanities Pedagogy and Research' in *A New Companion to Digital Humanities*, ed. by Susan Schreibman et al. (New York: John Wiley & Sons, 2016), pp. 135-47 (p. 136)
[16] See Appendix A (p. 218)

Overall, both elements of the thesis aim to explore the negotiation that occurs at the point of digital mediation and assess what its potential effects on the poem as a literary work might be. Through critical analysis of existing publications in one specific digital form, the smartphone application, I first consider how this has already occurred in the contemporary digital habitus. Then, through creative digital and writing practice, I consider where this might go next, and the effects that the less-explored features of digital media might have on the encounter with poetry.

Chapter Outlines

Chapter 1 begins by outlining a precise definition of the term 'media' to be used in this thesis, drawn from the work of media scholar Lars Elleström. Elleström's model for different classifications of media is useful in a discussion of poetry in digital environments, as the usage of the term in relation to both topics can often be imprecise. Part of the model put forward by Elleström includes the use of the term 'modality', which is also discussed in further detail. From here, the chapter moves on to argue for the usefulness of two terms for describing poetry as a literary form: multimodal and transmedial. Each concept is discussed in terms of its relevance to poetry as it is received in its conventional settings of print and performance, as well as how the terms can be useful when thinking about poetry in newer, digital media environments. Finally, the first chapter ends with a discussion of how the remediative nature of digital media – and in particular more conventional methods of digital publishing – can serve to heighten the sense of poetry as both multimodal and transmedial.

In Chapter 2, four mobile applications are analysed as methods of publishing poetry. The chapter begins by introducing N Katherine Hayles' method of media-specific analysis (MSA), which is the main method by which the apps are examined. After explaining the relevance of MSA to the task at hand, the chapter then moves on to outlining how the apps are being treated as reading interfaces, despite their unorthodox methods of presenting the poetry texts that they contain. Each of the four apps is then analysed in turn. These are: *The Waste Land*, published by Faber & Faber and Touch Press in 2011; *Poems in the Air*, published by Northumberland National Park and TAC Design in 2015; *Puzzling Poetry*, published by Studio Louter in 2016; and *Translatory*, published by Arc Publications, also in 2016. For each one, I consider how the poem as reading text is combined with the technical

features and user behaviours built into the mobile device, and how this affects the reader's experience of the poem.

Following on from the individual analyses of the apps, Chapter 3 considers the commonalities between the four case studies and uses this to suggest criteria that 'the poetry app' as a publishing format possesses, as distinct from more conventional e-book-style publishing and fully-fledged digital poetry. It concludes with the argument that all of the apps encourage, through different mechanisms, an exploratory approach to understanding a poem. The exact nature of this exploration is determined by the affordances of the mobile device that are brought into the reading experience by the app's interface, leading to a modelling of different existing approaches to reading and understanding poetry in each app. What each app shares, however, is an approach that involves instantiating modes of attention not normally included in the reading of poetry, but used in a way that seeks to bring the more traditional close or deep attention to poetry through the functions of the device, rather than detracting attention from the poem, or seeking to fundamentally change the reader's understanding of what poetry is.

The critical thesis is followed by the creative portfolio. The portfolio content is presented in two forms: a website that hosts the commentaries alongside the digital works themselves, and a word-processed document that comprises the same commentaries and the poetry in standard manuscript form. I present the work this way for two reasons. Firstly, as it is necessary for the experimental interfaces and other digitally-mediated pieces of creative work to be presented through the browser, a web-based portfolio that presents the creative work alongside the annotation commentaries structurally makes the most sense. But, as the other elements of the thesis are presented in manuscript form, it seemed sensible to also include the commentary for the portfolio items with this work so that this element of the research would not be missing from the thesis in its printed form. It is my hope that presenting the thesis in these two parallel ways will allow readers to encounter the creative and reflective elements of the research in the format that is most suited to them. The Introduction and Conclusion to the creative portfolio (see pp. 119-24 and pp. 162-64 respectively) discuss some of the themes that unite the critical and creative components of the thesis.

Key Concepts

The rest of this chapter will introduce several concepts that underpin the discussion of poetry in digital media throughout the rest of the thesis. Firstly, I will examine in more detail the concept of remediation, how it relates to the contemporary experience of digitally-mediated environments, and how it can be used when discussing poetry's relationship to its media. I will then consider how our relationship to the technologies of mediation have been conceptualised through the idea of modes of attention, and how this is particularly relevant to discussions of reading in digital environments. Finally, in order to specify the kinds of poetry that are under consideration in this research, I will discuss the genre of poetry that most commonly engages with digital media – digital poetry, or e-poetry – and the defining features of this type of poetry, encompassed by what Loss Pequeño Glazier calls 'digital poetics'. I use Glazier's work, along with definitions of digital poetry by other electronic literature scholars, to identify an opposing 'pre-digital poetics', which applies to the vast majority of mainstream published poetry and is a useful working model for limiting the scope of this thesis to a manageable size.

Remediation

The term 'remediation' was coined by Jay David Bolter and Richard Grusin in *Remediation: Understanding New Media* to describe the process by which new media borrow and refashion elements from older media. As the title suggests, their work focuses mainly on digital media, though they argue that the act of remediation itself has occurred throughout media history. Central to the concept of remediation are the ideas of 'immediacy' and 'hypermediacy'. Immediacy is a state of general unawareness of the medium itself, usually brought about by deeply entrenched cultural familiarity and ubiquity of a media form and its codes, to the point that it is rarely noticed as a medium in its own right. According to Bolter and Grusin, 'immediacy dictates that the medium itself should disappear and leave us in the presence of the thing represented.'[17] With these more 'immediate' encounters with mediated content, a sense of immersion in the content itself is often created, and we as an audience or user cease to consider the experience as mediated. Hypermediacy, on the other hand, actively draws the audience's attention to the medium and its material features as a part of communicating its

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[17] Bolter and Grusin, p. 6

content or message. 'Designers of hypermediated forms,' Bolter and Grusin explain, 'ask us to take pleasure in the act of mediation' itself.[18]

In Bolter and Grusin's model of remediation, the immediacy achieved by an older medium through cultural familiarity leads to the features of that medium being borrowed as media are developed.[19] However, at the same time, these new media often draw attention to those elements that differ from their predecessors, presenting them as improvements or enhancements. In this way, argue Bolter and Grusin, most media have always combined the two complementary logics in the ways that they present their content to an audience and, likewise, in contemporary times, 'new digital media oscillate between immediacy and hypermediacy, between transparency and opacity.'[20]

Within the field of literature, this can be seen in e-book and e-reader technologies, where much has been done to replicate the ease and comfort that many find in reading printed books, while at the same time frequently incorporating affordances of digital text, such as hypertextual linking, into their design. Alongside this, the ability of the e-reader or mobile device to store many thousands of e-book files means that a person can effectively carry a whole library's worth of books around with them.

Here we see a typical combination of immediacy and hypermediacy, in that the digital reading device simultaneously aims to be very much like the printed book, but also incorporate perceived improvements to it. The culturally familiar elements of the printed book help to inform the interaction with the newer medium, making it feel more intuitive to the user. As we will see later in this thesis, other digital interfaces can draw upon other, newer, digitally-native models of interaction to inform their structures by relying upon the user's familiarity with media from outside of reading, but applying them to the presentation of a text. This further remediation is made possible by the ubiquity of those multifunctional, multimedia digital devices in contemporary culture, just as the printed book's ubiquity helped to inform the structure of the typical e-book.

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[18] Ibid., p. 14
[19] Ibid., p. 9
[20] Ibid., p. 17

In this thesis, I will explore how different mobile applications use the potential for transparent immediacy and for hypermediacy in the mobile device when presenting works of poetry. For each app, the approach to the remediation of poetry into a digital form includes a different mixture of immediacy and hypermediacy to what is typically seen in e-book and online journal publication. All of the poems, however, belong to a lineage of poetry that comes from the book-reading and live-performing norms that pre-date the mobile device or any other digital media.

Types of Attention

Through the logic of remediation, we can see all of our mediated interactions as being a combination of different immediate and hypermediated elements, which influence our awareness of the medium itself and its role in our experience. One way to think about this is to consider how our attention is directed by a given feature of the medium: to what extent does the medium appear to aim towards transparency, and to what extent does it draw attention to its own materiality?

Writing about the effects that new media environments have on users who have grown up using them, Hayles identifies two modes of attention, which she attributes to two different kinds of media for texts. First mentioned in 'Hyper and Deep Attention: The Generational Divide in Cognitive Modes' (2007) and expanded upon in *How We Think: Digital Media and Contemporary Technogenesis*, the two modes - deep attention and hyper attention - are associated by Hayles with older and younger generations, respectively. Deep attention, Hayles says, is 'the cognitive style traditionally associated with the humanities' and 'is characterised by concentrating on a single object for long periods.'[21] In this case, Hayles associates this kind of attention with reading, and more specifically, the reading of printed books and a strong cultural familiarity with this practice, hence its association with an older generation of media consumer. Hyper attention, on the other hand, involves 'switching focus rapidly among different tasks, preferring multiple information streams, [and] seeking a high level of stimulation.'[22] The image that Hayles uses to illustrate this point is that of a person

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[21] Hayles (2007), p. 187
[22] Ibid.

playing a video game, but, as she notes in *How We Think*, it could also apply to a person using a web browser or other windowed digital interface for reading.[23]

These kinds of attention, and the kinds of reading practices that Hayles associates with them - close reading and hyper reading, respectively - can be mapped onto the styles of remediation that are present within the media involved.[24] The printed book, for example, while not always containing a novel or long text that would necessarily require 'deep attention', is able to instantiate this kind of attention in part through its immediacy as a highly familiar medial form, which renders it seemingly very simple and intuitive to use. On top of this, its reliance on only one sensory input for communication contributes to the immersion that those who engage in deep attention seek.

By contrast, many forms of digital media make use of hyper attention, with its frequently shifting foci, by repeatedly drawing attention back to the mediated nature of the content. This is largely done by a heavier reliance on interaction from the user than more immediate cultural forms. But, on the smartphone especially, this may also come from the interruption of one activity, either voluntarily or through prompting from the device itself, to shift to another activity or text on the same device. Thus, by highlighting its own ability to mediate more than one activity or text at any given moment, the digital device fosters hyper attention much more readily than the printed book typically would.

Society and culture in general are widely regarded as having become more hyper attention oriented as digital media and networked computing have become more ubiquitous over the past several decades. Hayles notes, writing long after the advent of the mobile phone, but before the smartphone and tablet computer, that the movement of digital media into the bedrooms of young people greatly encouraged the widespread adoption of hyper-attention in everyday life.[25] The smartphone exacerbates this situation further, bringing heavily mediated, multi-channel and highly interactive experiences into almost any moment of the day.

Hyper attention, then, has become a large part of how we interact with the world around us. The children and young people mentioned in Hayles' work have aged and been followed by

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[23] N. Katherine Hayles, *How We Think: Digital Media and Contemporary Technogenesis* (Chicago: University of Chicago Press, 2013), p. 69
[24] Ibid.
[25] Hayles (2007), p. 191

another generation, even more immersed in digital media, and a new wave of even more ubiquitous media technology has emerged. Contrast this with the kind of attention that we generally regard poetry as requiring: that close and sustained focus that Hayles calls deep attention, the kind of attention that is brought into play in the practice of close reading within literary studies. This idea is a commonplace within discussions of poetry reading. The idea that poetry can often only have its full effect by being read slowly, or multiple times, or with special attention to the words beyond their usual denotative meaning, are oft-repeated suggestions, and all carry the implied message that sustained deep attention is the appropriate way to treat the poem.

As will be discussed further in the next chapter, e-books and other frameworks for digital reading often attempt to borrow the immediacy of print reading, and thus its capacity for instantiating deep attention, in order to create what is seen as an appropriate reading condition for literature. However, these efforts work against the overall design of the device itself and the learned behaviours that surround it, which instead largely point towards hyper-attentive activity. The main part of the critical thesis will then investigate the effect of taking poetry out of its deep-attention-centric material setting and presenting it through a digital method – the app – which more readily incorporates the device's tendency towards hyper attention.

Within the discourse around deep and hyper attention, there is a clear association that comes along with the dichotomy between the two modes of interaction. Hyper attention, by dint of its speed and its fragmentary nature, is generally regarded as a shallow, uncritical thought process, while deep attention is seen to lead to deeper, more worthwhile, outcomes for the one who participates in it. Deep attention, deep reading, deep thought, all imply a richer and more informed experience for the thinker; they are the foundational principles of critical thought and of traditional notions of aesthetic appreciation in literature. As is discussed further on in the Introduction, this thesis explores the app interface as a site for blurring the dichotomy of hyper and deep, and for attempting, through one type of interaction, the outcomes normally associated with the other. The app interface within the poetry apps examined in the critical thesis, and the work developed in the creative portfolio, is a site in which both the activity of the reader and the creative practice of the app's author can take on hyper-attention-associated features when dealing with deep-attention-associated texts. The

results of this feature of the digital poetry interface form the main research question that runs through this project as a whole.

Digital and Pre-Digital Poetics

As noted above, poetry can be found in a wide variety of digital forms, from website-based journals, to smartphone apps, to interactive installations. For decades, and especially since the proliferation of computers in the home and workplace in the early 1990s, a subset of poets and other creative writers have not only written and disseminated their work using digital technologies and networks, but have also made the functions, structures and underlying logics of computational media a fundamental part of their writing practice. This kind of work can be categorised under the term 'electronic literature' – otherwise known as e-lit or digital literature – or, when the work is considered to be poetic rather than narrative-based, digital poetry or e-poetry. All of these terms are used more or less interchangeably within the field of e-literature practice and scholarship, with 'e-poetry' being a smaller subset of the broader 'e-literature' in much the same way as their analogue equivalents.

The poetry and the digital publication methods analysed in this thesis do not fall within the generally accepted definitions of e-poetry. None of the case-study apps are, for instance, listed in the *Electronic Literature Directory*, or on the website *I ♥ E-Poetry*, two extensive and authoritative lists of e-literature. But more importantly, none of the poetry contained within the four apps expresses the kinds of concerns or formal characteristics that are generally used to define e-poetry. The most prominent of these definitions comes from Loss Pequeño Glazier, and the set of ideas and criteria that he calls 'digital poetics'. This section of the thesis will now look more closely at Glazier's idea of digital poetics, plus other prominent ideas of e-poetry. It will then follow this with a discussion of what defines the kind of poetry studied in this thesis, which is outside of digital poetics and belongs to an older, more mainstream and more widely established idea of poetry.

Digital Poetics

In his book *Digital Poetics: The Making of E-Poetries*, Glazier outlines the characteristics of literary works, written in and for a digital medium, that he sees as truly engaging with

electronic media as a space of poesis.[26] For Glazier, writing at the beginning of the twenty-first century, the three main ways that this is expressed are: through hypertext, the use of linking between textual elements; visual and kinetic text, the use of animation and graphics; and 'works in programmable media', which incorporates the computational and user-responsive potential of a digital medium.[27] This set of criteria has largely come to define what is generally regarded as belonging to the realm of e-literature, and later scholars and critics have mostly built upon Glazier's notion of digital poetics when forming their own ideas of e-literature.

As Glazier notes, 'focus on making's relation to the machine has been a preoccupation of poetry throughout the past century.'[28] Glazier focuses in particular on Charles Olson's artistic and expressive uses of the technical affordances of the typewriter to encode meaning into the visual layout of a poem text. For Glazier, the experimental work of digital poets expands this kind of awareness of the material conditions of the poem's creation and reception into the sphere of digital media. Following the same line of thought, e-literature scholar Leonardo Flores states that 'E-poetry [or digital poetry] is poetry that arises from an engagement with the possibilities offered by digital media,' just as many of the formal and linguistic innovations of contemporary poetry have arisen from creative engagement with previous developments in the technology of writing and reproducing texts.[29]

Within his definition, Flores has these five categories of digital poetry: generative, code, visual and kinetic, multimedia, and interactive.[30] These represent an expansion and refinement of Glazier's divisions, with the 'computational media' poems being separated into the generative and the interactive, and the addition of code poems, which are texts that combine computer code syntax with traditional poetic form.

Other, later scholars of electronic literature have taken a broader look at the field and attempted to define digital poetics by what is shared by works from across the categories that Glazier and Flores identify. For Joseph Tabbi, in an age of ubiquitous electronic interfaces, engaging poetically with the digital means interrogating its workings and bringing this to the

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[26] Loss Pequeño Glazier, *Digital Poetics: The Making of E-Poetries* (Tuscaloosa: University of Alabama Press, 2001), p. 3
[27] Ibid., p. 6
[28] Ibid., p. 32
[29] Leonardo Flores, 'What is E-Poetry?' in *I ♥ E-Poetry* (1st April 2015) <http://iloveepoetry.org/?p=11968> [accessed 2nd August 2021]
[30] Leonardo Flores, 'Digital Poetry' in *The Johns Hopkins Guide to Digital Media*, ed. by Marie-Laure Ryan, Lori Emerson, and Benjamin J. Robertson (Baltimore: Johns Hopkins University Press, 2014), pp. 155-62 (pp. 156-7)

attention of the reader or audience. He characterises this as a form of 'estrangement' which, he points out is 'precisely what the literary arts have always been tasked to recover.'[31] This element of the traditionally literary within e-literature is implicit in the models of digital poetics that Glazier and Flores put forward, but Tabbi usefully makes it the focus of his definition, highlighting the effect rather than the formal elements that might make something into e-literature.

Tabbi's alternative perspective comes from an acknowledgement that the formal features of digital media are apt to shift and change rapidly as technology develops, prompting him to take a broader, more abstract view of how one might define the digitally poetic. Extending this further, James O'Sullivan also shows a reluctance to tie a definition of digital poetics to the use of certain media elements. In his *Towards a Digital Poetics*, O'Sullivan instead identifies the work of e-literature as something that 'operates at the juncture between the literary, the ludic and the sensory'.[32] The creation of effect and meaning comes from the interaction between how text is read, how the medium is played with, and how the senses are engaged. Key to O'Sullivan's model is the middle term of the 'ludic' element: e-literature is characterised by an idea of play within its medium. Besides this defining feature, and partly because of it, O'Sullivan resists categorisation and typologies of the earlier assessments of digital poetics. Like Tabbi, O'Sullivan sees the nature of e-literature as being in a state of constant flux, as the technologies that it emerges from and responds to change at such a rapid pace.

One characteristic of e-literature and a truly digital poetics on which O'Sullivan does concur with the earlier authors is the idea that the effect of the work must be something that cannot be effectively remediated out of its digital form without severe damage. Working within digital poetics means that the inseparability of form and content within a poetic work includes a form that is inherently digital. But, argues O'Sullivan, since what 'the digital' involves, both technologically and experientially, is always changing, a definition of digital poetics is something that we can only ever be moving towards.[33]

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[31] Joseph Tabbi, 'Introduction' in *The Bloomsbury Handbook of Electronic Literature*, ed. by Joseph Tabbi (London: Bloomsbury Academic, 2017), pp. 1-9 (p. 8)
[32] James O'Sullivan, *Towards a Digital Poetics: Electronic Literature and Literary Games* (London: Palgrave, 2019), p. xv
[33] Ibid., p. 126

Despite their own reluctance to base an idea of digital poetics on a typology of features, neither Tabbi nor O'Sullivan actively refute Glazier's and Flores' own lists of categories as a way of thinking about how a literary work can operate poetically in digital media. Instead, their broader, more abstract perspectives on digital poetics act as an extension of the earlier work, a shift from identifying the tools and techniques available to the digital poet to a consideration of how digital media can provide a particular, unique kind of literary environment.

Taking into account the broad range of perspectives on the poetics of writing for digital media, we can think of digital poetics as incorporating three main elements. Firstly, the use within the work of those features that are unique to, or highly prominent in, digital and computational media. Secondly, the production of aesthetic and literary effects that could only be generated through digital media, and not effectively remediated to print. Thirdly, a concern with producing in the audience an awareness of the workings of the medium and the associated technologies through which the work is being accessed.

Pre-digital Poetics

Flores notes that '[w]hatever new digital media technologies emerge, there will always be poets interested in how they shape language, and the engagement with their materiality will produce digital poetry.'[34] Here, Flores signals a particular conception of what it is that makes a piece of writing poetic: an engagement with the material features of the language, features that change depending upon the nature of the medium through which the language is communicated. These poetic concerns pre-date digital media and the digital poets' experiments with them, and are a key component of how poetry has generated aesthetic effect in spoken and written form for centuries. This is the approach to understanding poetry – both its writing and reading – that I am calling pre-digital poetics.

A pre-digital poetics is one that engages primarily with the materialities of print and live performance, the two modes of dissemination that have conventionally been associated with contemporary poetry in the twentieth and twenty-first centuries. It can be thought of as the default position of the majority of contemporary work written and published within

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[34] Flores (2014), p. 160

mainstream poetry today, but it is worth making explicit here, in a discussion of poetry in digital media, to differentiate it from digital poetry, written specifically for digital media. It is useful to define and name this kind of poetic practice through what it *is*, rather than what it is not. Although I am defining it here in opposition to digital poetics, it is not adequate simply to say that a pre-digital poetics is one that does not engage with the ideas and practices aligned with digital poetics. Instead, as digital poetics is largely a way of considering how a poetic work interacts with its medium, it is more useful to consider poetry from outside the field of e-literature in this way too.

While digital poetics has emerged in response to the growth of digital media, it remains in the minority as an approach to both writing and distributing poetry, even when these practices are largely based on digital methods. Pre-digital poetics, while still often resulting from the tools and infrastructure of a heavily digital environment – word processing, email correspondence, sound recording, et cetera – does not normally utilise digital materiality and compositional methods beyond those typically found in everyday life. It is not usually the concern of pre-digital poetics to explore the potentials of digital practices for the creation of new kinds of poetry. In pre-digital poetics, 'the means of poetry production' that are in the hands of the poet, and thus the materialities that they are able to creatively engage with, are generally those that point towards the print-like or performance-based reproduction of the poem.[35]

This is not to say that poetry which expresses a pre-digital poetics cannot be innovative, only that its innovations focus upon the possibilities available to poetry written for print publication and oral performance, such as linguistic experimentation, performance style, or layout on a static page. Jonathan Culler points out that literature can be thought of as 'language that "foregrounds" language itself: makes it strange, thrusts it at you' and that poetry '[i]n particular, […] organizes the sound plane of language so as to make it something to reckon with.'[36] We read poetry as a form of communication that draws attention to language's material features, both in terms of its visual appearance and its sounds, and authors working within pre-digital poetics can and do experiment with these elements.

Generally speaking, pre-digital poetics covers the work of poets who are published in printed collection form. Their publishers share a broadly similar set of practices concerning the

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[35] Glazier, p. 25
[36] Jonathan Culler, *Literary Theory: A Very Short Introduction* (London: Oxford University Press, 1997), p. 28

production, promotion and dissemination of poetry texts, and thus contribute to an idea of this kind of poetry in the minds of their audience. These practices include two key ideas: firstly, the book – either monographic poetry collection or edited anthology – as the main, most significant form of poetry distribution; secondly, the poetry reading as a roughly standardised event format that is both a means of promoting the work of a poet and an aesthetic event in its own right. These two practices stem from, and reinforce, the idea of poetry as the 'language art', an art-form that, like story-telling, can cover all of the sensory and medial forms through which language can be carried.[37] Poetry is then perceived as also belonging to a tradition of oral performance that allows the text to be experienced through live events and audio-visual recordings, and for these to be considered as meaningful encounters with the text in their own right. As with composition, the means of disseminating the written or recorded poem are very often digitally-based – posting poems on social media, or hosting video recordings on YouTube, for example – but the poems themselves remain structured around the affordances and expectations of the page and the live performance.

Other kinds of 'pre-digital poetics' do, of course, exist besides the page-and-performance model outlined here. Poetry created in situations where the media of composition and reception are not assumed to be the book or the stage should be and have been thought of in different terms when exploring their effects. One example is what Deirdre Osbourne calls 'landmark poetics', wherein the written poetry produces its literary effects through its display in large-scale public spaces, often as public art, such as Patience Agbabi's 'Chains' sonnet sequence at the Chatham Dockyards, or 'The Guilt of Cain' by Lemn Sissay, installed at Fen Court in London.[38] Another example might be poetry written within the performance-poetry or slam scene, where publication in book form, and hence any visual element of the poem-as-text, is not part of the consideration when writing. These examples, however, like digital poetics, represent approaches to poetry from outside the writing and publishing mainstream. The pre-digital poetics considered in this thesis instead represents what can broadly be called the standard model of writing and disseminating poetry. It is the conception of the poem as a particular kind of media object that is foregrounded by the publishing industry, as well as by popular and academic discussion of poetry.

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[37] David Antin, 'Is There a Postmodernism?', *Bucknell Review* 25:2 (1980), pp. 127-35 (p. 130)
[38] Deirdre Osborne, 'Landmark Poetics: Texts and Textures', paper delivered at the conference 'Text and Textuality' (Durham University [online], 15th-16th July 2021)

Poetry written within pre-digital poetics uses both the sound and visual appearance of language creatively to produce its effects. Just as digital poetry – through digital poetics – produces its literary effects through the material features of the medium for its language – the pixelated screen, the responsive interface, the animated window – so too does the work of poetry from a pre-digital poetics. In this case, the material features are those of the printed page and the speaking voice. In this thesis, I do not fully differentiate these into a 'page poetics' and an 'oral poetics' for one key reason: that I wish to address the kind of poetry – that of the poetic mainstream – that is generally written with both print publication and spoken recitation in mind.

That is, in the pre-digital poetics that I refer to here, the poem can be thought of as a single work that is created for both visual and aural reading, and that exists within a complex interplay between the two, which can also be strongly influenced by context. Besides the silent reading of a poem and hearing it in performance, there are a large number of other ways in which a pre-digital poem can be encountered, with varying degrees of social or mediating factors. Teachers or co-participants in a workshop, radio or podcast hosts, writers of commentary in books or social media posts, or performers of the poem besides the author, can all profoundly affect the way in which a poem is understood by presenting it as a subject for discussion and reinterpretation. Chapter 2 will examine some ways that contexts beside silent reading and authorial performance are brought into the poetic encounter via poetry apps. Before this, though, Chapter 1 will first explore how this interplay between the written and the spoken word is expressed in the form of the pre-digital poem by considering the poem as a multimodal and transmedial literary artefact.

Chapter 1: Poetry's Media and the Digital Mediasphere

I will now consider how publication in digital media affects the textuality of poetry that belongs within pre-digital poetics. As discussed in the introduction, this applies, broadly speaking, to work composed within a poetic tradition that presumes print, or print-like, publication and oral performance as the main methods of disseminating poetry.[1] This is opposed to digital poetry, or e-poetry, which is composed to incorporate features specific to digital media into the poetic structure of the work itself. In this chapter, I argue for two features of contemporary pre-digital poetry that I consider to be important parts of how we conceive of it as a genre, but that are kept latent within its conventional media. The first of these is the poem as a multimodal cultural artefact, a literary work that draws heavily upon the communicative potential of multiple sensory and semiotic modalities throughout its composition, dissemination and reception. After this, I go on to discuss how this foregrounding of multisensory meaning-making leads to the idea of the poem as a transmedial literary work: one that sits between media without belonging primarily to one medium in particular.

The last part of this chapter will then focus on some of the more common ways that poetry from outside of digital poetics is presented in digital media. These methods largely replicate, or combine, poetry's conventional media of page and live reading. These include websites, mainly in the form of online literary journals, e-books, and mobile applications that follow similar conventions. As John Cayley argues, even digital methods of publication that aim for a near-transparently immediate remediation of a print reading experience still have distinct digital qualities that affect the encounter with a text, and so merit a critical attention to their own digital materiality.[2] Bringing a non-digital poem into a digital publishing platform can, to varying degrees, import some elements of digital poetics onto it as a digital text, depending upon the features of the digital environment. For example, publishing a poem in an e-book anthology might include making some of the words into hypertext links to a glossary or notes section within the document. It might also involve embedding a video of the poem in performance, making the text into a kind of multimedia digital artefact. The potential for

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[1] See pp. 21-4 of this thesis.
[2] John Cayley, 'Aurature at the End(s) of Electronic Literature', *electronic book review* (2nd May 2017) <https://electronicbookreview.com/essay/aurature-at-the-ends-of-electronic-literature/> [accessed 2nd August 2021]

reframing the poem's materiality reflects the multimodality and transmediality of pre-digital poetry. Both aspects arise from the lineage of Romantic and Modernist poetics that feed the popular conception of mainstream contemporary poetry, and both are affected by the affordances of the poem's new digital environment. This consideration of more straightforward digital remediations of poetry represents the first step in identifying edge cases between e-poetry and e-publishing that are explored in later chapters.

Modalities and Media

Firstly, however, it is important to have some clarity around two terms in particular: media and mode. Because both terms have complex and often overlapping definitions, depending on discipline and context, it is useful for an interdisciplinary project such as this one to have a detailed model of how they inter-relate within a work before considering their effects. Marshall McLuhan famously stated that 'the "content" of any medium is always another medium' since a medium can be thought of very broadly as 'an extension of ourselves.'[3] In terms of poetry, this can be exemplified by a printed collection of poems, in which case the book as an object, the paper page, the poem on the page, the written text that makes up the poem, and the language represented by that writing can all be thought of as a 'medium', an extension of human thought and action.

The multifaceted nature of the idea of media is borne out in the discussion of poetry, where, depending on context, poetry can be thought of as a medium in its own right, an artwork constructed from a particular medium, or a component in a larger, overarching medium. In their introduction to *Strong Words*, for instance, W.N. Herbert and Matthew Hollis describe the poem as 'a commonplace, everyday medium' as they argue for poetry being considered on its own terms, rather than those of other, equivalent forms of communication such as journalism.[4] With the publication of *Strong Words* – an anthology of manifestos and statements on poetry by practicing poets – Herbert and Hollis are calling attention to the way that poetry is variously defined *by poets* – the people whose craft is poetry, who communicate using poetry – and so the term medium is used to make that point. Eduardo Kac, on the other hand, uses the term 'media' in relation to poetry in a different way. For Kac, 'media poetry'

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[3] Marshall McLuhan, *Understanding Media: The Extensions of Man* [Critical edition], ed. by W. Terrence Gordon (Berkeley: Gingko Press, 2003), p. 19

[4] W.N. Herbert and Matthew Hollis, 'Introduction: Writing into the Dark' in *Strong Words: Modern Poets on Modern Poetry*, ed. by W.N. Herbert and Matthew Hollis (Tarset: Bloodaxe Books, 2000), pp. 11-6 (p. 12)

designates a particular subset of poetry that consciously sets out to engage experimentally with the technologies through which it is communicated: 'reshaping the media and transforming technology into an instrument of the imagination.'[5] Here, 'media' – rather than being poetry itself – is the means of transmission that stands between the poet and the audience, and could refer to channels as diverse as the material book, video, or – as in Kac's own work – genetic code. Other writers, meanwhile, discuss poetry's relationship to the concept of media in terms of what the poem is constructed from. Thomas Ford, for instance, describes it as a 'critical commonplace […] that the medium of poetry is language.'[6] Here, media are the raw materials from which the poem is put together at the most fundamental level.

Each of these different formulations of the relationship between poetry and media express a different facet of what is meant by a medium. As a way of addressing this complexity, media theorist Lars Elleström provides a comprehensive account of how mode and medium function together from a social semiotic point of view, which helps to differentiate the varied uses of the term 'media' in particular. For Elleström, 'modes' are the most basic elements that make up an act of communication through a given medium. These modes are essentially any 'way to be or do things' and constitute all of the myriad ways that a person might make meaning within a given communication.[7] Modes fall into four categories, or 'modalities': material, sensorial, spaciotemporal, and semiotic.[8] Together, the combination of modes from each of the four modalities forms what Elleström terms a 'basic medium'. These basic media – such as writing, still image, or iconic bodily performance – form abstract categorisations of communication methods.[9]

Basic media – or, more often, combinations of basic media – are then placed in socio-cultural contexts to form 'qualified media': culturally-defined forms such as music, cinema, sculpture or poetry.[10] These qualified media are communicated to the receiver by a 'technical medium', a specific material object or environment that forms the physical setting for the reception of the communicative act.[11] Examples of these are the printed book, the theatre, the radio, or the

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[5] Eduardo Kac, 'Introduction' in *Media Poetry: An International Anthology*, ed. by Eduardo Kac (Bristol: Intellect Books, 2007), pp.7-10 (p. 8)
[6] Thomas H. Ford, 'Poetry's Media', *New Literary History* 44 (2013), pp. 449–69 (p. 449)
[7] Lars Elleström, 'The Modalities of Media: A Model for Understanding Intermedial Relations' in *Media Borders, Multimodality and Intermediality*, ed. by Lars Elleström (London: Palgrave, 2010), pp. 11-48 (p. 14)
[8] Ibid., p. 17
[9] Ibid., p. 27
[10] Ibid.
[11] Ibid., p. 30-1

smartphone. Closing the loop of this model back to its beginning, Elleström points out that a technical medium can be defined by which modes (and, by extension, which basic media) it can most effectively mediate.[12] The modes to which a technical medium is best suited are directly linked to its affordances, since this determines which activities can be performed with it by the user. The technical medium of the smartphone, for instance, is well suited to communicating the qualified medium of the map, since its modes include visuality, the haptic, and interactivity, meaning that it affords looking at the map as well as actions such as zooming in and out, and learning one's current location.

Such a detailed framework is useful when discussing poetry's relationship to digital media, and media more generally, because, as Elleström demonstrates through his different terms, the word 'medium' can be applied to a very broad range of aspects involved in the communication and reception of a text. As will be seen later in this chapter, it is partly this imprecision over what is being referred to by the term 'medium' that has given poetry its rather unusual relationship to materiality. Within the rest of this thesis, I will use Elleström's terminology – basic media, qualified media, technical media – as a way of ensuring precision in my own discussion of poetry and media. It should be noted, however, that the term 'digital media' – used throughout this thesis and much other critical writing – remains a broad and sometimes vague umbrella term for both devices and methods of communication that involve electronic, computational technologies. In my writing, I generally refer to digital media as a subset of technical media, since I am examining how the encounter with the poem on a digital device, such as a computer or smartphone, affects its reception. However, even this involves some inevitable crossover with qualified media in later chapters, as comparisons to games and other more abstract cultural forms are brought into the discussion.

Poetry and Multimodality

The term 'multimodality' is used to identify how communicative acts, including cultural texts, make use of multiple semiotic channels simultaneously in the communication of meaning and affect. It is a term used across media studies, creative practice, and human-computer interaction, and so is a useful concept when thinking about how an art-form such as poetry is affected by the way that it is mediated.

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[12] Ibid., p. 30

Within media studies, 'multimodality' as a concept is most strongly associated with the work of Gunther Kress. In his 2009 book *Multimodality*, he asserts that all communications, and all texts, are to a greater or lesser degree multimodal: that is, that they utilise different combinations of sensory interaction and social-encoded meanings simultaneously in their communication.[13] A book, for example, while primarily communicating through visual means, still utilises different visual communication methods besides alphabetic text, such as typographical layout conventions and images, to communicate meaning to a reader. However, despite Kress's point about all texts being inherently multimodal, multimodality is a particularly useful framework through which to examine poetry specifically, as poetry has been conceived of as very strongly, and very self-consciously, multimodal for much of its history. Through the joint emphasis on the visual and aural qualities of the poem in composition and reception, poetry comes to be seen as a multimodal genre, albeit one that is often mediated in ways that strongly foreground one modality over others, such as a book or audio recording.

Within pre-digital poetics, a poem is often written multi-modally: that is, with its visual and aural reception in mind. Because of this, the technical medium through which it is delivered can heavily inflect its interpretation, depending upon which sensory modes are available, or foregrounded, in its reception. Following Kress's work, Aline Federico notes that, 'in reality, the written text is multimodal, because it shows the verbal language represented visually, thus graphic elements such as font, size and colour contribute to the construction of meaning.'[14] Federico goes on to mention concrete poetry as a clear example of where this aspect of poetry becomes highly relevant. However, the majority of contemporary poetry in free verse also utilises the graphic features of the line and stanza break to convey meaning or charge the poem with aesthetic effect. Elleström, for example, uses the example of Sylvia Plath's 'I am Vertical' to demonstrate that, although the poem is not normally classed as 'visual poetry', nor even as being 'eye-catching' in its appearance on the page, it nonetheless can be meaningfully read through the iconicity of its layout, its conscious usage of relationships between the words and lines on the page.[15] In this sense, and drawing on Kress' point above, considering poetry as multimodal is not only a case of recognising the work of those poets

[13] Gunther Kress, *Multimodality: A Social Semiotic Approach to Contemporary Communication* (London: Taylor and Francis, 2009), p. 1
[14] Aline Federico, 'The future of the reader or the reader of the future: children's interactive picturebook apps and multi-literacies', *Cadernos de Letras da UFF Dossiê* 52, pp. 121-39 (p. 125)
[15] Lars Elleström, 'Visual Iconicity in Poetry: Replacing the Notion of "Visual Poetry"', *Orbis Litterarium* 71:6 (2016), pp. 437-72 (p. 442)

whose work is predominantly performance-based, but also of recognising the simultaneously aural and visual elements of any work of poetry.

In *On Poetry*, the poet Glyn Maxwell characterises poetry as being formed from two opposing components: 'black' and 'white'.[16] Throughout the essays in the book, the signification of these two terms is deliberately fluid, but the fundamental point is that white signifies the abstract idea of absence and black of presence. These two elements of the poem are then expressed through different sensory modes depending upon the medium through which the poem is encountered: most obviously, the black of printed ink and the white of the page, but also black/presence is characterised repeatedly as sound and white as silence. Poets may then use these elements, combining and blurring them productively to produce poetic effect. For Maxwell, silence/absence/whiteness is not a passive element in the work of poetry, but a balancing force to the presence of the word, be it encountered aurally or visually.

Maxwell's blurring of the sonic and visual aspects of poetry points to how it is conceived as multimodal at the point of composition. Other contemporary poets, such as David Morley at an online event for the Newcastle Centre for the Literary Arts, and Eduardo C Corral, speaking on the Poetry Foundation's *VS* podcast, have also alluded to the multimodal approach inherent in much writing of poetry.[17] Both writers reference the influence of their own speech impediments on their writing, which limited the syllables and sound patterns that they might confidently speak out loud in performance, and consequently dictated the content and form of the poems printed in their respective books. Here we see that, while both poets were writing with book publication in mind, their ability to vocalise the poems themselves, that is, the work's existence in sonic as well as visual form, was an essential part of their creation. The poem was conceived simultaneously as something to communicate meaning by being read from the page and by being performed aloud, a key aspect of mainstream pre-digital poetics.

Poetry's multimodality is also seen in the ways that it is commonly distributed to, and encountered by, an audience. Discussion around the reading of poetry often highlights the

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[16] Glyn Maxwell, *On Poetry* (London: Oberon Books, 2016), p. 3

[17] David Morley, 'PBS Autumn/Winter Showcase: David Morley and Fred D'Aguiar in conversation with Sinéad Morrissey', live online event for Newcastle Centre for the Literary Arts [54:13] (Newcastle University, 26th November 2020) <http://archive.nclacommunity.org/content/?p=3459> [accessed 5th October 2021]; Eduardo C Corral, 'Eduardo C. Corral vs Closeness', interviewed on *VS Podcast* [34:26] (Poetry Foundation, 2nd March 2021) <https://www.poetryfoundation.org/podcasts/155617/eduardo-corral-vs-loneliness> [accessed 8th March 2021]

need to pay particular attention to a poem's acoustic qualities, even when reading silently to oneself. In one recent work of criticism, American contemporary poetry scholar Eric Falci regularly refers to the encounter with the poem as one that can properly take place in the visual or aural modes: poems are 'speech acts and […] textual performances', can consist of 'vocalization or inscription', and are created using 'some sort of writing or recording device.'[18] This is a common occurrence throughout discussion of poetry composition, circulation and reception: that the technical medium of the poem is largely regarded as interchangeable when considering the poem as a work, and that it is equally something that is absorbed through the eyes and the ears. Even writers who do not explicitly mention hearing performed poetry as a means of encountering it frequently refer to the value of either reading aloud to oneself or very consciously sounding the words internally in the mind as a means of accessing the potential aural effect of the poem.

As the examples above show, all poetry – not just that written as 'performance poetry', visual poetry, or content for digital environments – is regarded by its authors and audiences as a strongly multimodal form of literature. Poets, critics and teachers all advocate a special kind of reading when encountering a poetry text, one that places unusual emphasis on the iconic function performed by the sound of words, such as through onomatopoeia or assonance, and encourages readers to attend to these sounds when contemplating the text, signalling the poem's inherent multimodality even in the medium of print. That this approach is the conventionally accepted way to read a poem, plus the widely accepted idea that a poem should be heard aloud to be better appreciated, all points to the poem's multimodality and, though this, to its status as a transmedial artwork.

Poetry and Transmediality

That a work of poetry is perceived as simultaneously crafted from the visual and aural qualities of language, and yet is traditionally distributed in media formats that afford only one or other of these sensory modes, means that the multimodality discussed above is commonly diminished by the actual materiality of the technical medium. This gives pre-digital poetry an unusual sense of not belonging to one medium or the other in particular. As Falci notes, 'the materiality that we often attribute to poems is peculiar because it is largely immaterial. A

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[18] Eric Falci, *The Value of Poetry* (London: Cambridge University Press, 2020), pp. 12-4

poem is strangely free from any single material occurrence of it.'[19] This is a phenomenon that shares common features with the idea of transmediality within media studies.

'Transmediality' is defined by Irina O. Rajewsky, and later extended by Werner Wolf, as a specific form of intermedial phenomenon. According to Rajewsky, an 'intermedial' work is one that can exist as, or move between, different medial forms.[20] In the case of poetry, this might be as a printed poem on the page, and as an oral performance, with both being considered as 'a poem' rather than an adaptation of a poem into a different kind of text. Wolf, following Rajewsky, defines a 'transmedial' element of a text as one that has this quality, but also has no clear original medium; none of the different media instantiations can be said to be in the 'original' or the 'true' medium for that part of the text.[21] Instead, the transmedial elements of a work exist between all of these versions equally.

Building upon this, media scholar Henry Jenkins popularised the idea of 'transmedia storytelling' in his 2006 book *Convergence Culture* and subsequent writings. In transmedia storytelling, 'integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience.'[22] Although his work, and the majority of related scholarship on transmedia, focusses on the construction of narratives and larger fictional universes through the creation of inter-related texts in different media, Jenkins' notion of transmediality is also useful in this context, when regarding the individual poem as a work that can be communicated through different technical media. Like Jenkins, I believe that an important feature of the transmedial work is that 'each medium makes its own unique contribution' to meaning-making. But, whereas in transmedia storytelling this contribution is 'to the unfolding of the story', in the poem it is to the way that the same linguistic content can act upon the subject matter via different modal combinations.[23]

Rather than applying to entire works, Wolf's concept of transmediality is concerned with stylistic and structural elements of a text, such as tone or narrative arc, that can be expressed

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[19] Falci, p. 6

[20] Irena O. Rajewsky, 'Intermediality, Intertextuality, and Remediation: A Literary Perspective on Intermediality', *Intermédialités* 6.3 (2005), pp. 43-64 (p. 46)

[21] Werner Wolf, '(Inter)mediality and the Study of Literature', *CLCWeb: Comparative Literature and Culture* 13.3 (2011) <https://doi.org/10.7771/1481-4374.1789> (pp. 4-5)

[22] Henry Jenkins, 'Transmedia 202: Further Reflections', *Confessions of an Aca-Fan* (Henry Jenkins, 31st July 2011) <http://henryjenkins.org/blog/2011/08/defining_transmedia_further_re.html> [accessed 5th October 2021]

[23] Ibid.

through various media without being seen to originate in or 'belong' to a particular one. However, both this and Jenkins' idea of transmediality can be usefully compared to recent theories about poetry put forward by scholars and poets, wherein the poem as a whole is regarded as a singular work that spans media instantiations without belonging to one in particular.

Dan Ringgaard, for instance, describes poetry as a 'trans-medial concept' in his discussion of the transfer of poetry between art forms in the work of Jørgen Leth. Admittedly taking a 'broad concept of media' that stretches between Elleström's qualified and technical media, Ringgaard suggests 'that poetry is itself a medium in the sense that it is that through which life expresses itself.'[24] Although this description could arguably be applied to all cultural texts, Ringgaard justifies his focus on poetry in particular by pointing to the origins of the word 'poetry' in the Greek verb 'poiein', meaning 'to create', adding that the term 'was not attached to any particular genre or art form' and that this flexibility of meaning in the term persisted in some form until the nineteenth century.[25] Poetry, as a concept, according to Ringgaard, has inherited this all-encompassing scope in a way that persists to the present day. Ringgaard sees poetry as 'a highly contemporary concept since it has this ability to move between genres, art forms and media.'[26] Ringgaard applies his ideas about poetry and media to all poetry, using the work of a poet-filmmaker to illustrate this point, and showing how Leth's poems exist as text and as films. By focusing on poetry's affective qualities as the element that can be expressed via different technical media, Ringgaard ties his notion of transmediality to Wolf's, albeit by focussing on an artist who steps outside of the norms of pre-digital poetics.

However, other scholars have made similar claims about writers who work in poetry's more traditional media of print publication and live performance. Thomas Ford raises the question of poetry's 'material medium', noting that while it is a commonplace to talk of 'language' as being the medium of poetry – again taking Ringgaard's 'broad concept' of a medium – it is less clear exactly what this means in terms of *how* the poem itself is mediated.[27] Echoing McLuhan, and anticipating the problem that Elleström's media model attempts to untangle,

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[24] Dan Ringgaard, 'Poetry is the Significant Flow Of Life: Poetry as a Trans-Medial Concept in the Work of Filmmaker and Poet Jørgen Leth' in *Dialogues On Poetry: Mediatization And New Sensibilities,* ed. by Stefan Kjerkegaard and Dan Ringgaard (Aalborg: Aalborg Universitetsforlag, 2017), pp. 313-28 (p. 313)
[25] Ibid., p. 314
[26] Ibid., p. 318
[27] Ford, p. 449

Ford notes that the idea of media in this context often leads to the experience that 'beneath every medium another medium can be found secretly at work.'[28] For Ford, the numerous answers that can be given for poetry's 'true' medium are all potentially correct, as 'language, itself a medium, can take divergent mediating bearers.'[29] Thus, Ford argues, 'if poems are to be understood as artworks of language […] then they must also be inherently multimedia'.[30] In terms that again point to the idea of a transmedial entity, Ford describes the majority of poetry as positioned in 'some dialectic or productive interrelation between these two polar logics' of language as visually-mediated and language as sonically-mediated.[31]

And so, with Ford and Ringgaard, we have an idea of poetry as inherently multimedia, insofar as language is regarded as the material of poetry and language itself can have multiple media forms, at the level of both basic and technical media. But can this also be used to say that a work of poetry is transmedial? A multimedia artwork is generally thought of as one that combines two or more distinct qualified media elements into one artefact. Poetry can also be thought of as an artform that combines media elements. For example, the viewer of either a live poetry performance or a video recording of a poet reading is experiencing both the sound of the words and the appearance and gestures of the poet-performer. But, in the sense of 'media' that multimedia usually describes, and in Elleström's more rigid framework of media, these examples really only constitute a single qualified medium: a live performance or a digital video. It is the multimodality of these media that the audience experiences here, their combination of two or more basic media into a qualified medium. Instead, what Ford describes is a more fundamental multi-mediality than the way that 'multimedia' is usually understood, a potential for one specific poem to manifest as either writing or verbal speech, with equal validity as an original piece of work in either basic medium.

The idea that a poem can be both a sound-based and a visually-based work is also explored by Peter Middleton, who discusses how the different versions of a given poem, produced at different times and in different technical media forms, relate to one another. For Middleton, the written text of a poem and its performance by its author are both 'incomplete scenes of reception', and both versions of the poem are 'interdependent' with one another, forming a

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[28] Ibid.
[29] Ibid., p. 450
[30] Ibid.
[31] Ibid., p. 454

complete experience of the work only when considered together.[32] This is exemplified by the common practice in 'contemporary Anglophone poetry readings' for the author-performer to read aloud from a written text – as opposed to reciting from memory, as in other performance arts – which, according to Middleton, 'enacts the most basic axiom of this poetry: it is both text and performance at once.'[33] One example of the concrete impact that this can have upon the reception of the work is Jo Shapcott's performance of the poem 'Callisto's Song' at the Newcastle Centre for the Literary Arts in 2019. Here, Shapcott used the introduction to the poem to explain to her audience how the poem 'Calisto's Song' appears on the page. While the poem functions perfectly well as an oral performance, its typographical setting – using asterisks to separate each word – is significant enough that Shapcott felt the need to reference her inability to communicate its effect on stage.[34]

Middleton's observation highlights an interesting feature of the way that poetry is commonly consumed, both in written and aural formats, which is that we are very often pointed elsewhere in the encounter with the poem. When listening at a live reading, the book present on stage points subtly to the written poem, rather than the poet performing, as the source. But, conversely, when we read to ourselves, we are encouraged to read with the idea that we must activate the sonic potential encoded in the page, with the poem acting as a score for vocal performance. In this sense, the culture around poetry reading and performance works to foster this sense of transmediality by keeping poetry suspended between a literary and an oral artform.

Similarly, Brian M Reed identifies 'a fundamental ambiguity with the field of poetics' as a result of the way that poetry places itself between these two primary media, being both spoken and written simultaneously.[35] According to Reed, poetry is a genre that is frequently communicated through 'transmediation' – that is, the 'the act of translating meanings from one sign system to another' – and the poem 'renews itself from instantiation to instantiation' with each one achieving different effects 'since no two media address the same sense or mix of senses in exactly the same way.'[36] But at the same time, all instantiations 'share

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[32] Peter Middleton, 'How to Read a Reading of a Written Poem', *Oral Tradition* 20.1 (2005), pp. 7-34 (p. 9)
[33] Ibid., p. 10
[34] Jo Shapcott, 'A Reading by: Jo Shapcott', *NCLA Archive* [23:50] (Newcastle University, 12th December 2019) <http://archive.nclacommunity.org/content/?p=3055> [accessed 5th October 2021]
[35] Brian M. Reed, 'Visual Experiment and Oral Performance', in *The Sound of Poetry, the Poetry of Sound*, ed. by Marjorie Perloff and Craig Dworkin (Chicago: University of Chicago Press, 2009), pp. 270-84 (p. 270)
[36] Ibid., p. 277

sufficiently many family resemblances that audiences, after being exposed to one or a small set, can recognise the others as also belonging to an open-ended series of texts and performances' that constitute a single work.[37] Reed's use of the term 'transmediation', drawn from media theory, suggests a clear link between the tendency for poetry to be regarded as simultaneously written and performed within the same literary work and the idea of transmediality in the more abstract sense described by Wolf and Rajewsky.

In the context of transmedia storytelling, Jenkins notes that, in order for the transmediality of the overall product to be effective, 'ideally, each medium makes its own unique contribution to the unfolding of the story,' since 'a story that plays out across different media adopts different modalities,' with each of these modes contributing new facets to the story.[38] Likewise, in poetry, encountering the poem as text leads to the potential for making meaning from its visual iconicity, while hearing or seeing it performed lends an aural fixity to it in terms of rhythm and acoustic composition. And so, when reading or hearing a poem, we are, through its status in culture as a transmedial artefact, frequently prompted to consider the significance of its other, alternative existence.

Pre-Digital Poetry in Digital Media

Up until relatively recently, the publication of a poem meant distributing the poem as either a written or aural text, which presented one modality of the work over the other. This back-and-forth between the two sensory modes is arguably what gives a sense of transmediality to the poem as a literary work. However, with the advent of new digital media channels, and in particular online journals and poetry e-books, these two versions of a poem can be displayed in the same digital space, allowing the reader-listener to encounter the multiple modalities that make up the poetic work in tandem. In this way, the idea of the poem as multimodal is now given a clear expression through the technical affordances of the digital text.

Multimodality and transmediality are both concepts that have gained currency in relation to the rise of digital media. While scholars working on both concepts argue that these are not inherently new phenomena, they are generally seen as relevant and helpful frameworks through which to analyse the contemporary mediasphere, and an increasingly digital culture

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[37] Ibid., p. 278
[38] Jenkins, 'Transmedia 202'

has provided the setting for more works which foreground multimodality and transmediality. When it is remediated into a digital setting, pre-digital poetry also undergoes a change in how it relates to these two concepts.

In *Software Takes Command*, new media scholar Lev Manovich, following the work of computer scientist Alan Kay, describes the modern computer as a 'metamedium', in the sense that technological convergence has led to the existence of machines that can simulate and dynamically combine the features of previously distinct technical media.[39] Digital technology, through its multimedia affordances, has produced many new methods of publication that present texts in a highly multimodal fashion. For instance, TED Talks viewed through the *TED* website or mobile app can be viewed as video recordings and transcripts side-by-side on the screen, with the text of the transcript following the current position in the video. Here, the performance of the lecture by the speaker can be seen as the originating, primary qualified medium by which the TED Talk was presented. In its digital presentation, the lecture then forms the source material for two new versions: the edited video of the lecture and its written transcript. These are presented to the viewer as the same text in two distinct media, yet fused together into one experience, creating a model of a textual entity that belongs to both, and can be encountered by the audience as either or both equally. Similarly, the ability to 'sync' e-book and audiobook versions of a text in reading platforms such as Kindle and Audible gives reader-listeners the ability to switch from reading the text of a book to listening to it if, for instance, they go from sitting to walking. Here, the two versions are ontologically equal instantiations of the same work, each being suited to different circumstances due to the sensory demands that it makes or does not make on the user.

Examples of this kind of multimodal display in poetry can be seen in projects and publications that provide written and audio versions of a poem side-by-side, such as the *Poetry Foundation* website, the enhanced e-books produced by Bloodaxe Books, or the *Dial-a-Poem* mobile application (an output of the Crossed Lines project at Nottingham Trent University).[40] Each of these presents the written poem on the screen in a conventional, print-remediating format alongside an audio player widget, meaning that the reader can either read

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[39] Lev Manovich, *Software Takes Command* (London: Bloomsbury Academic, 2013), pp.106-7
[40] 'Browse Poems', *Poetry Foundation* (The Poetry Foundation, 2021) <https://www.poetryfoundation.org/poems/browse#page=1&sort_by=recently_added&filter_poetry_audio=1&preview=0> [accessed 5th October 2021]; 'EBooks with Audio', *Bloodaxe Books* (Bloodaxe Books, 2021) <https://www.bloodaxebooks.com/ecs/catalogue/0/4> [accessed 5th October 2021]; 'Dial-a-Poem', *Crossed Lines* (Sarah Jackson, 2019) <https://crossedlines.co.uk/dial-a-poem/> [accessed 5th October 2021]

or hear the poem, or experience both together. In these digital texts and others like them, we see a poem's emphasis on its visual and aural instantiations – its multimodality – but without one or the other presented as the authoritative or original work, expressing its transmediality.

The reader is encouraged by the structuring of the digital texts to regard them as a whole, encompassing the previous mediations of the work. While, in all the examples above, the written and audio versions can each stand as a discrete text in their own right, their combination in the same digital space, their inclusion together under the same paratexts such as the title and author name, all function to position each media instance as a part of a wider, more complete poetic project. For example, on the *Poetry Foundation* website, the page for Ocean Vuong's poem 'Not Even This' features the written version of the poem and a recording of Vuong reading the poem.[41] Both are equally available to the reader, and no explicit instructions are given for how their co-presentation should be approached. Visually, the text of the poem dominates the screen, but the play button for the audio recording is placed in line with the poem's title at the top of the page: in terms of reading order, we reach it first. The reader is left to decide how they will approach the two versions of the poem and the relationship between them. Encountering them together is a potentially enlightening experience: we hear, for instance, that Vuong chooses not to say aloud the struck-out phrase 'take me home', nor to signify its presence with a pause or other signal, generating a discrepancy between the two versions that is only noticeable when considering them together. Equally, however, the reader is permitted by the design of the site to ignore one of the versions and simply access the other, and no sense of either version being the primary text is suggested. The poem in the multimodal reading interface is presented as being either, and both: a written text, a spoken text, and the combination of the two.

Building upon this increased focus on multimodality, the mobility of the smartphone or tablet device also greatly expands when and where the material can be encountered, opening poetry up to a new range of contexts and opportunities for situated reading and listening. This combination of these affordances – the multimodality and the mobility – brings together the two formerly disparate ways of mediating and experiencing poetry. Performed poetry is now as mobile as its written equivalent – arguably more mobile, since the use of headphones does not preclude situations where the listener needs to look around them, in the way that reading

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[41] Ocean Vuong, 'Not Even This', *Poetry Foundation* (Poetry Foundation, April 2020)
<https://www.poetryfoundation.org/poetrymagazine/poems/152940/not-even-this> [accessed 2nd October 2021]

does – and written text can be inflected with the specificity and presence or aura of performance, through combination with recordings.

As discussed above, poetry is often considered by its authors and audience as a strongly multimodal genre, but is conventionally published in ways that diminish this multimodality by emphasising one sensory mode over others. This filtering of the poem by its technical medium leads to the sense of it being an incomplete scene of reception, as Middleton argues, generating the idea of the poem as a transmedial work. In the remediation of poetry to digital media, separation of the different modes is often undone, with different mediations of the poem being combined, which in turn arguably lessens the sense of transmediality around the poem, as the reader-listener is no longer being constantly pointed elsewhere to see the true medium of the poem. Instead, the digital platform presents itself as a technical medium that can accommodate the two main sensory modes through which poetry communicates.

However, while transmediality in one sense – that of the poetic work hovering between media – is arguably lessened by digital remediation, another transmedial element of the poem is potentially emphasised when the poem is encountered through a mobile device, and especially through audio. As mentioned above, discussion of transmediality is often centred around transmedia storytelling: the idea that communicating a single story can spread over several media forms. Like the act of storytelling, poetry is a form that pre-dates those technical media most commonly used to record and disseminate it.[42] That poetry is older than the printed page, or even writing, contributes to the sense of a poem truly belonging somewhere other than that medium. Alongside this, much discourse around poetry focuses on the poem in the body, or breath, or memory of the reader, and so de-emphasises the storing or communicating medium as its true material form.

Many poets and poetry scholars instead attribute a poem's true home to be within the reader or hearer themselves, often framed as within either their memory or their body. Don Paterson famously described the poem as 'a little machine for remembering itself' and, in his 2018 book of essays *The Poem: Lyric, Sign, Metre*, he reasserts that poetry, even in the age of the printed and digital page, 'remains the one art form where its memory and its acquisition are one and the same thing. […] To recall a poem *is* the poem; the poem has become, quite

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[42] See Pinsky, p. 10: 'Poetry in this vocal and intellectual sense is an ancient art or technology: older than the computer, older than print, older than writing'

literally, part of your being.' For Paterson, 'story' is the only other art form that has this same quality (though he notes that, in most cases, 'only its structure remains intact, not its form of words').[43] Here we see an argument for the poem being transmedial in the same manner as storytelling, in the sense that the purpose of its mediated form is to spread the work to the memory of the reader, where it then resides, and that this mediation can take one of many different but equal forms.

The idea of the poem being something that is carried within a person, rather than in a book or an audio recording medium, is often expressed in terms of the connection between the rhythms of the poem and the body. Former US Poet-Laureate Robert Pinsky writes that 'in poetry, the medium is the audience's body' and that 'the technology of poetry, using the human body as its medium, evolved for specific uses', including 'to hold things in memory'.[44] When Ralph Waldo Emerson says that 'metre begins with the pulse beat' and Clarence Major that 'poetry has its basis in the very beating of our hearts, in the rhythm of our footfalls as we walk, in the pattern of our breathing', though both are writing primarily for print publication, they both appeal to an oral poetic tradition in which the site of storage was the human memory, and the appeals to bodily rhythms that developed to assist with that place in memory.[45]

This bodily element of transmediality in poetry can be emphasised when poems are published to the mobile device via audio-based channels such as podcasts. In these situations, a listener's awareness of the technical medium through which they are receiving the poem is minimised by the small size and portability of the device. As Alan Reid notes in his analysis of the role of the smartphone in contemporary life, such devices have, for a large part of the population, become highly integrated into our personal identities and daily lives, to the point where they operate largely in the background of our attention.[46] Such status means that our awareness of them as objects or technical media when doing something like listening to music or a podcast is very minimal. Especially with an immersive qualified medium such as poetry or music, the content often merges with our thoughts and activities, reaching the illusory status of seeming 'in the head' of the listener, rather than coming from an external

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[43] Don Paterson, *The Poem: Lyric, Sign, Metre* (London: Faber and Faber, 2018), pp.10-11
[44] Robert Pinsky, *The Sounds of Poetry* (New York: Farrar, Straus and Giroux, 1998), pp. 8-10
[45] Ralph Waldo Emerson, quoted in Michael Golston, *Rhythm and Race in Modernist Poetry and Science* (New York: Columbia UP, 2008), p. 48; Clarence Major, 'Rhythm: A Hundred Years of African American Poetry' in *Necessary Distance: Essays and Criticism* (Minneapolis: Coffee House Press, 2001), p. 71
[46] Alan J. Reid, *The Smartphone Paradox* (New York: Palgrave, 2018), p. 14

source. Here, the existence of the poem in the memory of the reader is to some extent simulated by the mobile device. Although the poem is still experienced through a device that often invites a high degree of interaction, in these particular instances of listening, attention the device as a technical medium fades into the background and the listening experience is instead intermingled with the listeners experience of their surroundings or concurrent activities.

Besides this, many apps that carry poetry content - both dedicated 'poetry apps' and more general media platforms such as podcasting apps - make use of push notifications to alert users to the available content. Examples of channels and digital publications that do this include: the *Poems* mobile app by Rovingy, which by default suggests one new poem to its users per day, or podcasts such as the Poetry Foundation's *Audio Poem of the Day*, which is distributed via the *Castbox* podcasting app and uses that service's push notifications whenever a new episode is launched.[47] The push notification is a widely exploited feature of mobile device's technical infrastructure, and a very broad range of content can appear on the average mobile user's notifications screen. Suggestions of poems to read or listen to are presented alongside messages from friends, news alerts, software updates and other claims to the user's attention. This means that the poem is further integrated into the daily flow of life and activity conducted via the device, an idea that is reminiscent of the earlier point made by Dan Ringgaard that poetry's transmediality comes from it being part of 'the significant flow of life'.

This kind of transmediality in the mobile device brings the poem into the audience's day-to-day activities, carried around almost 'in our heads' while listening as we go about our lives, just as our phones are carried around everywhere with us. As this is an idea of the poem that primarily relies on audio-texts, this reimagining of transmediality, much like the kind seen as emergent from poetry's older media, again becomes a consequence of limiting the multimodal expression of the poem. It is also, again like in analogue media, a consequence of the material properties of the technical medium, which here comprise the device's audio capabilities and its unobtrusive physical presence. This is an aspect of the materiality of the digital mobile device that will be returned to in the next chapter of the thesis, as we turn to

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[47] 'Poems', *Apps on Google Play* (Google, 2021) <https://play.google.com/store/apps/details?id=com.rovingy.siirler&hl=en_GB&gl=US> [accessed 5th October 2021]; 'Audio Poem of the Day', *castbox.fm* (Guru Network, 2021) <https://castbox.fm/channel/Audio-Poem-of-the-Day-id2670238?country=us> [accessed 5th October 2021]

look more closely at one particular format within digital media – the mobile application – and how this has been used creatively as a means to remediate pre-digital poetry. The third chapter will then return to notions of multimodality and transmediality in poetry as we examine how these are affected by the more unusual methods of presentation employed by these mobile apps.

Chapter 2: An Analysis of Four Poetry Apps

Media-Specific Analysis and the App as Reading Interface

In this section, I analyse four poetry-based mobile applications, paying particular attention to the interplay between the content of the app and specific technical features of the mobile computing device in order to explore how and to what extent the design and functionality of the app informs the reader's encounter with the text. This will include examining how the device as a platform affects the presentation of poems in their two main medial forms – the written word and the oral performance – as well as examining to what extent the device's capabilities as a multimodal, computationally-powerful tool in day-to-day life have become incorporated into the reading experience.

My analysis draws heavily upon what N Katherine Hayles has termed 'media-specific analysis' (MSA). First introduced in *Writing Machines* (2002) and expanded upon in her later article 'Print is Flat, Code is Deep: The Importance of Media-Specific Analysis' (2004), MSA calls for special attention to be paid to the materiality of a text as it is presented in a given technical medium. Hayles conceptualises materiality in this context as 'the interplay between a text's physical characteristics and its signifying strategies,' arguing that any discussion of a text should 'take into account its physical specificity.'[1] The aim of MSA is to examine the role of the medium in understanding a text, as well as the relationships and interdependence between media, by 'holding one term constant across media […] and then varying the media to explore how medium-specific constraints and possibilities shape texts' and by 'moving from the language of "text" to a more precise vocabulary of screen and page, digital program and analogue interface, code and ink'.[2] Using the example of electronic hypertexts, Hayles argues that the medium through which the text is encountered fundamentally influences its reading by existing in dialogue with the form and content of the text and that, as a consequence, 'rhetorical form mutates when it is instantiated in different media'.[3] Consequently, Hayles explains, it is important that criticism 'pays attention to the

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[1] N Katherine Hayles, 'Print is Flat, Code is Deep: The Importance of Media-Specific Analysis', *Poetics Today* 25.1 (2004), pp. 67-90 (p. 67)
[2] Ibid., p. 69
[3] N Katherine Hayles, *Writing Machines* (Cambridge, MA: The MIT Press, 2002), p. 31

material apparatus producing the literary work as a physical artifact'; which, in this case, is the mobile device and the combination of operating system and application running on it.[4]

In following this method, my aim is to use MSA to identify, in each application, any features that diverge significantly from the standard conventions of presenting poetic texts digitally, represented by the print-remediating e-books and websites discussed earlier in the thesis.[5] I will also identify any common features of other mobile applications, not normally associated with reading, that have been incorporated into the reader's experience of the text as part of the remediation process. Through close-readings of the poetry on the apps, as well as careful examination of the features of the platforms themselves, I will determine how publishing for the mobile device can significantly affect the reader's experience of a text compared to more conventional forms of print and digital publishing.

Integral to the process of MSA is Hayles' notion of the 'techno-text'. This refers to '[l]iterary works that strengthen, foreground, and thematize the connections between themselves as material artifacts and the imaginative realm of verbal/semiotic signifiers they instantiate' and, in doing so, 'open a window on the larger connections that unite literature as a verbal art to its material forms.'[6] Poetry-based literary apps do this by taking familiar gestures and functions into unfamiliar contexts and, vice-versa, taking poetic texts into unfamiliar material instantiations with unconventional gestures and practices attached to the reading process. Through this, the nature of the relationship between text and carrier is foregrounded and the fact that the poem is encountered on a mobile touchscreen device becomes a significant factor in the reader-user's approach to the text itself. Platforms that embrace the device's capacity to combine text with features such as animation, video and audio, as well as interactive responses to gesture, location and time can be regarded as having the potential to 'mobilize reflexive loops between [the text's] imaginative world and the material apparatus', compelling the reader to reflect upon both the content of the text and their usage of the technology in new ways.[7]

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[4] Ibid., p. 29
[5] See Introduction, pp. 13-5
[6] Hayles 2002, p. 25
[7] Ibid.

While arguing for the importance of media-specific analysis, Hayles clarifies by saying:

> In emphasizing materiality, I do not mean to imply that all aspects of a medium's apparatus will be equally important. Rather, materiality should be understood as existing in complex dynamic interplay with content, coming into focus or fading into the background, depending on what performances the work enacts.[8]

Bearing this nuance in mind, I attempt to identify which of the device's features are most prominent in the encounter with the poetry, and their consequent effect on its reading. This ranges from the physical specifics of certain device models to the sensors and software running on mobile devices as standard.

Celia Turrión recommends an approach very similar in principle to Hayles' MSA in her analyses of book apps for children. According to Turrión, '[t]he hybrid nature of these products demands an approach to incorporate both theories - one that considers their literary aspects, if they remain, and theories that are capable of analysing their medium-related features.'[9] Similarly, for Ayoe Quist Henkel, MSA is particularly pertinent to the analysis of literary content in the app format, as it allows her to 'shed light on the formation of meaning in the literary app' by focusing on 'the app's manifestation as a text, its embedment in a medium, and its manner of being and interacting with the world.'[10] Likewise, my analyses of texts embedded in literary apps pay close attention to which of the device's features are foregrounded in the reading of the text, how this differs from the conventional modes of digital publishing, and what, if any, dynamic relation this bears to the textual content. In doing so, this chapter considers to what extent each literary app co-opts the existing poetic text into the formation of a digital techno-text.

The four apps analysed below each combine the presentation of poetry with other activities not typically associated with literary reading. Of all of them, only the first, and earliest, *The Waste Land* app, truly resembles the reading interface of a typical e-book reader or online

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[8] Hayles 2004, p. 71

[9] Celia Turrión, 'Multimedia book apps in a contemporary culture: commerce and innovation, continuity and rupture', *Nordic Journal of ChildLit Aesthetics* 5 (2014), pp. 1-7 (p. 1)

[10] Ayoe Quist Henkel, 'Exploring the Materiality of Literary Apps for Children', *Children's Literature in Education* 49 (2018) pp. 338–55 (p. 342)

journal. The others present the poems through more unusual frames: a guided walk, a simple puzzle game, and a translation exercise. Two of the apps, *The Waste Land* and *Poems in the Air*, rely heavily upon audio recordings of poetry in performance as a way of communicating the poem to the app user, with *Poems in the Air* presenting no written text of the poem at all.

Despite their unusual framing of the poems, each of the apps is treated here, first and foremost, as a reading platform for poetry. That is to say, I assume that in each case the typical users' motivation for using the app is to encounter the poetry contained within it. Publishing via creative methods such as these relocates the encounter with poetry into unusual settings and combines reading and hearing poetry with activities not normally associated with literature. However, the main focus of each app's design remains the user's desire to access the poems. Because of this, despite some of the seemingly non-poetry-related aspects of the apps, I regard them all as digital literary objects, and so comparable to an e-book edition of a poetry collection, or a website hosting an online journal.

Writing in the *Electronic Book Review*, John Cayley has proposed that listening-based platforms for literature, such as the Amazon-owned audiobook service Audible, should be regarded as comparable to the reading of written texts, and equal in their level of engagement. 'In the case of unabridged audible books,' Cayley argues, 'one experiences the entirety and integrity of the text as language, identical, in terms of linguistic idealities, with the printed version.' With the rise of audiobooks accessed through mobile devices, this mode of encountering literature is becoming more normalised within culture, slowly eroding the prevalent idea that people, as Cayley puts it, 'may not consider themselves to have "read" the book when they have "only" listened to it.'[11] While I find it an over-simplification to characterise visual and aural encounters with a text as 'identical', it is important, especially in the case of poetry, to give equal significance to the reading of an audio version of the text and its written equivalent. With this in mind, and also thinking back to the 'interdependence' of the written and aural text that Peter Middleton proposes, I consider the audio-only *Poems in the Air* as a reading platform alongside the others.[12]

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[11] John Cayley, 'Aurature at the End(s) of Electronic Literature', *electronic book review* (2nd May 2017) <https://electronicbookreview.com/essay/aurature-at-the-ends-of-electronic-literature/> [accessed 2nd August 2021]
[12] See Chapter 1, p. 34-5

Aside from the issue of visual versus aural reading, it is also arguable that the latter two apps in particular – *Puzzling Poetry* and *Translatory* – remove the app user so far from the normal behaviours of reading that the apps should not be considered platforms for literature at all. However, I present them here because each one centres the activity of the user, however seemingly unrelated to reading, around the eventual revelation of a poem-text, which can then be read. The reading of this poem is, essentially, presented as the goal towards which the other activities are aimed, and the analysis of all four of these apps focuses upon the effect of surrounding the poem with these other activities.

These apps all combine novel modes of presentation and interaction with poems that, at their core, remain 'conventionally' constructed poems. That is, the poems are, in their final form, revealed either as whole, coherent written texts or as single, linearly-structured audio performances. Because of this, the app interface remains one option of how to encounter the poem, a structuring of the experience of a text that is also available in other formats; a publishing method. This is opposed to other app-based poetry projects that more properly fall into the category of electronic literature, wherein the digital technology is more inherently linked to the form and structure of the poem itself and could not be effectively remediated without damage to the poem's aesthetic effect (as in Leonardo Flores' previously-cited definition of e-poetry).[13]

Before looking more closely at each app, it is worth noting one potential drawback of application-based publishing, and digital publishing more generally. Because the files for the application require hosting and periodic updates to remain published online, their availability to users is contingent on different factors to those of physical artefacts like printed books. Once downloaded onto a compatible device, the app publication is available to its owner for as long as that device remains functional and compatible with the app. However, to remain available for new users, or to keep up with updates to a device's operating system, the app must remain an ongoing project for its publisher, rather than existing independently in the physical world, like a printed book. Each of the apps here was developed or supported by an established, still-functioning publisher or software developer, yet their availability to users has still fluctuated over the years. At the time of writing, for instance, Studio Louter – based in the Netherlands – now only makes *Puzzling Poetry* available through the Dutch-language

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[13] Leonardo Flores, 'What is E-Poetry?', *I ♥ E-Poetry* (Leonardo Flores, 2015) <http://iloveepoetry.org/?p=11968> [accessed 10th October 2021]

App Store. The app is still downloadable by UK-based users and still displays its poems in English, but its discoverability and the impression of which audiences the app is for is significantly altered by factors like this, which are determined by multiple different parties, including the investment of the developer and the policies of the app's distributor, both of which can cause the app to become unavailable. While this makes the app a potentially precarious method of publishing, it does not seem to affect the willingness of publishers, developers and researchers to use it as a means of distributing literature. Since the beginning of this project, numerous new literary apps have been launched in the UK, including *Dial-a-Poem* by Nottingham Trent University and *Poesie*, led by developer Benjamin Bregman.[14]

The Waste Land

First released in 2011, *The Waste Land* app is one of the earliest examples of an attempt within poetry publishing to present poetry natively on the mobile touchscreen device. Produced in a partnership between Faber & Faber and software developers Touch Press (now The Red Green and Blue Co.), the app presents the 1922 text of T.S. Eliot's famous modernist long poem alongside a range of related multimedia content, including video and audio recordings of the poem in performance, images of Eliot's original manuscripts and a wealth of commentary in both text and video form.[15]

The Waste Land app is by design highly medium-specific. Although its multimedia features could be displayed on any personal computer or mobile touchscreen device, and its user interface (UI) in theory applied to any tablet or smartphone, the app's release is limited to the Apple iPad.[16] That the app has never been optimised for the smaller iPhone, or other smartphone-sized devices, suggests that the larger screen size of the iPad was considered an important factor in the presentation of the poem. The app was a very early release for the iPad, and so it is possible that its original device-specific design was at least partly capitalising on the novelty and exclusivity of the new product. However, it has been

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[14] 'Dial-a-Poem', *Crossed Lines* (Sarah Jackson, 2019) <https://crossedlines.co.uk/dial-a- poem/> [accessed 5th October 2021]; 'About the App', *Poesie* (Poesie Inc., 2021) < https://www.poesieapp.com/about.html> [accessed 5th October 2021]

[15] Unlike the other applications analysed in this section, *The Waste Land* app features only one poem, which has an identical title. For clarity, when referring to the Faber and Touch Press application, I use the phrase '*The Waste Land* app' or simply 'the app'. Mentions of *The Waste Land* without the word 'app' refer to the poem itself.

[16] The link to download this application can be found at: 'The Waste Land on the App Store', *The App Store* (Apple Inc., 2020) <https://apps.apple.com/gb/app/the-waste-land/id427434046> [accessed 2nd October 2021]

maintained and updated in the decade since its release without ever being adapted for the iPhone, suggesting that the larger form-factor is considered significant by the publisher.

The framing of the poem within the app's interface also continues the long-standing tradition in literary culture of regarding *The Waste Land* as a formidably dense and difficult poem for readers. The app follows the trend of previous publications by providing a wealth of interpretive and critical material to address this, but expands upon these with the multimedia content that can be played alongside the poem text. In this section, I argue that the emphasis that the app places on these audio and video versions of the poem, and the interface's framing of their relationship to the written text, works to present the poem as an inherently multimodal literary work and, by extension, the iPad as a particularly apt platform for encountering it.

The volume of assistive and interpretive material that is offered on *The Waste Land* app immediately expresses the long-held idea that the poem requires such paratextual material to be properly understood. One display option within the app is to read the poem with accompanying footnotes drawn from the work of Eliot scholar and editor B.C. Southam. But the app itself is not presented as a primarily scholarly work. Accessibility to a more general readership seems to be the overriding principle behind the app's presentation of the poem. Marketing copy on the app's App Store page refers to the app's ability to help the reader 'understand the poem's many references and allusions' but also to 'bring [the poem] to life for a 21st century audience' through the capabilities of 'the new digital medium'.[17] Many of the filmed interviews that make up the app's other form of commentary focus on presenting 'ways in' to the poem, such as novelist Jeanette Winterson's advice to read the poem aloud and 'at least six times' before expecting to understand it.[18] Winterson's presence on the app is another example of the app's agenda of making the poem accessible to an audience potentially sceptical or insecure about their engagement with the poem. By including the perspectives of figures like Winterson and pop-folk musician Frank Turner, the app provides a way of approaching the poem – and poetry more generally – by connecting it both to contemporary artists and to other, more broadly familiar, fields of culture.

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[17] Ibid.

[18] Jeanette Winterson, 'Is Eliot difficult?', filmed interview on *The Waste Land* [iOS application], Version 1.1.5 (The Red Green & Blue Co., 2017) <https://apps.apple.com/gb/app/the-waste-land/id427434046> [accessed 2nd October 2021]

The app's framing then is both as entertainment and as an interpretive tool. This dual focus is borne out in the audio and video performance recordings in the app. As with the commentary interviews, the presence of popular actors like Fiona Shaw and Viggo Mortensen in the list of performers places the poem adjacent to the more culturally familiar territory of drama and film, generating an air of accessibility by raising the user's confidence in their own ability to engage with the content.
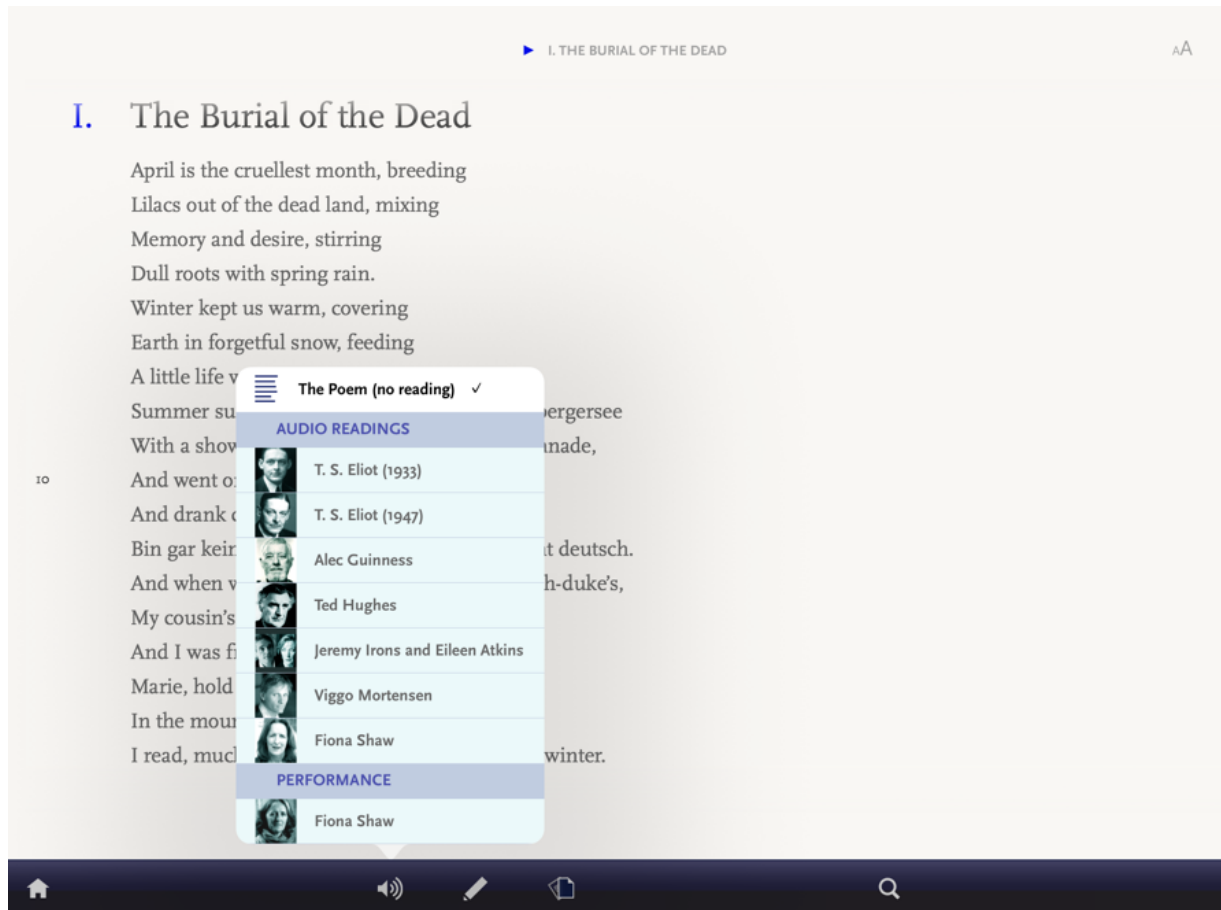
Figure 1: The Waste Land *app interface showing a list of recordings*

These recordings are played alongside the text of the poem and are synchronised line-by-line with it, so that each line is highlighted and the text scrolls down the screen as the recording progresses. The effect of this is to prompt the reader to consider the written poem and the performer's interpretation of the text together. The interface is designed in such a way that the user, listening to one reading of the poem, can easily switch to another, with the poem continuing from the same line. The recordings and the voices of the performers, then, are easily interchangeable, and these switches of voice by the user can still constitute one continuous reading of the poem. (See fig. 1.)

The effect of this structuring is that the poem, as an experience for the reader, is presented as containing all of these different interpretations-via-performance simultaneously, in combination with one another and the written text. From the point of view of making the poem more accessible, this means that the user of the app can try out each performance of the poem until they find the one that is most agreeable or illuminating for them. This can be done at the level of the whole poem, or at a more granular level, since the interface also allows for the user to easily compare different performers' readings of the same line or section of the poem in quick succession, in order to listen for interesting differences in interpretation. This feature, and the kind of reading it facilitates, is potentially very well-suited to the specifics of *The Waste Land*'s modernist style.

Reading the last stanza of the poem's fifth and final section, 'What the Thunder Said', we are presented with a highly condensed microcosm of the poem's overall aesthetic; an intertextual array of quotation, allusion and language-switching:

> I sat upon the shore
> Fishing, with the arid plain behind me
> Shall I at least set my lands in order?
> London Bridge is falling down falling down falling down
> *Poi s'ascose nel foco che gli affina*
> *Quando fiam uti chelidon*—O swallow swallow
> *Le Prince d'Aquitaine à la tour abolie*
> These fragments I have shored against my ruins
> Why then Ile fit you. Hieronymo's mad againe.
> Datta. Dayadhvam. Damyata.
> Shantih shantih shantih[19]

Referring to Eliot's own 'Notes' section and the line commentary provided in the app, it is possible to learn the origins and possible authorial rationale for each line. For the reader seeking *information* about the poem, this is very useful, but for the reader looking to build

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[19] T.S. Eliot, 'The Waste Land' in *The Waste Land* [iOS application], ll. 423-33

their own understanding of the poem, to derive some meaning or aesthetic appreciation of it *as poetry*, this approach still leaves rather large potential obstacles in the way.

One question is how, tonally, the fragments represented on each line of the stanza relate to one another. Do they form contrasts of tone, or a kind of loose continuity; a connected flow of sentiment rather than a series of short bursts? How, to put it another way, should the voice that utters each one *sound*? This is a question that is present for the reader of any poem to an extent, and the potential for multiple answers to such a question is arguably at the core of what makes a poem interesting. However, *The Waste Land*'s reputation as an infamously difficult poem shows that its extreme fragmentation and obscure references push this aspect of poetic language further than many readers are comfortable with.

The other, related, problem – at least for a monoglot English reader – is the pronunciation of the Italian, Latin, and French phrases within the stanza. While the line commentary assists the reader with the literal meaning of these lines, how the phrases might contribute to the sound patterning and overall tone of the stanza is difficult to consider with confidence without an idea of their pronunciation. On one level, the recorded performances provide the equivalent assistance for these issues: any one of the recordings can provide a definitive answer on how to pronounce the foreign words, for instance. But, on another level, when taken together, they offer a range of interpretations of how to read this series of fragments, of how they might fit together as one poetic unit.

For instance, comparing a few of the available recordings, we hear that Viggo Mortensen chooses to smooth over the potentially jarring differences in tone between the lines of the final stanza, reading them very much as one by maintaining the soft monotone that he uses throughout the poem. The overall calmness of the performance brings an air of resolution and closure to the poem's ending. Read in conjunction with the poem's notes, the tone of this recording also emphasises the meaning of the final line 'Shantih, shantih, shantih' as 'the peace that passeth all understanding'. Fiona Shaw similarly emphasises the peacefulness of the final line, but contrasts this sharply to the previous lines in the stanza with her expressive and disjointed delivery, which ascribes a very distinct and different tone to each fragment. The overall effect of this is to emphasise the fragments' highly disparate source material and reinforce the poem's overall fractured aesthetic, rather than presenting a kind of synthesis, as Mortensen's performance suggests. Other performances invite yet other readings. Jeremy

Irons' interpretation of the stanza has a highly incantatory style that largely echoes Eliot's 1933 recording, also available on the app. But, unlike Eliot, Irons slows the pace of the reading down greatly, introducing significant pauses within lines. Irons also declines to sing the line 'London bridge is falling down, falling down, falling down', unlike Eliot and Shaw, removing the potential levity or overtones of naiveté that come with it. The overall impression is that Irons presents the final stanza with a great deal of drama and gravitas, using his performance style to echo some of the poem's more epic-like qualities.

By presenting this range of different recordings, the app provides a kind of interpretive assistance beyond the sources and literal meanings of key words and phrases. It can also guide the readers' interpretation of the use of sound and poetic voice in the text by giving them access to a range of previous aural interpretations, which can be easily interchanged for comparison. As well as guiding the reader through the poem by using famous actors as familiar cultural touchstones (i.e. as celebrities), the app also draws upon their status as respected experts in performance – in the uttering of the spoken word as an art form in itself – and, in doing so, contributes to the multimodal conception of the poem, and poetry more broadly, by incorporating this kind of expertise into the interpretative apparatus offered to the reader. The idea that *how* a poem is spoken is influential to its meaning is emphasised by the status, within the field of performance, of those performing the poem.

The Waste Land, as a poem of multiple, fragmented, and sometimes indeterminable voices, draws the text-reader into the process of figuring out where one voice ends and another begins. The audio recordings of the poem on the app assist in this, providing a set of pre-made decisions by each performer. This is demonstrated most clearly in Fiona Shaw's reading, with her expressive vocalisations and clear changes of tone and accent, and in the joint performance by Jeremy Irons and Eileen Atkins, which divides the poem into a series of clearly gendered poetic voices, but also into a dialogue between the two literal voices of the actors. Through the structure of the app interface, the method of reading the poem then begins to echo its form: a series of constantly shifting voices, similar to the act of tuning through the channels of an analogue radio, which several critics, including Craig Raine and Jeanette Winterson within the app itself, reference as a possible influence on the writing of the poem.[20]

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[20] Craig Raine, 'Eliot the American Englishman', filmed interview on *The Waste Land* [iOS application]; Jeanette Winterson, 'Eliot and Technology', filmed interview on *The Waste Land* [iOS application]

Throughout all of the exploration of the different recordings, the written text remains a constant that binds them together, the main article from which they all stem. Even the video of Fiona Shaw's stage adaptation is played alongside the scrolling text in the iPad's default portrait position. (See fig. 2.) Only switching the orientation of the device allows for a more immersive view of the performance, detached from the poem text. On screen, the written poem remains the focus of the UI and so is presented as the focus of the reader's attention throughout. Recordings of the poem, rather than being framed as discrete texts in their own right, are presented in relation to the written text, and as facets of the poem as a whole. This method of display expresses Peter Middleton's idea, discussed in Chapter 1, of the written and spoken versions of a poem being 'interdependent' upon one another, and the experience of the poem in one medium or another as an 'incomplete scene of reception'.[21] The presentation of the two medial forms together as one entity enacts, like Middleton's image of the author reading live from the poetry collection, the 'basic axiom' that the poem is simultaneously a written and aural text.

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[21] Peter Middleton, 'How to Read a Reading of a Written Poem', *Oral Tradition* 20.1 (2005), pp. 7-34 (p. 9)
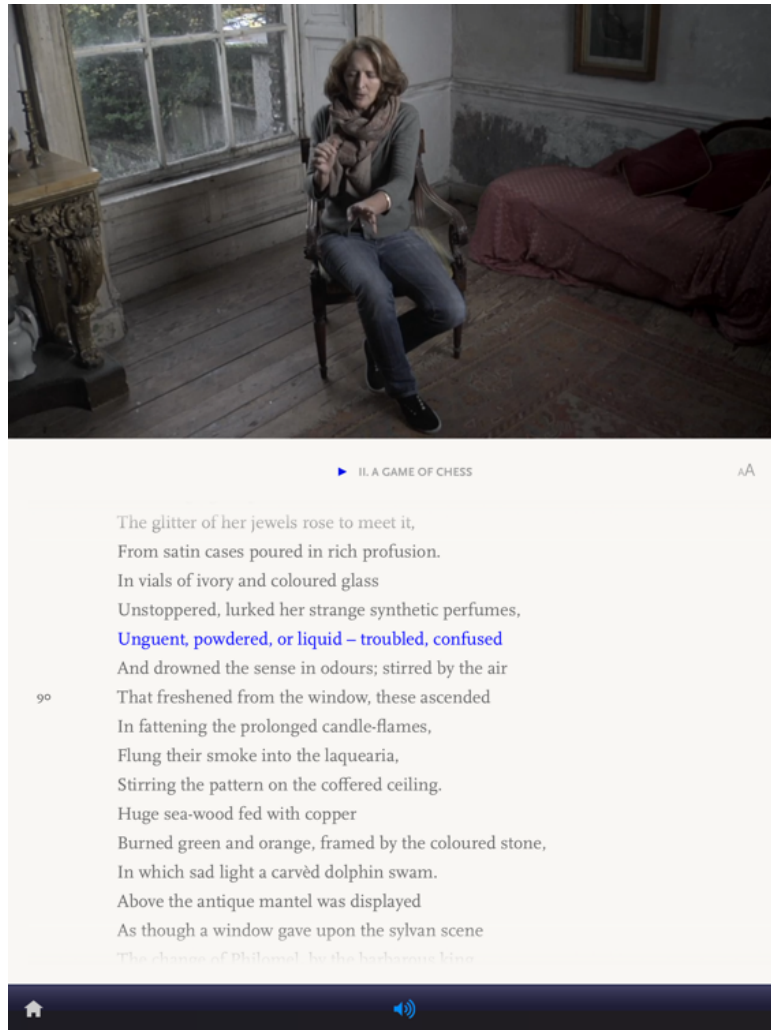
Figure 2: The Waste Land *app interface showing Fiona Shaw's performance alongside the poem-text*

We can see that the app works very hard to legitimise itself as an authoritative edition of the poem. It combines features of a critical edition of the poem, an enhanced e-book, and a kind of 'making-of' documentary, packaging them in a very sleek, noticeably well-designed digital product. Part of the attention to design may come from a motivation to increase the commercial value of the app as a product. Costing between £7.99 and £9.99 throughout its publication history, the app is, by print book and e-book standards, a moderately priced edition of the poem, especially considering the amount of extra material included. However, by mobile app standards, and especially in the early days of the App Store, the price is unusually high, and may have been prohibitive to readers accustomed to downloading apps for free.

This reluctance to spend money on apps is an attitude reflected in reviews of the app at the time of its launch, both by journalists and customers. However, the app's rating on the Apple

App Store remains, at the time of writing, five stars, and Henry Volans of Faber argues that 'we have had almost zero complaints from people who have actually bought *The Waste Land* about its price' and that '[e]verything we see suggests that […] they feel they've got something with a heck of a lot in it that's worth the price.'[22] In order to justify being priced within the same range as a printed edition, *The Waste Land* app goes to some lengths to show that the tablet computer is also an appropriate platform for encountering this poem. Part of this is done through the careful design of the app interface and its appearance, making it intuitive to navigate and read the poem and its accompanying material, but another part is the way that the app's design attempts to signal the added value to the reading experience of bringing in the interactive and multimodal affordances of the tablet computer that are discussed above.

This naturalising of *The Waste Land* as a poem within the environment of the iPad not only confers kudos upon the app and the device, but also creates an impression of the media status of the poem itself. The impression of interdependence between written and recorded poem created by the app's structure makes the poem appear well suited to the mobile app format by presenting the poem as something that exists in the relationship between its written text and any number of potential voicings. As a device that can simultaneously display text and play recorded media and affords intuitive ways of combining these for the user, the iPad then appears an ideal platform for expressing this multimodality of the poem. Overall, the impression created by *The Waste Land* app is that the device's status as a multimedia platform and the poem's status as a multimodal text are mutually reinforcing.

Poems in the Air

Poems in the Air is the product of a 2016 collaboration between the poet Simon Armitage and the Northumberland National Park. The app was developed by Newcastle-based design company, TAC Design, and released through the iOS and Google Play stores.[23] This means that, unlike *The Waste Land* app, *Poems in the Air* is available on both major mobile operating systems, and on the full range of device sizes. Armitage's poems were commissioned to respond to specific locations in the park and presented via the mobile app,

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[22] Henry Volans, quoted in Stuart Dredge, 'The Waste Land iPad app earns back its costs in six weeks on the App Store' *The Guardian* (8th August 2011) <https://www.theguardian.com/technology/appsblog/2011/aug/08/ipad-the-waste-land-app> [accessed 10th October 2021]
[23] The links to download this application can be found at: 'Poems in the Air – Northumberland National Park', *Poems in the Air* (Northumberland National Park, 2021) <https://www.poemsintheair.co.uk/> [accessed 2nd October 2021]

which allows users to listen to Armitage's audio recording of a given poem at that location. The app functions also as a walking guide for these areas of the park, providing a map of the route to each poem's location, with real-time location tracking via GPS. (See fig. 3 below.)

Whereas *The Waste Land* app focusses on using the affordances of digital publishing to expand the accessibility of the poem – both in terms of the user's understanding of it and the number of different media forms that it is presented in – *Poems in the Air* arguably utilises the capabilities of the digital device towards the opposite effect. Using the GPS features of the device, the app is able to control access to the poems by only allowing each one to be heard at the location about which it was written. Once the user leaves this location, the poem becomes unavailable again after a short time. Until their inclusion in the printed collection *Sandettie Light Vessel Automatic*, published by Faber in 2019, this location-based method was the only way that the poems could be accessed by the public, and it is under these circumstances that I will consider the poems' relationship to their medium, using the fact of their publication in print to contrast this experience to the more familiar experience of book-reading.

Unusually for a poetry app, *Poems in the Air* does not make use of the screen for presenting the poem itself, other than to display a 'play' button for the audio recording. No written text of the poem is available via the app. This app then uses the features of the device to in some ways constrict, rather than significantly expand, the user's experience of the poem. Within this technical framework, close focus is directed towards the audio recording and its relationship to the location, and the acoustic quality of the recordings themselves becomes a point that warrants closer consideration, as is discussed below.

In this section, I offer a reading of *Poems in the Air* as a digital poetry collection that, through its method of presentation, presents a very different model of poetry's medial status to the digital platforms mentioned previously, and to *The Waste Land* app in particular. While it still presents an idea of the poem as something that exists between, or outside of, more traditionally conceptualised sites of reception for a text, *Poems in the Air*, rather than foregrounding the device's position as the site of the poem for the user, works to diminish the device's perceived role as the poem's main carrier, representing this as elsewhere.
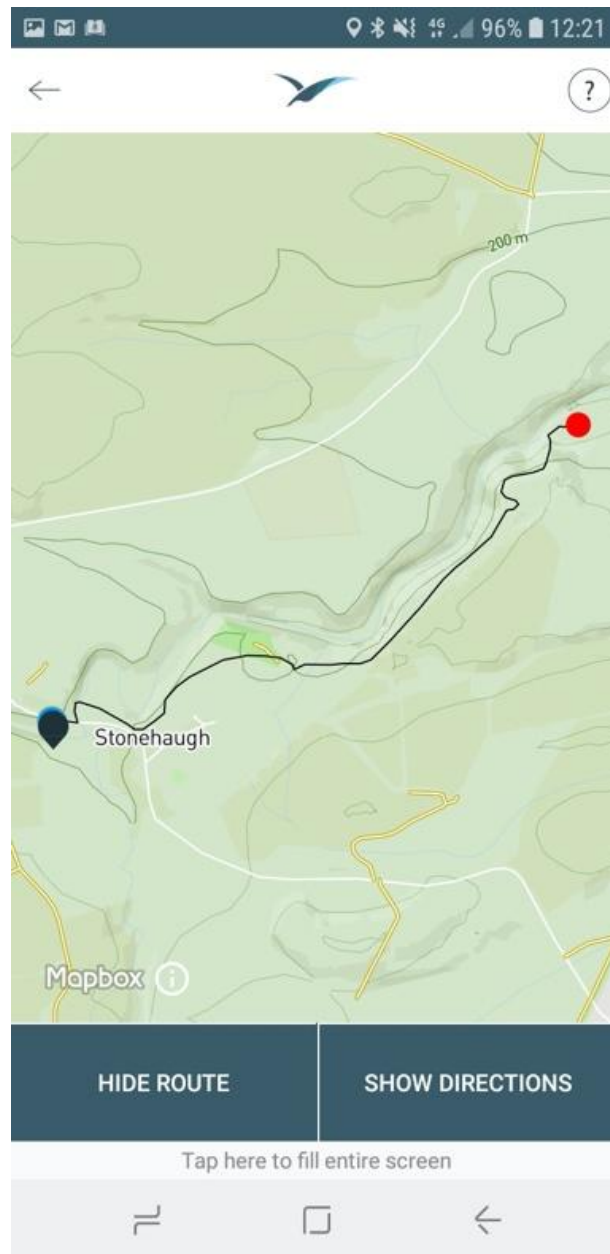
Figure 3: Poems in the Air *interface showing map to Stonehaugh, Northumberland*

Armitage describes the recordings experienced through the app as 'poetry readings, of sorts, and in the very places where the poems are set.' Instead of existing in a dual nature as both text and audio, these poems were instead 'conceived as invisible entities, made only of digital coding, electromagnetic energy and breath'.[24] His conception of them as 'poetry readings, of sorts,' implies that though they might not be events in the sense that poetry readings are thought to be, there is, in the experience of hearing the poems in this way, something similar to attending a live reading. This 'liveness' comes through the tying of the vocal performance

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[24] Simon Armitage, *Sandettie Light Vessel Automatic* (London: Faber and Faber, 2019), p. 189

of the poem recording to a specific place, as an experience that cannot be replicated in another time and place, but will be inaccessible except as memory once the user leaves the location.[25]

The portability of the mobile device is used to enable this and is simultaneously undermined by the site-specificity built into the app. *Poems in the Air* uses a device that, by design, gives users access to all kinds of content regardless of location, either as a storage device for downloaded material or as means of connecting to networks that will supply it. In an interesting reversal, the device in this instance is used to restrict the experience of the poems to specific conditions. Because of this, it is possible to read not only a close and integral relationship between the poetry and the location, but also between these elements and the process of getting to the site. Had the poems been released as an e-book, or a downloadable audio format, such as a podcast, then the link between location and text would have been only nominal, and physically experiencing the setting would be in reality just a suggestion for a fuller appreciation of the poem. However, because the design of the mobile application *necessitates* the listener being at the location, the experience of the location, and of the journey to it, become integral parts of the 'reading' of the poem.

Of course, any poem written about a particular location could be turned into a kind of pilgrimage to read or hear the poem *in situ*, but the *Poems in the Air* poems, in their original app form, enforce this encounter as the only possible way of engaging with the text, and in doing so make all of the activity around the actual listening experience a significant and informative part of the encounter. Armitage's poems reflect an awareness of this situation. One poem, 'Homesteads', written for Old Middleton, near Wooler, opens with the words:

> Somewhere after the last dumb phone box,
> somewhere the pylons won't go - they've plotted
> a simpler contour and stepped aside.
> The road insolvent beyond here,
> the cart track petering out -
> you've had to park up and walk.[26]

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[25] See Philip Auslander, *Liveness: Performance in a Mediatized Culture* (Hove: Psychology Press, 1999)
[26] The lineation is taken from the poem's setting in *Sandettie Light Vessel Automatic*: Simon Armitage, 'Homesteads', *Sandettie Light Vessel Automatic* (London: Faber and Faber, 2019), pp. 92-3

Here, the direct address to the listener, plus the references to the journey that is still fresh in their mind, uses the specific mode of delivery to create an intimate link between the text and the landscape. Walking through the landscape is a near-guaranteed shared experience between the poem's speaker and listener, and so the experience of the listener is drawn into the reading of the poem itself.

Figure 4: Feather found at the site of Armitage's poem 'Homesteads'

As an example of the effect of this feature: while listening to 'Homesteads', I happened to hear the final phrase of the poem – 'Even to fix that in words is to write on the air | with a fallen crow feather dipped in rain' – as my eyes fell upon a small black feather lying on the wet grass. (See fig. 4.) Many similar serendipitous convergences of poem, landscape and wildlife occurred throughout my journeys to hear the poems, and Armitage's writing seems not only to invite these comparisons between what we hear from the poem and what our senses take from our surroundings, but to make us aware of this kind of comparison as a conscious and on-going process. Throughout the walk-poems presented by *Poems in the Air*, the poem is conceptualised as the goal and end-point of a task or journey: on the interface, the poem is the point at the end of a path drawn on the map. Once it is reached, the act of listening to the audio recording of the poem becomes an invitation to stop and reflect, but,

through the restrictions enforced by the technical medium, the poem has also orchestrated the very event that it reflects upon.

The experience that is created by *Poems in the Air* is one in which our own experiences of a place – each unique to us personally, dependant on factors such as the weather, time of year, our health, et cetera – are combined with the speaker's experience of place. The poem in its entirety is an infinitely variable sensory construct built around the stable constant of the audio recording. Through the app interface, it is presented as emergent from the combination of record, listener and environment. Anežka Kuzmicová, discussing the idea of situated reading in fiction, notes that 'reading […] is primarily regarded as a means of decoupling one's consciousness from the environment', and that we tend to regard sensory stimuli from our surroundings as a distraction in the encounter with a text.[27] By presenting the poems as aural texts and minimising the role of the screen, *Poems in the Air* appears to work against this assumption and to actively incorporate the experience of the environment into the poem.

Clearly, the mobile device serves an extremely important function in this experience – guiding the listener to the location and providing the means of hearing the poem – but, at the actual moment of encounter with the audio-text, the device's physical presence, and its importance as the physical carrier of the text, are drastically diminished: the poem itself is not shown on the screen (see fig. 5 below), and the user experience created by the app gives the impression that the poem is coming from the atmosphere around the listener, both on a metaphorical and technological level. The device's physical status is downplayed by the interface, which presents the poem as belonging not to the device, nor even on the device, but to the landscape, with the smartphone acting as a kind of antenna or divining rod, or more prosaically, as if it were suddenly able to stream the poem from the cloud once the right coordinates are reached. This is echoed in Armitage's characterisation of the poems as 'invisible entities' composed partly of 'electromagnetic energy'.

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[27] Anežka Kuzmičová, 'Does it Matter Where You Read? Situating Narrative in Physical Environment' *Communication Theory* 26 (2016) pp. 290–308 (p. 290)
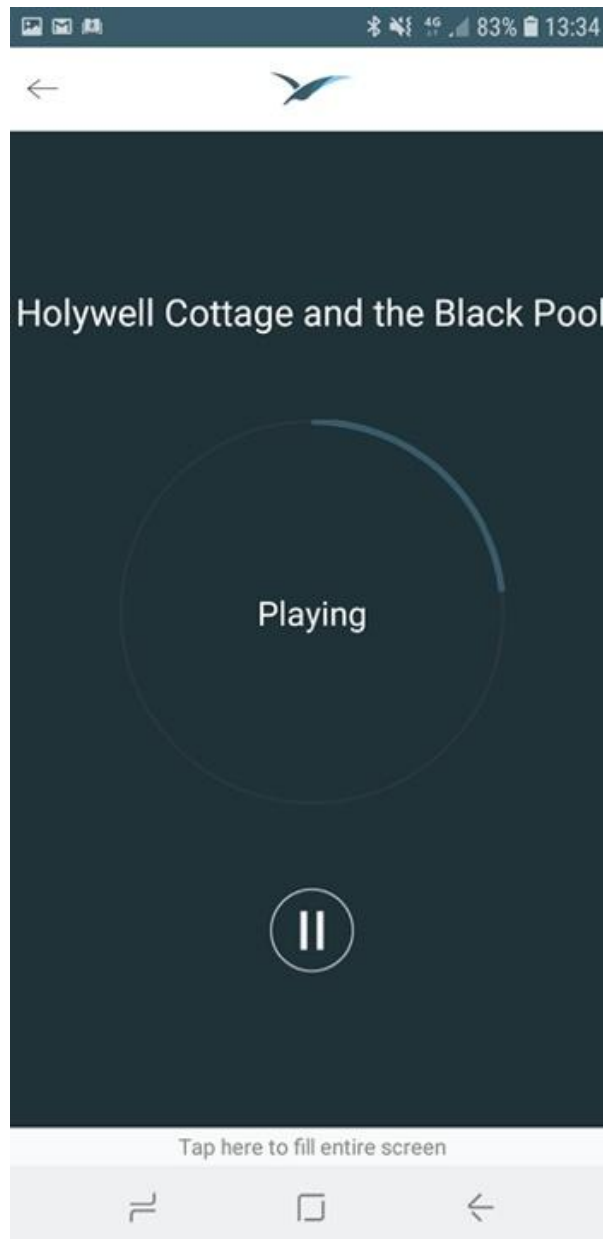
Figure 5: The Poems in the Air *interface playing an audio recording*

Most other poetry apps present a very different ontology of the poem. In these, the technical medium is presented as a body or housing for the textual content, even if only temporarily. This extends to apps that present the poem as audio or video – even then, the poem in this form is presented as being housed *within* the app and the device, rather than accessed from outside. In most other literary apps, such as in *The Waste Land* app or the Poetry Foundation's *Poetry* app, the device and the textual materiality are often aligned with one another, so that interacting with or manipulating the physical object in some way equates to an interaction with the poem. So, even as digital text, poems in most interfaces are presented as an inscribed thing – something housed within, or emergent from, a physical object. In

these circumstances, the device itself becomes the main focus of the user's attention while experiencing the poem. This is common to the majority of other uses for the mobile device, wherein the use of the screen occupies the user's field of vision, drawing their focus away from their immediate surroundings. This is especially true in something like *The Waste Land* app, where the interactive combination of audio and visual material draws upon even more sensory faculties and types of attention.

Poems in the Air, on the other hand, presents the poems as, for the most part, absent from the device, and instead residing ethereally at a geographical location. The device, rather than carrying the poems, is shown to act as a conduit between the listener and the poem's true location. However, at the technical level, *Poems in the Air*'s streaming, cloud-based model is actually an illusion, as the recordings themselves are already stored on the device at the point when the app is installed.[28] Instead, the app's opacity about the device's inner workings is used to craft a very specific idea of the poem's (im)materiality for the listener. Through this, *Poems in the Air*, instead of drawing us into the device, allows the user to focus attention on their surroundings in tandem with hearing the poem. This is achieved through a combination of the interface design, which diverts the user away from the screen, and the words of Armitage's poetry, which invite the hearer to look up and consider the references made to the landscape.

This is further supported by the acoustic quality of the recordings themselves, which have the sound quality of studio recordings. That is, the audio contains no perceptible background noise, nor traces of the conditions of its recording. Echo and 'room tone' - sound qualities that normally act as evocative clues to the location or setting of a recording - have been eliminated, leaving the disembodied, dislocated voice that is the normal goal of studio voice recordings. This leaves a record that no longer signifies a particular occasion in time and space, a kind of neutral voice that does not bring to mind a particular image of the situation in which it was originally performed. Middleton identifies these kinds of texts, in poetry, as 'a third, in-between status of poem, neither written text nor performance,' since they lack the simultaneity of words on the page and the temporal- and spatial-specificity of a performance.[29] In *Poems in the Air*, the recording is stripped of the audio markers of its

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[28] This is due to the unreliability of data networks in the Northumberland National Park, which made a true streaming-based model impractical. (Email between author and Andrew Mitchell, Digital Officer, Northumberland National Park)
[29] Middleton, p. 16.

conditions of creation, but these are replaced by the specificity of the conditions of its reception; the location at which the poem is accessed.

The presentation of the poem as somehow outside of the mediating device, seemingly floating 'in the Air', creates a different sense of transmediality to that seen in *The Waste Land* app. By hosting and presenting multiple media instantiations of the poem simultaneously, *The Waste Land* app frames the iPad as housing the 'whole' of the poem, transmedially created by combination of its various medial versions to generate something that is, like the poem's combination of textual fragments, greater than the sum of its parts. The poem in this instance exists 'between' media, but this combination of media is presented as taking place within the device itself.

Armitage also presents his poems as emergent from combined media, the 'digital coding, electromagnetic energy and breath' which could be seen as the app interface, the electrical signals running through the hardware, and the acoustic vibrations of Armitage's original utterances into the microphone. However, because of the location-specificity and imagery of cloud-based streaming built into the app, it possibly makes more sense to think of the 'electromagnetic energy and breath' as referring to the (imaginary) signal that carries the poem across the landscape and the air that surrounds the listener in the landscape, carrying the sound of the poem from the device's speaker to the ear. This is the impression of the poem's location that the interface creates; that it exists in and around the landscape, between the listener and their environment, with the mobile device acting as antenna, rather than carrier.

The *Poems in the Air* app, then, presents itself as a tool for bringing the listener to the poem: it guides them through the landscape, and provides access to the poem at the appropriate moment. It connects the poem's origin – the site that inspired it – to its destination – the listener – and in doing so appears to generate a text that ruminates on its own creation. This act of creation, or uncovering, is an act of work not only by the device but also by the user-walker who makes the journey. The remote nature of each location means that a person must make significant effort in order to experience the poem. One way to read this extra attention to the work involved in accessing the poem is to think of the app – the entire electronic text –

in terms of 'ergodic literature'. This term was coined by Espen Aarseth in 1997 to refer to texts that are constructed to require 'non-trivial effort' from their readers in order to be read.[30]

Examples given by Aarseth include books such as Raymond Queneau's *Cent mille milliards de poèmes* (One hundred thousand million poems) or B.S. Johnson's *The Unfortunates*, both of which use the physical format of the book to allow, or necessitate, the reader's active decision making in the construction of the text. In *Poems in the Air*, the effort involved is not the mental work of deciding the order or specific combination of textual elements, but rather the exertion and planning required to make a significant physical journey. The effect, however, is arguably very similar. An awareness of the conditions for the text's existence, and all of the processes not normally associated with reading but which still support the encounter with the text, are created by the specific configuration of the device as a technical medium.

The following two poetry apps – *Puzzling Poetry* and *Translatory* – also present variations on the idea of the 'ergodic text', though in ways that arguably remain closer to the term's original usage, through the ability of the user to dictate their traversal of the text or affect its final structure. While the previous two poetry apps have both utilised the features of the device in ways that partly complicate its status as a portable device – either by restricting the size of the hardware, or the location involved in the encounter – the following two examples are presented through much more common frameworks within mobile development. By incorporating into the encounter with the poem features found on the mobile-specific platforms, the following apps demonstrate an attempt to use the device to fit poems into the spaces of everyday life that the mobile device, through other uses, has already entered.

Puzzling Poetry

This mobile application was created by Dutch developer Studio Louter in partnership with the poet Lucas Hirsch and features the work of four poets in multiple languages. It was created in 2016 for both Android and iOS devices across both smartphone and tablet formats.[31] *Puzzling Poetry* presents each of its poems as a series of coloured blocks, each

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[30] Espen Aarseth, *Cybertexts: Perspectives on Ergodic Literature* (Baltimore: Johns Hopkins University Press, 1997), pp. 1-2
[31] The links to download this application can be found at: 'Puzzling Poetry', *Puzzling Poetry* (Studio Louter, 2016) <http://www.puzzlingpoetry.nl/> [accessed 10th October 2021]

block in place of a word, with the words of the poem displayed along the bottom of the screen and grouped by category. The reader-player's task is to reconstruct the poem by dragging words to the location in the text at which they believe the word fits. (See fig. 6 below.)

The overall structure of both the app's interface, and the reader experience that it creates, relies upon the transformation of the text into a series of abstract designs. The text of the poem is classified into word types, based either upon Part-of-Speech tagging or number of characters, which then allows for visualisations based on the text that feed into the decoration of the text display and the UI. It also allows for the creation of a game-like experience, something that is highly prevalent in smartphone user experience design.

Unlike *The Waste Land* app, the release of *Puzzling Poetry* onto a wide range of device sizes immediately implies that the screen size is not such an important factor in the function of this poetry platform. Instead, the app focuses on the display of a single poem at a time, rather than alongside notes and multimedia content, and the reader is drawn not to comparison of the textual content with other content, but instead into a highly interactive encounter with a single text. Unlike *Poems in the Air*, the screen's touch-responsiveness is utilised not just for UI navigation here, but as an integrated part of the reading itself.

The cross-device release also suggests that the app is intended to be used in situations that would be suitable for a smaller mobile device, rather than a tablet computer, such as commuting, or in shorter, less dedicated, stretches of time, suggesting a more casual usage than *The Waste Land* app, something that is consistent with the app's design and marketing. Overall, the presentation of the poem and its reading contrasts strongly with *The Waste Land* app, where the scholarly, investigative model of interaction presents the reader first and foremost with a complete text, and then offers them various multimedia tools and paratexts by which to potentially expand their understanding of the poem. Conversely, *Puzzling Poetry*, in presenting the poem in a puzzle-like form, asks the reader to start with a purposefully obscured text, and to potentially deepen their understanding of it by uncovering the whole. How the app's design attempts to achieve this, and its level of success, is discussed below.

Figure 6: Puzzling Poetry *interface with a partly uncovered display of 'roe deer' by Miriam Van hee*

The UI menus through which the user selects a poem all feature abstract visualisations of the poem's linguistic content. (See fig. 7 below for Remco Campert's poem 'Night'.) The squares or coloured rings shown in each visualisation offer the reader immediate, non-verbal information about the text, such as the balance between the number of verbs, adjectives, pronouns, et cetera, in the poem. In this way, they function as a kind of paratext, similarly to how a book cover might: decorating the text and informing the reader about its content prior to engagement with the text itself. These visualisations, along with colour-coding on the reading display, also become part of the visual form of the poem, which performs a similar function in print poetry, contributing to the reading and meaning-making in the text through

non-verbal means; means that are linked to, and based around, the verbal content of the poem.
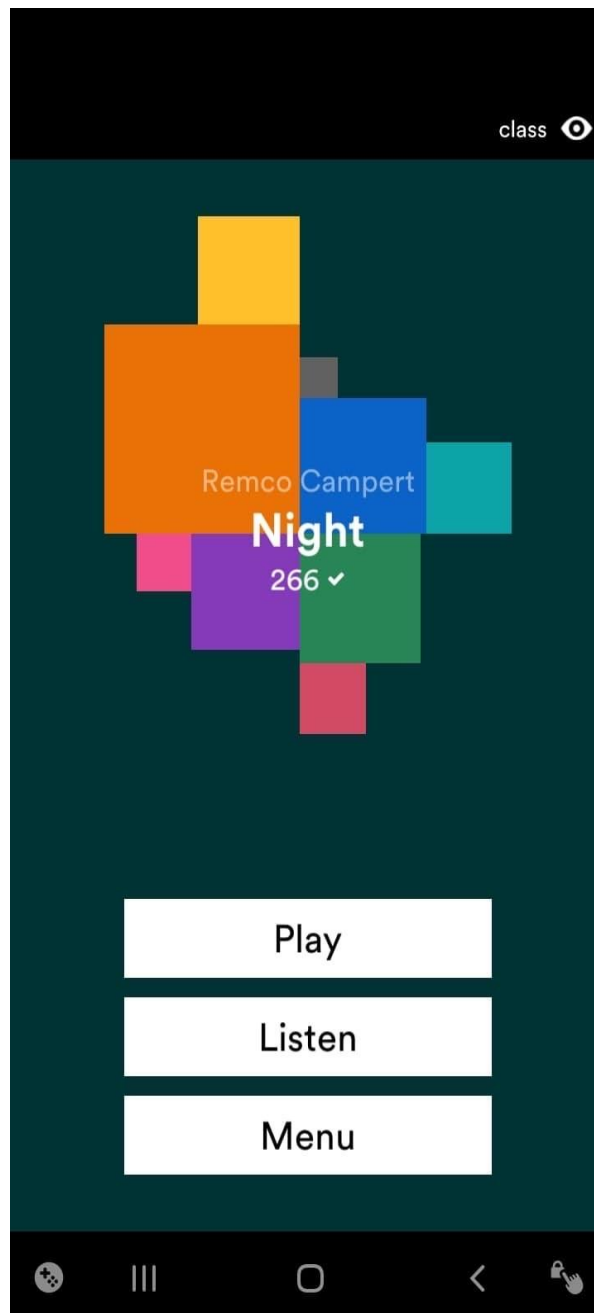
In her examination of the visual aspects of print poetry, Johanna Drucker argues that the shape of the poem on the page, even in very conventionally typeset verse, has an effect upon the reader's response to the poem, stating that 'graphic form instructs the eye' and that 'because we *see* before we read […] the recognition thus produced predisposes us to reading

according to specific graphic codes before we engage with the text.'[32] Drucker is referring here to features such as line length, stanza grouping, font type and other typographic features that might strike the reader before reading itself has begun, but *Puzzling Poetry* takes this idea and creates a systematized version of it through the colour-coding of the obscured words of the poem, which both immediately confront the reader with non-verbal – but verbally-derived – information and can also be 'read' in more detail as the reader-player examines the poem-puzzle.

The presentation of the poem through data on the text itself balances responsiveness to the text content with applicability to multiple texts. Poems, properly tagged with the relevant metadata about the type and length of words used in the text, could be further added to the *Puzzling Poetry* app, and the presentation of each poem, in its menu visualisations and its initial non-verbal form, would be uniquely derived from the textual content. In this way, the app arguably approaches what Montfort defines as a more 'solid', or integrated, type of digital publishing, in which the platform 'engages computation, not just the display of texts,' in its interface with the work itself.[33]

This method of presentation disrupts and diverts the reader from the traditional means of reading poetry. A straightforwardly linear approach to reading the poem is only available after, and so informed by, this different kind of engagement. The end goal of the interaction, however, is still a poem that can then be read in a linear way. In this sense, while the poem itself remains 'traditional' lyric and the final display remains page-like in appearance and function, the approach to reading is altered by the display. In terms of its effect on the reader's engagement with the content of the poem, this mode of interaction with the text focuses reader attention on word patterns and the linguistic structure and craftedness of the poem. The reading and interpretation of the poem is intentionally slowed down through the digital publishing method, which asks readers to use what they can see of patterns in the text, combined with the readable parts of the poem that they have uncovered, to think more deeply about what the rest of the poem might say, and ultimately inform what they think of the completed poem.

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[32] Johanna Drucker, 'Not Sound' in *The Sound of Poetry / The Poetry of Sound*, ed. by Marjorie Perloff and Craig Dworkin (Chicago: University of Chicago Press, 2009), pp. 237-48 (p. 242)
[33] Nick Montfort, quoted in James J Brown Jr., 'The Literary and the Computational: An Interview with Nick Montfort', *Journal of Electronic Publishing* 14.2 (2011) <https://quod.lib.umich.edu/j/jep/3336451.0014.206?view=text;rgn=main> [accessed 2nd August 2021]

In the example sequence below, the reader-player – responding to the point-scoring incentive in the game – is unable to make any clear inroads on the text with the available words sorted by 'class' (fig. 8a). Patterns are discernible – the turquoise boxes on the top line indicate the use of four pronouns there, for instance – but nothing to make us certain a particular word belongs anywhere in particular. But the game offers another visualization of the words' characteristics, one based on number of characters (fig. 8b). Switching to this, we can see from the colour-coding that there are three words of unique length in the poem, which can be easily added. A few more logical inferences are possible now, through looking at the words and characters available at the bottom of the display, the placement of the discovered words in the text, and the class or length of the units surrounding them (fig. 8c).
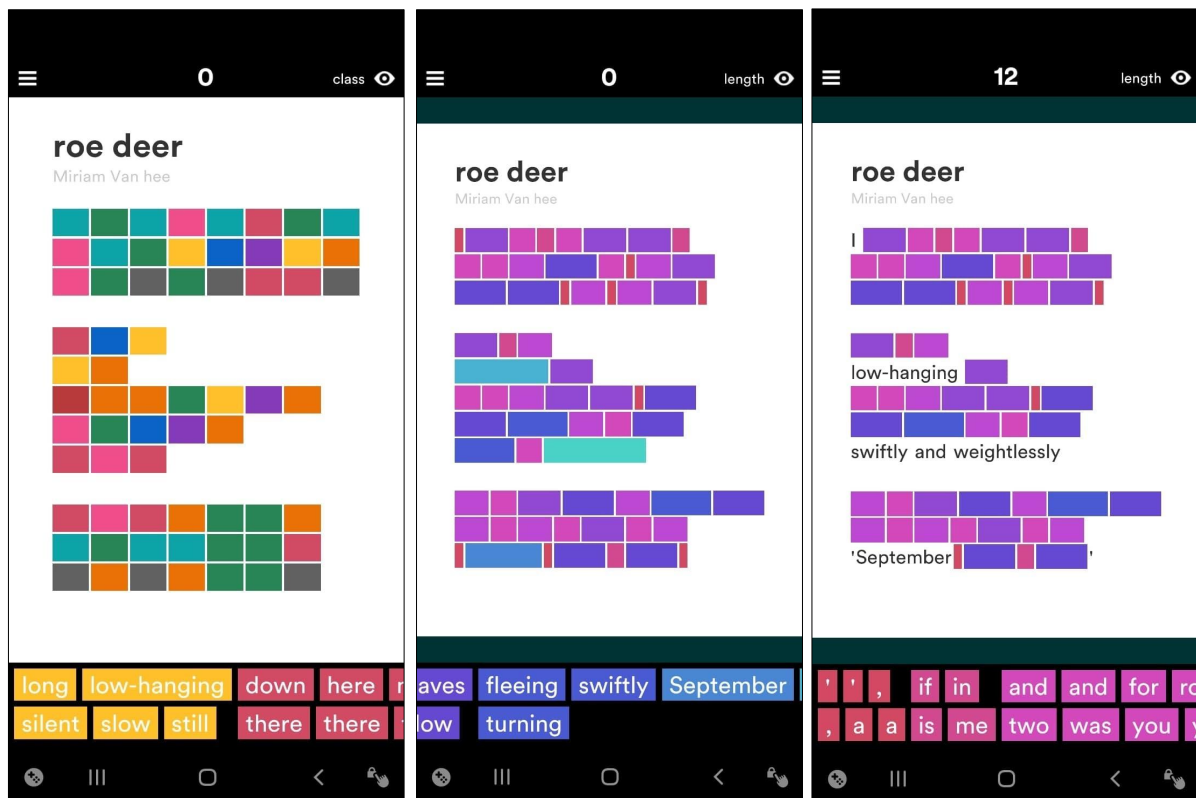
Figure 8: Puzzling Poetry *interface showing, from left to right, a) the poem display with words classified by part-of-speech or 'class'; b) the same poem with words and punctuation classified by number of characters or 'length'; c) the same display after several successful moves by the reader-player*

After eight moves, the reader now sees a three-stanza poem that begins with an 'I' (and so is presumably written in the first person singular), contains the phrases 'low-hanging' and 'swiftly and weightlessly' in the second stanza and ends with a spoken phrase starting with the word 'September', suggesting a conversation with a second person in the poem (and possibly implying that some of those first-line pronouns are 'you' or 'your'). All of these

discoveries give hints about the structure and style of Van hee's poem, and allow the playing-reading to then begin to be guided by considering which words are likely to fit with those already identified. As more of the poem is uncovered, the reader is able to start considering the style of the writing and the language choices made in the text, rather than simply common structures in English (such as deducing that 'and' came between 'swiftly' and 'weightlessly'). This in turn can guide the reader's interpretation of the poem, by influencing their perspective on the significance of particular textual features. As a brief example, the attention drawn to the distribution of pronouns in the initial encounter with the text could highlight to a reader that all of the pronouns – all the mentions of the poem's 'I' and 'you' – are in the first two and last two lines of the poem, with the middle stanza, and the adjacent lines, being completely free of these pronouns. Looking at the whole poem this way, we notice a perspective that swings away from the couple in question towards an external scene, before looking back again, enacting the evasion that the addressee, the 'you' in the poem, tries to pull off when they say "look, down there" in the third line:

> I asked you if you still loved me
> and you were silent for a long while
> before saying 'look, down there'[34]

The reader's approach to the text, when encountered through the *Puzzling Poetry* app, consists then of a combination of mental processes that do not normally feature in the reading of a conventionally published poem. The reader is asked to use logic and probability in a similar style to simple games such as *Minesweeper* or *Candy Crush*, but rather than this replacing or detracting from the attention given to the content of the text, these thought processes are combined with consideration of which words might or might not be used in a particular point in the poem. This has the effect of both encouraging close attention to the structure of the poem as it is written, and also prompting the reader to compare and examine disparate words in the text to consider potential poetic connections between them.

This continuous switching of focus within the reading process offers a kind of novel, formalised version of an approach to poetry reading suggested by the poetry scholar Peter Barry, in which the reader is advised to maintain 'a constant traffic between […] close' and

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[34] Miriam Van hee, trans. Judith Wilkinson, 'roe deer', in *Puzzling Poetry* [Android application] (Studio Louter, 2016)

'distant' reading of a poem – that is, between close attention to the effects of individual linguistic and stylistic features and the overall impression of the poem as a whole – in order to derive meaning and effect from the interplay between the two.[35] Barry compares this approach to the appreciation of visual art in a gallery, where it is common practice to alternate between literally close and distant perspectives on a piece to gain full appreciation of the techniques employed by the artist and how they might affect the work in its entirety.[36] Here, the capacity for the distant reading that Barry describes emerges slowly as the reader is able to see more of the poem, but it is also reflected in the visual aspects of the *Puzzling Poetry* display, with the abstracted visualisations offering a 'distant' view of the sum total of different types of words in the text.

Similar visualization techniques have been incorporated into poetry analysis within digital literary studies. One example, a piece of textual analysis software called *Poemage*, developed by Nina McCurdy et al. at the University of Utah, is described as 'a visualization tool for interactively exploring the sonic topology of a poem' by 'extract[ing] a range of more complex sonic patterns from a given poem and visualiz[ing] the interaction of such patterns across the space of the poem,' as shown in the figure below.[37] Though created with a very different purpose, and working from a much more fine-grained and sophisticated set of linguistic data, *Poemage* shares with *Puzzling Poetry* an approach of encouraging the reader of the text, through colour-coding and highlighting of related words, to use the spatial relations between words in the poem in combination with linguistic relations when approaching the text. (See fig. 9 below.)

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[35] The phrase 'distant reading' has been used to contrast the more commonly known 'close reading' by several scholars in various ways, most notably by Franco Moretti when referring to the analysis of large textual corpora, but also by Peter Middleton in the discussion of contemporary poetry and its place within specific social and cultural contexts.
[36] Peter Barry, *Reading Poetry* (Manchester: Manchester University Press, 2004), p. 75-7
[37] Nina McCurdy et al., 'Poemage: Visualizing the Sonic Topology of a Poem', *IEEE Transactions on Visualization and Computer Graphics* 22.1 (2016), pp. 439-49 (pp. 439-40)
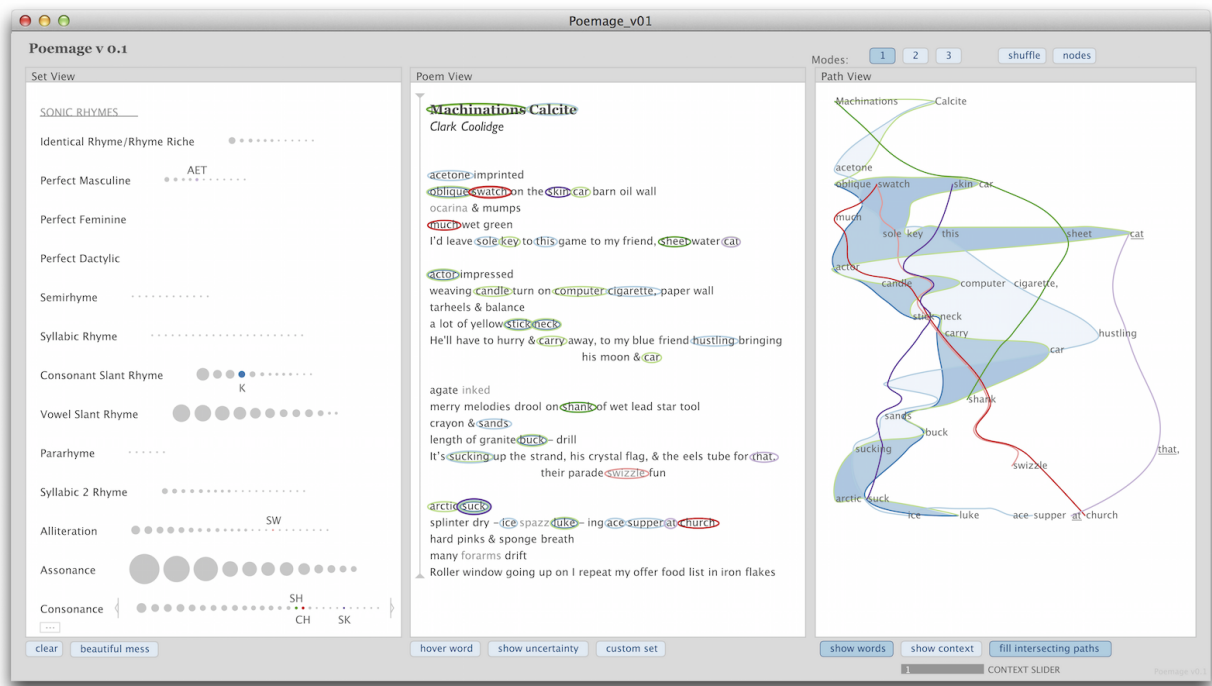
Figure 9: The Poemage *interface*

The style of reading-playing described above is fostered on the *Puzzling Poetry* app by the point-scoring aspect of the encounter with the poem, which encourages the reader to try to make as few mistakes as possible when uncovering words. A reader unconcerned with the points system may instead choose to try the words either at random, or systematically one category at a time, and so pay little real attention to the text until it is fully revealed. The inclusion of a points system, however, encourages the reader to pay closer attention to the text in order to make the most educated guess possible each time. The reader-player scores increasingly more points per turn for guessing a word on the first try, which rewards and in one sense tracks a reader's aptitude for knowing or intuiting the work and style of the author. Linking 'score' to knowledge or intuition about the use of language in the text means that, in effect, the score functions as a simple measure of how carefully the reader has thought about the words in the poem. If the reader can be convinced to engage with this mode of reading-playing on the app, the resultant effect is that they are encouraged to make full use of the app's interface features to inform their decision about where they believe words are located: combining the highlighting of word placement when a word is selected with the dual displays of 'class' and 'length' to get multiple perspectives on the patterning of words in the text.

The practice of adding game-like elements into non-game contexts or, in the case of *Puzzling Poetry*, creating a self-identified 'game' out of a typically non-ludic activity, is commonly referred to as 'gamification,' the nature and effectiveness of which has been widely debated since the term first came into popular usage around 2010.[38] The practice has strong ties to the rise of mobile digital technology since, as several commentators have noted, the term appears to have originated in the digital media industry. Digital technology's established connection to the culture and mechanisms of gaming made it possible for designers and marketers to apply the principles of play to the new aspects of day-to-day life that were increasingly digitally mediated.[39] Joost Raessens, in his article on 'The Ludification of Culture' identifies a general increase in most aspects of culture being viewed through the concept of play, arguing that 'new media appear to exemplify this process of ludification,' in which older media, such as film, or daily activities, such as work or the organization of tasks, begin to take on the features of a game through the incorporation of points, leaderboards, badges, and other game-based tropes.[40]

These kinds of critical assessments come in the wake of a period of marketing hype and subsequent backlash around the potential of game-like interaction design to profoundly transform both our use of technology and society more broadly. In 2011, many game designers, like Jane McGonigal in *Reality is Broken: Why Games Make Us Better and How They Can Change the World*, argued that using knowledge gained from video game design around fostering cooperation and crowdsourcing expertise and solutions had the potential to affect far-reaching societal change. In the same year, Ian Bogost delivered his influential 'Gamification is Bullshit' position statement at the Wharton Gamification Symposium. Bogost's speech highlights the ways in which marketing-led efforts to foster engagement through 'gamification' techniques not only typically miss the point of what makes games a valuable art form, but also leveraged the features of games in manipulative and unethical ways.[41] When assessing the game-based interaction found in *Puzzling Poetry*, I follow Saklofske et al. in their 2016 assessment of the value of 'gamification' as a concept, by 'ask[ing] these questions in full awareness of the criticisms directed at gamification,' while

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[38] Mathias Fuchs et al., 'Introduction' in *Rethinking Gamification*, ed. by Mathias Fuchs et al. (Lüneburg, Germany: Meson Press, 2014), pp. 7-20 (p. 8)
[39] Ibid.
[40] Joost Raessens, 'The Ludification of Culture' in *Rethinking Gamification*, ed. by Mathias Fuchs et al. (pp. 91-118), pp. 98-9
[41] Ian Bogost, 'Gamification is Bullshit: My Position Statement at the Wharton Gamification Symposium', *Ian Bogost* (Ian Bogost, 2011) <http://bogost.com/writing/blog/gamification_is_bullshit/> [accessed 10th October 2021]

remaining interested in the effects of presenting textual content 'through videogame structures, design principles, cultures, and procedures.'[42]

The points-led, colourfully-designed structure of *Puzzling Poetry* immediately creates a heavily 'gamified' experience of encountering the text. This is further reinforced by the limitation on access to the audio recordings of poems, which are only available once the puzzle element of the poem interface has been fully solved, and so are framed as a kind of 'reward' for finishing the game. On the Google Play Store, the app is categorised under 'Games', further framing the reader's engagement with the poetry in this way, the overall effect of which is to present the poem text itself as a puzzle or secret to be unlocked or discovered by the reader-player. As such, this is the most heavily 'gamified' presentation of poetry of the four apps being examined here, and the only one that presents itself truly as a game in its marketing and distribution channels.[43]

Another series of apps, *Emoji Poetry*, uses a similar interface and similar gamification techniques to *Puzzling Poetry*, but with far less focus on deeper understanding of the poet's writing style. The discovery of new writers seems less of a priority in these apps, as the poets presented there are all older, canonical – also out-of-copyright – authors. Many of the online reviews of these apps frame the experience as more like a memory game, based around how much of an already-familiar poem the user is able to remember with just the emoji options to prompt them. What makes *Puzzling Poetry* more of a genuine platform for literature than these games is that the ludic elements reinforce, rather than detract from, close attention to the text. Within each poem-game, the balance between making the puzzle challenging and accessible, and between being logic-based (that is, solvable by obvious and common-place phrasing, or by simple deduction) and poetical (that is, linguistically surprising, often at the expense of selecting the 'wrong' word), is the mechanism by which the interface aims to generate an interesting reading experience, by making it into a hybrid reading-playing task.[44]

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[42] Jon Saklofske et al., 'Gaming the edition: Modelling scholarly editions through videogame frameworks', *Digital Literary Studies* 1.1 (2016) <https://journals.psu.edu/dls/article/view/59703/59905> [accessed 10th October 2021]

[43] A more recent stand-alone sequel version of *Puzzling Poetry* increases the gamification of reading even further by introducing a 'Candy Crush' style progression element to the structure, with the user progressing through a 'map' world, unlocking new poem texts as they accumulate points in the game.

[44] This combination of literary and ludic mechanisms is explored further in Chapter 3 of the thesis, with particular reference to Astrid Ensslin's *Literary Gaming*. (See Chapter 3, pp. 94-8)

In many ways, the app interface appears to trivialize the reading of poetry, potentially transforming the role and immediate priorities of the 'reader' so drastically that the process may be arguably not strictly reading anymore. However, the way in which the app-user, suitably invested both in reading the full text of a poem *and* in the points-led goal of the game itself, combines these two concerns so that the close attention that literary texts traditionally require is inevitably fostered through the mechanism of play. This is performed in such a way that it could also prompt or reveal readings that might not have been apparent had the text been presented in a more conventional manner of digital publishing. Certain works of electronic literature, such as the interactive narratives *Greyout* and *Blackbar* by games developer Neven Mrgan, use a similar mechanism with specially written texts to draw close attention to the word choice within the game.[45] Through this technique, *Puzzling Poetry* functions as more than just a puzzle game that happens to use poetry text as its ludic frame. Progressing through the poem-puzzle, readers find themselves feeling more familiar with a poet's style. It becomes easier to intuit which words will come next as the reader becomes better at the game, and with this there is a sense of becoming 'better' at reading a poet's work, and also of involvement in the creation of the poem itself. This sense of creative investment is even more prominent in the *Translatory* app, discussed below.

Like in *The Waste Land* app, there is the opportunity for the reader to constantly change tack when reading the poem. The app interface in both cases reminds and encourages the reader to vary their approach to the text, considering it from different angles. With *The Waste Land*, this means between an intertextual, interpretive reading, a genetic reading and an aurally-guided reading (through the critical commentary, manuscript pages, and audio readings respectively), in *Puzzling Poetry* it means between different ways of categorising words. However, just as *The Waste Land* app does not make Eliot's poem fully techno-textual in the way that techno-texts are usually understood, but instead highlights some of the techno-textual elements that exist already within the text, so the gamification in *Puzzling Poetry* does not fully convert the reading of a poem into a game, something that Bogost argues is impossible in the gamification process. Instead, it shows how the processes of uncovering, deciphering, and progressing through the use of multiple strategies within a game have parallels in the reading and interpretation of a literary text. Both apps work to naturalise the encounter with the poem by incorporating familiar aspects of mobile touchscreen device

[45] 'Mrgan LLC Apps on the App Store', *The App Store* (Apple Inc., 2021) <https://apps.apple.com/us/developer/mrgan-llc/id320710721> [accessed 10th October 2021]

usage closely with the text itself: through multimedia content browsing and casual game-play, respectively.

Translatory

Translatory is a free mobile application released by UK poetry publisher Arc Publications in 2016. It was originally released for all devices running Android and iOS, but is now only available via the Apple App Store.[46] Through the *Translatory* app, users are presented with a selection of poems written in various languages, all of which have been previously published in English translation by Arc. The user sees each poem in its original language and is given the opportunity to create their own English translation by viewing the work of previous translators of the same poem in short extracts. This app focuses on a reader's personal intervention into the text of the poem, through the ability to edit the existing text and create personalised translations. The act of reading the poem is presented through the process of translation, in that translating the text themselves is the method by which the reader accesses the poem in English.

Arc's aim with the app, according to the publisher's website, is to give the user a greater insight into the translation process, and to give the opportunity to try translation as a creative activity.[47] The guidance offered by the work of previous translators on each poem lowers the bar of expertise involved in the process, with the aim of making it accessible and enjoyable to anyone with an interest, regardless of their level of experience, or even knowledge of a second language. Emphasis in the app's promotional material on the lack of knowledge required reinforces this view of the intended user journey and means that we can consider the app as being designed to enable translation of a poem that is effectively unintelligible to the reader in its original language.[48]

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[46] The link to download this application can be found at: 'Translatory – translate poetry for fun! on the App Store', *The App Store* (Apple Inc., 2020) <https://apps.apple.com/us/app/translatory-translate-poetry-for-fun/id1068155872> [accessed 2nd October 2021]
[47] 'Translatory app launched!', *Arc Publications - Blog* (UK: Arc Publications, 2016) <https://www.arcpublications.co.uk/blog/translatory-app-launched-268> [accessed 10th October 2021]
[48] Ibid.
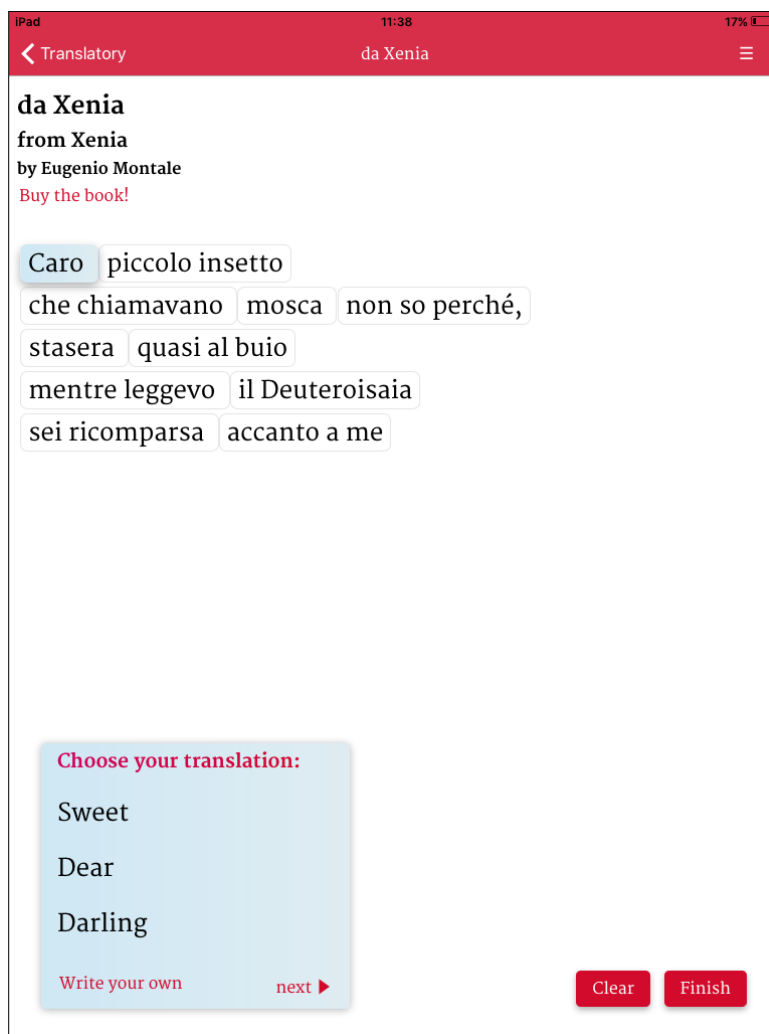
Figure 10: Translatory *interface displaying translation options for the word 'Caro' in 'da Xenia' by Eugenio Montale*

On the main reading display, the poem is divided into discrete units comprising the individual phrases to be translated. The reader interacts with these one at a time, selecting an expression to see the translation options available for that phrase. (See fig. 10.) At the beginning of the process, the entire poem is visible in its original, presumably unfamiliar, language. The poem title, however, is already translated into English and is unchangeable by the reader. This is the context of textual information that the translation takes place within: some information about the form is available, from the visual appearance of the poem on the screen, along with some idea of subject or theme from the translated title. The title and visual form of the poem are highlighted through this presentation as a form of paratext, acting as the 'thresholds of interpretation' that Gerard Genette describes other paratextual features as being.[49] Much like *Puzzling Poetry*'s visualisations of the linguistic content, in *Translatory*, before the reader

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[49] Gerard Genette, trans. Marie Maclean, 'Introduction to the Paratext', *New Literary History* 22 (1991), pp. 261-72 (p. 261n2)

can begin truly reading the poem through translation, their first impression of the text is formed by these more immediate and accessible features.

During the task of translation, guidance for the reader is provided by the two to four suggested translations for each phrase, which the reader can choose between. The reader is also able to provide their own translation of the phrase. In this case, the suggestions act as an aide to interpretation by providing information on the various potential shades of meaning in a phrase, which can act as inspiration and guidance for the reader's own choice of phrasing. (See fig. 10 above.) This style of interface highlights the creative nature of translation and the potential for translation choices to affect meaning and poetic style. As a reading interface, *Translatory* performs a similar kind of work to *Puzzling Poetry* by using a task other than straightforward linear reading to draw the reader's attention to features of the language in the poem. It balances the ability to shape the text being read with the option to rely upon existing translations, and so avoids creating an alienating experience for readers who feel less confident or uninterested in providing their own choice of words.

In a way, *Translatory* arguably frees the reader of making sense of the poem, just as it frees the amateur translator from making sense of the foreign language. Instead, the reader-translator is free to consider which of the phrases is most apt in other respects, such as tone or acoustic quality. Seeing the translation choices for each phrase presented by the app, they are confident that all of the options are at least denotatively 'correct' choices of language, which allows them to focus more on the connotative and aesthetic aspects of language.

On the app interface, the translation-in-progress appears alongside the original language version for easy comparison between the original poem, the translation and the set of choices for the selected phrase throughout the process. The app supports landscape orientation to further accommodate this way of working by making more room on the display for the text versions to be viewed side-by-side. (See fig. 11 below.) This is worth noting as it suggests an anticipation on the part of the developer that the reader-translator will be taking the process seriously enough to want to consider the effect of their work on the poem as a whole. To accommodate this, the horizontal interface allows for a 'stepping back' to review the work in progress. The app, then, can be seen as a tool for the production of a piece of work, rather than just a means of viewing and considering different styles or approaches to literary translation in the abstract.
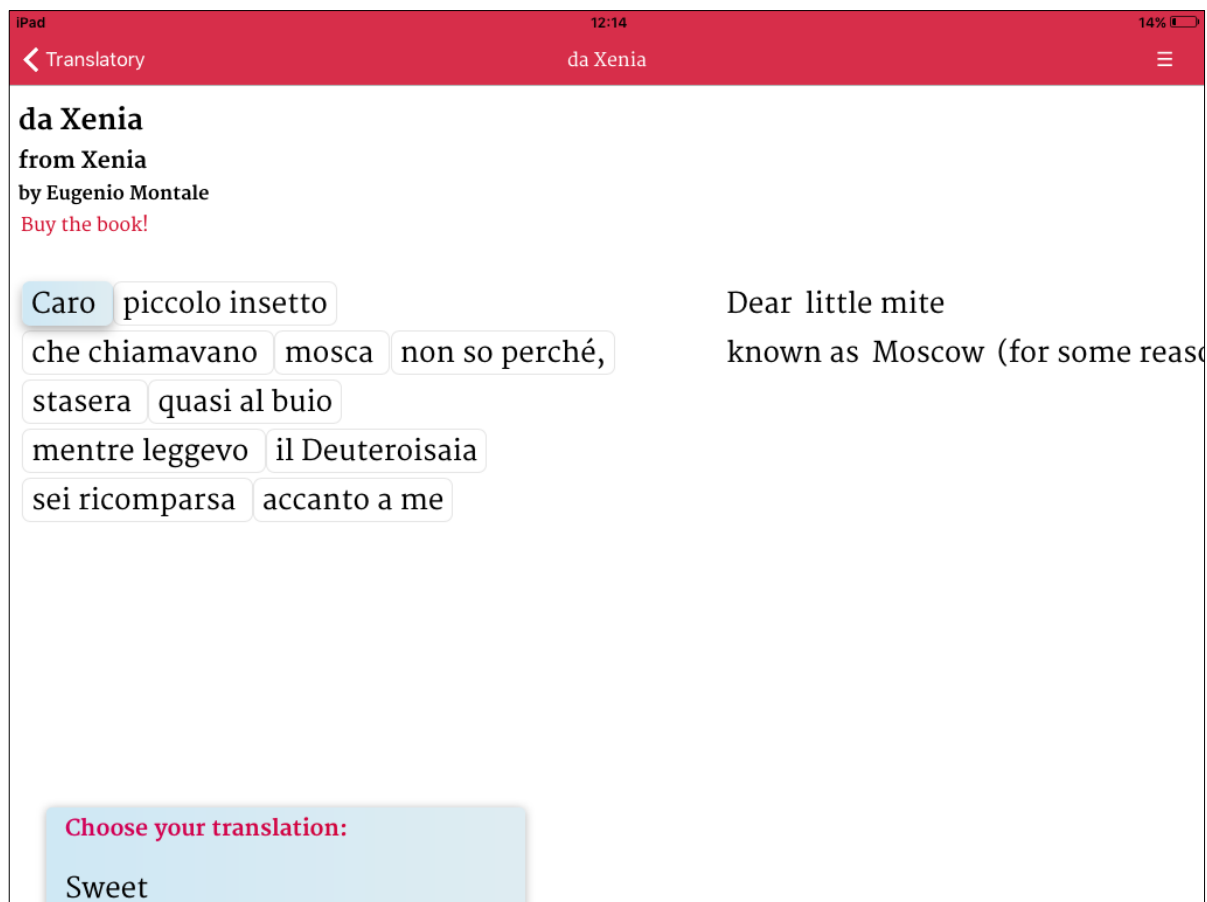
Figure 11: Translatory *interface showing the original and translation-in-progress of 'da Xenia' by Eugenio Montale*

The view of the app as a tool for literary production is further supported by the ability to save a user's translations. (See fig. 13a.) Finished translations can be saved as a poem in their own right, framing the app as a creative tool with an artistic output; a tool both for reading and a kind of writing, but also for reading *through* a kind of writing. By means of this process, the translation activity in the app creates a very concrete interpretation of Roland Barthes' idea of the 'writerly text'.[50] This also again raises Aarseth's concept of the ergodic encounter with the text, this time positioning the user of the app as the combined receiver and creator of the poem. However, because of this, the user is in an unusual position when viewed from either perspective. As a receiver or consumer of the text, they are offered a highly variable poem, the content of which can potentially derive from the work of several different contributors in an authorial role – either as the original author or translator – including, if they choose, the user themselves. Conversely, as creator of a poetic text through the app, the user is somewhat curtailed in the expression and originality of their work, both by reliance on existing

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[50] Roland Barthes, trans. Richard Miller, *S/Z* (Oxford: Blackwell, 1990), p. 4

translation and unfamiliarity with the original language. This balancing of the app as an interpretive, scholarly framework and a platform for artistic expression, either by its creator or its user, is something that is explored within the creative component of this thesis.

Unlike *Poems in the Air*, *Translatory* arguably then remains closer to Espen Aarseth's original definition of ergodic literature, in which the 'work' performed by the reader of the text is conceived more as based around decision-making and intellectual effort, rather than physical exertion and travel.[51] At the same time, *Translatory*'s presentation of the poems also contains several ludic elements, though not to the same explicitly game-based degree as *Puzzling Poetry*. But, like *Puzzling Poetry*, Translatory does present the poems as a series of puzzles to be solved by the reader, with this process implicitly being the enjoyable element of the activity. Once a translation is marked as 'Done' by the reader-translator, they are then able to see the professional translation that was originally published by Arc. This content is presented as a kind of reward, another piece of knowledge that is earned by completing the work of translating the poem. This could be perceived as a mild gamification of the process and as a signalling of the translated poem as an ergodic, or 'work-based', text in fairly literal terms, in the sense that the reader actually takes on the task of a skilled professional within the publishing industry. This balance of the treatment of translation as a kind of work and a playful activity creates the experience of 'playing at' translation, in the sense of a kind of training or introductory task.

The unlocking of the published translation after the fact also imparts an authority on this version, and the reader is invited to compare their own attempt with this one. This is reflected in the interface, which layers one over the other in a way that suggests line-by-line comparison. (See fig. 12 below.) This feature further suggests a kind of training or practice in translation, again giving the impression that the user is 'playing at' the role of translator, and positions the point of the app as somewhere between a goal-orientated, prescribed activity and a more open-ended creative one. This could be seen as akin to the concept of 'serious gaming', where games have a strong educational or philosophical agenda that is imparted to the user.[52]

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[51] Aarseth, pp. 1-2
[52] See, for example: Jane McGonigal, *Reality is Broken: Why Games Make Us Better and How They Can Change the World* (New York: The Penguin Press, 2011) pp. 10-11
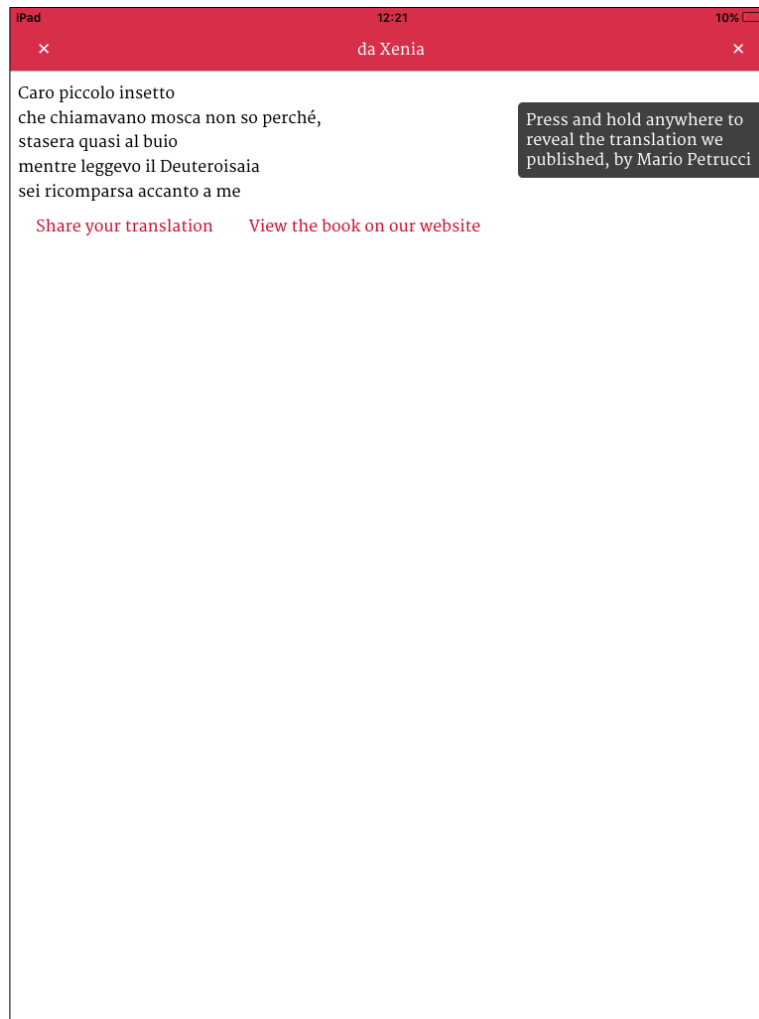
Figure 12: Translatory *interface showing the option to view the published translation of 'da Xenia' by Eugenio Montale*

Once finished and saved, the translations can then be shared on social media, allowing the reader to take public ownership of their translation work. This is framed in these terms by the image generated for sharing, with the note 'My translation of [poem title] using Translatory'. (See fig. 13b.) The poem is conceptualised as a piece of creative work by the user, despite potentially consisting of, or at least heavily relying upon, the work of other translators, as well as the framework of the app itself. This in turn presents this kind of translation process as a kind of collaging or curatorial practice on the part of the reader-translator, using the work and language of others as materials. This generates a finished text that is of ambiguous status as a poem in its own right. The branding of the poem with the Translatory tagline emphasises the app structure's role in the creation of the text, presenting it as something that was arguable shown to the user as much as it was created by them. The poem-product of the app is framed as a kind of apprentice piece, the product of learning about translation as a process, through this mode of presentation.
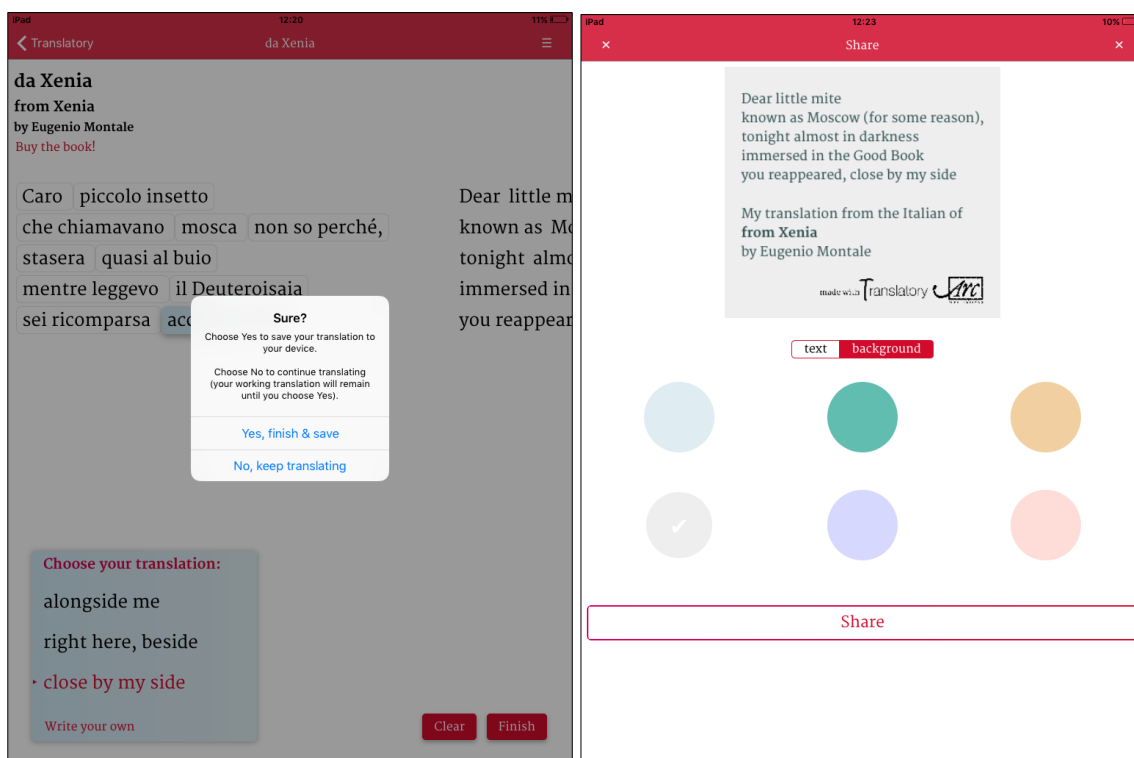
Figure 13: Translatory *interface showing a) the option to save a finished translation, and b) the option to share a finished translation as an image file*

In one sense, the app frames the process of textual interpretation (through translation) as a collaborative and social practice. This is done by first giving the reader-translator access to the work of previous professional translators in order to create or inform their own, and then through the ability to share a finished translation via social media. As in *The Waste Land* app, the user is encouraged to see themselves as part of a community of interpretation of the work, through the signalling of other people's translations. However, the difference lies in the structuring of the presentation of this community in relation to the reader. In *Translatory*, by the time the reader-translator has access to any 'authoritative' or previously published version of the translated poem, they have already experienced a highly subjective, possibly unique, reading of it via their own interpretive choices. This arguably parallels the experience of many readers of digital literature, for example, the 'wreader' of a hypertext fiction, influencing their own perception of a narrative by choosing or not choosing to follow particular links.[53]

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[53] George Landow, *Hypertext 2.0: The Convergence of Contemporary Critical Theory and Technology* (Baltimore: Johns Hopkins University Press, 1997), p. 32

The ability to personalise the content of the app also contributes to the user's creative investment in the poems. Personalisation of content is present in several ways; both through the original and individual nature of each user's translations, and the ability to save completed translations in lists, building a collection or digital notebook of works. Like other apps, such as the Poetry Foundation's *Poetry* app, *Translatory* is able to include new poems through updates, and so is framed more as a platform for accessing content, rather than a complete, self-contained collection of work in its own right. Coherence of content is instead contributed by the user as translator and curator of the poems. Working on the poems available, the user gradually builds a collection of their own, made up of the work of various poets, but united by the user's own work and style as a translator. (See fig. 14 below.)
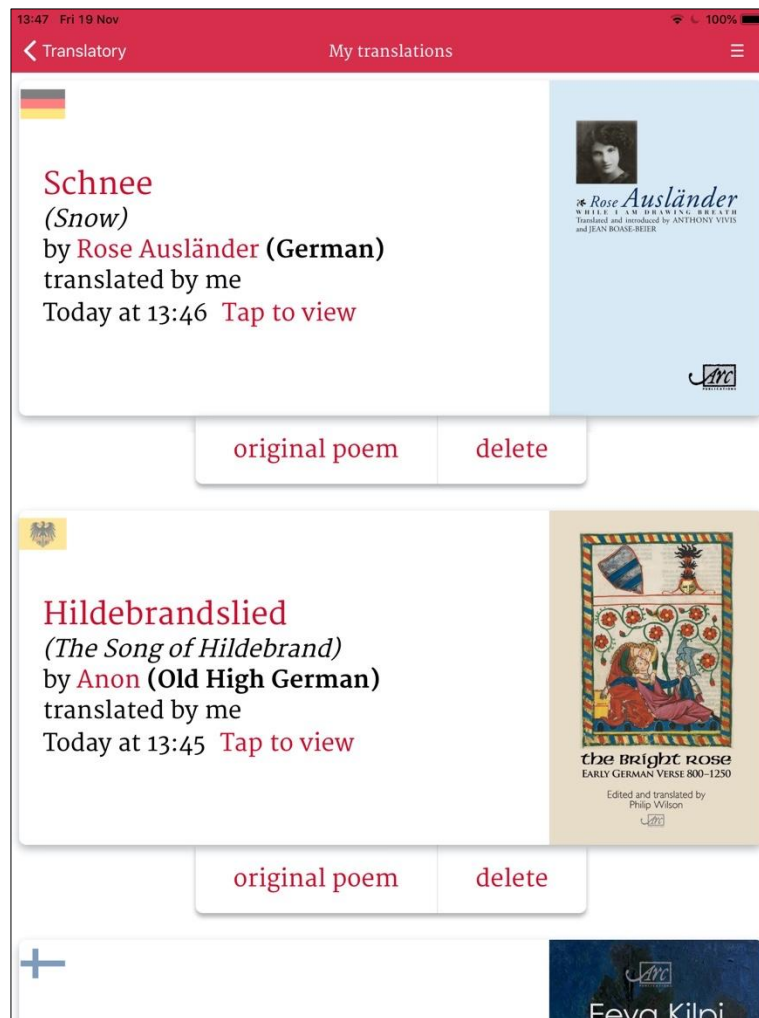

Figure 14: Translatory *interface showing the user's previous translations*

The ability of the user to create their own lists demonstrates the value of the ability to take some control over the content in order to feel a sense of ownership. By arranging poems into personal lists, we cut them off from a stream of content outside of our control and understanding, giving them coherence as a set. This is possibly more prominent in other platforms – both within and outside of poetry – where list creation is a larger part of the user experience design, for example, again, in the Poetry Foundation app. While the app has moved away from a book-like appearance in terms of its presentation of the text and the reader's interaction with it, this focus on creating a self-contained collection of poems is one way in which the app maintains some parallels with the printed book form. The experience of using the app, and building a list of translated poems, in some ways begins to resemble the assembly of a publication, with the work of translating, editing and curating texts all becoming part of the process. The app then functions as a provider of content – of new poetic material to translate – but also a storage site for all of the user's previous work.

Kathi Inman Berens, in a presentation to the 2018 Electronic Literature Organisation conference, outlines the value of printed editions of 'social media' poetry, where the first and primary means of publication for a poem is digital, via an author's account on a service such as Twitter or Instagram. In these instances, argues Inman Berens, the re-publication of the poems in a printed collection isolates them from the constantly progressing stream of the social media feed, and provides them with a new context in relation only to other poems, rather than the eclectic content of the web.[54] While the content of the *Translatory* app remains digital, the ability to save the user's translations in a list performs a similar function to the printing of digitally-published poetry, providing a single dedicated space for the work, and making the user themselves, and their work on interpreting the poems through translation, the common factor that unites the poems.

Poetry Apps as Digital Publications

In taking these mobile applications seriously as reading platforms, I do not mean to suggest that they necessarily represent an improvement to more established reading practices, or that their methods of presenting literary content to a reader are without flaws. That each of the

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[54] Kathi Inman Berens, 'Populist Modernism: Printed Instagram Poetry and the Literary Highbrow' paper delivered at the Electronic Literature Organisation Conference (Montreal, 13th-17th August 2018) <https://www.youtube.com/watch?v=9MWtgjRnmqE&ab_channel=LeonardoFlores> [13:20] [accessed 10th October 2021]

interfaces allows the opportunity to read or hear the poem in its original form suggests an awareness on the part of the developers that this is a necessary and desirable part of digitally publishing the poem, but it could still be said that the other elements of the interface in each app might detract from, rather than merely alter, the engagement with the poems.

Most obviously, the heavily gamified aspects of *Puzzling Poetry* emphasise point-scoring during the process of uncovering the poem, which could eclipse the reading and consideration of the language of the poem for some users. Similarly, by giving the user so much extra material surrounding the poem, *The Waste Land* app could drown out the actual reading of the poem. *Translatory*, through its heavily guided interface and emphasis on enabling translation for users who do not know the poem's original language, potentially does disservice to the knowledge, skill and poetic craft involved in literary translation. *Poems in the Air*, through its site- and modal-specificity, potentially excludes people who are physically unable to visit the sites, or hear the audio, from experiencing the work in ways that other digital publication methods might not.

However, while each of the apps has these potential drawbacks as a platform for literature, none of them could be realistically imagined to be of interest to their user without some interest in reading or hearing the poems that they contain. Because of this, I have focussed on the analyses above on the potential for each one to bring new elements to the encounter with poetry, elements that are not necessarily present in the more conventional forms of digital remediation. The next chapter will consider some of the features that these apps share, focusing mainly on the idea of the interface as creating an experience that is a blend of work and play for the reader, and what effect this approach to presenting poems has on the encounter with the text of the poem itself.

Chapter 3: The Influence of Digital Remediation on Poetry

This chapter follows directly on from the discussion of the four poetry mobile applications in Chapter 2. In this chapter, I use the features of the four apps to propose a working definition for the poetry app as a digital publication method, placing it between the print-remediating e-book and the digital-native work of e-poetry in terms of its balance of transparent immediacy and hypermediacy. I then propose several different perspectives from which to view the apps and the qualities that they bring to the digital reading of poetry. In the final part of the chapter, I discuss how the poetry app extends the notion of the transmediality of poetry, as discussed in Chapter 1, and how it fits into recent discourse around digital media more broadly.

Defining 'the Poetry App', Part One: Extending Digital Publishing

The previous chapter considered four mobile apps – *The Waste Land*, *Poems in the Air*, *Puzzling Poetry* and *Translatory* – and analysed how the structure and affordances of their interfaces affected the reader's approach to poetry. In selecting those apps as case studies, I was guided by Ayoe Quist Henkel's formulation of the literary app as a form of publishing that 'absorbs [some] book conventions while breaking free' of others 'and employing interactive and game-aesthetic elements' to produce a digital object that, in the manner of Hayles' techno-text, 'interrogates the inscription technology that produces it.'[1] This is done by including modalities more normally associated with other uses of the mobile device into the display of the text itself. Using the features identified in each of the four mobile applications, I will now develop a more specific idea of 'the poetry app' based on some of the commonalities between these case studies, as a form of publication distinct from more conventional, book-skeuomorphic methods of digital publication.

As noted at the beginning of Chapter Two, the move away from transparently remediating the material features of the printed book means that the apps tend to operate at the fringes of what might conventionally be called 'reading'. However, their common feature of eventually

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[1] Ayoe Quist Henkel, 'Exploring the Materiality of Literary Apps for Children', *Children's Literature in Education* 49 (2018) pp. 338–55 (p. 344)

presenting the user with a complete, linear, readable or listenable version of a poem means that all of the apps can be assumed to be anticipating a user motivated by reading or hearing poetry. Where the apps do not present the ability to read a complete poem from the outset, they generally combine the experience of the poem with another activity: watching, walking, playing, translating.

This is one distinctive feature shared by the apps: they largely do away with the book-based interface structures of more common digital reading environments, such as the Kindle or Adobe Reader applications, and instead integrate activities that are not normally associated with reading – even digital reading – into the encounter with the poem. In doing so, they utilise both the multimodality of poetry and the multifunctionality built into the device. Through this, the apps combine the traditional aims of poetry publishing and poetry reading with some aspects of the mobile device's digital materiality that fall outside of the normal scope of literary reading. This creates an unusual blend of the two kinds of attention – hyper and deep – defined by Hayles. The actions of using the interface are combined with the close attention to the words and form of the poem, creating a mixed-attention environment.

As I have argued in the previous chapter, instead of detracting from close attention to the poem, the apps then instead attempt to foster the results of deep attention through what are commonly perceived as the mechanisms of hyper attention. This hyper attention is centred around, and directed towards, the poem itself, rather than being a distracting element. All of the apps use the features of the device to divert attention towards the poem, in a way that counteracts the distraction-heavy usage that is more common to the device. Sometimes this involves putting the device to slightly unusual uses, sometimes it means incorporating the usual modes of usage and diverting them towards the text.

This is an important element of the poetry app: not only does it use a wide range of the device's affordances in the creation of a reading interface, but it uses these in a way that is aimed towards affecting the reader's interpretation or reception of the poem. This feature is probably most pronounced in apps like *Translatory* and *Puzzling Poetry*, which combine the common compulsion to fiddle or fidget with a device, as in a casual mobile game, with the encounter with a poem. This kind of interface incorporates common uses of mobile devices, both by making heavy use of touchscreen interaction as part of the reading process, and by fitting into the convention of being designed for use in interstitial, 'in between', moments of

time. *The Waste Land* app also adds a high degree of manipulation and interactivity to the poem through the way that the multiple video and audio elements are closely blended into the reading of the text, but the other two apps take the amount of active haptic participation by the reader much further and in a way that is more aligned with casual mobile device usage. Of the four, *Poems in the Air* seems the least hyper-attention-based. Although it also encourages its users to make connections between elements of the poem and elements outside the poem, this is approached in a much more traditionally reflective manner, with the listener being much more passive in terms of their usage of the device at the moment of the encounter with the text of the poem itself. The app instead seems to be attempting to foster a more straightforward kind of deep attention, as one would expect from a conventional presentation of poetry, but it remains unconventional by directing the reader-listener's gaze away from the device carrying the poem and towards the surrounding landscape.

The poetry app, as a form of digital publishing, then, has an interface that is specifically tailored to the reading of poetry, achieved through the explicit incorporation of multimodality into the reader's interaction with the poem text. This includes the multimodality of the poem itself – its appeal to the visual and the auditory senses – and the multimodality of the mobile device, which not only enables the combination of these but further extends them with the inclusion of interactivity. This interactivity leads to a more hyper-attentional way of encountering the poem in most cases. However, a key part of the poetry app's design is its redirection of this hyper attention back towards the poem itself, rather than outwards towards other, distracting activities. Even when the reader is directed away from the device itself, it is in the hope of stimulating a connection between their surroundings and the poem. This deep/hyper attention-blending approach makes the poetry app as a form of publishing distinct from the general ethos of e-book and online journal publishing, where the intent is generally to foster a reading experience that more closely resembles print and more straightforwardly aims for deep attention.

But as well as reconfiguring the usual role of the reader, these poetry apps also shift the role of the writer from how it is normally viewed in a more traditional publishing model. This is done both by shifting more writerly agency onto the user of the app, as in Landow's concept of the 'wreader', making them more actively involved in the formation of the text that they encounter. But, and especially in the case of *Poems in the Air*, the framework of the poetry app also gives those in the authorial roles – the writer of the poem itself and the designer of

the app interface – opportunities to have the poem act upon the reader in ways that would not be achieved in print, or in a more print-like remediation of the work. This side of the equation – the effect of writing for and creating digital poetry interfaces – is explored further in the creative portfolio.

Defining 'the Poetry App', Part Two: Approaching Digital Literature

As well as distinguishing the poetry app from the e-book, it is also important to distinguish it from the field of electronic literature. Aside from the way that attention is instantiated and used by the app interfaces, the poetry app can also be regarded as a form whose digital affordances have a significant impact upon the reading experience of the poem, but without going so far as to adapt the poem into a new work of e-literature.

All of the poetry apps conceptualise a poem contained *within* an interactive digital interface, rather than a poem whose text is partly made up of that interface and its organising structures. In each case, authorship of the digital elements of the app and the poetry that it carries are clearly signposted as distinct from one another within the app's digital packaging – its App Store listings and 'About' pages – just as a publisher is marked out as responsible for the creation of the printed book in traditional publishing. This distancing of digital and writerly roles is one way in which the apps also differentiate themselves from the majority of electronic literature, where authorship of the digital and literary components are often presented as heavily intertwined, if not inseparable.

In this sense, the work of electronic literature can be more readily compared to the work of writers whose practice also incorporates self-publishing and book art, where the author's personal artistic presence is extended beyond the text and into the form of the carrier itself. Cara Ellison uses the example of the work of the digital writer and indie video game developer Anna Anthropy to highlight how a single-authored digital artefact 'often has the author's voice come through very strongly because the working machinery of it is entirely constructed by one person and their words.'[2] These present to the audience a strong personal presence through their entire construction, by appearing as the self-cohering work of one mind, and by extension, one voice. Anthropy herself also makes a similar point in her book

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[2] Cara Ellison, 'Anna Anthropy and the Twine revolution', *The Guardian*, 10th April 2013
<https://www.theguardian.com/technology/gamesblog/2013/apr/10/anna-anthropy-twine-revolution> [accessed 24th October 2021]

Video Game Zinesters, in which she discusses the work of game developers - many of them incorporating highly literary components into their work - who retain control of the digital packaging and distribution of their work, creating an idea of them as 'personal artefacts'.[3]

In contrast, the poetry apps discussed in Chapter 2 present a clear distinction between the poem and its digital carrier. However, the form of the carrier still asserts itself very strongly on the encounter with the poem. For example, *Poems in the Air*, like the other apps, creates an experience that is between that of a piece of electronic literature and a more standard sound-based publication, such as an audiobook. On the one hand, the experience can be seen as a low-complexity locative experience: low-complexity in the sense that the text itself is not a cybertext, not a dynamic structure, and what is actually heard by the listener does not change. On the other hand, it could be considered as a digitally-delivered example of situated reading, in which the setting in which the reading takes place forms a significant part of the experience.[4] Location and landscape are used to provide a setting for the 'performance' of the audio. The text of the poem – in this case, an audio recording – remains constant with each encounter and for each individual reader-listener, but the design of the interface is such that – by tying the listening experience to a specific location – it has a more significant effect on the reception of the poem than a more straightforward, non-location-specific remediation method, such as an audio player application or podcasting service.

The poetry app avoids being an adaptation of a source poem into a new and distinct work of e-literature by keeping the focus of the reader-user's encounter on a fixed, stable idea of the poem text, one that is – or potentially could be – published elsewhere in another medium. This is opposed to transforming the poem into a true cybertext, which is defined by Espen Aarseth as a text whose structure is determined dynamically by computation or 'calculated production'.[5] Instead, poetry apps perform a balancing act between giving the reader a 'digital' encounter with a poem – one significantly shaped by the affordances and culture of digital media – and shielding the reader from the full force of the 'digital sublime'.[6] Ideas of

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[3] Anna Anthropy, *Rise of the Videogame Zinesters* [Kindle edition] (New York: Seven Stories Press, 2012), 'What Videogames Need' (in 'Chapter One: The Problem with Videogames')

[4] The impact of the situated reading experience is discussed in: Ian Gadd, 'Ready Reader One: Recovering Reading as an Ambient Practice' in *Ambient Literature: Towards a New Poetics of Situated Writing and Reading Practices*, ed. by Tom Abba, Jonathan Dovey and Kate Pullinger (London: Palgrave, 2021), pp. 27-51; Anežka Kuzmičová, 'Does it Matter Where You Read? Situating Narrative in Physical Environment', *Communication Theory* 26 (2016), pp. 290–308

[5] Espen Aarseth, *Cybertext: Perspectives on Ergodic Literature* (Baltimore: Johns Hopkins University Press, 1997), p. 5

[6] See the 'Editorial Statement' on: Stephanie Boluk, et al., 'Sea and Spar Between – Editorial Statement', *Electronic Literature Collection – Volume 3* (Electronic Literature Organisation, 2016) <https://collection.eliterature.org/3/work.html?work=sea-and-spar-between> [accessed 13th October 2021]

the digital sublime are a common theme in works of digital literature, like *The Sea And Spar Between* by Stephanie Strickland and Nick Montfort, making the reader aware of the vast potentiality of the digital in relation to reading: for example, Strickland and Montfort's digital poem presents trillions of computationally-generated stanzas to the reader on a single digital canvas, more than any person could read in a life-time. The remediation of poetry into mobile applications, on the other hand, curb this sense of the digital as an overwhelming force, combining some of that potential for multiple, surprising, or unrepeatable reading experiences with some of the stability and boundedness of the more traditionally published poem.

As the smartphone and tablet's native touchscreen functions and other affordances become more culturally ingrained, they move further into the realm of transparent immediacy that the codex has occupied for centuries, and that made it so appealing as a model for older digital interfaces. More recent interfaces, such as the poetry apps, are capitalising on their audience's familiarity with digital technology and its usage. This is opposed to older interfaces, which sought to minimise alienation by mimicking the codex as closely as possible, and to many older works of electronic literature, which often rely upon the implicit feeling of new-ness around digital media, or use the interactive elements of a digital piece to defamiliarise the environment by making it function counter to expectation.

However, just as these apps represent a move in digital publishing towards embracing the habits and common usages of digital devices, so too have more recent authors of electronic literature been moving towards incorporating more commercial and popular platforms – such as the mobile application, or social media – into their work. This contributes to the idea of the spheres of electronic literature and electronic publishing beginning to meet in the middle as both utilise more freely the haptics and distribution channels of more commonplace and familiar digital technologies. Flores, looking at this phenomenon from an electronic literature perspective, refers to these works as 'third generation' e-literature, and cites Jason Edward Lewis and Bruno Nadeau's *PoEMM Cycle* as one example of a kind of e-literature that has moved to the mobile app platform and as a result, 'feels less innovative in terms of the gestural vocabulary that users of iOS and Android touchscreen devices are already accustomed to.'[7] Here, the interactive and gesture-based interaction with the text actually

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[7] Leonardo Flores, 'Third Generation Electronic Literature', *electronic book review* (7th April 2019) <https://electronicbookreview.com/essay/third-generation-electronic-literature/> [accessed 24th October 2021]

assists with the reader's comfort and familiarity with the poetic encounter, rather than generating difficulty or defamiliarisation, as is the more established approach within e-literature.

Each poem then takes on superficially cybertextual qualities, but still retains a notion of the complete poem as a fixed and unchanging text that comes into contact with the transformative qualities of interface and context. The app that comes closest to presenting the poem as a full cybertext is *Translatory*, since the poem that results from the reader-translator's interventions cannot be pre-determined before the process starts, and in the end a new version is created by their actions. However, even this stops short of being entirely generative in the usual sense of e-literature by revealing the publisher-approved translation for comparison at the end, reinforcing the idea of a fixed, stable text held within the framework of the app. (See fig. 12 in Chapter 2, p. 82.)

The other app that arguably contains the most similarity with electronic literature is *Poems in the Air*. The poems of *Poems in the Air* were originally commissioned for the app, meaning that the app itself is not a remediating environment for any previous version of the work. However, because the poems are not structurally or linguistically altered by the actions of the reader, it is difficult to convincingly call them fully cybertextual and thus not an example of electronic literature in the usual sense. Instead, their presentation to the reader as conventional, linearly-structured single recordings places them more within the realm of pre-digital poetics, albeit with a set of digitally-determined conditions placed upon the encounter. The poetry apps investigated here, then, balance an engagement with digital poetics – the defining features of e-literature – with a continuation of the materiality of print and performance around which the poems themselves are based.

Ways of Conceptualising the Frame: Work, Play, Model, Exploration

Broadly speaking, this balancing of digital and pre-digital poetics in the poetry app is achieved by an increase in interactivity, as the reader is called upon to interact with elements that would not normally be considered as part of the reading experience in conventional print and print-remediating environments. In the next part of this chapter, I will now turn back to some of the specifics of each app to consider several different ways that this heightened interactivity could be conceptualised in order to more thoroughly explore its effect on the

digital reading experience. Each of the terms below applies most specifically to one of the apps in particular, but also provides a lens through which to view the features of poetry apps more generally.

Work

In the discussion of *Poems in the Air* in Chapter 2, I noted how the need for the user of the app to travel through the landscape in order to hear a poem could be considered a form of 'nontrivial effort' incorporated into the poem, along the lines of ergodic literature. In *Cybertext: Perspectives on Ergodic Literature*, one of the foundational texts in the study of new media and electronic literature, Espen Aarseth describes ergodic literature as literature in which 'nontrivial effort is required to allow the reader to traverse the text.'[8] The term *ergodic* comes from a combination of the Greek for 'work' and 'path', and the kinds of texts that form ergodic literature can be seen as ones that incorporate a higher level of work from their reader, an amount or kind of interaction not normally associated with reading.

Through the balancing of the more conventional approaches to digital publishing with the more affective elements of e-literature, these poetry apps are positioned as potential edge cases between these two categories. The apps take a non-ergodic work of poetry and digitally present it in such a way that interactivity and attention to digital materiality are made a significant part of the experience, meaning that some of the ergodic qualities of digital literature enter the reader's experience of the poem. In each app, a certain amount of work is introduced for the reader to encounter the poem fully by the ergodic framework that the interface forms around the poem itself, representing a kind of ergodic publishing.

The poem-text in each app remains, in its ultimate form – that is, at the end of the user's journey through the interface – a conventionally structured poem, rather than a cybertext that is structurally determined by the user's actions and choices. However each interface's strongly interactive design, and its potential for generating very different experiences of the poem, positions the interface as an ergodic paratext around the poem itself. This form of app-based presentation, while not necessarily creating ergodic texts in the fullest sense of the

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[8] Aarseth, p. 92

term, surrounds the poem with a series of activities and tasks framed as ways of more completely accessing the poem.

In this ergodic publishing model, computational abilities of the device are brought into the presentation of the poem to a reader in ways that go beyond the remediation of print or performance, and in doing so potentially move towards the idea of a more computationally-led model of digital publishing that Montfort speculated about at the beginning of the smartphone era.[9] When considered as ergodic publishing, each app's interface can be seen as adding an ergodic quality to the reading of the poem in different ways. Returning to Aarseth's notion of the ergodic text as one that requires non-trivial effort from the reader in order to yield understanding or produce its effect, each encounter is presented to the reader as a kind of task to be performed in order to access the poem in its fullest, most complete, and most deeply understood form. All of the apps differ in their methods of controlling and directing the reader's attention, but in each case a form of ergodic effort is made a key part of the encounter with the text.

The various mediatic and computational capabilities of the mobile device allow this idea of a task to be conceptualised very broadly, from the physical exertion of walking in a national park, to the more subtle and traditionally literary mental effort of engaging with high modernist poetry. But in each case, the task is to some extent presented as a kind of unlocking or uncovering of the poem.

Play

Ergodicity, and in particular this puzzle-like conception of it, is often applied in the discussion of digital games. Therefore, thinking about the ergodic element of a poetry app as a kind of 'playfulness' introduced into the encounter with the poem is another potentially useful perspective. As it is framed explicitly as a mobile game, play in its most literal sense can be seen most strongly in *Puzzling Poetry*. However, as with the idea of the ergodic, playful or game-like qualities are expressed to varying degrees in each app.

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[9] See the Introduction to this thesis. (pp. 2-3)

In *Literary Gaming*, Astrid Ensslin analyses a series of 'digital artefacts that combine so-called ludic […] and literary […] elements' and in doing so identifies a kind of literary digital artefact that utilises 'ergodic ludicity' in the way that it engages its player-reader with its content. Ergodic ludicity, according to Ensslin, incorporates the reader's 'corporeal, kinetic interaction with the hardware and software' into its aesthetic effect.[10] Each of the apps that I have discussed brings some measure of ergodic ludicity to the presentation of its poetry through the amount of interaction with the text that is afforded to the reader. Each kind of interaction is very different: they range, for instance, from very heavy use of the touchscreen while encountering the poem, as in *Translatory*, to almost none in *Poems in the Air*. But in each case, a non-typical kind of reading or listening interaction with the poem heavily influences its reception.

The extent to which each of the apps could be considered a 'literary game' by Ensslin's definition varies from app to app. *The Waste Land* introduces ergodic elements into the interaction with the poem, and encourages a kind of readerly play with the text itself, but the interface and structuring of the textual progression is not 'game-like' in the sense meant either by Ensslin's terminology or by widely-used definitions of gamification. *Translatory* and *Poems in the Air* introduce a much more explicitly goal-centric approach to accessing the poem, though in very different ways. In both, there is an element of challenge built into the structure of the app, of which the access to the intelligible version of the poem is the reward.

 Only *Puzzling Poetry* explicitly frames the encounter with the poem as an actual game, both through its distribution channels and the introduction of a recognisable game structure with points for completing the task of revealing the entire poem text. As such, *Puzzling Poetry* could constitute a literary game, albeit one that is much less avant-garde in its scope than those discussed by Ensslin. Its use of game tropes, however, is another example of how the apps represent a bridge between digital literature and more remediation-focussed digital publishing. The app performs in a manner described by Ensslin in her definition of the literary game, asking the reader to switch between a literary and a playerly approach as they work through the text-puzzle.[11]

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[10] Astrid Ensslin, *Literary Gaming* [Kindle edition] (Cambridge MA: The MIT Press, 2014), '1.3 Methodology and Structure'
[11] Ibid.

However, while *Puzzling Poetry* employs the rule-drivenness and playability that Ensslin identifies as key features of digital media usage, the other apps also make use of other, differently playful aspects of their digital carriers. *Poems in the Air*, as a locative mobile experience based around the seeking out of a geographical location for a particular digitally-mediated experience, shares this quality with a sub-genre of locative and AR-based mobile games, one of the most prominent being *Pokémon GO*, released in 2016. There is a continuum, then, between the game-like and the more broadly playful that can be seen here: *Poems in the Air* is not a thoroughly gamified experience of poetry to the extent that *Puzzling Poetry* is, but it still draws some of its key structural and aesthetic elements from technical features and user behaviours recognisable from AR games.

Each of the apps studied incorporates a degree of ludic behaviour into the interaction with the poem. This might not be as strongly gamified as the *Puzzling Poetry* app, but each one works in a different way to create a sense of discovery and surprise in the process of reading or listening to the poem, which could be regarded as ludic. Ensslin notes that 'games are a subform of play' and so, even if a poem presented via an app doesn't become a literary game by Ensslin's definition, it can still take on a game-like appearance through approaches like gamification, particularly in the design of its interface, or have significant ludic elements incorporated into the experience of reading it.[12]

The move towards more hyper-attention focused activity through digital media can be seen as part of a larger move towards a more playful approach to media interaction more generally in contemporary culture, in which playfulness has become 'a life long attitude' in part through the way that mediation has been structured.[13] Gamification as a phenomenon within digital design and communication is, as media scholar Joost Raessens argues, 'one particular part of this more general process' and as such is one way in which activities and media content have been adapted to suit interaction through mobile devices. For Raessens, ''[n]ew media appear to exemplify this process of ludification: think of both commercial and serious computer games, playful communication via mobile phones, or social media like Facebook where identities are constructed in a playful way.'[14] As the drive to make interaction design more 'game-like' arose roughly simultaneously with the introduction of the popular smartphone,

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[12] Ibid.

[13] Joost Raessens, 'The Ludification of Culture' in *Rethinking Gamification*, ed. by Mathias Fuchs et al. (Lüneburg, Germany: Meson Press, 2014) pp. 91-118 (p. 95)

[14] Ibid., p. 98

and took place mainly among web and digital designers, the features in question are most often those originally seen in digital games.

When applied lightly, then, game-like interaction design might not necessarily make the content in question appear as a fully-fledged mobile game, but instead impart more casual elements of play into the interaction. Bringing the notions of play that are already associated with digital media more closely into contact with the digital publishing of a text could be considered a way of remediating the features of print-reading and pre-digital poetics into a digital medium by combining a literary and ludic sense of the term 'play'. Play is a concept that is often used in the discussion of literature, both through reading and writing. For Eric Falci, the poem is an inherently playful experience for the way that it asks its reader to attend to the unusual use of language through its use of form and linguistic patterning.[15] But, even more broadly than this, literature and the act of reading link to play through the way that they carve out a mental and emotional space for themselves within our attention. Raessens, drawing on Johan Huizinga's *Homo Ludens*, notes that 'in play, you know that the game you play belongs to a different category from ordinary life'.[16] Similarly, Ensslin, in her own discussion of the notion of play in relation to the literary, says that aside from its more literal definitions, play can also be an attitude: 'being in a playful state of mind […] is the psychological framework we adopt when we have fun' and engage in other activities for pleasure, which would include reading.[17]

Poetry's play with language is also frequently referenced in the discussion of writing as well as reading. For instance, in a 2021 online event hosted by Bloodaxe Books, the poets Jenna Clake and Tishani Doshi both mentioned play and playfulness as key ideas in the process of writing their poems.[18] The poem can then be seen as a way of instantiating within the reader or listener the same playful state that the writer enters when crafting the language of the poem. Through playing with language – treating it experimentally, putting it to unusual uses, stretching words beyond their usual denotative meanings – poets create a kind of language – poetic language – that, like Raessens' idea of play, belongs in a different category from ordinary language, and the reading or listening experience of a poem is likewise a different

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[15] Eric Falci, *The Value of Poetry* (Cambridge: Cambridge University Press, 2020), pp. 22-3
[16] Raessens, p. 101
[17] Ensslin, *Literary Gaming* [Kindle edition], '1.2 Ludic Books and Literary "Games"'
[18] Jenna Clake and Tishani Doshi, 'Launch reading by Dom Bury, Jenna Clake & Tishani Doshi', live online event via Bloodaxe Books YouTube channel <https://www.youtube.com/watch?v=QMEg_DYj_wU&ab_channel=BloodaxeBooks> [81:50] [accessed 24th October 2021]

category to ordinary reading or listening. When encountering a poem, the audience is cued to expect language to be used in unusual and playful ways, to understand the rules of this particular form of communication. And so, while the experience of reading or writing a poem is not necessarily game-like in the sense of scores or strict win-lose dynamics, there are elements of poetic experience that parallel ludic notions of 'play'.

In the apps discussed above, each of the presentation methods alters the way in which the reader interacts with the poem text, moving away from the more established norms of digital reading. Aline Frederico notes that '[i]nteractivity has an intrinsic ludic aspect to it', and that 'this aspect can work as an important source of motivation, attracting readers that might still be facing difficulties in decoding the written text to the literary sphere.'[19] Federico's work mainly concerns reading apps targeted at children, but she also notes that this kind of interactivity is 'one characteristic that any text, print or digital, has in establishing a relationship between the world represented in the text and the real world, which includes the reader.'[20] Likewise, in *Infinite Distraction*, Dominic Pettman, drawing on the work of Lauren Berlant, alludes repeatedly to the 'light' or 'playful' nature of much digital communication, especially in reference to social media.[21] Within the poetry apps, drawing the reader's attention to these more unusual modes of interaction works to highlight this playful aspect of the encounter beyond the normal, more subtle notions of play associated with literature.

For the app's user, the intrinsic ludicity of the platform adds a mildly game-like appearance and feeling to any interactive literary app. While not necessarily a 'game' in the sense of points-scoring or winning and losing, there is a sense that the text can be played with, and that there is an element of challenge involved in discovering what can be done through the interface. In the apps discussed here, this manifests in the way that the reader can explore different medial, historical and thematic elements of *The Waste Land*, the physical journey of discovery involved in the *Poems in the Air* poems, or the ways that poems must be uncovered from either a puzzle or a foreign language in *Puzzling Poetry* and *Translatory*. In each case, the poem – or a fuller understanding of the poem – is withheld until a particular set of actions have been fulfilled.

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[19] Aline Frederico, 'The future of the reader or the reader of the future: children's interactive picturebook apps and multi-literacies' *Cadernos de Letras da UFF Dossiê* 52 (2016), pp. 121-139 (p. 126)
[20] Ibid., p. 125
[21] Dominic Pettman, *Infinite Distraction* [Kindle Edition] (Cambridge: Polity Press, 2016), '2: The Will-to-Synchronize'

<u>Model</u>

As noted in Chapter 2, different ideas of play and work are actually combined together in each of the four apps. At the most abstract, this comes from the acknowledgement of the potential difficulty of a literary text, its need for close attention, that is present in each app. The close combination of work- and play-based elements are, however, most immediately visible in *Translatory*, through which the user takes the role of a translator: that is, work, a professional role within the world of publishing. But this is framed as an activity for the user's leisure time, and with a strong framework of guidance built into the process. Raessens notes that, in many cases, 'mimicry is an important feature of play', something which seems particularly applicable here, as the whole experience is one of, in a sense, 'playing at' translation.[22] Translation becomes a playful method for encountering new poetic texts, but one in which the encounter is enriched by the close attention – the mental work – that the interface fosters.

The guided user experience of the *Translatory* interface creates a very simple digital model of the translation process. In each of the poetry apps, this shaping of the interaction – both the kinds of interaction permitted to the reader and the meaning ascribed to these interactions – could also be seen as a form of digital modelling. For each, the impression given to the reader about the nature of poetry and how it can or should be read follows existing ideas from within poetics and literary studies that are expressed in the way its interface is structured.

On one level, the app interfaces can be seen as a form of modelling in the sense that each adopts a different overriding metaphor for the reader's engagement with the poem. By no longer remediating the form of the printed book, and moving away from the page-turning style of interaction that is the standard within e-reader platforms such as the Kindle app, each poetry app requires a conceptual model around which to base its presentation of its content. As noted above, perhaps the closest in form to the standard e-book model is *The Waste Land* app, but the relatively plain, page-like, clutter-free presentation of the poem is only one element of the app's overall interface, which also makes heavy use of image galleries, thumbnails and dropdown menus that all draw heavily on methods from website design and make a feature of the extra content that accompanies the poem itself. The other apps all move

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[22] Raessens, p. 98

further from the codex model, with *Poems in the Air* being largely based around a map interface, *Puzzling Poetry* sharing much in common the design of popular mobile games, and *Translatory* resembling a kind of heavily restricted text editing interface as much as a reading platform.

In each case, however, other assumptions about poetry are also built into the app's design, forming models of approaches to reading poetry, theories of poetics, notions of the relationship between reader and text, and the perceived priorities of both the poetry reader and mobile device user. Writing on the idea of modelling in the digital humanities, Willard McCarty describes a model as 'a consciously simplifying act of interpretation' and says that 'we build such models-of because the object of study is inaccessible or intractable, like poetry or subatomic whatever-they-are.'[23] In the poetry apps, however, what is being modelled is not the poems themselves, but ways of seeing poetry, based upon different popular notions of the process and value of poetry-reading. These are modelled through the poem-text's relationship with the particular affordances of the digital medium utilised by each app.

For Johanna Drucker, an 'epistemological viewpoint is embodied in the form' of any digital interface, and 'decisions about presentation of a project's contents constitute an argument de facto' through what they tell us about the perceived appropriate hierarchies of content and ways and interacting with that content.[24] The actions involved in creating any digital text – transcription, encoding, interface design – are not theoretically neutral but rather are interpretive acts in their own right, each involving decisions by a human agent guided by specific agendas and philosophical backgrounds. So, even when an interface is not explicitly designed with a particular approach to poetry in mind, it is still possible to read assumptions about poetry from them. Furthermore, I believe that because of this, arguments made by digital humanities scholars like McCarty and Drucker about the interpretive impact of methods of humanities computing and visualisation can be applied here to these literary digital artefacts.

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[23] Willard McCarty, 'Knowing: Modelling in Literary Studies' in *A Companion to Digital Literary Studies* [online edition], ed. by Susan Schreibman and Ray Siemens (Oxford: Blackwell, 2008) <http://www.digitalhumanities.org/companionDLS/> [accessed 24th October 2021]
[24] Johanna Drucker, 'Graphical Approaches to the Digital Humanities' in *A New Companion to Digital Humanities*, ed. by Susan Schreibman, Ray Siemens, John Unsworth (New York: John Wiley & Sons, 2015), pp. 290-302 (pp. 294-5)

None of the apps necessarily present themselves as works of, or tools for, criticism or analysis of the poems. Of the four, *The Waste Land* app comes the closest to presenting itself as a serious or scholarly edition, drawing upon the prestige associated with Faber and some of the commentators included in the video paratexts to the poem. However, despite being largely framed as more lightweight platforms for reading, each app does use its interface to embed the tools and approaches used by critics and scholars into the reading process. *The Waste Land* app, drawing attention to the development of the poem by including early drafts, and using video interviews to reflect upon the poem's contemporary and subsequent reception, invites the reader to view the poem with the same priorities and questions in mind that might concern a scholar working in genetic criticism or reception theory. *Puzzling Poetry*, on the other hand, by using an interface that draws attention to the relationship between words across the structure of the poem, and to the roles that different types of words might play, reflects the techniques used in a traditional close reading of a poem. Although the interface by no means guarantees a sophisticated analysis of any poetic techniques by the reader, by disrupting the potential for a skim-read of the text, and drawing attention to particular words individually, a careful consideration of their place within the poem is encouraged. Other interfaces - both *Poems in the Air* and *Translatory* - build models of digital reading that present different ideas of authorship and the role of the reader in making meaning within the poem. In *Poems in the Air*, the restrictions created by the app place the poem very explicitly between author, listener and subject: the landscape in which the author once stood and the listener now stands. In *Translatory*, the reader is drawn into the creation of a version of the poem they then read, and the app as a whole functions as a model – a guided walkthrough – of the translation process. Though all four apps bring very different models to bear upon the poem, together they show the wide variety of potential effects that the structure and functions of the digital framework can have on the text.

Exploration

Each app could be seen as a literalisation of I.A. Richards' notion that theories and methods of criticism function as 'speculative instruments' that assist the reader in exploring a text, rather than offering attempts at definitive answers about the nature of a poem.[25] The idea of

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[25] M H Abrams, 'Poetry, Theories of' in *The New Princeton Encyclopedia of Poetry and Poetics*, ed. by Alex Preminger and T.V.F. Brogan (Princeton, NJ: Princeton University Press, 1993), pp.942-54 (p. 953). Richards credits Samuel Taylor Coleridge with the phrase 'speculative instruments', as Abrams does here. However, Ann Berthoff notes that Richards was later unable to locate the source, and

the speculative instrument, of theories of poetry as aiding an investigative impulse, when applied to the frameworks created by the apps, leads to the idea of an exploratory interface by presenting the app interface as a tool for thinking about poetry by using the same techniques applied by critics, albeit in a diluted form. In fact, each app – whether viewed as a kind of work, play or modelling – uses the structure of its interface to encourage a kind of exploration of the poem being presented. Each of the three concepts discussed above applies to each app to varying degrees, and the notion of exploration is one that unifies the way that ergodic work, ludic play and interpretive modelling all function across the four apps.

The Waste Land app in particular uses its interface to create a sense of exploration and discovery. The amount and variety of extra material, along with its arrangement into galleries and multiple viewing styles, encourages the reader to immerse themselves in the writing- and reception-history of the poem. *The Waste Land* in one sense has the most conventional reading interface of the four apps, and it also provides the most paratextual material around the main text, giving the reader a wide range of choice in where to direct their attention. The other apps, while not reliant on supplementary materials, do still give the reader a sense of exploring the poem, but in ways that move even further from conventional digital reading.

Within conventional reading practices, the notion of exploring a text is often expressed through the practice of close reading and close attention to the literary features of the text itself. As discussed earlier, this is tied to Hayles' notion of deep attention, something that Hayles explains is itself connected to print reading and pre-digital reading technologies. Close reading and deep attention are valuable to poetry readers as they allow for a sustained and in-depth engagement with the complex and subtle elements of the poem as a work of literature. However, the apps analysed in the previous section do not gloss over or seek to remove attention to poetry's complexity as a literary form, or its need for an openness to ambiguity and multiplicity on the part of the reader. The function of the apps is not framed as presenting a solution or answers to a poem's meaning, but rather new ways of engaging with the difficulty of the poem through means that are native to the device and its more customary usage. The heavy use of interaction – either with the screen or the physical environment – that is generally responsible for a sense of the ludic encounter and the hallmark of hyper-

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suggests that he probably unknowingly coined the term himself: Ann E. Berthoff, 'I. A. Richards and the Audit of Meaning', *New Literary History* 14.1 (1982), pp.63-79 (p. 77n4)

attention, is used in the poetry apps in an attempt to achieve the same effects as print-style deep attention.

'Exploration' is the most broadly and evenly applicable common theme that I identify linking the apps analysed here. In each case, the mental exploration of an idea, or emotion, or language, that is commonly associated with poetry is augmented by physical and haptic interactions using the device. The reader is encouraged to see the poem as something to be explored using a variety of different methods that all draw upon prevalent features and uses of the media environment, but are less prevalent within, or entirely missing from, conventional ideas of digital reading.

Also, this kind of interface, and the kind of interactions that it affords, also offers expressive potential to an author beyond that found in conventional book-based models. As noted in Chapter 2, Simon Armitage writes his Northumberland poems in full awareness of how they will be encountered by the user of the location-specific *Poems in the Air* app, which allows him to use his writing to direct his listener's attention, creating an intimate bond between words and setting. The creative opportunities afforded to the poet by a digital interface, and in particular this exploratory aspect, are investigated further through the creative practice documented in the portfolio that follows this critical thesis. In that part of the project, the notion of exploration is expanded beyond the role of the reader and into the work of the digitally-focussed writer and designer through Nick Montfort's concept of 'exploratory programming', which underpins much of the creative work. (See the Introduction to the Creative Portfolio, p.121.)

Transmediality and the Exploratory Interface

The first chapter of this thesis discussed poetry in terms of two concepts drawn from media studies: multimodality and transmediality. As I discussed there, the poem can be regarded as a very strongly multimodal literary artefact for the way that it often asks its audience to pay close attention to both the visual and aural elements of language. The multimodality and transmediality of the poem, I argued, are linked through the way that drawing upon different modalities, which are better expressed through different older technical media, in the same piece of work gives the impression of the poem as existing between or across the media, and not truly belonging to any one more than another. Digital media, as a kind of meta-medium

and a site of multiple forms of simultaneous remediation, presents an opportunity for the various separate medial versions of the poem to be presented together in one unified display. The remediation performed by these more common digital interfaces presents us with the transmedial poem directly, and makes us more aware of the poem as a transmedial literary artefact.

Chapter 2 then dealt with four examples of mobile applications that publish poems using features that are unusual for a remediation-based presentation of a text. As I identified in that chapter, each app increases the element of interactivity involved in the reading of the poem, be it with the screen of the device itself, or with the reader's own surroundings during the encounter with the poem. The next section of this chapter will now consider how this heightened level of interactivity affects the sense of the poem's multimodality and, ultimately, its transmediality.

As discussed above, increased interactivity is the main factor in creating the sense of discovery that underpins the exploratory experience in the poetry apps. Though interactivity stretches throughout many forms of digital media technology, and is by no means exclusive to the mobile touchscreen device, the four poetry apps all include interactivity in ways that are enabled by the affordances of the device's specific materiality; its size, portability, and its use of the screen as a simultaneous display and input. One consequence of the heightened interactivity is the increased sense of multimodality in the poem. *The Waste Land* and *Poems in the Air* apps both emphasise poetry's existing multimodality by focussing on audio and performance alongside reading and the visual. While no written text is provided in *Poems in the Air*, this absence is a distinctive feature of the app and self-consciously marked out as an unusual way to encounter poetry. Consequently, the appeal to the visual sense is filled by the landscape and surroundings when listening to the poem. *The Waste Land* app's multiple recordings in audio and video, on the other hand, contribute to the sense of multimodality by adding extra emphasis to the auditory and performed aspects of the poem alongside the visual reading of the written text. In both cases, the app interface's approach to interactivity – either with the screen or the surroundings – is tied to the sense of multimodality, giving the reader the ability to vary the way in which the poem engages the visual and aural senses.

Interactivity can also further increase this impression by making the text of a poem more actively performative. Within an interactive interface, part of interaction is the reaction of the

digital object – the poem – to the action of the reader: that is, the ability of the text itself to act, as much as the user. The revealing and changing of the text in the *Translatory* and *Puzzling Poetry* apps means that the poem, through the digital frame, performs a controlled release of its words to the reader. But even without the parallel that can be found between interactivity and performance, interactivity still adds a heightened sense of multimodality by constituting a mode of consumption in itself. For *Translatory* and *Puzzling Poetry*, the poem is a text to be read, as in conventional reading displays, but it is also a digital object to be manipulated and altered. In these encounters, the reader-user is not given the impression that they are in some way transgressing the normal or proper use of the device as reading space, but instead that the play and manipulation of the words on screen is a valid part of the reading activity that the app interface offers. In this sense, through the license given to the reader to use these methods, interactivity becomes one of the modes through which the poem-text, and by extension poetry as a literary form, can be consumed.

The addition of interactivity as a kind of exploratory encounter also increases the sense of the poem being at home in the digital medium, through the value added by its interactive affordances. The inclusion of the poem text into an interactive environment increases the perception of the poem belonging in this multimodal media environment, since those features of the technical medium are actively utilised, rather than being diminished in order make the use of the device resemble that of an older medium. This creates the impression of the poem being a more native product of that media environment, rather than a remediated one.

However, because these interfaces present poetry based within pre-digital poetics, the sense of belonging to the digital medium only goes so far, and in each case we are led back to a stable, fixed text. In *Translatory*, for example, the reader-user's own explorations of the translation process might invite new considerations of shades of meaning within a poem, but the user-generated translation is always compared with the authoritative translation in the end. *Translatory* becomes a way of creating variants, translational experiments, but not displacing the pre-existing published translation.

From the point of view of transmediality, the ergodically-focussed publication of a poem in apps like these presents the work as one that can slip in and out of the highly-interactive, unstable textuality of the digital interface. The digitised pre-digital poem is simultaneously shown as a techno-text, something closely tied to its technological mediation, and as one

instantiation of an idealised transmedial literary object. Just as pre-digital poetics places the poem between written and aural media, the perception of the poem in the poetry app is of it both belonging and not belonging to digital textuality: it can be usefully explored and understood in new ways through the affordances of digital media, but at its core we are always led back to a stable, inscribed, remediated pre-digital artefact; a non-digitally poetic text that acts as the source and authority for the variant reading through the app.

This tension between innovation and faithful reproduction in the interface – the balancing act between integration into the digital and a return to a more straightforward remediation of the page or performance – increases the sense of the poetry's transmediality. Making the poem more naturalised in the interactive digital medium, while still referencing its origins in an older poetics, adds another technical medium to the range of media that the poem can be seen as hovering between. Creative digital remediations of poems expand our conception of the work itself by creating new media instantiations which feed the composite formed by all medial versions of the poem. Just as Middleton's notion of the poetry reading and the presence of the book there creates a sense of the poem being between media, the addition of the exploratory encounter – in a form that is uniquely enabled by digital media – heightens this sense further, increasing the poem's transmediality.[26] The insights or influences on interpretation gained from those digital remediations then feed into the overall sense of the poem as a whole, alongside how it might look on a page or sound when read aloud. Whereas in digital remediations that refer more heavily back to older media the poem might be seen as between reading and listening, it is now to some degree between reading, listening and interacting.

And so, within the poetry apps, transmediality is expressed through the way the exploratory encounter makes the poem feel larger than, or beyond, the technical medium itself. The digital medium is made to work for the poem, but not to solve or decode the poem. The most successful of the apps use the exploratory encounter in a way that extends, rather than attempts to conclude, a sense of a poem's openness or ambiguity. This is the nature of combining a digital and pre-digital poetics, as the app interface works to incorporate the poetic elements of both kinds of media.

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[26] Peter Middleton, 'How to Read a Reading of a Written Poem', *Oral Tradition* 20.1 (2005), pp. 7-34 (p. 9)

Part of a poem's multimodality and its transmediality is the ever-present suggestion that a poem could be read another way, with different aspects of its construction, different emphases, and different modalities, brought to the fore. This tension is often cited as the marker of a successful or impactful poem: the 'tough parsing' that Stephanie Burt describes as revealing 'the range of potential answers, their overlap and their penumbras'.[27] The apps studied all attempt to strike a balance between using digital media as a tool for further understanding the poem and maintaining this value of the poem as a literary work. As these poetry apps all approach the creation of an exploratory encounter with the poem so differently, it is difficult to assess which of the interfaces most, or least, successfully incorporate the digitally-led exploratory encounter into the reading of the poem. However, in my view, the apps that most effectively use the kinds of interaction afforded by the mobile device are *Poems in the Air* and *Translatory*.

Although *The Waste Land* app's inclusion of different interpretations of the poem through performance and commentary can open up the reader to the idea that a poem can be read in many different ways, the heavy focus on explanation of the poem according to previous readings could also work to shut down personal engagement with the content of the poem. The app's function as a kind of digital encyclopedia of information about the poem could then potentially outweigh its function as a means of reading it. Viewed this way, the app interface does not allow the reader to use the affordances of digital media in an exploration of the poem in an active way, and they are left relatively passive compared to the other apps. In this sense, as well as in much of its visual design, *The Waste Land* app is also the most similar to a now conventional e-book publication.

Conversely, while *Puzzling Poetry* includes a high degree of user-interaction in its approach to revealing the entire poem, this interaction is not focussed on an openness to variability and multiplicity in the poem to the same degree as either *Translatory* or *Poems in the Air*, both of which I see as making this their primary concern as reading interfaces. In *Translatory*, this is through a signposting of the various connotations and shades of meaning that words might have, and so the effect that their usage might have on the poem as a whole. Like in *The Waste Land* app, the work of previous readers of the poem – here, translators – is used to highlight this element of language, but with the user of the app brought into a much more active role.

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[27] Stephanie Burt, *Don't Read Poetry: A Book About How to Read Poems* [Kindle edition] (New York: Basic Books, 2019), 'Chapter Four: Difficulty'

In *Poems in the Air*, the poem's multiplicity is expressed through the way in which the design of the encounter consistently prompts the reader to compare the experiences related by the speaker of the poem to their own experiences in walking through the same landscape.

Poems in the Air and *Translatory* both encourage a merging of personal activity and an attention to the text in the moment of its encounter. For Louise Rosenblatt, the reader always relies upon their own experience in the interpretation of a text in aesthetic reading, and these two apps use the functioning of their interfaces to effectively move their users into an aesthetic reading frame of mind.[28] Conventional wisdom for how this is achieved in digital reading interfaces is to emulate the printed book as closely as possible, aiming to foster deep attention through a minimising of distraction and user activity. But the four poetry apps discussed here move away from this model, combining deep attention with affordances of the mobile device that are more typically associated with hyper attention and more shallow levels of engagement. While all of the apps use this technique to guide the reader's attention towards the poem itself, the two most successful apps are those that use this to maintain a sense of the poem's unresolvable nature and potential for new meaning, rather than as a challenge to be definitively solved.

Conclusion of the Critical Thesis

The aim of the critical thesis was to assess the poetry app as a means of publishing in its own right, as distinct from e-book publishing or the creation of e-poetry. I chose four apps that all include features not normally found in standard e-books formats, but which publish poetry not written with the interactive and kinetic features of the digital mobile device in mind. This allowed me to focus on the features of the delivery method, and how their relationship to the text affected the experience of it. This meant that I was analysing specifically those characteristics that belong to app-based poetry publishing and their potential for generating new types of reading. This is opposed to studying apps that more closely resemble e-books and therefore remediate the print reading experience, as significant work has been done on this kind of interface already, most notably by researchers involved in the European COST E-READ project.[29]

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[28] Louise Rosenblatt, *The Reader, the Text, the Poem: the Transactional Theory of the Literary Work* (Carbondale: Southern Illinois University Press, 1994), pp. 48-9

[29] 'E-READ COST', *E-READ* (COST, 2016) <https://ereadcost.eu/> [accessed 24th October 2021]

It seems a safe prediction that, by and large, poetry written with the materiality – the aesthetics and the haptic interactions – of the printed book in mind will generally continue to be distributed through the printed book, and that when this poetry is published digitally, the majority of publishers will chose to do so in something like the standard commercial e-book, remediating the print reading experience more or less as closely as possible, and that this will continue be seen as the ideal state in which to encounter works written under what I have called pre-digital poetics. However, as we as a culture become ever more habituated to ubiquitous digital technologies – many of which now do not remediate any features of the printed book, or do so alongside a great deal of other technologies – the poetics of pre-digital and digital materiality are inevitably going to collide in new ways. This will occur as the first generation of 'digital natives' grow older, and younger generations, 'native' to the newer, even less print-like digital media start to encounter poetry, new and old, through whichever communication channels are available to them. Currently emerging methods of publishing are then potentially useful ways of understanding how the literary and the digital might interact in the future.

The four poetry apps in this study all seek a balance of typically digital and analogue behaviours and modes of attention. The poems they contain are partly remediated to maintain their status as fixed literary objects, either written texts or recordings, and partly imbued with elements of digital poetics. In doing so, the apps attempt to bring new kinds of attention to the poem, and focus hyper-attentional tasks onto traditionally deep attention based texts. The affordances of digital media are used in novel ways that attempt to complement, rather than disrupt, established practices of reading poetry and the conventions of pre-digital poetics. Any disruption that occurs, such as in the concealing of the text in *Translatory* and *Puzzling Poetry*, is resolved by the eventual display of a whole coherent poem, onto which the reader is implicitly invited to project their experiences of the process of uncovering it.

In this thesis, I have regarded the addition of playful or game-like elements into the reading interface not as an attempt to 'gamify' poetry in the sense of introducing irrelevant game elements into the experience, but instead as part of a broader move towards altering the reader's encounter with the poem into one that more closely fits the ways in which the mobile device is used. After discussing and comparing each of the apps, I conclude that their main common element is the use of the device's interactivity to bring an exploratory encounter

with poetry to the reader. What is new and original about these apps is that they seek to achieve this effect – the exploratory encounter with the poem – through actions and media affordances generally associated with hyper attention and the more distraction-driven habits of everyday digital media consumption. This convergence in turn heightens the sense of the mobile device's potential as a suitable reading environment for poetry.

The combination of the close, reflective style of attention appropriate to literary reading with hyper-attentional modes of interaction suggests, on the one hand, an attempt to adapt the presentation of poetry to the smartphone and tablet media environments. But it is also an attempt to make these devices more conducive to poetry reading by incorporating some of their specific affordances, meeting traditional reading halfway. As Hayler and others have found, the e-book format, and in particular phone-based reading, is often cited as unsuitable or unsatisfying for reading literary texts, with its failed attempt at emulating the print reading experience being a common criticism. Fleming-May and Green, focussing specifically on poetry-readers, found that online reading was often experienced as 'faster and more superficial' and lacking 'close, deep engagement with the work'.[30] Naomi Baron's research into 'the digital reading habits of university students in five countries revealed that 92% believed they could concentrate best when reading in print, not on digital devices.' She found that 'for the majority of readers, the issue is mindset', since most people associate their digital devices with the more fragmentary attention involved in messaging, social media and online searching.[31] From this, Baron concludes that 'reading serious literature on a mobile phone (rather than restaurant reviews or gossip) takes a level of concentration and self-discipline that few have.'[32]

From these surveys, we see that the effort to turn the mobile device into a close approximation to a printed book appears to be a solution with significant flaws. However, in his 2015 article 'Reading War and Peace on my iPhone', journalist Clive Thompson reflects in detail on a slightly different experience of attempting literary reading on a mobile device. Like the survey respondents, he cites many of the problems commonly associated with the task, saying that 'one could scarcely imagine a tool more exquisitely tuned to destroy deep

[30] Rachel A Fleming-May and Harriet Green, 'Digital Innovations in Poetry: Practices of Creative Writing Faculty in Online Literary Publishing', *Journal of the Association for Information Science and Technology* 67.4 (2014), pp. 859-73 (p. 865)
[31] Naomi Baron, 'What happens when you try to read Moby Dick on your smartphone?', *The Conversation* (30th September 2015) <https://theconversation.com/what-happens-when-you-try-to-read-moby-dick-on-your-smartphone-46440> [accessed 24th October 2021]
[32] Ibid.

attention than a modern phone' due to its draw towards constant multitasking, as well as noting that e-book texts lack the visual and haptic cues that can help a reader retain what they have read through 'intellectual muscle memory'.[33] However, Thompson describes how, despite these obstacles to deep attention, he eventually managed to have a rewarding experience of reading the novel on the iPhone. In the article, Thompson credits this to two key strategies. First, he increased the font size on the Kindle app to far beyond the default setting, leaving only a paragraph or so of text on the screen at once. This, Thompson argues, made the novel more suitable for its small format, a point he supports by comparing it to 18th century octavo- and duodecimo-sized books, which also only contained a few lines of prose per page, and whose 'ultraportable ergonomics were part of their appeal.'[34] Importantly, Thompson found that this change in presentation style meant that the text now also conformed to his habitual usage of the device, that it was 'more suited to the ten-minute-long bursts of reading I'd fit into interstitial moments.'[35] The text itself suddenly seemed more suited to his phone-usage, having been visually broken into smaller pieces. His second adjustment to his digital reading was to use the iPhone's then-new voice notation feature to make notes on the text as he read, a practice that he believed would be helpful, but had resisted when it relied on typing, as he felt that it broke the 'flow' of reading too much.[36] However, with voice notation, Thompson noticed a change in his relationship with the text as adding his own thoughts to the text became easier: 'I started *talking* to the book.'[37] By using this new, more intuitive method of interaction, Thompson found that he could more comfortably make notes as he read and thus increased his engagement with the novel.

With these two alterations to his reading process, Thompson broke away from the standard model of digital reading offered by the iPhone's Kindle app, one that by default strongly replicated print in terms of the amount of text displayed and the ways that a reader can interact with the text. The significance of this here is that Thompson's hacking of standard e-reading increased his close attention to the novel by making it more, rather than less, aligned with its digital materiality. By making the text fit into interstitial moments and increasing his sense of interactivity with it through multimodality – his 'talking to the book' – he performed the same kind of hyper attention focussed remediation work that I argue the poetry apps also

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[33] Clive Thompson, 'Reading War and Peace on my iPhone', *BookRiot* (2014)
<https://web.archive.org/web/20150629034733/https://bookriot.com/quarterly/bkr07> [accessed 24th October 2021]
[34] Ibid.
[35] Ibid.
[36] Ibid.
[37] Ibid., original emphasis.

use to encourage deep reading of their texts. While Thompson's responses to the challenges of digital reading were specifically tailored to a long novel, the general approach to reading interfaces that he demonstrates still has relevance to other forms, such as poetry. As a generally much shorter literary form, poetry often does not demand the same duration of attention as a chapter of a novel, but alterations to the digital reading norms – like those identified in the poetry apps – can still assist in producing the depth and singularity of focus that is generally considered the ideal of reading literary work.

Both of the surveys noted above, and Thompson's article, were published in the same few years that the poetry apps were developed and released, as smartphones and tablets began to be widely adopted. These apps approach the remediation of poetry into this new technical medium in similar terms to Thompson's experiment, neither aiming for the transparent immediacy attempted by the e-book, nor fully embracing digital poetics and transforming the poem into an entirely new form. Instead, they attempt a compromise between these two media systems by presenting a conventionally structured poem but in the terms of the new medium, and in a way that attempts to use, rather than diminish, the affordances of that medium to facilitate engagement with the poem.

If we accept the argument that digital networked devices are inherently ill-suited to the deep, close reading of texts, due to the danger of 'heightened distractibility', then this raises the question of how successful any poetry app can be as a platform for reading a literary text.[38] However, I have found that the extra elements added by each interface generally do not serve as a distraction, as they are all focused around an aspect of the poem itself, whether this is its subject matter, its linguistic construction, or its critical and historical context. In his study of digital culture, *The Smartphone Paradox*, Alan J Reid notes that many of the features of digital interfaces that are considered distractions are often also deeply absorbing in their own right, and capable of inducing a 'flow' state in their user.[39] Here, in the poetry apps, we can see this quality of the hyper-attention style activities associated with digital environments – the 'distracting' flow mechanisms – co-opted in favour of the reading experience, and potentially working to combat competing flow elements from other apps on the device.

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[38] Alan J. Reid, *The Smartphone Paradox* (London: Palgrave Macmillan, 2018), p. 149
[39] Ibid., pp. 16-7. Reid references the work of prominent psychologist Mihaly Csikszentmihalyi, whose concept of the 'flow state' is best-known from his book *Flow: The Psychology of Optimal Experience* (1990).

Through these approaches, we see a remediation of poetry that aims for hyper-mediation over transparent immediacy, since the digital materiality of the device is foregrounded rather than diminished in the encounter with the poem. The device's computational functions are brought to bear upon the reader's encounter with the poem, significantly influencing the setting or method of its reception in a way that begins to approach Montfort's wish from 2011, cited in the Introduction, to see modes of publishing that 'actively engage computation'.[40] In a similar vein, Johanna Drucker in 2014 also highlighted a need for change in the way that computers are used to access literature and other humanities-related materials.[41] For Drucker, the scientific, administrative and bureaucratic metaphors that permeate common computer interfaces are ill suited both to the content of much humanities material and to the concerns of those normally accessing it. Drucker is writing with a particular focus on digital humanities interfaces that support scholarship, but her remarks could also be applied to forms of digital publication aimed at a broader audience. Here, too, inherited visual and structural metaphors may no longer be the most appropriate or engaging means of conceptualising the audience's relationship to the content, and digital media's ability to accommodate and combine forms of remediation in new ways represents a potential way of seeking alternatives.

For Montfort, then, the digital publishing of 2011 did not fully embrace the computational in its methods, and so appeared to be limiting itself relative to its full potential, while for Drucker, the existing conventions of HCI design impinge too heavily upon the reader's experience of a digitised text. What both are concerned with, however, is a synergy between the content and form of the digitised text; the idea that it be regarded as an artefact in its own right, created out of the convergence of the textual content and the circumstances through which it is made available. These new interfaces attempt to deliver fidelity to both the text that pre-exists the reader's encounter with it and the impact that the circumstances and mechanisms of that encounter can have on the reading. In doing so, they appear to act upon the concerns of commentators like Montfort and Drucker and to both allow the poetic content to shape the interface and allow the distinctive features of the digital encounter to shape the reading of the poem.

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[40] Nick Montfort quoted in James J. Brown, Jr., 'The Literary and the Computational: A Conversation with Nick Montfort', *Journal of Electronic Publishing* 14.2 (2011) <https://quod.lib.umich.edu/j/jep/3336451.0014.206/--literary-and-the-computational-a-conversation-with-nick?rgn=main;view=fulltext> [accessed 2nd August 2021]

[41] Johanna Drucker, *Graphesis: Visual Forms of Knowledge Production* (Cambridge MA: Harvard University Press, 2014), pp. 6-7

As discussed above, one effect of this is a heightened sense of the poem's transmediality, which stretches from its previous span of the written and the aural into the digital mediasphere to also include the interactive. Another effect, however, is on the perceived use of digital media itself. Through these kinds of digital publications, devices like the smartphone and tablet computer are now potentially made more suited for encountering these kinds of texts in a way that suggests a move away from the distraction-based engagement more commonly associated with them. Further study in the field of poetry apps could look more deeply at the parallels between the use of these platforms for reading and critical perspectives that have arisen in response to ubiquitous mobile media. In particular, the Slow Media movement, advocated by writers such as Jennifer Rauch, proposes a more measured and contemplative approach to all kinds of media consumption as a way of balancing its perceived negative effects, and in particular distractibility and attention fragmentation. Rob Kitchin, building upon the work of Rauch and others, writes specifically about approaches to 'slow computing' that specifically deal with social media consumption and work-life balance, including the need to feel constantly connected via devices.[42]

Authors like these signal a growing interest within the humanities and social sciences towards studying and addressing the effects of these more recent technical media. Parallel to this is the rise of mindfulness-based mobile applications that seek to bring a more slow-paced and focused way of interacting with the device. Some of these, like some of the poetry apps, ostensibly resemble games, and are categorised as such on the app stores, but are without any goal other than to focus on the task at hand, often with relaxing and meditative results. Examples of these include the Android app *Fluid Monkey*, which simply involves using the touchscreen to trail one's finger through slowly swirling colours that respond to user input in the manner of smoke or water, or *Atomus HD* for iOS and Android, which has received praise for its similarly relaxing and open-ended interactions.[43] These apps, like the poetry apps, use the mechanics of mobile applications and mobile gameplay to achieve an end not typically associated with the device, but that can be seen as rewarding in ways unrelated to constant connectivity.

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[42] Rob Kitchin, 'Slow Computing and Living a Balanced Digital Life', online seminar (Newcastle University, 10th December 2020). See also: Rob Kitchin and Alistair Fraser, *Slow Computing* (Bristol: Bristol University Press, 2020)

[43] 'Atomus', *SungLab* (SungLab, 2013) <http://sunglab.com/apps/2013/10/23/atomus.html> [accessed 24th October 2021]

Kitchin and other writers on slow media stress the need to reflect constantly upon our media usage in an age of ubiquitous and networked computing. Astrid Ensslin in *Literary Gaming* notes that one of the features of the literary game is that, like Hayles' techno-text, it incorporates reflection upon both the literary content and the technology through which it is accessed.[44] Through the study of these poetry apps, I have found that the fostering of a literary mindset – one of close attention and reflection upon what is being consumed – can be achieved outside of what Ensslin calls the 'paper-under-glass' model of digital publishing and can be done without fully adapting the poem into another, more digitally native form, such as the mobile game. Instead, a balance is struck, as both the device and the poem are diverted slightly away from our accustomed view of them, and the digital form that the poem takes draws upon the qualities of the old media and the new to generate new ways of approaching both the poem and the technology of its transmission.

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[44] Ensslin, *Literary Gaming* [Kindle Edition], '1.1 Ludicity and Literariness in the Digital Age'

PART TWO:
Annotated Portfolio of Work

See the online portfolio at
https://peterhebden.uk/portfolio

password: **humlop886**

Contents

Introduction

(The text of this introduction is reproduced with minor amendments in the online digital portfolio on the portfolio's homepage and 'Introduction' page.)

The portfolio of work that comprises the creative component of this thesis can be found at:
https://peterhebden.uk/portfolio[1]
(password: humlop886)

The items in this portfolio vary between interfaces created for existing poetry by other writers and original poetry written in conjunction with creative programming work. Within the digital portfolio, which can be accessed via the link above, each item is represented by its own page. This page contains either links to a functioning version of the work, documentation of the work in image or video form, or both. Accompanying the documentation on each page is a piece of commentary that explains the development process and reflects upon some of the ideas expressed in the piece. Each commentary assesses the digital interface as a reading method, focussing on what effect the features of the digital component have on the reading of the poem. For the projects that involve my own poetry, I also look at how my writing is affected by the creation of a digital interface for it and what difference I see in the digital and print versions of the poems. Where relevant, the commentary also discusses the work's connection to other items in the portfolio, either as a development of, or inspiration for, another piece.

In order to make this written document into a coherent account of the project, the commentaries to each portfolio item are reproduced below, forming a roughly chronological account of the creative research, which charts the development of key themes and ideas in the work. Following this, the original poetry from the portfolio is also presented as a short collection of poems. This is again to make the printed thesis a thorough account of the work, but also to demonstrate a key aspect of the poetry itself: that it was written to function in both print reproduction and in digital form.

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[1] It is recommended that the online content be viewed through Google Chrome, if possible, as this was the main browser used in development. However, all of the content has been tested on other browsers and should be accessible through any major browser.

The Annotated Portfolio

The portfolio of work uses the 'annotated portfolio' method of presenting creative work, developed by John Bowers and Bill Gaver. The annotations, as Bowers and Gaver explain, serve to provide a link between the concerns of the research community and the artefact itself.[2] In my research, this means highlighting how each piece relates to the investigation of how poetry can be read in digital environments. Within the annotated portfolio, the annotation and the artefact itself are mutually supportive: the annotation draws out key elements of the artefact relevant to the research context, and the artefact functions as an illustration of the specific ideas and themes discussed in the annotation.[3] Most importantly, the annotation technique that Bowers and Gaver advocate works by articulating a series of 'family resemblances' between discrete, and potentially very different, artefacts and projects, rather than working to identify any single theme or set of themes explicitly expressed by all of the portfolio items.[4] This is especially useful in a project like this one, since it allows for a discussion space to be opened up between multiple projects that might each share different elements or conceptual overlaps within a larger topic. By reflecting upon each portfolio item individually through its annotation, and then performing a comparison of the annotations themselves, it is possible to identify and communicate connections between the artefacts at a higher level of abstraction. In this thesis, this analysis is undertaken in the conclusion to the creative component, which comes at the end of the portfolio itself. Bowers has stated that the annotations of an annotated portfolio are not in themselves abstractions, and should be regarded as not imposing theoretical perspectives or critical readings on the artefact in question.[5] However, as Lowgren has argued in response, by addressing family resemblances and potential connections between artefacts, the annotations can allow for abstractions to be made by a reader when regarding the portfolio as a whole, which is the approach that this project takes to drawing research conclusions from the portfolio material.[6]

By combining the presentation of the work itself with annotations on each piece, it is possible to identify and articulate significant conceptual connections between the individual pieces, and to see how these work together to make an original contribution to the understanding of

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[2] Bill Gaver and John Bowers, 'Annotated Portfolios', *Interactions* 19.4 (2012), pp. 40-9 (p. 49)
[3] Ibid., p. 46-7
[4] Ibid., p. 48
[5] John Bowers, 'The Logic of Annotated Portfolios: Communicating the Value of "Research Through Design"' in *DIS 2012: In the Wild* (Newcastle: Newcastle University, 2012) pp. 68-77 (p. 76)
[6] Jonas Löwgren, 'Annotated portfolios and other forms of intermediate-level knowledge', *Interactions* 20.1 (2013), pp. 30-4 (p. 34)

poetry's relationship to its media. Although it originates from the field of design, the annotated portfolio is not limited to a particular structure or format suited to any one particular discipline. Instead, it is defined by the presentation of each item – either the artefact itself or documentation of it – alongside text that offers information about the process of its creation and the ideas behind it. As Bowers notes, an author has a range of options when annotating a portfolio, reflecting different purposes and interests, and with different audiences in mind.[7] Consequently, a variety of material forms can be considered for the annotated portfolio, depending upon the context in which it is situated. Importantly, Bowers and Gaver specifically remark that within an academic context, the annotations to a portfolio may take the form of academic prose, and can form relatively in-depth descriptions and discussions of the work in question.[8] In the case of this thesis, the annotations are represented by the short commentaries that accompany each portfolio item.

The use of a portfolio-style presentation method was necessary for this project, as the main outcomes of the research were achieved through the development of many smaller, discrete projects. As one key aim of the creative research is to explore how poetry writing and interface development can mutually inform one another, it was necessary to begin by creatively exploring these two elements – digital technology as a medium for poetry, and poetry as a means of expressing the experience of digital life – separately before bringing them together in a more concrete sense.

Exploratory Programming

Alongside the practice of poetry-writing, the other main creative method used throughout this thesis is what Nick Montfort has termed 'exploratory programming'. This is an approach to writing code and creating digital artefacts that was developed by Montfort to be more suited to the goals and concerns of artists and humanities researchers. It remains open-ended, rather than goal-focussed, and in this way it encourages a process of creative discovery through the application of programming practices to a question. For Montfort, exploratory programming represents a method of 'using computation as a way of inquiring about and constructively thinking about important issues.'[9] Montfort also describes exploratory programming as a

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[7] Bowers, p. 71
[8] Gaver and Bowers, p. 46
[9] Nick Montfort, 'Exploratory Programming in Digital Humanities Pedagogy and Research' in *A New Companion to Digital Humanities*, ed. by Susan Schreibman et al. (New York: John Wiley & Sons, 2016), pp. 135-47 (p. 135)

practice that is 'distinct from developing software to specification.'[10] Instead, code and program-writing are framed as ways of revealing new insights about a subject or a text, rather than as a way of producing a predetermined solution to a problem, as is commonly the case in software development or user-interface design.

Importantly, Montfort presents exploratory programming as an approach that bridges critical inquiry and artistic practice. When outlining the practice and the potential of exploratory programming, he frequently refers to 'artists and humanists' together as one set of practitioners.[11] In Montfort's framing of how they can benefit from the techniques he describes, these people are united by their interest in uncovering new and unseen perspectives on the material that they examine, and it is this element of exploratory programming that makes it a useful method for this project. By regarding the creation of interfaces as a simultaneously investigative and creative task, and thus bridging the concerns of digital literary studies and creative practice, it is possible to use exploratory programming as a means of generating work that contributes to both spheres. By developing an interface around a particular poem, I am able to consider both how that interface has affected my own reading of the text and use this experience as a way of informing how I might use a similar technique in my own poetry.

As well as providing useful insights into literary material being processed in the act of programming, Montfort also rightly points out that in many cases 'programming is an activity that gives the programmer poetic pleasure.'[12] The act of writing code, and in particular in the early developmental stages, 'involves realizing ideas, making them into functional software machines, in negotiation with computational systems' that has clear parallels with the acts of expression and discovery associated with working in other art forms.[13] As a digital poet himself, Montfort is especially attuned to the potential creative pleasure and productivity that can be found in code, at one point describing the enjoyment to be found in coding as akin to 'the way sound and sense grow and intertwine on the lattice of a poem.'[14] This is the other key way in which exploratory programming as a practice contributes to this thesis. By embracing programming as an open-ended, creative process that is explicitly aimed at

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[10] Montfort 2016a, p. 136
[11] See, for example: Nick Montfort, *Exploratory Programming for the Arts and Humanities* (Cambridge MA: The MIT Press, 2016), p. 267
[12] Montfort 2016b, p. 277
[13] Ibid.
[14] Ibid.

producing unexpected results, I am able to align it more closely with the process of writing and re-drafting poems, and bring the two together in the formation of new work.

While exploratory programming is an approach that informs all of the practical engagements with digital media in this portfolio, it becomes particularly relevant when discussing the task of developing experimental potential interfaces for the *Bloodaxe Poetry* app. This point in the project, and the exploratory programming work that it entailed, strongly influenced the creation of the media-conscious poetry that followed it, and led to a much closer synthesis of poetry-writing and programming as a result.

This close combination of the two practices – making programming a part of the poem-drafting process, and making the poetic content the key factor informing the structure of the code and interface – brings the latter parts of the portfolio much closer to the digital poetics that characterise fully-fledged e-poetry. Because of this, much of the poetry produced in this project could arguably fall into the category of e-poetry. However, as a way of exploring poetry's relationship with its media, both old and new, I have attempted to write my work in such a way that it is informed by, but not entirely reliant upon, the digital medium in order to be read. As noted above, each poem is represented both in the digital portfolio and in a more standard manuscript of poems, which forms the final part of the printed thesis. By doing this, it is my intention to create a series of poems as a set of edge-cases between digital and pre-digital poetics, in a similar manner to how the poetry apps in the critical thesis utilise the conventions and expectations of both poetics in their presentation of their poems.

Content of the Online Portfolio

The online version of the creative portfolio – linked at the beginning of this introduction – contains interactive examples of the digital work, as well as video, audio and image documentation of the projects that cannot be effectively reproduced here. And so**, for readers using the current document as their main method of reading, I have included links to the individual webpage for each portfolio item at the top of each section in the hope that this will aid their access to this material.** The work in the online portfolio is presented in the same order as in this version, which is loosely chronological.

The contents page of the online portfolio also indicates the main **type** of work involved in each project. This reflects the chronology of the project in a broader sense, grouping together the work according to the main priorities of the PhD project as it progressed: from creating **interfaces**, to using digital UI design techniques in **collaboration** with artists and writers, to applying features of digital media to my own poetry **writing**. The portfolio items that include my own poetry are:

- Newcastle Nine! (p. 130)
- 10^x: Scale Poems (p. 154)
- forgotten nights (p. 152)
- Quick Response (p. 147)
- Instructions for a Butterfly (p. 149)[15]
- Today Years Old (p.160)

The thematic connections between the critical and the creative work of this thesis are explored in further detail in the conclusion to the creative portfolio, where I assess some factors that connect the separate portfolio items, as well as the overarching connections between the critical, digital creative, and creative writing practices within this project as a whole.

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[15] For the purposes of organising this portfolio, the Instructions for a Butterfly project is listed in the online portfolio as a collaboration, as the partnership with Kate Sweeney, and the use of her Janet typeface, were an integral part of both writing the poem and creating the digital component.

1: *Bloodaxe Poetry* mobile application

Online content at:

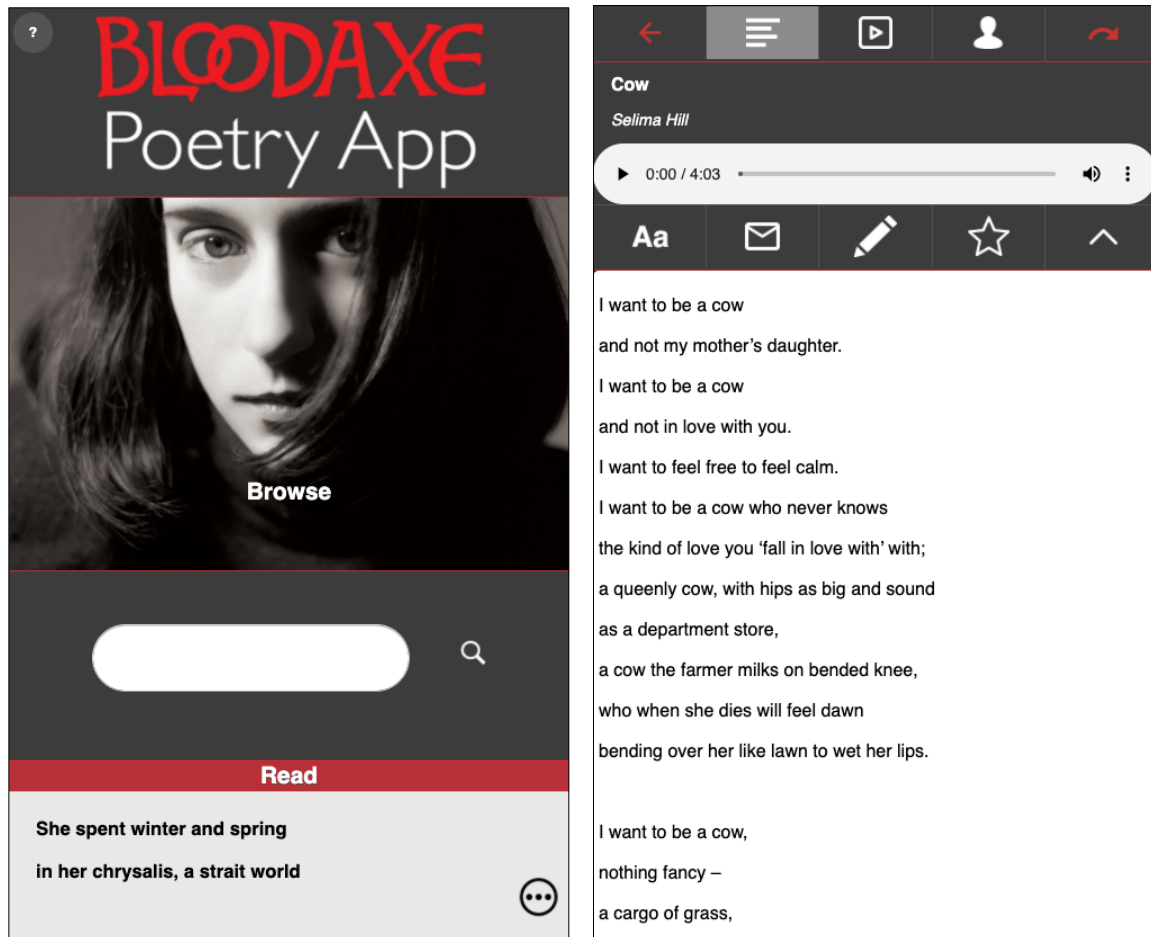https://peterhebden.uk/portfolio/bloodaxe-poetry-app

Figure 15: Bloodaxe Poetry *app interface, showing a) the app home screen, and b) the poem reading screen with audio player and display options*

This mobile application for iOS and Android was the first major output of the PhD project, and was released in the spring of 2018. The app developed directly out of the partnership with Bloodaxe Books, and combined their desire to showcase more of their video and audio recordings with my own interest in exploring new ways to use the affordances of digital media in the remediation of poetry. Throughout the project, the published app has been periodically updated with more content and, until my dedicated three-month work placement with Bloodaxe in early 2021, has been the most significant product of my research for the publisher.

The app was created using Apache Cordova, an open-source software development framework that allows a programmer to use web technologies such as HTML and JavaScript – with which I am accustomed to working – to create mobile applications.[16] This approach allowed me to easily apply my existing skills to the project, which in turn meant that a working prototype could be produced relatively quickly. This then allowed for the app to serve as a starting point for further explorations in presenting poetry through the digital multimedia device.

In the context of my creative research, this app has represented a starting point for much of the experimental digital work that follows in the portfolio. Many of the reading displays that I developed in the second and third years of the project – for example, the Sonnet Tuner (p. 134) and Weather (p. 158) interfaces – came from ideas for adding new features to the existing *Bloodaxe Poetry* app. While many of these were ultimately impractical for the released version, the insights that I gained from creating them were directly fed from the creation of the original app.

Bloodaxe Poetry's relatively conventional means of displaying the text and recordings of poems provided a clear position to extend from in further research, but it also provided an opportunity to begin some minor experiments in the remediation of poetry reading. The display of random opening lines on the home screen of the app is a feature that was added to mimic the action of 'flicking through' a collection or anthology of poems, and the serendipitous encounters with new work that can occur through this. While other digital reading platforms have also incorporated randomness into their interfaces in the past, this one aimed to draw specifically upon an affordance of the printed book, of having the opening to a poem catch one's eye more or less accidentally, rather than relying on the user choosing to be shown a poem at random. This was achieved by placing the carousel of opening lines on the home screen and having it refresh with a different set of opening lines if it is not selected.

Later projects in the PhD were informed by this initial approach, as I explored other ways that the media-specific features of poetry – its book-based reading and performance-based listening – could be remediated in unconventional ways to produce new effects. The skeuomorphism of the Bloodaxe Poetry app's random poem function, while mimicking a

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[16] 'Apache Cordova - Home', *Apache Cordova* (The Apache Software Foundation, 2021) <https://cordova.apache.org/> [accessed 20th October 2021]

feature of the printed book, does so in a way that is different from conventional digital reading interfaces. Other, later projects would take other features of reading – and other methods of consuming media – and draw upon their features in order to generate novel ways of encountering a poem digitally. Like the random poem feature, many of these other experiments also incorporate accident and serendipity – either through randomness or reader decision-making – into the reading experience.

2: *Crossings* mobile application

Online content at:

https://peterhebden.uk/portfolio/crossings
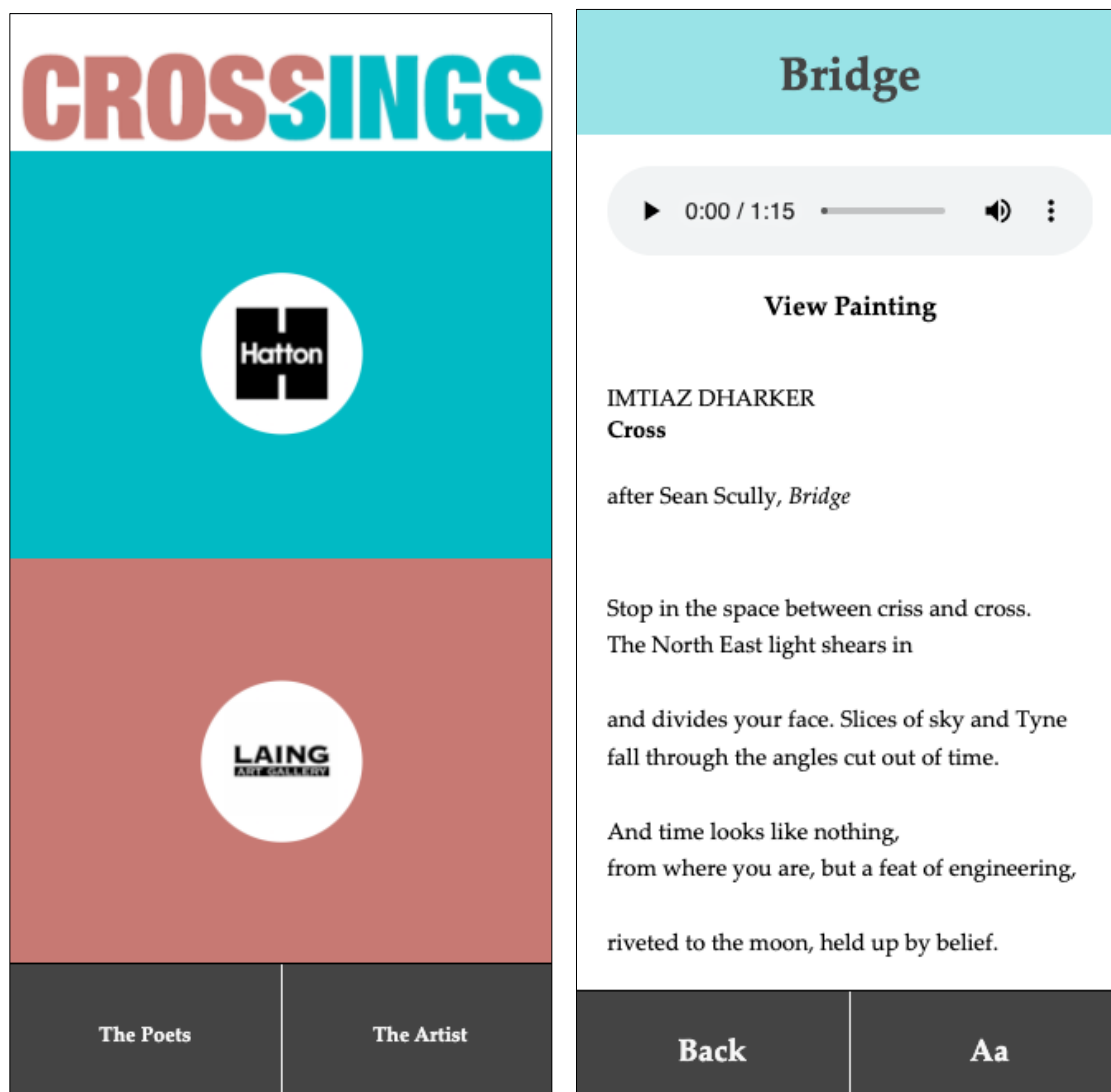
Figure 16: The Crossings *mobile app interface, showing a) the home screen, and b) the poem reading screen*

The *Crossings* mobile application was developed for the 2018 Newcastle Poetry Festival, as a way of presenting eight commissioned poems that responded to the paintings of Sean Scully, whose retrospective was being hosted at the Laing and Hatton art galleries in Newcastle upon Tyne during the festival. Like the *Bloodaxe Poetry* app, this was also created using the Cordova framework, allowing me to build a mobile application using my existing web development skills.

Crossings included text and audio of the poems, and allowed visitors to both galleries to read and listen to the poets' work while looking at the art *in situ*. Information about the artist and the poets involved in the project were also included in the app, along with directions for travel between the two galleries. The app also included an image of each painting alongside the corresponding poem, in order to expand its use beyond the gallery setting.

The app was produced concurrently with the latter stages of the *Bloodaxe Poetry* app. It features a simple user interface and is not as technically complex as *Bloodaxe Poetry*, or other apps, such as *Steps in Time*, that I had created previously. However, the *Crossings* app was a useful opportunity to work on another digital publication project that had very different priorities to the *Bloodaxe Poetry* app.

The main intended users of the app were visitors who wanted to experience the poems in the gallery itself, where the use of audio recordings meant that the listener could look at the painting itself, taking in not only the painted surface but its scale and the atmosphere of the gallery space, elements that are missing from the painting's reproduction on-screen. The advantages of sound and the mobility of the device in tandem were a marked difference from the *Bloodaxe Poetry* app. *Crossings* was created to exploit the combination of these features for a site-specific purpose in a way that *Bloodaxe Poetry* does not. For the remit of the *Crossings* app the audio was seen as taking priority over the written version of the poem, as the user was envisioned using the app within the gallery setting, and therefore looking at the paintings themselves.

Like the *Bloodaxe Poetry* app, the work done on *Crossings* provided a starting point for further investigations into the creative remediation of existing technical media for sound and text. Through its site-specificity, it also prompted consideration of the ways that further developments of the *Bloodaxe Poetry* app might incorporate situated reading into the experience, which were eventually brought into the Weather interface towards the end of the project. (p. 158)

3: Newcastle Nine!

Online content at:

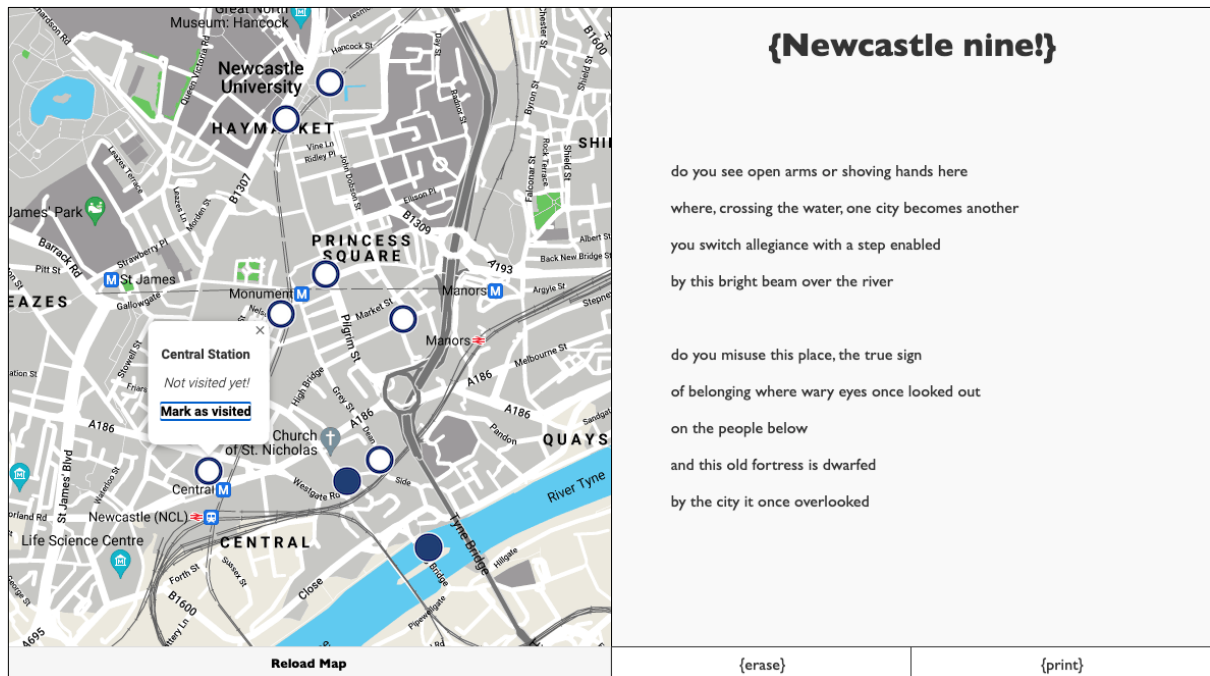https://peterhebden.uk/portfolio/newcastle-factorial-nine

Figure 17: The 'Newcastle Nine!' desktop interface

'Newcastle Nine!' (pronounced 'Newcastle factorial nine') is the earliest attempt within the project at writing poetry that is influenced by the practice of working on a digital interface. The poem is based on the *Steps in Time* mobile application, which I created for the 2017 Newcastle Poetry Festival, before the start of this PhD project.[17] This poem consists of nine stanzas, each written for one of the Newcastle-upon-Tyne locations featured in *Steps in Time*. On the digital interface, these stanzas are recombined in an order dictated by the order that the locations are selected by the reader. The interface was developed for the larger desktop or laptop screen, as I decided to move away from the location-based technology used in *Steps in Time*, which tracked its users via the mobile device's GPS capabilities, and instead use the act of wandering the city as a conceptual frame for writing and structuring the poem (rather than the actual method by which it is read).

Like the work examined in the critical thesis, this project takes the poem away from the book-like structure of typical digital reading interfaces and structures it around a different set

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[17] Peter Hebden, 'Steps in Time – A Poem-Walk Around Newcastle upon Tyne and Gateshead', *Newcastle Poetry Festival* (Newcastle Centre for the Literary Arts, 2017) <http://stepsintime.newcastlepoetryfestival.co.uk/> [accessed 20th October 2021]

of actions; here, the selection of a series of locations on a map, which in itself is a proxy for physically visiting different locations. This poem, and its digital interface, move towards ergodic literature by introducing reader choice and agency into the reading experience. Each version of the poem, if all the locations are eventually selected, contains all of the available poem text, and so, like the *Translatory* and *Puzzling Poetry* apps in the critical, the fragmentary nature of the poems only represents a temporary concealment of the poem for the reader. Other projects later in the portfolio will mix and obscure texts in such a way that they remain more significantly fragmentary for the reader.

The poem's title refers to the number of possible combinations of stanzas in the interface, which is *9!* ('factorial nine'), or *9x8x7x6x5x4x3x3x1*, or 362880. In writing this poem, I began to incorporate elements of digital poetics, and in particular was influenced by the idea of what the editors of the *Electronic Literature Collection* call the 'digital sublime.' This idea was previously mentioned in Chapter 3 of the critical thesis, and alludes to the capacity for digital technologies to present us with a truly overwhelming amount of content as 'the massive scales of computer data far exceed human phenomenology'.[18] While my poem does not reach the kind of astronomically high numbers of generative works like, for instance, 'Sea and Spar Between' by Nick Montfort and Stephanie Strickland, thinking about the poem's structure as a space for a vast number of possibilities directly influenced the writing of the poem, in which I began to focus on the city as a space for possibility and a multitude of experiences.

Following the creation of this work, I began to look at other ways in which elements of digital media could influence the writing of poems. This line of thought was picked up again in the 'Quick Response' sequence of poems, where I use the QR code as a prompt for poetry. (p.147) The spatial, map-based arrangement of poems is another element of this project that I return to later, in the Audio Map interface. (p.156)

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[18] See the 'Editorial Statement' on: Stephanie Boluk, et al., 'Sea and Spar Between – Editorial Statement', *Electronic Literature Collection – Volume 3* (Electronic Literature Organisation, 2016) <https://collection.eliterature.org/3/work.html?work=sea-and-spar-between> [accessed 13th October 2021]

4: Rhythm Tapper interface

Online content at:

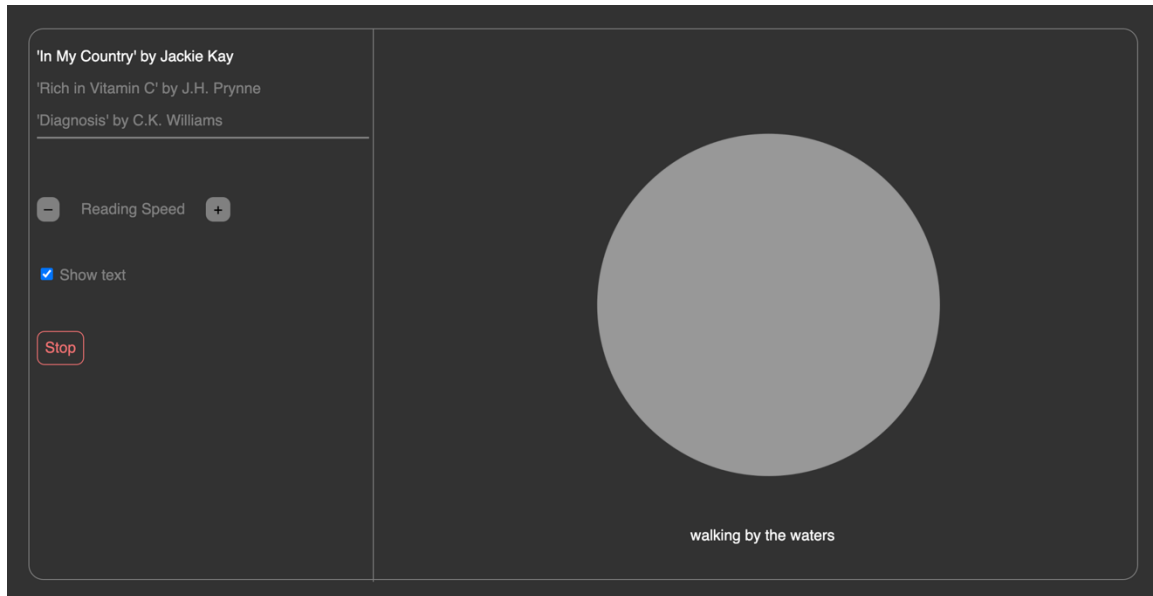https://peterhebden.uk/portfolio/rhythm-tapper

Figure 18: The Rhythm Tapper experimental interface

This is an experimental interface that I created while exploring potential new features for the *Bloodaxe Poetry* app. It was an early attempt to use a digital interface to consider ways of representing the sonic and visual elements of language in poetry. The poem is presented line by line to the reader, while a simple soundtrack of loud and soft beats 'taps' out the rhythm of the stressed and unstressed syllables in the line. This is accompanied by an expanding and shrinking dot on-screen, which also follows the stress pattern of the poem.

Rhythm Tapper explores alternative methods of incorporating the spoken aspects of poetry – in this case, the rhythms of speech – into the display, besides using a recorded performance. It was partly inspired by the idea – a commonplace in discussion of poetry – that part of poetry's effect can come from the sound of its language, alongside or even entirely apart from its semiotic meaning. Robert Frost famously expressed this by saying that "[t]he best place to get the abstract sound of sense is from voices behind a door that cuts off the words."[19] By removing the words, or at least the focus upon the words, and asking the reader to pay more

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[19] Robert Frost, *Collected Poems, Prose, and Plays*, ed. by Richard Poirier and Mark Richardson (New York: Library of America, 1995), p. 664

attention to patterns of sound, the interface aims to prompt other ways of understanding the poem that might then influence the perception of the text itself.

Upon completion, the interface seemed much more aggressive and arresting than had been intended, in many ways a strong contrast to the experience both of reading silently and the majority of poetry performances. Overall, the interface does not necessarily represent a good or useful way to present a poem to a reader, especially one encountering a poem for the first time. The sonic elements of language are simplified in the extreme and, while the stress analysis performed by the code is largely accurate, it leaves no room for nuance in the idea of rhythm, which is expressed as a simple binary of stressed or unstressed.

However, this project was a useful stepping-stone into further experimental uses of natural language processing technologies as part of an experimental digital display. The code uses the Pronouncing API, developed by Allison Parrish, to analyse the text of a poem for its stress patterns.[20] This first use of NLP software within the project led me to explore creative uses of similar programs in later work, both as reading interfaces for the work of others and in my own writing.

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[20] 'Documentation for pronouncing', *pronouncing 0.2.0 documentation* (Allison Parrish, 2015) <https://pronouncing.readthedocs.io/en/latest/index.html > [accessed 20th October 2021]

5: Sonnet Tuner interface

Online content at:

https://peterhebden.uk/portfolio/sonnet-tuner
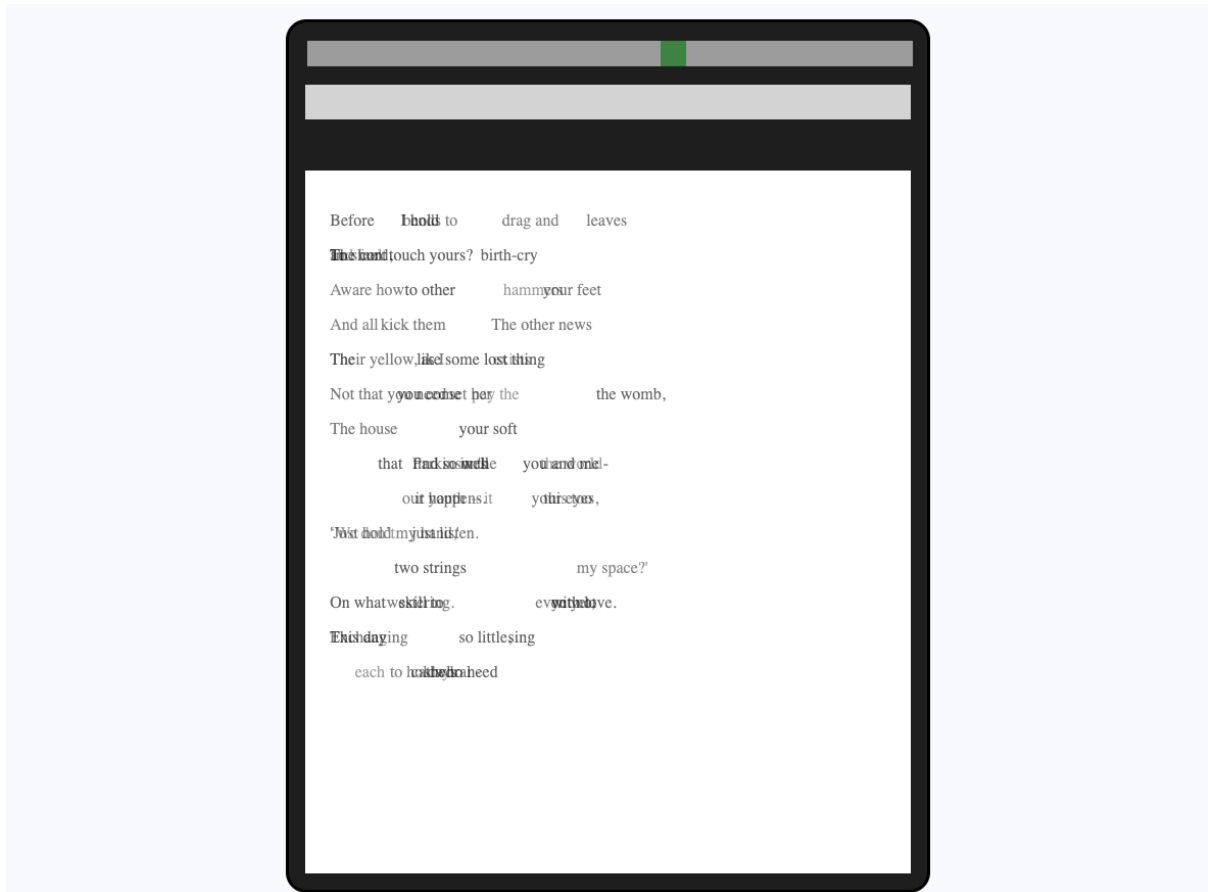
Figure 19: The Sonnet Tuner interface

The Sonnet Tuner is an experimental reading interface that was part of my exploration of new ways to use remediation to transition between poems. Like the Rhythm Tapper, it was created as a potential new means of displaying poems on the *Bloodaxe Poetry* app. The intention with this interface, and others like it, was to focus on how the reader moved from poem to poem, and how this might affect the way that the poem is perceived.

Here, inspiration is taken from the tuning dial of an analogue radio, with the slider at the top of the display used to tune between different poems. Each poem has a location on the slider bar that displays it in full: its 'tuned' position. All other positions on the slider display 'interference' between the poems, with words from each poem appearing alongside one another, often overlapping, generating new, fragmentary texts as the user scrolls between

poems. I used a selection of published fourteen-line poems as the content for the interface, some in traditional sonnet form, and some – like 'The Song (after Rilke)' by Dana Gioia – more free. The poems' regular length made it possible to layer the poems on top of one another within the same space on the screen. By performing repeated remixing of the poems as the user navigates the interface, the Sonnet Tuner aims to prompt readers to consider how the poems might relate to one another in new ways, using the juxtaposition of words from different texts.

The mixed, overlapping, fragmentary texts that are produced in the process of moving the slider represent a product of the reader's agency within the functioning of the interface itself. The action of moving between the poems contained in the app generates texts that lie 'between' the poems by combining parts of them. These texts can be read as complete machine-generated poems, or simply as signals of which poem the reader is currently 'closer' to on the sliding scale of the interface. The result here is a way of presenting poems that conceives of them as existing on a continuum with one another, rather than as completely discrete units. Rather reading one poem and then reading another, the poems morph from one to the other, and the reader is able to linger over the liminal, chaotic texts that exist between them. The status of these texts is shown to be transitory by the interface, being lost as the slider is moved again by the reader. Partial and transitory texts are explored further in some of the later projects, both as means of uncovering a larger, more complete text, as here, and as poems in their own right.

In its current form, the interface is impractical for use as a feature on the published *Bloodaxe Poetry* app, as it relies too heavily on using poems of the same or similar length, and so the number and type of poems that could be displayed through it are limited. However, the development of the Sonnet Tuner was a significant technical milestone in the project as a whole, as code written for this interface is re-used in several later works. Through fading and mixing the text, I wanted to simulate the idea of signal strength: that the closer the slider is to the position of a given poem, the 'stronger' that poem would become, in terms of the amount of text one would see from the poem versus the others. This was eventually achieved by writing a simple function in the code that mathematically mimicked the physics of actual signal strength, with the chance of seeing text from any poem decreasing exponentially with the slider's distance from its position on the scale.

```
//updating all signal strengths
for (s in sonnets) {
     diff = sonnets[s].position - current;
     if (diff < 0) {
          diff = 0 - diff;
     }
     // using 1/x**2 (inverse square) to create signal drop-off,
     where x is diff (the distance between the slider position and
     the poem's position on the scale).
     sonnets[s].strength = 1/ (diff**0.5);
};
```

This is not a true simulation of how a radio functions, since moving the dial on a radio alters the frequency of the radio wave being detected, rather than the listener's distance from the source. However, this method produced the most interesting and aesthetically pleasing results, effectively combining the texts while still giving a sense of one poem growing stronger when the slider is closer to its position. Derivations of this code would be reused in later projects where distance, either physical or temporal, would be equated with the clarity of the text being encountered, as can be seen in the Audio Map interface (p. 156) and the 'Today Years Old' poems. (p. 160)

6: Reactions poetry installation

Online content at:

https://peterhebden.uk/portfolio/reactions

Figure 20: The 'Reactions' interactive installation at the Corroding the Now conference, London, April 2019

'Reactions' is a digital poetry installation created using poems from the pamphlet *Messenger* by Christy Ducker (with photographs by Kate Sweeney) which responds to work in the field of immunology. After discussing the work in detail with the author, I created an installation that combines physical objects and near field communication (NFC) technology to allow the audience to 'discover' Ducker's poems using scientific equipment and their own mobile devices. Visitors read and heard poems hidden in the installation using microscopes, petri dishes, and dictaphones, or by tapping their device against objects within the installation to see an animated poem text on the screen. The installation was displayed at Newcastle University and at the Corroding the Now conference on poetry and science at Birkbeck, University of London in 2019.

Meanwhile,

for every new case of dengue, buruli or yaws

see it multiply by one and a half billion

you hadn't thought possible **beyond the headline news,**

half the children in Kabul

feeling such ease instead of **never being held again,**

become a disease

a thing you've been locked into,

or imagine your dollars become a problem

marking you out as different, wrong

maybe you'd rather be given a chance **for every new case of kala-azar,**

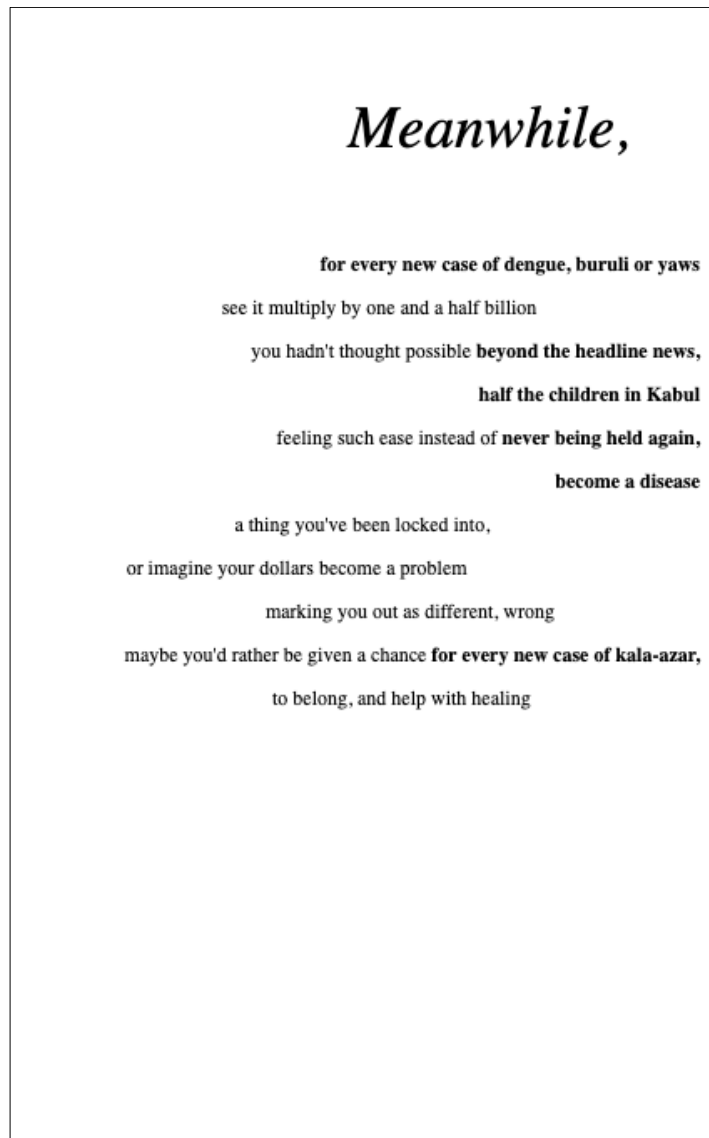to belong, and help with healing

Figure 21: Mobile interface for the poem 'Meanwhile' by Christy Ducker, showing the poem partly revealed by the user's interaction

I used the creation of the installation and the digital interfaces as a means of exploring my own relationship to science and biology in particular. Growing up with two biologists as parents, the subject has always felt like part of the background of my life, and I chose to reflect this in the work by using some simple child-appropriate scientific equipment in the installation, such as the children's microscope. The process of scientific discovery is something that Ducker addresses in her work in *Messenger* and I wanted to both reinforce this and take the theme in new directions through the design of the physical installation and the digital interfaces.

In the digital interfaces, the interactive intervention into the text is reflective of the form and content of the original poem. In 'Baffle', the words of the poem slowly 'grow' outwards from

a few randomly-selected starting places, mimicking the growth of microbes or the formation of crystals in a petri dish, which the reader can encourage by tapping the screen. The poem 'Meanwhile', in its original form, gives readers a choice of the direction in which they read the text, through the combined use of bold and regular typeface to distinguish the two routes through the poem.[21] This aspect of the form is transformed into an interactive element in the digital version by having the reader choose to swipe either down or right to choose which line to read next. Elements of ergodic literature are introduced into the poems, as user agency begins to dictate what their experience of the poem will be, influencing the final form and content of what is read.

Along with the 'Redaction/Redirection' project, which was developed concurrently, this was the first attempt at producing a bespoke method of presentation that responded to a specific poem or set of poems by another writer. Previous projects, like the *Crossings* app or the Sonnet Tuner interface, while developed for a small set of poems or a particular type of poem, had not responded to the form or subject matter of the poems in a particularly in-depth way, as the aim had instead been to increase their reusability by accommodating a wider range of poems. Following the Reactions project, I began to look more closely at how I could build an interface that was led by a particular poem or collection. Through the process of creating the installation's physical element, I also began exploring how I could utilise media outside of the digital, and in combination with the digital, to affect how the poem is perceived. This is something that would be examined in greater detail during my work at the British Library later in the PhD.

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[21] Christy Ducker, 'Meanwhile,' *Messenger* (Sheffield: Smith Doorstop, 2017), p. 19

7: Redaction/Redirection poetry installation

Online content at:

https://peterhebden.uk/portfolio/redactions-redirections
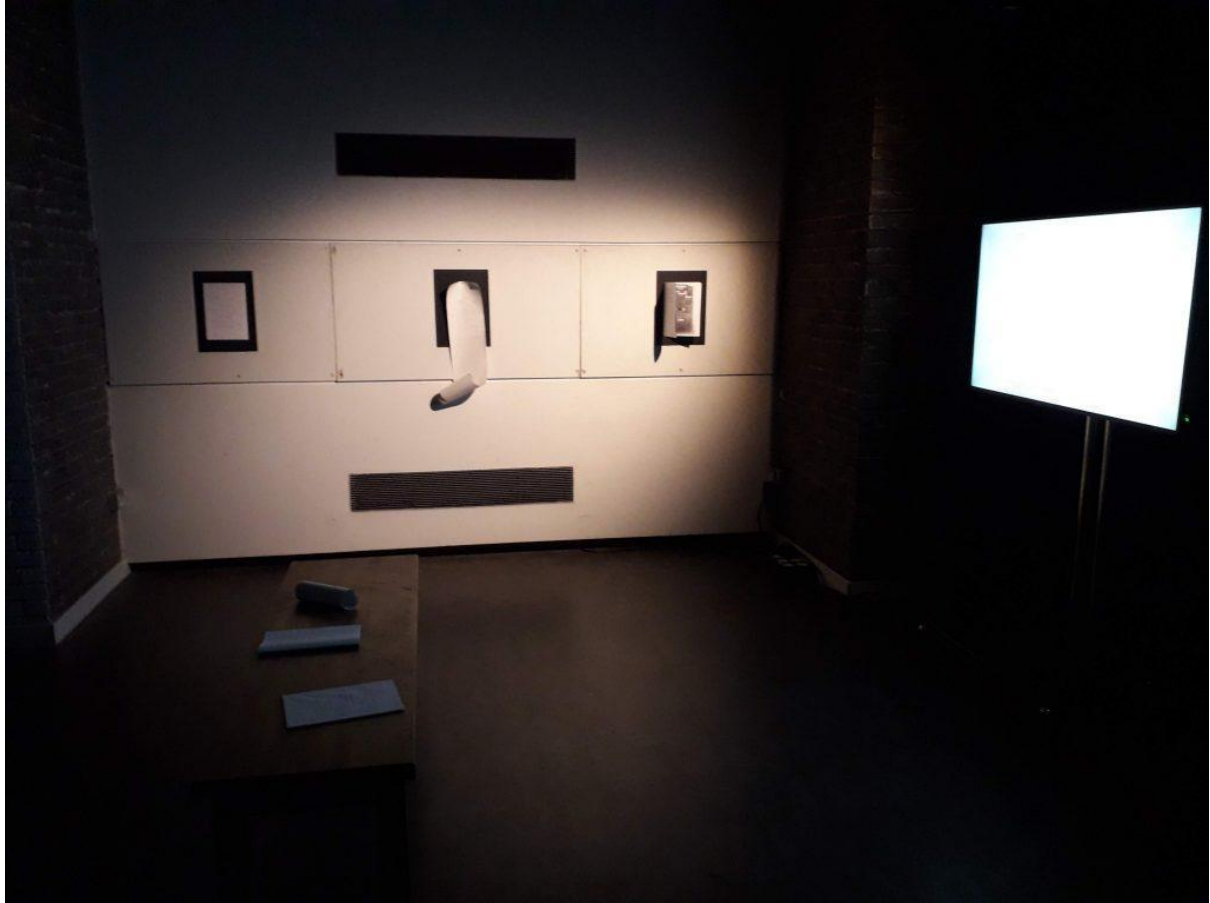

Figure 22: The 'Redaction/Redirection' installation at Northern Stage, Newcastle upon Tyne during the Newcastle Poetry Festival, May 2019

The Redaction/Redirection installation was created for inclusion in the 2019 Newcastle Poetry Festival. Three poets – Miriam Gamble, Andrew McMillan, and Phoebe Power – were commissioned to create erasure poems from material in the Newcastle University Special Collections, from which I then developed three animated digital displays and an installation to house them. The installation consisted of the three animations, shown one after the other on a loop, alongside printed versions of the poems in the Stage 3 exhibition space at the Northern Stage theatre during the Poetry Festival.

The approach to these animations was very different to the Reactions installation, which I worked on concurrently with this one. Here, no heavy interaction was required of the visitors in order to read the poems. Instead, each animation was designed to unfold slowly on a non-

interactive screen, each showing a gradual development from archival material to completed poem. During the writing process, each of the poets shared information about their work-in-progress and their approach to creating poems from the archives, which was then used to inform the structure and appearance of the animations.

In the animation for Miriam Gamble's 'Diaries 09', I used the screen-scape to map out the relationship between poem and archive spatially, with the bottom section showing the source text, the middle section the poem in context of the source text, and the top section representing the poem as an independent work in its own right. The very slow pace of the animation – both the scrolling of the text and the fading between stages – was intended to give readers the chance to view and reflect upon the same lines in each context. Andrew McMillan's focus on the body in his poem 'dear love' prompted me to use the digital version of the poem to express this theme visually through animation and computation. Each newly revealed part of the poem is accompanied by a video of a word from the poem being written by hand, referring back to the archive of works-in-progress from which the poem draws its material. This piece reveals the text of the poem in a random, non-linear order, with one of McMillan's neologisms appearing along with a selection of the found phrases from the archive. As with all the pieces, the text is revealed slowly, the effect of which is to encourage a slowed-down, considered reading of the text.

Phoebe Power's 'The Earth Fainted: Pages from a Future Fire' used an account of The Great Fire of Newcastle and Gateshead, which occurred in 1854, as the source text for her highly visual erasure poem, which was created by erasing text on copies of the source material using charcoal. Unlike the other animations, which run on web technologies (JavaScript and CSS animation), this piece was created using Processing, a Java-based language more often used in a visual arts context. Because of how focussed on the archival artefact Power's poem was, I chose to base the animation on a visual, rather than textual, comparison of the source and the poem. The animation displays each page of the source text in turn, slowly 'burning' away any parts of the document redacted by Power to reveal her final version. The progress of the burning is determined through repeated pixel-by-pixel comparisons of the two versions of a page, with any locations showing no difference being left unscathed.

The animations were presented as a single-screen looped video installation featuring each poem in turn. In total, the video lasted almost an hour, creating an experience in which an

audience member was unlikely to read all of the poems, or even the entire text of one poem, in one visit. This was mainly a consequence of one of the project aims, which was to experiment with ways of 'slowing down' the reading process for a poetic text, encouraging the reader to linger over the language used by the poet, and in particular the choices made with regard to selecting words and phrases from the source text.

This video was accompanied in the exhibition space by print versions of each poem, each presented in a different physical format. These reflected both the forms of the poems and the themes and subject matter of the content. For Gamble's poem, for instance, the paper scroll (visible in the centre of the image above) was inspired partly by the ancient civilisations referenced in the poem's source material, and partly by the long, continuous nature of the poem's shape, functioning as a way of emphasising the large gaps in the text created by Gamble's erasure technique in a way that wasn't necessarily apparent in the screen-based, performance, or paginated versions of the poem.

8: Slow Reading interfaces

Online content at:

https://peterhebden.uk/portfolio/slow-reading-interfaces

Figure 23: iPhone simulator showing the 'Relineator' prototype interface

This series of slow-reading interfaces was developed as a potential new feature for the *Bloodaxe Poetry* mobile app. After the launch of the app, and the exhibition of Reactions and Redaction/Redirection, I was prompted to focus on how a digital interface for poetry might work to counteract the skimming and skipping of texts that is commonly associated with digital reading and instead help to instantiate the slower and deeper attention that is generally associated with the reading of poetry. I approached this by creating several prototype interfaces that each direct attention to small amounts of the poetry text at once, before giving the reader the chance to reflect on how this part of the poem works within the whole. The

three interfaces shown in the portfolio approach this in different ways, but in each case, the poem is presented with elements of it removed – either words or formal features – which are then reinstated by the reader.

This project brings together elements from a number of other experimental interfaces created for the PhD so far. The slowing down of the reading process was something that had been a part of the Redaction/Redirection installation, where the combination of the slowly revealed text and the dedicated space for reading had resulted in some visitors mentioning that they felt they were paying more attention to the poem itself.[22] The slow-reading interfaces are an attempt to take this effect out of the low-distraction atmosphere of the exhibition space and test how this might work in a more common digital reading environment, such as a laptop or mobile device, where distractions are less easy to avoid.

The slow-reading interfaces also expand upon the mixing of the visual and aural qualities of poetry that is possible in digital media. In some of the interfaces, like the 'Abstract lines' interface, the written text behaves in some ways like a performed poem, with only a single 'moment' of the poem available at any one time. This approach was partly inspired by Don Paterson's notion of the line of poetry as roughly equivalent to a single moment of human attention.[23] By reducing the possible number of options for that attention to be spent, the design of the interfaces aims to encourage deeper reading of the poem.

Early versions of the line-by-line display also controlled the pace of the text's progression, further imitating live performance. Later versions maintain this influence of the line-by-line progression of the poem in live performance, but add reader control to the progression of the text and a visual representation of the poem's form to the screen. This blending of different elements of poetry's two main modalities seeks to present new ways of seeing the poem to the reader, brought about through methods drawn from the multimodality that is inherent to both poetry as a form and the digital device as a technical medium.

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[22] Voluntary online user/visitor surveys were conducted for the launch of the *Bloodaxe Poetry* app and the exhibition of Reactions and Redaction/Redirection. While these provided some useful insights into the impressions that users and visitors were taking from the public-facing work, they were very informal and not produced as methodologically rigorous qualitative research. As such, they have not been reproduced in the thesis.
[23] Don Paterson, *The Poem: Lyric, Sign, Metre* (London: Faber and Faber, 2018) p. 75-6

9: Pinch-zoom interface

https://peterhebden.uk/portfolio/phone-based-reading-interfaces
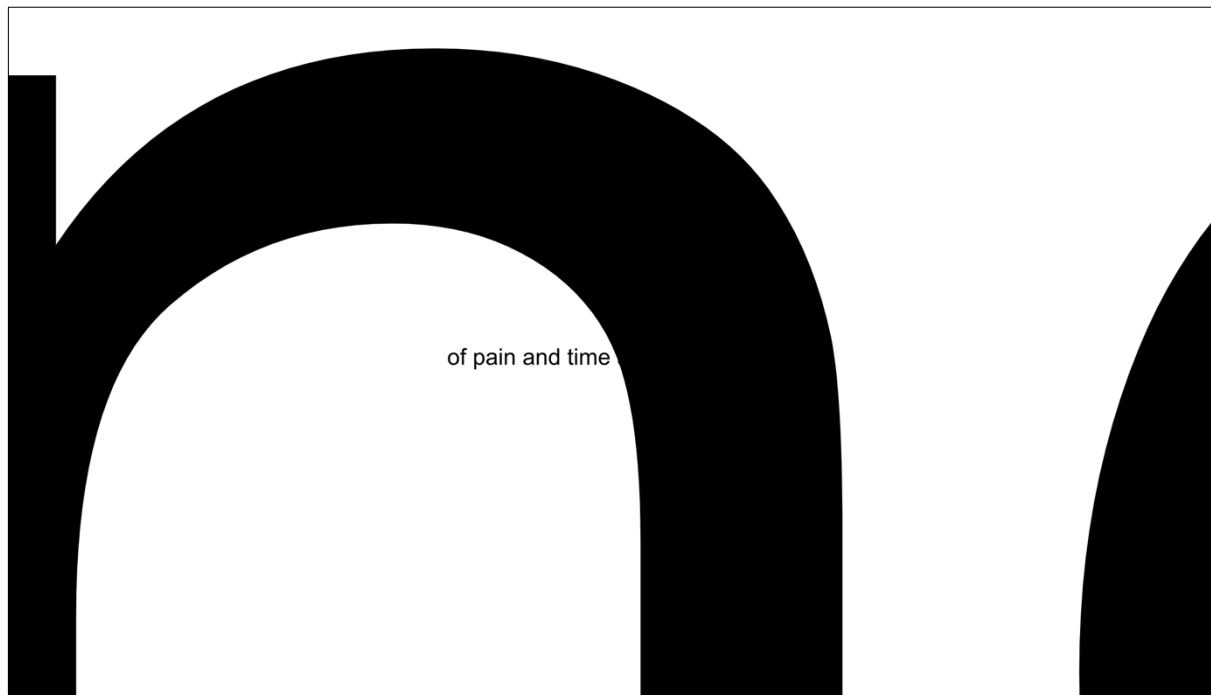
of pain and time

Figure 24: The Pinch-zoom prototype interface

In developing this prototype reading interface, I took inspiration from the content of a specific poem and combined this with a particular kind of interaction used in digital media: the pinch-zoom gesture, commonly used on touchscreens to change the size of content within a UI. Using this mechanism as a way of progressing through a poem was suggested by the poem 'The Diameter of the Bomb' by Yehuda Amichai, translated by Ted Hughes and Amichai.[24] The conceit of a series of ever-expanding circles to describe the impact of a bomb exploding, the zooming-out that is enacted over the course of the poem, drew me to think about how this element of the poem could be made into a way of interacting with the poem during the reading process. While the interface is primarily designed for a mobile touchscreen device, it also functions on a desktop/laptop computer with a mouse or trackpad using either the pinch gesture (on trackpads) or the scroll function.

Similarly to the Sonnet Tuner (p. 134), this reading interface was part of an exploration of different modes of moving through or between poems that did not rely on remediating the

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[24] Yehuda Amichai, trans. Ted Hughes and Yehuda Amichai, 'The Diameter of the Bomb', in *The Hundred Years' War: Modern War Poems*, ed. by Neil Astley (Hexham: Bloodaxe Books, 2014), pp. 409-10

page-turning action of a printed book. With the 'zoom' model, the dimensionality of reading is changed. If the page metaphor puts reading along the x-axis (left-right), and the scroll model utilises the y-axis (up-down), then the remaining z-axis (forward-back, away-towards) can be represented on the two-dimensional screen by the growing and shrinking text of the pinch-zoom interface. In this interface, this effect is achieved without a move into fully-fledged 3D modelling, and so retains a strong link to traditional reading practices, with the poem-text still appearing as a flat plane.

Creating the interface to specifically fit the content of Amichai's poem led me to consider how this digital form could now be used in other ways. My response to this was to write the 'Scale Poems' sequence (p. 154), which uses the idea of traversing from the familiar human-scale world to the extremely large and extremely small, presented through the same pinch-zoom mechanism.
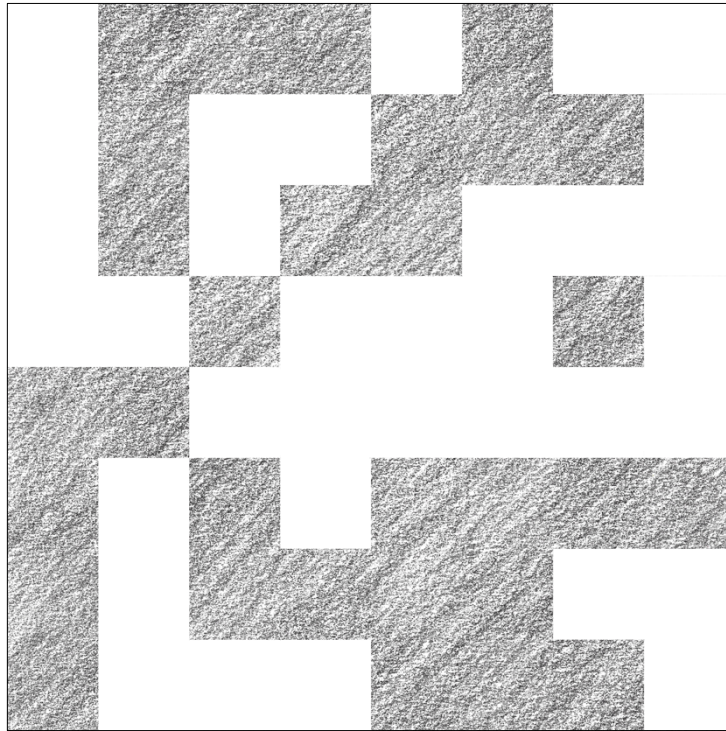
10: Quick Response

Online content at:

Figure 25: Page from Quick Response *showing a magnified section of the QR code corresponding to the poem 'It's what's happening'*

This sequence of eight poems was written to be heard as audio recordings, accessed through QR codes printed in a handmade pamphlet. The pamphlet contains the eight QR codes necessary to hear the poems via a mobile device, along with enlarged sections of each QR code, which served as the inspiration for the poems themselves. (See fig. 25.)

When scanned, these QR codes play audio recordings of poems written in response to the appearance of the codes themselves. To begin this process, I enlarged the unique sections of each QR code and used these abstract shapes, like a Rorschach ink-blot, to suggest starting points for poems. In doing this, I wanted to create a link between the visual appearance of the QR code in the booklet, and the words of the audio recording on the device, with both being components of the poem as a whole. Further influences of the physical format of the QR code on the poems include making each poem eight lines long, reflecting the eight rows of pixels in each enlarged section, and my decision to base many of the poems in locations where I had seen a QR code in use, such as at my local gym and on a coastal walk.

While the Reactions installation asked audiences to look closely at the technology and its materials in order to uncover the poems, the poems in this sequence display the poetic results of my closely examining the QR code from a very human perspective. The QR code can be found on posters, packaging, restaurant menus, and anywhere that a link to a website's URL could be used, and so represents an intrusion of machine-readable language into communication otherwise aimed at human eyes. Instead, these poems partly record the results of a human attempting to parse the language of a computer. QR stands for 'quick response', and my immediate responses to the abstract shapes on the segments of QR code formed the starting point for each poem, which were then developed to explore ideas around living in a digitally mediated culture.

Quick Response was strongly influenced by Amaranth Borsuk and Brad Bouse's *Between Page and Screen* in the sense of being based around a book containing only computer-readable shapes, but I wanted to extend this idea by introducing the sound element of poetry into the encounter.[25] This is something that appears again in 'forgotten nights' (p. 152), where I wanted to incorporate poetry's traditionally aural aspects into a piece of poetic digital work, rather than focusing on the presentation of text through the screen.

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[25] Amaranth Borsuk and Brad Bouse, *Between Page and Screen* (Denver, CO: Springgun Press, 2016)

11: Instructions for a Butterfly

Online content at:

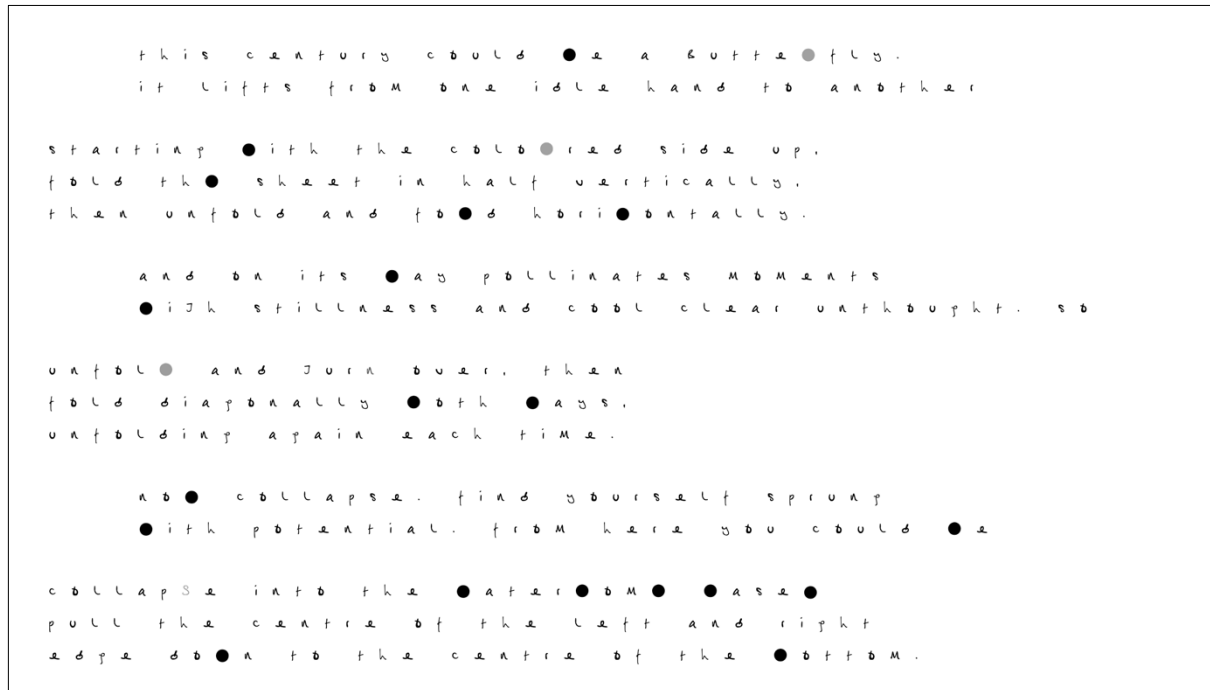https://peterhebden.uk/portfolio/instructions-for-a-butterfly

Figure 26: Screenshot of 'Instructions for a Butterfly' with the poem text written in the Janet typeface

'Instructions for a Butterfly' is a poem written in response to the typeface Janet, created by Kate Sweeney as part of her research in the Bloodaxe Books Archives at Newcastle University. As part of the collaboration with Sweeney, I wrote a poem and created an accompanying text-and-audio-based digital version of the poem that used the material features of Sweeney's experimental typeface to generate a soundscape. The typeface is built from handwritten notes that Sweeney encountered in the archives, and features a number of black dots in place of characters that she did not find there. (See fig. 26 above.)

For many characters, a lowercase or uppercase example exists, but not the other. I used this feature of the typeface as the basis for the digital version of my poem, which periodically selects random characters and switches their case, altering the pattern of holes in the poem. This process also triggers the playing of sound recorded by Sweeney of a music box, which was created by the artist Lindsay Duncanson, in a previous response to the Janet typeface. In the digital version of the poem, the notes played from the music box recordings correspond to the position of each hole along the line of the poem, as in the punch cards that are read by the

music box. This generated a constraint for the poem itself, as in order to generate sounds, each line needed to be no more than thirty-six characters long, this being the number of notes available from the music box.

Early experiments with this way of generating sound from text led me to notice how the tone of the sounds would shift, sometimes the combination of notes produced a pleasant, soothing effect, other combinations were discordant and jarring. This tension, the flux back and forth in the emotional state suggested by the sounds, led me to incorporate the practice of origami into the project, which is an activity that I have often done in the past to help deal with anxiety. The move between the jarring and soothing sounds of the music box was reminiscent of the experience of the competing between anxious thoughts and a focus on the methodical process of folding, which I find calming. Origami is something I have experimented with incorporating into my writing in the past, but this project gave me a much clearer focus on how this could be done.
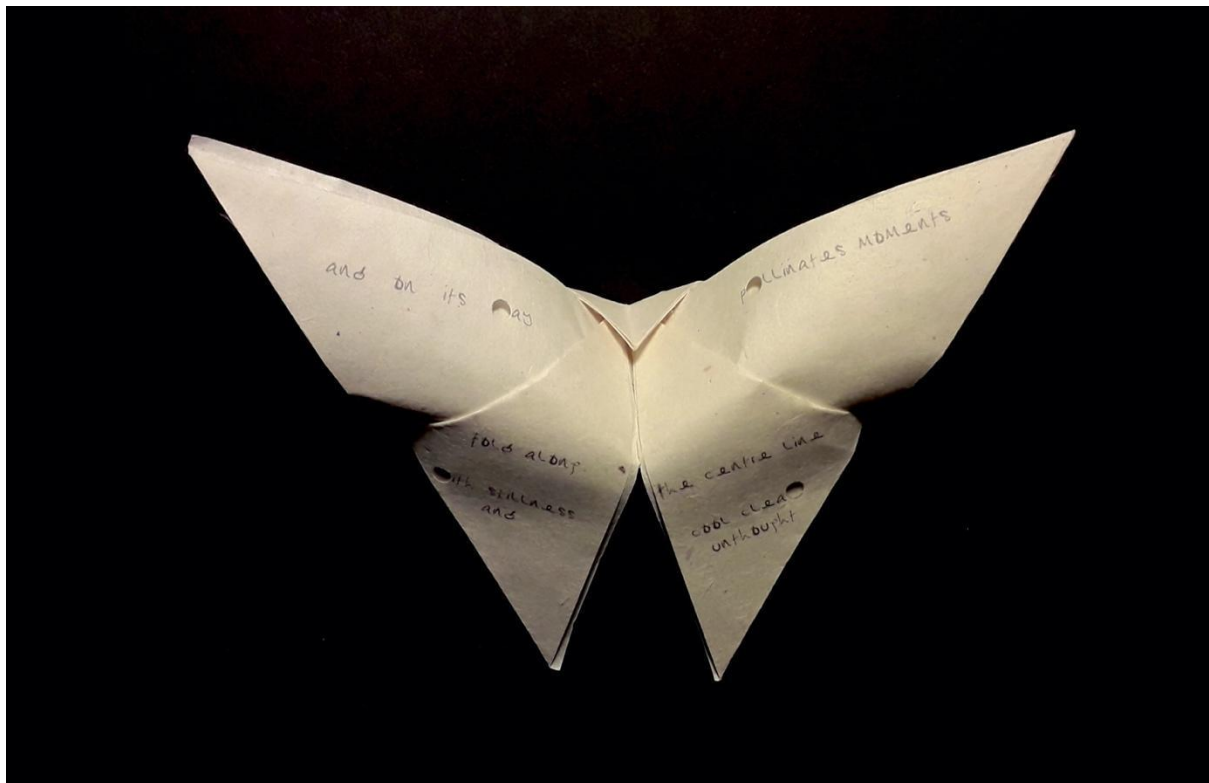

Figure 27: 'Instructions for a Butterfly' origami model

The final result was the poem 'Instructions for a Butterfly' which intersperses a description of the steps for folding a butterfly model with a calm and meditative monologue. As well as the digital version in the online portfolio and the print version included in Part 3 of this thesis, I

also created an origami model from the poem, in which the black dots of the Janet typeface become literal holes in the paper. (Fig. 27 above.) In doing this, I wanted to explore how interaction with the poem's technical medium could be used in a different way, and to incorporate the idea of restlessness into the process. Origami is for me a form of fidgeting – while enjoyable, it connotes restlessness, nervousness, anxiety, and an inability or unwillingness to settle to a task. It is a kind of mindful, but also mindless, and semi-productive activity that I use to direct my hands when they might otherwise rip, tear or destroy absent-mindedly. In the writing of the poem and its presentation as an origami model to be folded, I draw parallels between this activity and the way that digital devices have also become something that we fidget with absent-mindedly, or as a retreat from stress. This element of the project also represents another exploration of the notion of ergodic literature, in which the physical tasks asked of the reader become a part of the reading of the poem itself. Like the walking involved in the *Poems in the Air* app, discussed in the critical thesis, actions that accompany the words of the poem come to be incorporated into the poem's meaning.

The project is, like the 'Today Years Old' poems, expressing a more negative side to our relationship with media and in particular digital media. Although written largely before the pandemic, it prefigures a lot of the ideas that would become more prominent in my later writing as Covid-19 influenced my work and my ideas about living with and through digital media. Here, these elements of the poetry and presentation were coming from my recent move to London and working underground in the British Library, which – while wonderful in many ways – were an extreme and sometimes overwhelming set of changes that brought up some interesting reflections on my accustomed ways of living and working.

12: forgotten nights

Online content at:

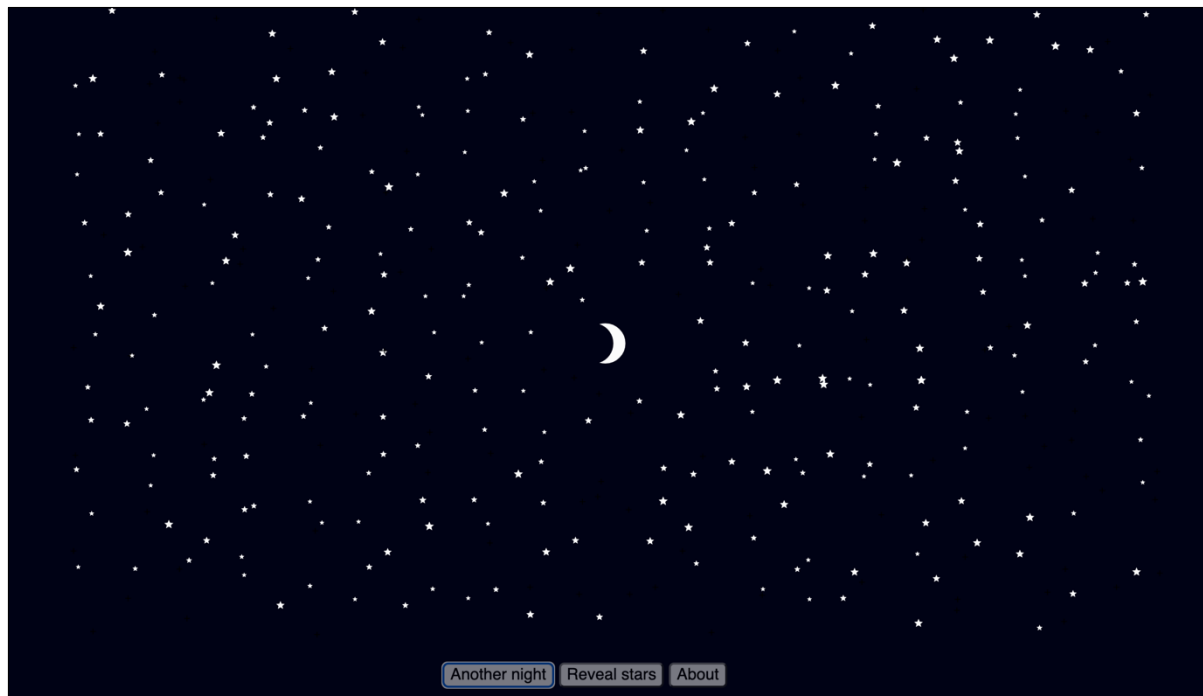https://peterhebden.uk/portfolio/forgotten-nights

Figure 28: Screenshot of 'forgotten nights'

'forgotten nights' is an audio-based interactive digital poem that I created during my time at the British Library. It uses short audio recordings played in sequence to create a series of recombinative poems based on the user's interaction with the interface. The digital poem was selected for inclusion in Volume 4 of the *Electronic Literature Collection*, published by the Electronic Literature Organisation, forthcoming in 2022.

The interface, which is built for a desktop/laptop computer, consists of an interactive night-sky, which the user can edit by adding and removing stars. The changes to the interface alter the content and structure of the audio that is played. This piece aims to combine playful, interactive interfaces with the aural qualities of poetry, using the screen as a site for interaction, but moving away from the manipulation of text on the screen. Digital literature regularly makes use of digital media's sound-based affordances, but rarely are these used in a way that aligns with poetry's more conventional relationship with sound through the spoken word.

The structure of the poem is determined by the arrangement of the stars in the sky, but not to the extent that there is a different version of the poem for each possible arrangement of stars. This was because I still wanted to maintain a certain level of authorial control over the text in a traditional sense, rather than ceding too much of how the poem is structured to the workings of the code. The algorithmic connections between each segment of the poem are simple enough that I was able to keep a clear idea of the structure in my mind while writing, but complex enough to still take advantage of the potential for surprise and juxtaposition that the interface allows.

The poem itself always opens with the idea of memory: the recombined lines of the first stanza present different vignettes, elements of which may reappear in other memories with other combinations of stars on the screen. The night-sky is a constant but ever-changing presence, with a different number of stars visible on any given night. This made it a useful symbol through which to explore the idea of memory, with the suggestion that different views of the sky trigger different memories in the speaker. This theme of memory is returned to again in the final portfolio item, Today Years Old. (p. 160)

13: 10ˣ: Scale poems

Figure 29: 10ˣ showing part of the poem '-5: Tardigrade'

After working on the Pinch-Zoom interface, I was prompted by its structure to write a series of poems that each address objects that exist at different physical orders of magnitude, ranging from the familiar, human-scale world outwards in both directions to the sub-atomic and the scale of the cosmos. The poems were written to be displayed through the same interface developed for 'The Diameter of the Bomb', with the reader starting at 'Dust in the Sun' – a poem written about the world at the scale of the metre – and then either zooming in or out to read the poems about smaller or larger magnitudes, respectively.

The interface's modelling of scale links tangentially to digital technology and the mobile device through the metaphorical idea of turning inwards and looking outwards for answers, an idea of searching for something and trying to go ever deeper, like the onwardness of the infinite scroll that can be found on sites like Twitter or Tumblr. Like the 'forgotten nights' project, the interface attempts to approach the digital sublime without alienating the reader from a sense of completeness in their access to the poetry. Here, the sublime is only a suggestion, generated by the sheer amount of pinch-zooming the user must do in their

traversal of the poetry sequence, rather than being something built into the structure of the text itself.

The order of the sequence is approached differently in the digital and typescript versions of the poems. In both, the reader begins at a poem written for the scale of the metre, the sense of scale that best applies to our day-to-day bodily movement through the world. On the page, the reader then alternates between increasingly small and large scales, moving away from the original starting position in both directions, inwards and outwards, simultaneously. In the digital interface, however, the change in size written about the poem is modelled more directly, and the reader moves in one direction or the other, either up or down the scale, inward or outward. The spatiality built into the digital interface keeps the reader orientated as to their position on the scale, whereas the page-reading of the poems reflects a much more abstract sense of distance from an original familiar world.

14: Audio Map interface

Online content at:

https://peterhebden.uk/portfolio/map-interface

Figure 30: Screenshot of the Audio Map interface

This interface was created for recordings of poems from the 'Sagas of the Accidental Saint' sequence in *Incendiary Art* by Patricia Smith.[26] These recordings were made by Bloodaxe Books and Newcastle Centre for the Literary Arts in 2018. Smith's collection addresses the systemic violence committed against black men in America, and the poems in 'Sagas of the Accidental Saint' each take on the voice of the grieving mother of a real-life murder victim. Over the course of the PhD, I had been exploring ways of using a map interface as a way of displaying poems, following the map-based presentation of my 'Newcastle Nine!' (p. 130) poem early in the project. Patricia Smith's *Incendiary Art* poems presented an opportunity to tie the geographical scope of the poems' subject matter with the specific qualities of their performance.

The interface uses the audio of the recordings presented over a simple image of mainland USA. The recordings are played simultaneously on a loop, with the volume of each controlled by the position of the cursor on the screen. The interface was designed specifically

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[26] Patricia Smith, *Incendiary Art* (Hexham: Bloodaxe Books, 2017), pp. 73-108

in response to the subject matter and tone of the poems, but also makes use of code developed for the Sonnet Tuner (p. 134) interface, using a similar signal-strength principle to connect physical position on the screen with the clarity of text being encountered. Like the interface to 'forgotten nights' (p. 152), the Audio Map relies on relatively small-scale control of the cursor on the screen, and so I developed it with a desktop/laptop environment in mind.

When the visitor to the site hovers their cursor over the USA, the recordings start playing together, and the effect is intended to be disorientating and overwhelming. A few moments of moving the cursor around the screen will reveal to the user that this has an effect on the relative volume of the recordings. As the cursor is moved towards a location where a shooting took place, the other recordings fade, leaving only the poem written about that location. As part of this PhD project, I have attempted to create presentation methods that reflect ideas expressed in certain poems. The extremely moving content of Patricia Smith's poems and her impassioned reading of them in Newcastle powerfully communicate the scale of the violence committed against black Americans, and the intended effect of the digital map is to reflect some of that sense of being overwhelmed: by grief, by the subject matter, and by the sheer number of victims mentioned within Smith's collection. The map is both a way of organising the poems and also a visualisation of the subject itself – an America filled with the voices of those whose relatives have been killed by racial violence. It represents what might be conjured in the listener's mind as they hear the poems, and then uses this image as the means of connecting the poems together on the screen.

At the technical level, this interface is a continuation of work done on the Sonnet Tuner interface, where the clarity of a specific text needed to increase dramatically as a particular location was reached on the screen. The code for this effect was re-purposed here, applied to the volume of the recordings. I was interested in reusing this code in particular as it was developed as a means of displaying written text in a way that echoed the transmission of sound. This same idea resurfaces in the interface for my 'Today Years Old' poems (p. 160), where the code is used again to create a representation of another kind of fading, that of memory.
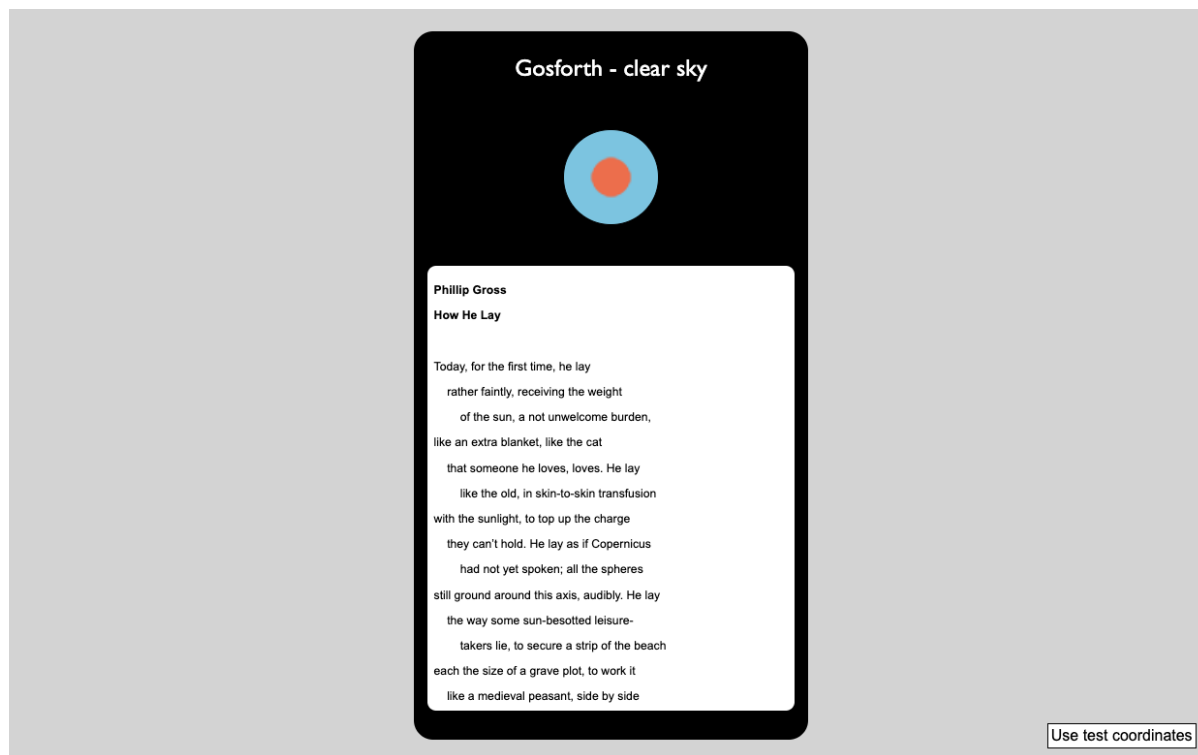
15: Weather interface

Online content at:

https://peterhebden.uk/portfolio/weather-based-display

Figure 31: The Weather interface early prototype for the Bloodaxe Poetry *app*

In late 2020 and early 2021, I undertook a three-month work placement at Bloodaxe Books in order to focus more on applying the skills and knowledge that I had developed back into the organisation itself. This included updating the content and codebase of the live *Bloodaxe Poetry* app, as well as assessing which of the experimental reading interfaces created during this project might make suitable extensions to the app. While on the work placement, I was able to begin work on adapting some of the Slow Reading interfaces for use on the app and I also developed a new prototype interface that selects a poem for the user to read based on current weather conditions.

The programming behind this Weather interface makes use of both the mobile device's built-in location capabilities and Open Weather, a free API (application programming interface) that provides current weather data.[27] Like the earlier prototype interfaces in the portfolio, it has been developed for a mobile application, but for presentation in the portfolio has been

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[27] 'Current weather data', *Open Weather Map* (OpenWeather, 2021) <https://openweathermap.org/current> [accessed 10th October 2021]

adapted for a desktop browser. As a portable device, the smartphone or tablet generally has a much more accurate mechanism for calculating its location than other, less portable devices, which less often have access to GPS technology. If used on a desktop or laptop computer without GPS, this version of the interface can determine an approximate location from the user's IP address if accessed from a device without more accurate location services.

One appealing element of this as an interface specifically at the time that it was developed – during the COVID-19 pandemic – was that it utilises the portability of the mobile device, but does not completely rely upon it. Under lockdown conditions, remaining largely in one location negates many of the benefits that the portability of the mobile device has, but the fact that the weather has the potential to change as we stay still meant that the interface could still be useful and appealing to readers who were not moving around with their mobile devices.

This is a simple interface and is still in the very early stages of development. For example, it currently only contains a very limited number of poems, and the selection would need to be expanded much further before it would be suitable for use in the live app. However, I include the interface in the portfolio as, along with the prototype Slow Reading interfaces, it demonstrates the practical application for the partner organisation of the work I have been doing and further work to be continued after the PhD. Although the COVID-19 pandemic significantly altered the planned work for my placement at Bloodaxe, I was still able to use the time to apply the skills and knowledge I had acquired back into work for the organisation.

16: Today Years Old

Online content at:

https://peterhebden.uk/portfolio/seasonal-poems

Figure 32: Today Years Old showing part of the poem 'Fourth Dimension'

The interface to this sequence of poems draws upon several different elements from the previous portfolio items. Ideas of proximity, changing conditions, and exploration from earlier digital and poetic work are used in the presentation method. The poems themselves were begun as a response to how digitally-mediated life affects our sense of time, particularly in the extreme conditions of the COVID-19 pandemic.

The poems respond both to the specific conditions of the COVID-19 lockdown and to the experience of communicating and consuming through smartphones. These two topics crossover in the sequence as reflections on how they both affect our sense of time. The smartphone's role as a connection to the wider world suddenly becomes much more

pronounced during the COVID period. This is in some ways an exacerbation of an already-existing state of affairs, but the sudden limiting of travel and face-to-face communication meant that the phone and computer began to take on new roles for many people: work, food shopping, new kinds of socialising, et cetera. The phone's function as a *mobile* device also changed, as we ourselves were not going anywhere. Instead, the situation emphasised the fact that, for most people, the phone is always with us. It affects our behaviour when at home, not just when we are out in the world. It means that, not only wherever you are in the world, but also wherever you are in the house, the outside world can reach you and, conversely, you can access information about the outside world. In the grip of the global pandemic, it became very clear that this ability to constantly update oneself with news, as well as the outpourings of social media, is very much a double-edged sword.

The sequence itself alludes repeatedly to the disorientation in time that these circumstances cause and how memory and attention function within this. The digital interface reflects this by limiting the display of each poem to a particular time of day or year. Poems that are 'out of sync' with the reader will be only partially displayed. As in the other portfolio items that feature my own writing, the digital development and poetry-writing occurred side-by-side, informing one another. Adding the poems to the interface, and reviewing their presentation in their partly-erased forms, guided me both in re-drafting the poems and in refining the criteria for showing and hiding words in the code. In creating this interface, I drew upon technical elements from several previous projects in the portfolio as a means of embodying the themes of the wider project into this final piece. The poems were written with their only partial reading in mind, as the fragmentary texts would be the only ones that were available to readers, depending one when the interface was accessed. The use of fragmentary texts in earlier projects as a means of moving between or towards complete poems was instead developed into an intentional method of presenting poetic texts written expressly for that kind of encounter.

Conclusion

As noted in the introduction to the portfolio, the creative work involved in this project follows a loose trajectory: from the development of experimental interfaces for the digital publishing of poetry to collaborative work with writers and artists in which I tailored my work towards ways of presenting a specific poem or set of poems digitally; to using digital media in my own poetry writing. The chronological ordering of the work in the portfolio demonstrates this trajectory, but also highlights some exceptions that speak to the way that the creation of digital interfaces for poetry and the writing of poetry influenced by creative digital practice have connected over the course of the project. 'Newcastle Nine!', for example, is a poem that was begun very early in the PhD. In its digital form, it repurposes the map interface for an app that I had created prior to the PhD, showing the flow of ideas from app creation to poetry-writing. However, its subject matter and tone, its exultation of walking freely around the city, later provided a strong counterpoint to the conditions of the COVID-19 pandemic, when this experience suddenly seemed very distant, and this is something I express in some of the poems in the 'Today Years Old' sequence. But reflecting on the change from the conditions that produced 'Newcastle Nine!' was also part of what prompted me to develop the Weather interface as a potential update to the *Bloodaxe Poetry* app during my work placement period at Bloodaxe Books in 2020-21. I was drawn to creating an interface that would present a reader with poems that related to their current environment, but would still produce different results while the reader was potentially spending a lot of time in one place, with their capacity to change locations curtailed by the pandemic. Here, the changeability of the weather replaces the changing location as the factor that determines what is read.

Examples of this kind of back-and-forth between digital development and poetry-writing occur throughout the portfolio, with the practice of exploratory programming acting as the conduit between the two. Exploratory programming's focus on an open-ended, heuristic approach to computation and the creation of software led to surprising and creatively fruitful outputs that would not have been achieved with a more typical goal-led approach. Allowing the creation of the interfaces to be led by what was possible with the application of digital tools enabled me to think more freely about the alternative models of remediation that could be applied to poetry. In the Sonnet Tuner interface, for instance, I explored the effects of basing remediation around the analogue radio. While the intention was never to mimic the

radio in any substantial way – I was, for one, using it to display written text – the ideas of signal strength and interference that it involved fed directly into the models for other interfaces, such as the Audio Map and the digital version of my 'Today Years Old' poem sequence.

Exploratory programming has also served as a tool in the writing of the poems by enabling me to think of the digital structure with which I was experimenting as an extension of poetic form. The different kinds of basic media – writing, sound, image, et cetera – incorporated into each piece of work served as guiding principles for the poetry that was written. In 'Newcastle Nine!', for instance, the loose structure of each stanza contains one repeated feature: the word 'where' on the second line. This was borne out of the necessity of having some kind of regularity in the language to allow for the poem to be stitched together by the digital interface.

The third and final part of this thesis is a short collection of poems, containing the poetry written for the work in the portfolio. The poems are connected by their nature as responses to the digital. Some address this very directly, such as in the poem 'Fourth Dimension' and many of the others in the 'Today Years Old' sequence. Others are written about subjects that I have come to associate with a digitally-saturated world over the course of working on the PhD project. These poems take an element of living with digital technology as a starting point or conceptual frame, such as in 'Instructions for a Butterfly', where I address ideas of drifting, restlessness and concentration through origami-folding.

The poems in the collection explore different encounters between the human and the digital. The poems in the '10^x' reflect on the digital's ability to take us outside of our embodied experiences, the 'Quick Response' poems put the human writer in the place of the computer as I produce poems based on my interpretation of a QR code, and 'Today Years Old' reflects on memory by presenting a representation of fading details in the digital display of the poems, while several of the poems themselves often express the strangeness that is felt in relation to time in a digitally-mediated world.

Just as the poetry apps in the critical thesis, and the prototype interfaces from the creative portfolio, seek to balance pre-digital and digital poetics in the poetic digital artefact that they create, I have sought to find a balance between pre-digital and digital poetics in my own

poetry writing through this project. With the ever-increasing amount and ubiquity of digital media, and new generations of poets being steeped in both poetic tradition and new media literacy, this is a very exciting area to explore within poetic practice. Over the course of this project, poetry writing and interface development have creatively fed one another in a way that I hope will continue to aid my own development in both fields and prove helpful to others interested in working at this intersection.

PART THREE:

Today Years Old

a poetry collection

Contents

Today Years Old

Newcastle Nine!

Version #59939

do you see open arms or shoving hands here   *Carliol Square*

where disrepair sits next to new dreams

where power shifts, and old purposes decay through

the liquid nature of the place, ever-changing, reinventing

do you misuse this place, the true sign   *Civic Centre*

of belonging where steps of power are scarred with metal

as one thin skater kid tumbles in the sun

and by night the tower glows extraterrestrially

what will today reveal   *Grainger Market*

about where everything and nothing

is overheard in maelstrom voices

daily circuits on the same lunchtime tracks

as feet march out their old routines

all this wandering, marking space with footfalls   *Swing Bridge*

where, crossing the water, one city becomes another

you switch allegiance with a step enabled

by this bright beam over the river

what happened here once still echoes   *The Black Gate*

where wary eyes have peered out

on the people below

now this old fortress is dwarfed

by the city it once overlooked

somehow alien, somehow exactly the same   *High Friar Lane*

where we can be Parisian, Milanese

citizens of anywhere

under our heat-lamps and electric stars

importing the most beautiful parts of other worlds

there are those who know it like the pigeons do   *Haymarket*

this place where encounters are given, characters erupt into life

angel, mutant, valkyrie, watching over from her high perch

the spike that serves as a pin in memory, anchoring history

in the forward flow of so many lives

everyone you see a stitch in this town   *Central Station*

where lines converge with a screech of rails

and journeys change shape

one city dreaming itself as another

your steps are echoes of thousands, millions in its life   *Dog Leap Stairs*

where, knowing you, trusting you,

a place could give you its secrets, reveal

those dark corners where real history is made

could speed your journey along

10^x :

Scale Poems

where x equals…

0: Dust in the sun

Let's start here: in the daylight,
a room we know, where the sun
cuts out a bright volume
the height and width of a window,
length extending down to the floor

and in it, soft-glowing motes
move on their powerless trajectories.
And that's all there is to it.
Again and again, distance-between
dwarfs diameter-of. Big or small,

it's all dot and void.
One speck of dust,
no chance of collision.

10^0m = 1 metre

1: Megafauna

Dust is dust and the sea
the sea, but with feet this width
or a tail wide as a dreadnaught,
so much more is dust and the sea
slips on by like a dream.

The clamberable world, the swimmable
stretches open out on an endless map
and you go and go and go if you like,
never turning, never faced with anything
you couldn't swat down or nuzzle through.

So comfortable, so traversable
is your Earth that your one straight path
could bring you right round to here again.

10^1m = 10 metres, or 1 decametre

-1: Poesis

Here we reach the scale of the poem.
(Though how many times could I say that?)
The span of the hand and the things
that hands can hold and make.

These are the spaces of the slow stories
between our tools – the pen rolling
over the page, the knife carving
wood or onion into something
that we dreamed this morning.

So many things at rest in the hand,
the page, the phone, the hand of another,
and from there, so many take flight.
In my uncle's garden, a little bird
hops on the knuckle of the thumb.

$10^{-1}m$ = 0.1 metres, or 1 decimetre

5: Forest

Smoke rises so high it becomes
a single thin line, as if
from a cigarette hole burned
into a flowing green cloth

so wide and with such weave and weft
that even this column of tragic particulate –
miles high – is nothing from the other side.
No scent of it, except down the tough wires

like neurons in the earth, carrying
the answers and warnings and cries
that dart from root to root:
fire, fire, fire, fire.

10^5m = 100 kilometres

-5: Tardigrade

Down in the deep Between,
on a vista somewhere on the surface
of a single thread, in the shadow
of a bedbug, it storms

forward - one slow foot after another.
Apex predator in the land of the electron eye,
eyeless and lined with limbs, it grapples
in its godzilla battle with its twin.

They fight for this alien land
of monochrome fibres and flakes.
To be king of all the dust. Take cover,
quick. Come cower with me in the atoms.

$10^{-5}m$ = 10 micrometres

13: Solar system

After the rush and crush
of Earth and all its drama,
come take in this true land of gaps.

Once again, existence is distance
punctuated by the odd dot.
Gigaton rocks pull at one another,

invisible influences from across the dark.
The rules have changed. No longer
are heat and vibration and frequency

calling the shots. Those hyperactive planets
chatter only to themselves. They know only
one another's slow mechanics.

10^{13}m = 10 terametres

-8: Meanwhile, at the edge

of making, things are getting shaky.

This close to the humps and bumps of molecules

and their tremors, their many squabbles

are just too much for our unsteady hands. Here, at the edge

of vision, our light fails. Too close to focus,

the shadows of our own noses obscure the subject.

We ditched the torch for the electron way back

but all we have is a blurred view of a shaking frame. The edge

of life and the edge of our handicraft. Tiny spiked robots

and self-replicating polyhedrons rub shoulders

with the most minute machines we can manage:

the yes/no gatekeepers of our knowledge, the blurry binary

of dead/alive.

$10^{-8}m = 10$ nanometres

18: Nebula

You were a child, staring from the plane window,
with a cloud on a collision course dead ahead.
Eyes tight, you waited, squeezed your sister's hand.

This is nothing like that, kid. Nothing so solid
as a plane or even a puff of smoke
could hold itself up at this scale.

This cloud creature is spread so thin
that we are less than a gnat
to a gnat to a gnat to him.

Fly towards this churning tumble of dust
and spend aeons asking if we're there yet.
Our planet's whole family in the glint at the crest of its wave.

$10^{18}m = 1$ exametre

-14: Molecules

Nothing touches. Not really. In our universe
of wide gaps, everything is negotiated,
all collisions negated. Oh sure,

you might see kids crush bugs,
balls hit bats and, in the fine print,
electron and positron kamikaze together.

But this is a civil society, with fine,
electric rules. Molecules don't crash
like two dogs in the park. No, a polite nod,

a side-step, an exchange of pleasantries at a distance.

$10^{-14}m = 10$ femtometres

26: Dark energy

The best way they can describe it
is as a foam – thin films of everything
wrapping bubbles of vast, true nothing.

At this scale, with the void so pure
and the matter swept like dust in a corner,
something flips – the controls wrestled –

and gravity's reaching hand slips. Expansion,
the tide of the darkness itself, is too much.
Superclusters cling to one another, rafts

bobbing apart in the black.

$10^{26}m = 100$ yottametres

Neutrino and quark cannot be pried apart.

Our little project, our excursion into the gaps,

has lost its footing. A big leap now

down through the magnitudes, until

we hit the bottom – the base of all existence –

the universe's bare planks, and nothing left to chop.

Between there and there – the last

measurable dot and the end of all measuring –

is an entirely vacant world.

Eight orders of emptiness – nothing

from microbe to sun – no bumps

in the firmament, just a quiet cosmos

before the end.

$10^{-28}m = 0.0001$ yoctometres

Instructions for a Butterfly

this century could be a butterfly
it lifts from one idle hand to another

                        starting with the coloured side up,
                            fold the sheet in half vertically,
                        then unfold and fold horizontally.

and on its way pollinates moments
with stillness and cool clear unthought. so

                              unfold and turn over, then
                            fold diagonally both ways,
                            unfolding again each time.

now collapse. find yourself sprung
with potential. from here you could

                        collapse into the waterbomb base:
                        pull the centre of the left and right
                        edge down to the centre of the bottom.

be a waterbomb, a flower, and of course
a butterfly. a whole summer's day is here.

                         take the top layer of the triangle
                        and fold the left and right corners
                        up to the top corner. flip vertically.

confused? hope to see a diamond
on the flat side of a pyramid.

take the top layer
                          of the bottom corner and fold it
                               up just past the top edge,

tuck away that seeking point, close
the loop, make something happy to drift,

                                        then take that tip and
                              fold it behind the top edge.
                                       flip horizontally.

looking only for itself.
and now i almost have wings

                              fold along the centre line.

Quick Response

Find me

No optimal route through, no way
to laser a path back home.

Just options: avoid the jagged glass
and the sinkhole streets of bad memory,
but otherwise roll on your merry way.

Maybe find yourself pacmanning
into the unknown. Right off one side

and bright-eyed back onto the other.

Promenade, Whitley Bay

Everything is being taken back.
The sea roaring and muttering in swells

and fades as it makes its way in.
Hands curl inside gloves inside pockets.

The headland a row of uneven teeth
growing in reverse. In our photograph,

there's no way to feel the sting. Here and now,
we inch back the way we came.

It's what's happening

Adjusting their eyes to the micron tics,
the iris in its servo swivel
reacts and reacts and reacts.

And they've mastered it, haven't they?
Performed a slow and powerful surgery
neuron by tricky neuron, figuring out

how to be as here as they are there,
how to do both at once　　　　　forever.

Treadmill

Through my reflection, bee-drones scissor chunks
off the plant growing out of the brickwork.

The sunlight slants into the gym, gleams on this machine
for running on the spot, machine for heartbeats, for generating

the thump-thump of something being built. Each bee
hangs onto its piece of leaf, wings engage as it comes

away. Each piece in the same direction.
Beneath my feet, the incline rises.

Point of origin

In sector five the ice crept in
through the nightshift. All the buses
jammed in the pipeline while the cranes
oversaw, creaking up in the black.
Some blue-eyed, some red.
Under the binary streetlights, little blips
start the cold walk home, sliding
off the pavement, slipping beyond the fence.

Jesmond Old Cemetery

At this location, where the latitude
of our history crosses the longitude
of want, and where the jagged world-line
comes to a halt, there is a bird,
feet curled round the edge of a stone
like she might take it, carry on
the journey past this destination
along whatever untraceable route she takes.

Messenger

It carries on regardless.
No matter the off-hours
or the quiet truce of night's black static.
Thoughts still ping and digits still buzz
against the pillow. How strange then
that what wakes me up
is one timid finger raised,
one teeny missive of hope.

Photographs

I'm in the library, sending close-ups
of cork-boards and infinite lino.
Captions like 'nowhereness' and 'fearful'.

You're in the park, catching cloud patterns,
saying 'umbrella man' and 'fishdog'.
What we're trading takes a walk around,

brushes one thing, sniffs another,
almost settles, then moves on.

from forgotten nights

[…]

This is a remix memory:
edited together, a patchwork companion.
Another plastic hand to hold.
A screensaver to fall asleep to.

Ladies and gentlemen,
my father taught me to talk about the stars,
to speak as if each speck had its own voice and plans

and I have learned   this dome we tap at
is muddied and full of dust.

With you here,   I forget
what I was saying   and   I let loose
all the weight the stars pass down.

[…]

This is a pacing memory,
when the lights should all be out,
when we spoke down cables for hours,
when sleep was always another half-hour away.

My dear friend,
I've noticed before that you like to lie in the grass in the dark,
to look up whenever there are questions.

Now watch: the cloud that hurries over,
though vast, is mostly empty space.

With nothing pushing us,   I remember
even the tiniest things but   I let loose
so many moments I want to forget.

[…]

This is a rain-glazed memory.
Bands of light curling around everything.
It waits smoking between the bins.
It talks its truth in creeping steam.

Listen, son,
a girl I knew wanted to be standing on the sky,
to telescope a path into the past.

You see,   this dome we tap at
spins and spins and spins.

Now that you're gone,   I forget
even the tiniest things but   I hold onto
the chill of the last few minutes.

[…]

This is a corner memory.
Bands of light curling around everything.
It waits smoking between the bins.
It talks its truth in creeping steam.

Stern-eyed girl
I've noticed before that you like to lie in the grass in the dark
to telescope a path into the past.

You see,   this dome we tap at
is muddied and full of dust.

Now that you're gone,   I forget
even the tiniest things but   I hold onto
all of the weight the stars pass down.

[…]

This is a pillow memory,
accompanied by a pane of glass.
One among ten thousand milk bottle nights.
Another page torn out at random.

Ladies and gentlemen,
my daughter asked me what to say about the stars,
the answer to where anything comes from.

And I have learned   this map of sparks
is muddied and full of dust.

Here, in the dark   I remember
the rough grain of our history and   I hold onto
the chill of the last few minutes

[…]

This is a false memory:
edited together, a patchwork companion.
Another plastic hand to hold.
A screensaver to fall asleep to.

My dear friend,
a girl I knew wanted to be standing on the sky,
to telescope a path into the past.

You see,   your endless field of minutes
is built by flickers.

With you here   I forget
what I was saying   but   I let loose
so many moments I want to forget.

Today Years Old

Fourth Dimension
　　(after Lawrence Scott)

it was the best of　　　it was the worst of
and it was everywhere, just like us
passing through houses and under oceans
its billion little wormholes reshaping space
its spooky action always at a distance
and at the same time right there
under our noses, lighting us from below

what we have here is
a brief history of
sitting and swiping up and up
of having no idea but knowing it
when we see it amid the videos
and the dragnet of weird tricks

endless as a lake in a cave
and yet *there's never enough*
　　to do all the nothing you want
and all the while, little envelopes of pixels
arrive in the night, wave after wave
shored up on the screen by morning

That Year

I remember the year
we all fell in love with birds,
their tilts and loops
flickering on the still street.

The year we sat in, tapping
at the bar charts and maps,
tense as a video
of nothing moving

and I remember remembering
right now, time curling up
at the edges, like books
left damp in the attic

so that the day's coils
wound tighter, pulled further
and somehow I found myself
empty-headed at the sink again.

A year of gripping tight
And yet still slipping.
A year of pacing the floor
and yet

there had never been
a better time
to be a lone
ominously cawing crow

eyeing the park
from the last bare twig.

Foxconn
          (for Xu Lizhi)

The story online declares
its age like a warning.
Honour-bound
apologetic disclaimer:
     This article
     is more than
     two years old.
The pace of disaster
easily outstrips the up-down flick
of our eyes. The refresh
plunges you deep
into archives of digital dust.

The time in Guangdong province
is seven hours from now.
Gadgets from the future
in perfect uniform rows,
components tweezered
and machined bit by bit
in redeye sore limbed shifts.
On the satellite photo
nothing ever changes.
All through this quiet afternoon
and into the deep nadir
of your night-work,
all I can see
is the sunlight on the roof.

We take our well-timed walk
through different time zones,
my lunchbreak your stroll home
through the city park.

Still teaching face-to-face,
still sharing the air of your pupils
makes you tense, but now
on the phone, you relax.

How strange, all those years
we'd call our long texts
and quick chats the pale ghosts
of real friendship, of hanging

in town at a bus ride's notice,
sharing dinners and characters
in the same stories, living
simultaneous and overlapped.

But jokes flung over continents
and mad reports
from the pits of the internet
formed our little tin-can wire

that lets me know
that today will be a good one:
the sun will rise as it did for you
in your photo through the scratched-up glass.

Please

Pin me here, unplugged and disconnected.
Undo this tangle of wires, each trying
to wind their way out the knot of right now.

Take hold with your ocean calm
of these hands that cannot rest until
they have unpicked every last jumper.

Teach me to walk from the screen
and downstairs back into life
without staring up through the floor.

Please, tell me about this moment, this place
you know so well, every sunflower,
every cracked-up face in the pavement.

Pin me, lip to lip, in this still pivot of time.
Make me miss a meteor from the future
or some new red alert. Pin me here,

in this second, all lamplight and cocoa,
between the rolling of the credits
and the countdown to the next episode.

Window

Under the glass in my hand
the interface arranges
its tiles of light.
Little squares of memory
in date order, the slow
then fast loops of the years

unravelled in a long strip.
All the places we've been.
Patterns, variation, theme.
So many proud dinners
and the same few faces
crowding out new backgrounds.

On these indoor days
of distance and window breath,
the colour of the sun
and the tree, wet
and shimmering with
a few last leaves

pulls me through the glass
like a dive, into this same day
of another year, its wild
summerless wind grazing
everything, the grey smell
of damp wood trying to burn.

Daniel and Jorge Explain Falling Asleep

It is a process of growing smaller, of curling up.
Not the way you might wrap yourself around the news app,
or go foetal in the glare of some new tweet war.
More like the way that higher dimensions fold themselves
down to rest, and let us get on with our noise.

Shrink yourself until the bed is a desert plain on the moon,
bathed in cool earthlight. Take stock, now you're here,
of the airless quiet radiating off its pale hills
and our planet left dumbstruck, a silent carousel
of simple green and blue.

Alternatively, expand. Fling out your limbs across the bed,
across the cosmos. Watch the Earth and its spinning siblings
slip down into a palm-sized toy. Feel the cool breeze
of frozen dust out in the star-scattered dark. Realise
the smallness of the heavy thoughts you've left behind.

Let questions in. Questions about how time ends,
how stars began, the taste of quarks. Anything
but the unanswerables of the here and now.
Allow the trails of solarised vapour behind your eyes
to carry you out, past the reach of the creeping sun.

Listen now. Climb pyjamaed aboard the launcher,
ears plugged to the engine roar, and feel with lift-off
the heavy cloth of acceleration press the tremor from your limbs.
Fly out through the wide eye of the planet
and have faith that you will be weightless soon.

Sonhood

Friday arrives
like a big sad dog,
indifferent and eyes down.

I complain again
of weekends of nothing
but more grim scrolls of worry

and longing
forward and longing back
for the warm wrap of Christmas.

I have caught you
in the slim dark hours
between the hospital and the relief

of bedtime.
The me of now
sees you listening, shoes on,

lanyard hanging
your younger self
around your neck as you nod

the same way
the you in the photo would
feeding your infant son in the dark.

I get no sleep,
I say. Too wired
with nowhere to go, no dark

dark enough
to shut me down and you
listen somehow, eyes drooping

after a day of mask fog
and fearful stifled coughs,
blood tests with sad positives.

Your stillness
carries over the cold valleys
filled with misty strings of light.

You are a shuffle,
a sound of soft fabric
pressed tight against my ear.

Not telling,
no prompting perspective
or gently reminding me who has it worse,

but sitting,
eyes closed now, holding
my unending voice in your hand.

Notes

-28: Empty World: The Planck Length, approximately 1.6×10^{-35}m, is theoretically the minimum possible distance in space. The size of the smallest currently known subatomic particle, the top quark, is thought to be $\sim 10^{-18}$m. The scale of this poem, 10^{-28}m, represents a point between these two scales.

Fourth Dimension: Laurence Scott is the author of *The Four-Dimensional Human: Ways of Being in the Digital World* (Windmill Books, 2016).

Foxconn: Xu Lizhi was a Chinese poet who worked at the Foxconn manufacturing plant in Shenzhen, Guangdong province. Foxconn is one of the world's largest suppliers of parts for electronic devices. Xu Lizhi committed suicide in 2014 by jumping from the roof of his residential building at Foxconn.

Daniel and Jorge Explain Falling Asleep: Daniel Whiteson and Jorge Cham are the hosts of the physics podcast *Daniel and Jorge Explain the Universe*.

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Appendices

Appendix A: Data Repositories for Source Code

In order to make the technical side of the digital creative work available to scrutiny, and to allow others to build upon the exploration of poetry in digital media that I have undertaken, I have shared the code for each project in two publicly-accessible repositories. This will enable other researchers, writers and publishers to use some of the frameworks and publication methods that I have developed to further advance their own research or creative practice. The work is all made available under the MIT license, meaning that it can be used and modified for any purpose, provided attribution is made by including the copyright notice and license in the new source code.[1]

The repositories contain clearly commented code, along with README files that explain any third-party software used and where this can be found. Where appropriate, links to guidance on how to use the third-party software are also included. While some technical knowledge of HTML and JavaScript would be required for using the source code, it is my hope that the supporting materials in the repositories will minimise this barrier to entry, and encourage more poets and independent publishers to explore creative uses of digital media.

The source code for all of the projects can be found at:
- A GitHub account established specifically for the project, which I manage:
  https://github.com/Peter-Hebden-NCL?tab=repositories
- The data.ncl Research Data Management service, managed by Newcastle University:
  https://doi.org/10.25405/data.ncl.c.5720792

By using these two services together, I am aiming to combine the advantages of managing my research data personally, using a service that I control the content and accessibility of, with the security of an institutionally-backed data repository. Using the University's data service also helps to make the project more discoverable by placing it in online locations searched by scholars and practitioners looking for work of this kind.

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[1] 'The MIT License', *Open Source Initiative* (Opensource.org, 2021) <https://opensource.org/licenses/MIT> [accessed 20th October 2021]

Appendix B: Physical Components for Portfolio Items

Please see the file of accompanying material for the physical elements of 'Instructions for a Butterfly' and 'Quick Response'. Included in this file are:

B.1: One box containing one folded origami butterfly ('Instructions for a Butterfly')

B.2: One A4 template for folding an origami butterfly ('Instructions for a Butterfly')

B.3: One square pamphlet marked '8 Poems' ('Quick Response')