UNIVERSITY OF DUBLIN, TRINITY COLLEGE

Reading Forests, Seeing Trees:
Visual Poetry with Neurohumanities

Amelia McConville

Supervisors: Prof Philip Coleman and Prof Mani Ramaswami

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Declaration

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Abstract

The new contexts of visual materiality engendered by the internet and digital age problematise traditional strategies of critically analysing experimental forms of poetry. By approaching poetry across history as a phenomenon that is both read *and* seen, this dissertation utilises selected vocabulary, paradigms, and discourses from cognitive neuroscience and psychology to suggest a novel way of analysing contemporary poetry. Under the rubric of Neurohumanities, this project evinces how empirical evidence can be brought into conversation with a literary critical analysis of visual poetry, as a trajectory is mapped from the once-contested combination of art and science to this project's unique investigation.

Within this dissertation, visual poetry and visual poetics are considered in a variety of contexts – historical, material, critical – while the case is made for their suitability for empirical analysis. Usurping the standard formula of interdisciplinary approaches to the arts and sciences, in which science is often delegated to 'prove' what is already inherently known within a discipline such as poetry studies, the approach demonstrated here suggests how the two disciplines can inform and influence one another. Two Case Studies are presented: one on Canadian visual poetry that focuses on selected works by bpNichol, Derek Beaulieu, and Steve McCaffery; and the other on experimental visual poetry by women, with a focus on selected works by Mirella Bentivoglio, Judith Copithorne, and Susan Howe. The results of a mixed methods psychological experiment with poetry as its subject, conducted for this project, are discussed in tandem with a literary critical close reading. This analysis seeks to account for each Case Study's respective theoretical engagements with the materiality of language and letterforms, authorial subjectivity, and the gendered experience of voice and silence, combining them with quantitative and qualitative empirical data.

This approach is subsequently reflected on from a metacritical perspective, and studied for how this Neurohumanities approach can illuminate the benefits and limitations of combining disciplines. In its focus on small-press publications and historically marginalised poetry, the project engages not just with the interdisciplinary landscape of poetry and science, but with elements of poetry studies that have remained hitherto underappreciated in mainstream literary criticism. Ultimately, in its repudiation of linearity, its questioning of shape and visual perception, and examination of meaning, the dissertation investigates new methods through which two disparate fields might share a commonality both within the scope of this project, and in future forays into the interstices between art and science.

Summary

This dissertation demonstrates an interdisciplinary, Neurohumanities approach to visual poetry and visual poetics. Over six chapters, against the broader context of the historic separation of the Arts from science, it refines the question of what poetry and science can offer one another. It proceeds with what it defines as a 'cognitively-informed' Neurohumanities approach to visual poetry: drawing upon research, concepts, and paradigms from psychology, cognitive science, and neuroscience to support and extend the literary close reading that is demonstrated throughout its pages. Loosely guided by a cartographical analogy, the project maps a history of poetry and science, drawing the contours of a new space in which visual poetry and experimental psychology can be brought into conversation with one another. The project draws extensively on existing interviews with all the poets selected for the Case Studies, and also includes a recent interview with Derek Beaulieu, conducted specially for this study.

The dissertation is divided into two sections: 'Theories and Concepts' and 'Applications'. The first section, 'Theories and Concepts', incorporates Chapters One to Three, setting the scene for the project's original approach by examining the various histories of art and science, the visual in poetry, and both theoretical and practical forays into poetry and science thus far. The second section, 'Applications', includes Chapters Four to Six, in which the findings of two Case Studies are discussed, and an original approach is demonstrated which incorporates data from a mixed methods psychological experiment conducted as part of the project. This experiment utilises the research of David Navon, who employs the metaphor of 'seeing the forest for the trees' to investigate local and global perception within his famous psychological paradigm.

Chapter One poses the question of what shape best suits this interdisciplinary venture, while also accounting for the dangers inherent in such an endeavour. It provides a historiographical review of the philosophical and conceptual ways of conceiving poetry and science together, acknowledging the rich history of the relationship of art and science to one another. Chapter Two gives an in-depth overview of visual poetry and visual poetics, accounting for both visualism and visual iconicity in poetry, as well as the visual and concrete poetry upon which this dissertation centres. It deliberately traces the much trodden historical paths through this history of visualism in poetry and prose, to outline the concerns especially relevant to the present projects theoretical and empirical concerns. It engages with the different kinds of materialities that must be considered in relation to the present project. Chapter Three blends the ideas of the previous two chapters to discuss the suitability of visual poems for interdisciplinary investigation, suggesting that visual poems are uniquely suited towards being examined in an empirical context. In its investigation of this consilience, the chapter also explores how either unwittingly or knowingly, visual poets often utilise the logic of cognitive science and visual psychology in their works. It reviews existing research from cognitive literary studies, cognitive poetics, experimental psychology, and neuropsychology that investigates language, letterforms, and poetry of various different forms. It also examines the methodologies and findings from experiments that have

empirically dealt with elements discussed thus far in literary terms, and how the approaches of these studies influenced the experiment design of the project both directly and indirectly. It sets the scene for the practical investigation of Navon's classic psychological paradigm, involving the distinction between local perception (the smaller details in a visual scene) and global perception (the holistic bigger picture).

Chapters Four to Six constitute the 'Applications' section of the dissertation, and demonstrate this cognitively-informed methodology which combines a literary close reading with the data gathered in an empirical context, using a mix of qualitative and quantitative methods during a psychological experiment. This experiment was circulated to 132 anonymised participants and required them to complete a 'Navon task' to gauge their tendencies towards local or global perception, before presenting them with a series of visual poems and requiring them to rank both their individual elements, and the poems overall. In Chapter Four, Canadian visual poetry is the focus: it outlines how previous research has influenced the experiment design that investigates selected poems by bpNichol, Steve McCaffery's *Carnival*, and poems by Derek Beaulieu. It conceives of the works of these three poets as occurring along a historical continuum, as all three poets are very much in conversation with one another, and each one engages with the various notions of the different materialities in different, yet linked, ways. Chapter Five focuses exclusively on visual poetry by women, investigating selected poems by Mirella Bentivoglio, Judith Copithorne, and Susan Howe. While less connected by geography, these three poets are nonetheless grouped thematically for the manner in which their experiences of gender impact their utilising of visualism in their poems to engage with ideas of authorial and poetic voice.

Chapter Six applies a metacritical analysis to this element, by analysing the more general trends and correlations observable in the data gathered, linking the thematic concerns of the previous chapters to the wider concerns of the project, and acknowledging the future that has been anticipated by both visual poetry and facilitated by the technologies and renegotiated materialities of the digital age. Overall, this dissertation presents an original approach to visual poetry with Neurohumanities, suggesting new avenues for future interdisciplinary investigations of these subjects.

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Introduction

Formulating the Question

This dissertation concerns itself, at its heart, with questions of shape. Over the course of six chapters, it maps the contours of an interdisciplinary journey from art and science all the way to a cognitively-informed, Neurohumanities analysis of contemporary visual poetry. It poses a series of questions about the nature of combining the rigour of science with the mutable and mystical business of poetry. It examines how these two historically disparate fields fare when they are combined, what can happen when they are each other's subject, and when they are brought into conversation with one another. Shape characterises this dissertation's approach in a number of ways. It asks what the shape of interdisciplinarity should be, what metaphor can best structure our understanding of how to approach this emerging methodology. It also investigates the literal shape of poetry upon the page or the screen and the impact that this has upon the reader – or viewer – of poetry, and it queries the linearity that has characterised visuality in poetry historically, discursively, and aesthetically. It explores questions of meaning, as any significant investigation must, in relation to visual poetry, breaking down the idea of how meaning operates within its paradigm. It questions the cornerstones of close reading, arguing for an expansion of this methodology that can incorporate an understanding of psychology and cognitive science, without allowing scientific paradigms to override the inherent subjectivity of poetry and the individual responses it generates in its readers.

While the relationship between poetry and science is nuanced, with much to consider regarding their commensurability, consilience, and respective engagement with truth and knowledge, throughout the forthcoming chapters a positive sense nevertheless emerges of how the two fields might be combined under the auspices of Neurohumanities research. The term 'Neurohumanities' in this project is used in a similar sense as the phrase Cognitive Literary Studies, although there are some differences within this project that are important to note: chiefly, that 'Neurohumanities' here, especially in the later chapters, refers to the methodology of integrating experimental visual psychology with a literary close reading of visual poems. In the project's latter half, this working definition is demonstrated in its analysis of its empirical component, which comprised of a psychological task – a Navon task – and an online survey questionnaire on visual poems, that gathered qualitative and

quantitative data from 132 individual participants over the course of thirty minutes. With this unique methodology in mind, while this dissertation situates itself in relation to the 'cognitive turn' in literary studies, it nonetheless characterises itself as somewhat apart from any of the established sub-fields within Cognitive Literary Studies, although it is both influenced and indebted to fields such as cognitive poetics, for example.[1] 'Neurohumanities' is still an emergent term, one that incorporates the vast array of interdisciplinary projects, approaches, and ideas that have arisen in domains as diverse as Neuroaesthetics, Cognitive Literary Studies, and cognitive poetics, with the popular 'neuro' prefix prepending fields as diverse as Neuroeconomics, Neuroaesthetics, and Neuroethics, to name but a few. These are just some of the manifestations of the 'neuro-turn' or 'cognitive turn' that have taken place in the humanities over the past fifteen to twenty years or so. While this project is indebted to concepts of embodied mind in Cognitive Literary Studies (especially in its later chapters where it analyses visual poems that have generated 'embodied' readings) it differs in the sense that its focus is on specifically integrating poetry studies with the empirical data collected from the psychological experiment conducted as part of the project. The body is not ignored within the remit of the thesis, but the specific engagement with theoretical notions of embodiment are eschewed for a tighter focus on the mixed methods approach towards integrating empirical data with a literary close reading. This is part of its goal to lend appropriate weight to the 'neuro' prefix of 'Neurohumanities': as such, the definition of Neurohumanities within this project must necessarily include an extensive discussion of its empirical and experimental component. For the purposes of this project, this component is also significantly curtailed in definition by its ultimate appeal to visual psychology in its analysis of visual poems, rather than other branches of psychology, cognitive science, and/or neuroscience, although several separate elements of these branches have contributed significantly to the overall construction of this project. The project also seeks, through this way of construing a specific approach to visual poems in combination with visual psychology, to break new ground in how these types of approaches can contribute to the evolving discourse on what constitutes Neurohumanities research. Similarly, the empirical and

[1] Peter Stockwell's comprehensive work on Cognitive Poetics is one such area upon which this project has drawn in order to construe its own approach and methodology. While Cognitive Poetics is conceptually linked to cognitive linguistics, and conceives of itself as an extension of literary theory, the present project's approach differs from this in that it conceives of itself not as an extension or inheritor of the literary theoretical paradigm, but as an interdisciplinary perspective arising from the integration of elements of close reading with qualitative and quantitative data. As such, it differs in that it does not construe itself as revolving around the triangle of 'author/text/reader': Stockwell frames Cognitive Poetics as being 'overlaid' onto this 'schema'.

experimental component of the Neurohumanities methodology used in the project has not drawn on some of the more specific resources often afforded to the discipline, such as fMRI machines or eye-tracking/eye-scanning technology. This is partly due to the emerging nature of this specific integration of visual psychology with visual poetry, which due to my own non-technical background in the humanities, required extensive research and preparation throughout the years of the project. However, the lack of appeal to specific technologies, as well as its eschewal of specifically engaging with academic 'embodied' readings, was chiefly due to the curtailments of the COVID-19 pandemic, which removed the option of testing subjects in person for a significant portion of the time of the project. In line with the College's COVID-19 policies, all experimentation and lab work was moved online: the decision was thus made to conduct the empirical component of the project virtually, via the task and survey that could incorporate an investigation into Navon's paradigm. More specific details of this will be returned to in later chapters as the project moves towards detailing its more practical, applied component.

The methodological quandaries that arise when framing the research questions of the project are closely linked to the different value systems that govern the respective fields of the sciences and the literary. There are many 'differentials of power'[2] that accompany any kind of interdisciplinary endeavour, and they tend to shape how these types of approaches can be construed. This project asks whether a study of poetry can accord with the three positive primary characteristics touted as central to the future success of Neurohumanities research, defined by Thomas J. Carew and Mani Ramaswami as 'enhanced communication', 'clear connectivity', and 'actionable outcomes'.[3] It also suggests a dynamic of reciprocity, asking what both disciplines can offer each once they have been combined, although reciprocity in this context is not a simple, translatable relationship between disciplines. Mieke Bal writes in her seminal text *Travelling Concepts in the Humanities* how in their attempts to make the humanities 'less philological and critical, and more scientific, humanists became interested in a methodology that stretched beyond their strict disciplinary concerns'.[4] This poses a challenge: throughout this dissertation, I bring my own critical voice into conversation with the voices of many others: poets, scholars, critics,

[2] Felicity Callard and Des Fitzgerald. *Rethinking Interdisciplinarity across the Social Sciences and Neurosciences.* Basingstoke: Palgrave Macmillan, 2015. i.
[3] Thomas J. Carew and Mani Ramaswami, 'The Neurohumanities: An Emerging Partnership for Exploring the Human Experience' *Neuron* 108:4 (2020) 590.
[4] Mieke Bal. *Travelling Concepts in the Humanities: A Rough Guide*. Toronto: University of Toronto Press, 2002. 12.

scientists, and the 132 anonymous participants of the empirical experiment conducted for this project, whose commentary and responses give this project a richness and depth that it would not have had if it was constrained solely by the boundaries of one discipline. The project also incorporates, as dissertations in emergent fields are bound to, a metacritical component: a reflection and assessment of its own methodologies and motivations. It also demonstrates an interrogation of the contested 'neuro' prefix, exercising caution with regard to the language employed: this caution is essential in interdisciplinary endeavours so as to avoid the pervasive 'the seductive allure effect' of neuroscientific terminology.[5] Many questions about the nature of interdisciplinarity pervade the project, and are woven through each chapter. Can cognitive science, or experimental psychology, or indeed neuroscience, be productively applied to, or combined with, poetry studies? What sort of allowances and contrivances need to be made in order to deduce conclusions that apply to both fields? Can these two disciplines be combined such that neither of them sacrifices their own innate disciplinarity?

For a project that does not deal explicitly with metaphor in a technical, poetic sense, its contours are structured around at least one central metaphor in a number of ways. The common phrase about being unable to 'see the forest for the trees' pertains to being unable to see the bigger picture due to getting caught up in the finer details. The psychologist David Navon uses this phrase to inform his now classic paradigm from visual psychology that accounts for local and global visual processing, whereby the 'local' relates to the trees (the smaller details) and the 'global' refers to the forest (the bigger picture). The empirical component of the project investigates this paradigm in relation to two Case Studies of visual poetry. However, this phrase also functions as a guiding metaphor, serving as a solid instructive principle on how to approach interdisciplinarity within the context of this project: not getting caught up with the small details, retaining a sense of the bigger picture, and assessing both accordingly. As will be discussed further, the shape of this project thus evokes the psychological theories of perception that it also studies. There is the global apprehension, which is followed by the local focus on the detail, before the reappraisal of the global scene with the local details factored in, constituting the dissertation's own self-reflection throughout its chapters.

[5] Deena Skolnick Weisberg, Jordan Taylor, and Emily J. Hopkins. 'Deconstructing the seductive allure of neuroscience explanations' in *Judgement and Decision Making* 10:5 (2015). 1.

The etymology of this phrase traces back to a Renaissance proverb attributed to John Heywood, and can be found in the republished edition of these proverbs from 1874, edited by Julian Sharman, which links the phrase to being a 'continued proverbial', found in an 'anti-popish tract of the reign of Charles II'.[6] In one of the many serendipitous moments of harmony between visual poetry and visual psychology that were encountered throughout this project's journey, Kay Rosen presents a visual poem that rearranges all the letters of the phrase 'the forest for the trees' so that the poem reads accordingly (Fig. 1), thus interrogating the idea of the smaller details and the bigger picture in this visual poetic context.

Fig. 1. Kay Rosen, 'The Forest for the Trees' 1990/1998-99 *Kay Rosen: Lifeli[k]e,* Los Angeles Museum of Contemporary Art and Otis College of Art and Design.

In the study or practice of poetry, every word counts: given the considerations of shape outlined here, the project focuses on visual poetry *with* Neurohumanities. Writing on illegibility in a poetic context – a topic that this dissertation will return to in depth – Nick Thurston applies this same philosophy to write about the 'inter-relatedness of two things in an ambitious manner': he calls for the use of the 'relational proposition "via"' in a

[6] Julian Sharman, Ed. *The Proverbs of John Heywood: Being the "Proverbes" of that Author Printed 1546*. London: George Bell and Sons, 1874. 107.

'purposefully indeterminate' way to relate the study of illegibility in poetry to account for 'the technical and conceptual innovations in reading practices that have somehow shifted the horizonal divide-lines between the legible and illegible via a relationship to academic research'.[7] Therefore, using this phrasing – 'visual poetry with Neurohumanities' – thus suits the contours of this project more appropriately: it implies a more flexible ontology that reflects its original and experimental methodological approach.

A Note on Methodology

This dissertation makes no claim to reconfigure any fundamental definitions of poetry, but nonetheless, it operates under the influence of Johanna Drucker's dictum that 'all writing has the capacity to be both looked at and read, to be present as material and to function as the sign of an absent meaning'.[8] It proceeds with the idea that poetry – all poetry – is something that is both read and seen, and as such, the phrase 'reader-viewer', is used throughout the chapters to describe perceivers of all kinds of poetry. The dynamic between reading and seeing is also engaged with further as the project proceeds through its chapters and the central research questions are outlined and refined. Laura Otis's commentary on the different modes of research have influenced the approach here: 'neuroscientific studies provide useful data, but laboratory experiments rarely reproduce the ripe chaos of lived experience'.[9] From the literary perspective, close reading can offer 'brilliant insights but usually rely on a single mind's perspective', while interview-based research 'presents introspections from a variety of mental worlds'.[10] While the present project operates firmly within the parameters of its own limitations, features of all three methods are evident in the project: an experiment is conducted, close reading is expanded and utilised, and interviews are both referenced and conducted in pursuit of the research aims. Julie T. Klein's assessment of the 'emergent' literature of interdisciplinary research paints an optimistic picture: it 'provides both parties and judges with an authoritative portfolio of methodologies, instruments, design models, guidelines, and conceptual frameworks

[7] Nick Thurston, 'Amodern 6: Reading the Illegible' *Amodern 6: Reading the Illegible.* Online article. http://amodern.net/article/reading-the-illegible/#pdf [Date accessed: 10/8/1994].
[8] Johanna Drucker quoted in Elisabeth S. Frost, 'Visual Poetics', *A History of Twentieth-Century American Women's Poetry*. Linda A. Kinnahan, Ed. Cambridge: Cambridge University Press, 2016. 340.
[9] Laura Otis, 'The Value of Qualitative Research', *The Oxford Handbook of Cognitive Literary Studies,* Ed. Lisa Zunshine. Oxford: Oxford University Press, 2015. 506.
[10] Ibid.

anchored by a growing body of case studies and findings'.[11] Klein's review shows that there is no 'single-best or universal method'[12] that is proposed by interdisciplinary researchers, and this project proceeds in this spirit: it makes no claim to a totalising or exhaustive manner of approaching visual poetry with Neurohumanities, but rather seeks to contribute to this emerging portfolio.

W. J. T. Mitchell's research into text and image – and visual culture more broadly – has laid important foundations for this study: his more recent work *Image Science* engages with the theoretical question of whether a 'science of images' is possible.[13] Mitchell's provides an important context for the present project's interrogation of the categorising of images within visual poetry: in invites the question of whether a science of poetry is possible. He writes of the 'the ever-elastic concept of science itself as a synonym for knowledge of any sort' which 'seems on the one hand to empty the idea of science of any specificity' while also promoting a 'mainly experimental-quantitative picture of science that portrays it as a rather mechanical activity of proof and demonstration, gathering of data, and establishing of certainty and positive knowledge'.[14] He adds: 'in the domain of images and culture, presumably, opinion and ungrounded speculation rule, empiricism is a dirty word, data are haphazardly gathered or ignored, and impressionistic, unreliable results are acceptable if they are intuitively pleasing'.[15] The present project, however, seeks to avoid the somewhat uncharitable stereotype of the social scientist as 'someone who is gathering dubious data based in subjective opinions in order to confirm what is already common sense knowledge'.[16] Mitchell's own view is that the relations of the sciences and the arts is much more nuanced, gradated, and complex' than the binary oppositions that C. P. Snow's influential 'Two Cultures' analysis would suggest.[17] Considering a range of scientific models for his own scientific study of images, Mitchell comments that while such a science would have to be a cognitive science, it would also 'have to be complemented by a psychology that reckons with the unconscious effects of imagery, their uncanny ability to lure, seduce, and even traumatise the beholder'.[17] This very conception of science – and how studying poetry

[11] Julie T. Klein, 'Evaluation of Interdisciplinary and Transdisciplinary Research: A Literature Review', *American Journal of Preventive Medicine* 35:2 (2008) 123.
[12] Ibid.
[13] W.J.T. Mitchell, *Image Science*. Chicago: University of Chicago Press, 2015. 24.
[14] Ibid.
[15] Ibid.
[16] Ibid, 25.
[17] Ibid.
[17] Ibid, 27.

in tandem with it – can prompt a reassessment of how we consider it as less fixed and stable than general cultural conceptions would lead us to believe, is another element that this project will return to, using its own empirical component as an example.

Who is this project for? What is it not?

In her essay 'The Intellectual in the 21st Century', Marjorie Perloff writes of the concept of the 'newly constituted "we"' of academic discourse.[18] She notes how the convergence of the subject of 'Art and Intellect' have led to the emergence of a new sense of the 'we' of academic writing. Later chapters of this project engage more extensively with this idea, along with the concept of the 'ideal' or 'implied' reader, but for the purposes of this introduction a note on the register of the project is included. It proceeds with the assumption that the primary mode of discourse in the dissertation is that of literary studies. While the cognitively-informed[19] mode of discourse of the project does imply a certain engagement with cognitive literary studies, it does not presume extensive knowledge on the part of its readers.[20] The project also, necessarily, must exclude certain elements. While acknowledging the status of poetry as a historically aural medium, nevertheless, this dissertation engages specifically with the theoretical dimension of the visual impact of poetry, its exploration of visual dynamics within a medium and critical establishment that privileges – and has always privileged – its aural element. While the auditory element of poetry is acknowledged in these introductory pages – Richard Bradford writes of the 'phonocentric bias'[21] that has continued to characterise poetry criticism – the focus of the dissertation is therefore on this critically overlooked, oft-undermined visual impact of poetry, and how it may be combined with a Neurohumanities approach which privileges the potential of combining poetry with science. Over the course of six chapters, these research questions are refined and revised, but at its core this dissertation asks 'How best can poetry

[18] Marjorie Perloff, 'The Intellectual in the 21st Century', *Poetics in a New Key: Interviews and Essays,* Eds. David Jonathan Bayot and Marjorie Perloff. Chicago: The University of Chicago Press, 2015. 225.

[19] In this study, 'cognitively-informed' here refers to the methodology employed to close read visual poetry that will be outlined throughout the present study. It is distinct from a 'cognitivist' approach, construed by fields such as cognitive poetics, which this project's methodology differentiates itself from.

[20] As such, concepts or information taken from neuroscience, cognitive science, and/or psychology, will be explained concisely so as not to presume prior knowledge on the part of the reader. This is as much a facet of the interdisciplinary scope of the project as anything else: the vocabulary of interdisciplinarity is still being written: this impulse reflects the project's aim to contribute to this evolving and emerging mode of discourse in whatever way it can.

[21] Richard Bradford, *The Look of It: A Theory of Visual Form in English Poetry.* Cork: Cork University Press, 1993. 50.

be combined with science?', and 'What can poetry and neuroscience teach each other?'. While a totalising, exhaustive study which incorporates the aural dimension of poetry would be ideal, the parameters of this dissertation, according with the shape of interdisciplinarity that this project takes, acknowledges but ultimately must exclude the likes of Sound Poetry and other fascinating facets of the experimental poetry that has been studied and consulted as part of this project. This is unfortunate, as sound – quite literally – introduces a whole new dimension to experimental poetry, foregrounding 'the substance of the voice, its aural quiddities, in live performance or via an audio or video recording'.[22]

As will be elaborated on further, throughout this project's gathering of empirical data it placed no restrictions on who was consulted: it does not engage with a preconceived notion of an ideal or implied reader, nor has it sought to curtail who could participate in its empirical component. As mentioned, Survey 2, where the empirical data that forms the bulk of this project's analysis in its latter half was gathered, incorporated a Navon task and questionnaire upon a series of visual poems from the poets selected for the present study: it was designed to take approximately 30 minutes, and could be completed on participants' own laptop or PC. As will be outlined in further detail, Survey 2 gathered quantitative and qualitative data from these participants after they completed the Navon task: it required them to subsequently rank and reflect on features of selected poems by the chosen poets of this project. This deliberately open, accessible strategy is part of the original nature of this project's investigation, which seeks to explore the subjective responses and quantifying of meaning for participants in the study, accounting for the individual variations in responses to challenging experimental poems. Individual differences in poetic style has been previously approached from an empirical perspective in order to investigate 'the putative relationship between expression and personality' – as Mary Gende and Roy King examined in a 1998 study[23] – but the present project investigates a large group of participants (132) without specific restrictions. Gende and King's study was based on a previous finding that 'individuals who prefer complex visual stimuli may tend to write imagistic and metaphoric poetry', they therefore hypothesised that individuals who wrote poetry 'in a highly metaphoric and imagistic style would also prefer visual complexity'.[24] While their study indicates that

[22] John Corbett and Ting Huang, Eds. *The Translation and Transmission of Concrete Poetry.* New York, Routledge, 2020.
[23] Mary Gende and Roy King, 'Poetic Vividness and Aesthetic Preference: Individual Differences in Poetry Writing Styles'. *Perceptual and Motor Skills* 86 (1998) 428.
[24] Ibid, 429.

'aesthetic preference predicts multimodal expressive style and also shows strong associations with venturesome, emotionally expressive, and nonconforming personality traits'[25] the present study extends this empirical groundwork by investigating the impact of visual poems upon its selection of readers, noting both general trends and individual variations, and discussing the implications of both for the conception of poetry. Daniel Morris posits that poetry is 'traditionally a technology concerned with externalising memory, and with preserving the human image across time in a relatively durable format'[26] and this project thus proceeds to investigate this element with an interdisciplinary, open-ended approach.

Why Neurohumanities with Visual Poetry? Why Now?

So, why Neurohumanities with visual poetry, and why now? It is nearly one hundred years since I. A. Richards first asked 'how is our estimate of poetry going to be affected by science? And how will poetry itself be influenced?'.[27] Although a paradigm shift is apparent in recent humanities research, C. P. Snow's legacy of the 'Two Cultures'[29] remains pervasive and is still reflected in the topography of university departments, the strict separation of subjects in primary and secondary school curricula, and in society's perpetual valuing of the sciences over the arts both socially and economically. Snow's lamentations in 1959 that 'those in the two cultures can't talk to one another'[30] have enacted a pervasive and frequently unquestioned influence, establishing a hierarchy when it comes to the valuing of the sciences and the arts. An ongoing repudiation of the Two Cultures legacy is evident in the way that cognitive approaches have proliferated in increasingly mainstream academic circles in recent years: this is a 'cultural fascination with all things "neuro", coupled with the academic drive for innovative, interdisciplinary entanglements'.[28] Acknowledging the challenges to this paradigm both before and since Snow's 'intellectual bifurcation'[32] reveals a rich and varied history of the actual commensurability and compatibility between the arts and sciences, exemplified by many diverse works of art themselves, accounted for and

[25] Ibid, 430.

[26] Daniel Morris, *Not Born Digital: Poetics, Print Literacy, New Media.* London: Bloomsbury Academic, 2016. 11.

[27] I. A. Richards, *Science and Poetry,* 2nd Ed. London: Kegan Paul, Trench, Trubner & Co., 1935. 14. [29] Nicholas Bullot, William Seeley, and Stephen Davies, 'Art and Science: A Philosophical Sketch of Their Historical Complexity and Codependence', *Journal of Aesthetics and Art Criticism* 75:4 (2017) 453. [30] C. P. Snow, 'The Rede Lecture', Webpage. http://s-f-walker.org.uk/pubsebooks/2cultures/Rede-lecture-2cultures.pdf [Date accessed 25/11/2019].

[28] David Gruber, 'Toward a Critical NeuroArt for a Critical Neuroscience', *Leonardo* 53 (2018) 123. [32] Philip Coleman, 'Introduction', *On Literature and Science,* Ed. Philip Coleman. Dublin: Four Courts Press, 2007. 16.

outlined in critical and cultural analysis. While Snow also commented that it was 'bizarre how very little of twentieth-century science has been assimilated into twentieth-century art',[29] much evidence to the contrary has emerged since his influential polemic: subsequent chapters demonstrate the various influences that science has had upon poetry specifically. Existing scholarship that refutes this claim makes explicit reference to the rich and varied history of visual art and science – some even advance a 'codependence relations' thesis.[30] For example, the centrality of artistic illustrations in communicating scientific ideas throughout history, as well as the 'epistemic and exemplification' roles played by pictorial illustration in a variety of scientific contexts, such as botanical drawings.[31] Visual poetry is the specific type of poetry that serves as the subject of this interdisciplinary investigation: it is defined by Karl Kempton 'simply as a poem or work composed or designed to be read and seen for complete understanding'.[32] For the purposes of the project, this wide, inclusive definition of visual poetry is employed, although plenty of consideration is also given throughout this project to the historical contextual accounts of both visual poetry and the visual *in* poetry: defined here as the specific deployment of visual space within a poem to enhance, complement, or contest its meaning. Concrete poetry, as a subgenre of visual poetry – often critically deemed 'the first truly global literary movement'[33] – in most cases lends itself well to empirical testing: it complements the resources and methodologies afforded by visual psychology in this context. From a literary studies point of view, there is an ongoing, exciting critical reappraisal of visual poetry that this project extensively engages with. Kenneth Goldsmith writes of the 'secret history of the second half of the twentieth century' embedded in the concrete and visual poetry movements that is only now starting to be properly reappraised.[34] Creatively, contemporary visual poetry is also flourishing: Geoff Huth writes in *Poetry* how we currently occupy the 'greatest age of visual poetry', and continues that

[29] Snow cited in Coleman, 16.
[30] Bullot *et al*, 'Art and Science', 453.
[31] This 'codependence relations thesis' advocates for a more holistic view of historical and contemporary links between the arts and sciences. It refutes the Two Cultures paradigm, the legacy of which often threatens to silence this history of interaction and influence.
[32] Karl Kempton, *A History of Visual Text Art.* Manchester; Berlin: Apple Pie Editions, 2018. 19.
[33] Greg Thomas, *Border Blurs: Concrete Poetry in England and Scotland*. Liverpool: Liverpool University Press, 2019. 4.
[34] Kenneth Goldsmith, 'Make It New: Post-Digital Concrete Poetry in the 21st Century' *The New Concrete: Visual Poetry in the 21st Century*, Eds. Victoria Bean and Chris McCabe. London: Hayward Gallery Publishing, 2015. 10.

> Few visual poems these days function as poems do. Instead, they encompass a wide range of verbo-visual creations that focus on the textual materiality of language. Visual poetry is written for the eye, but its methods and intentions, even in those works most limited in their verbal content, are always poetic, always compelling the reader forward into the transformative power of language, always entranced by–and entrancing through–the text that is before us.[35]

Visual poetry anticipates, accounts for, and reflects the 'the previously unimaginable extent of the mediatization of contemporary life'.[36] Thurston writes how the 'complexity of intermedia reading experiences that we all now live with demand newly adequate complexes of attentional modes and forms'.[37] This conception of intermedial work requiring interdisciplinary tools, or at the very least innovative forms of analysis and response, is thus explored in the here and now by investigating visual poetry with Neurohumanities. Thurston continues 'the attentional approaches we synthesize today have to respond to new degrees of instability in the form, content, and context', noting how 'the form, content, and context of what and how we write and what and how we read are now hyperextended and hypersituated' thus causing our 'attentional approaches' to be 'recalibrated in response to the peculiar instabilities of new media objects and environments'.[38] A cognitively-informed approach to visual poetry can account for these instabilities, especially factoring what N. Katherine Hayles has articulated in 2007 as the difference in 'attentional modes' engendered by this new media context: a generational shift in cognitive modes which sees the 'younger' generation's default attention span increasingly characterised by switching focus rapidly among different tasks in 'hyper' attention, rather than the 'deep' attention (sustained focus on one task) associated with the 'older' generation's approach to tasks.[39] The immediacy of visual poems even makes them more palatable to both the increased 'tempo of visual stimuli' and the 'appetite for high levels of visual stimulation' that characterises the

[35] Geoff Huth, 'Visual Poetry Today', Online article. https://www.poetryfoundation.org/poetrymagazine/articles/69141/visual-poetry-today [Date accessed: 22/2/20].
[36] Thurston, 'Amodern 6: Reading the Illegible'.
[37] Ibid.
[38] Thurston, 'Amodern 6: Reading the Illegible'.
[39] N. Katherine Hayles, 'Hyper and Deep Attention: The Generational Divide in Cognitive Modes' *Profession* (2007) 187.

consumption of much contemporary media[40] thus making novel investigations into them even more timely.

To return, again, to questions of shape: Mitchell writes of the borders that delineate English as a language and subject in the first place, noting how 'English seems to cross all borders and invite all other languages to translate themselves into a monolingual convergence'.[41] Considering his commentary here in light of the present project's focus on concrete poetry, however, which sought in its original conceptions to seek a sort of poetic Esperanto – a universal picture language – brings this notion into tension with the ideology governing many early manifesto-driven instances of Concrete poetry in particular. Mitchell writes of the 'global hegemony' of English which has to be seen as 'the outgrowth of a whole series of historical processes involving the overcoming of borders, the forces of translation, and the dynamics of convergence'.[42] Simultaneously, the 'most significant poetry since 1848', along with that of the twentieth century, has also been 'consciously language-oriented'.[43] However, visual poetics takes into account, amongst other elements, the significance of poetry's physical presentation and how it is visually distributed in space. Bradford, author of two volumes on the subject, outlines how 'the appearance of the words on the page can constitute an equally powerful dimension of the aesthetic and signifying function of the poem'.[44] The history of poetry studies and its privileging of the aural, verbal, and/or linguistic component of literary analysis often sees the visual significance of poetry marginalised, or even elided completely. In certain cases, especially contemporary visual poetry, this failure to take the visual into account as a signifying dimension leaves interpretative methods lacking, resulting in a series of obstacles. While the following chapters detail an approach and close reading of what can be readily defined as visual or concrete poetry, the visual dimension of poetry is one that is also evident in poetry that is not characterised as concrete, pattern, or visual.[45] The wider critical resistance to this

[40] Ibid, 191.
[41] Mitchell, *Image Science*, 169.
[42] Ibid.
[43] Jerome McGann, *The Point Is To Change It: Poetry and Criticism in the Continuing Present*. Tuscaloosa: University of Alabama Press, 2007. *xi*
[44] Richard Bradford, *Graphic Poetics: Poetry as Visual Art.* London: Continuum, 2011. 1.
[45] Johanna Drucker describes the most generic application of the term concrete poetry as 'used to designate all manner of shaped, typographically complex, visually self-conscious poetic works', whereas visual poetry as a term is wider, and 'more aptly used to describe a history which is as old as writing itself'. Dick Higgins – one of the foremost commentators on pattern poetry – notes that it is extremely hard to define, since it is no one thing. However, a definition that suffices to define pattern poetry in very general terms is 'visual poetry from before the twentieth century but in any Western literature.'

dimension, as well as the specific philosophical problems it poses towards traditional methods of literary critical analysis forms part of the overall justification for embarking on the present study.

More radically intermedial work that incorporates the various concrete poetry movements, is perhaps best described by the slightly cumbersome catch-all phrase 'visuoverbal' to account for the multimodal configurations of this kind of work. Writing in a Canadian context, Kit Dobson distinguishes between visual and concrete: visual poetry often challenges itself to create poetry that rejects language, while 'concrete is a form in which, generally speaking, the shape created by the type on the page itself relates to the verse'.[46] Although often tightly wedded to influences from visual art, concrete poetry is not ekphrastic; instead it brings materiality and visuality of language to the fore, moving towards visual iconicity as an important, if not defining, signifying function. With the advent of the various international factions of the concrete poetry movements in the latter half of the twentieth century,[47] technological and cultural advances changed the relationship of practitioners to the production of their visuo-verbal texts. Analysing this trajectory with respect to the cognitive approaches thus far proves useful: Eugen Gomringer's innovative concrete poetry indicates at the very least a kind of awareness of the cognitive effect of its form. Gomringer's concern was with brevity and conciseness: he writes in his 1954 concrete poetry manifesto that he believes the concrete poem ought imprint itself on the mind 'like a picture'.[51] For the Brazilian Noigandres group, their 'verbivocovisual' approach begins by 'being aware of graphic space as structural agent [...] proportioning new spatio-temporal modes of apprehension of the text by the reader'.[48] Implied in their approach to creating a 'universal picture language' or a 'visual Esperanto' is the potential to dissolve linguistic and political boundaries between nations.[49] The anticipatory power of concrete poetry is also outlined by Kenneth Goldsmith: 'few could have foreseen that it would arise as a digital

[46] Kit Dobson, 'Introduction', *Please, No More Poetry: The Poetry of Derek Beaulieu.* Eds, Kit Dobson and Derek Beaulieu. Waterloo, Ont.: Wilfrid Laurier University Press, 2013. *x*.

[47] Several different variations of concrete poetry movements occurred internationally: the Canadian tradition was one of the most prominent, while a movement towards concrete poetics also sprung up across Europe, especially in Germany post-1945, and the Noigandres group in Brazil politicised the fusing of visual and verbal in pursuit of a universal picture language. In general Concrete poetry flourished on the margins, not so much centralised in the big urban metropolises but occurring in more diverse peripheral cities and locations. [51] Mikey Rinaldo, 'Between paint and ink: Cy Twombly, Steve McCaffery and textual illegibility in North American art and poetry 1950s–1970s', *Journal of Visual Art Practice* 17:2/3 (2018) 150.

[48] Ibid, 78.

[49] Goldsmith, 'Make It New', 11.

phoenix in the computer age, presciently predicting the ways we would interact with language in the twenty-first century'.[50]

So, then, how best to travel from art and science, to poetry and science, to poetry and neuroscience, to visual poetry, visual poetics, and Neurohumanities? In its pursuit of its wider research questions – how best can poetry be combined with science? Can literary close reading be integrated with empirical data? What can poetry and neuroscience teach each other? – this dissertation will outline the trajectory of its interdisciplinary journey over the course of six chapters. It refines these questions throughout each chapter in order to arrive at the specific and applied collaborative Case Studies that constitute the latter half of the project. The first three chapters will refine the central research questions by appealing to existing historical, literary, and interdisciplinary research, narrowing the theoretical focus to arrive at the specific, applied part of the dissertation: the experimental combination of visual poetry with experimental psychology. The next three chapters investigate open-ended, but somewhat more specific research questions that relate to the experimental component of the project. These include inquiring whether there is a correlation between the traits of 'readability' and 'enjoyability' in relation to visual poems, and whether the concepts of global precedence and interference, as they function within the domain of psychology according to Navon's paradigm, can be applied to visual poems. Then, to suggest the dynamic of reciprocity between the two disciplines, the final chapter outlines how poetry itself might influence future studies and research. The two Case Studies of the present project focus mainly on visual poems from the latter half of the twentieth century and the twenty-first century.[51] Chapter Four concerns itself with the influential Canadian tradition of visual poetry, while Chapter Five considers visual poetry by female poets, situating itself within the ongoing critical reappraisal not just of the importance of visual poetry in general, but the fundamental importance of visual poetry by women. What visual poetry has come to mean today, especially in light of technological and digital advances and including the methods of distribution, is therefore an ongoing, evolving question that is also returned to in the final chapter.

Victoria Bean notes the clear sense in which current work responds to that of previous poets and practitioners, thus extending the varied history of visual poetics, and

[50] Ibid, 10.

[51] In its focus on small-press publications and marginalised poetry, the present study also seeks to reimagine not just the interdisciplinary landscape anew, but areas of poetry studies that have remained hitherto underappreciated in mainstream literary criticism.

reframing it in a contemporary context.[52] At the initial stage of considering the integration of the study of visual poetry with a scientific approach, it is worth identifying the issue of context in relation to the tradition of visual poetry. To study poetic works in a scientific context can often necessarily entail the breaking down of complex artistic phenomenon: this is both a feature of the ideological and literal reductionism that can plague interdisciplinary experimentation. Divorced from context in the empirical moment, it becomes a more complicated venture to holistically analyse poetry's resonance outside its literal, physical textual manifestation: this issue is engaged with in the experiment design that is outlined in Chapters Four and Five. In its unique approach to the instability of the terrain onto which the project steps, the experiment results are discussed in detail throughout Chapters Four, Five, and Six, and it is suggested how the concept of individual differences within the field of psychology – which seeks to understand 'how we should best describe the ways in which people vary and to understand how and why such variations in behaviour come about'[53] – may be read with the data: it focuses on the differences between general trends and outliers. Chapter Six facilitates a metacritical reflection on the quantitative and qualitative data generated through the empirical investigation into visual poetry, tying the scientific and the poetic modes together in their ultimate combination within the scope of this project.

Inspired by Eric Vos' query about the critical engagement with visual poetry – he asks 'whether or not we already have at our disposal the models and terminologies required for such a discussion'[54] – this project utilises a 'new repertoire of descriptive and explanatory tools' arising from advances in the cognitive paradigm.[55] Over its six chapters it outlines how visual poetry can be approached with these tools under the auspices of Neurohumanities, before reflecting upon what contributions to knowledge this approach ultimately facilitates. It asks, from a variety of perspectives, what happens when you bring an understanding of local and global perceptual processing – in both a scientific/psychological and literary/metaphorical sense – to the reading of visual poetry into the empirical sphere? What can these two disciplines teach each other and how might they be combined? Joan Retallack observes how 'artists and scientists share similar cultural climates and thus similar

[52] Victoria Bean, 'How Lucky Was That*', *The New Concrete*, 211.

[53] Colin Cooper, *Individual Differences and Personality*. London: Hodder Education, 2010. 1.

[54] Eric Vos, 'Critical Perspectives Experimental, Visual, and Concrete Poetry: An Introduction to this Volume' in *Experimental – Visual – Concrete: Avant-Garde Poetry Since the 1960s*, Eds, K. David Jackson *et al*. Amsterdam: Rodopi, 1996. 25.

[55] Patricia Kolaiti, *The Limits of Expression: Language, Literature, Mind*. Cambridge: Cambridge University Press, 2019. 105.

concerns. They may even pay attention to each other on occasion'.[56] It is not new to ask if art and science can be combined, or if there is consilience between poetry and science, or even if poetry and brain science have anything to offer to each other. However, through an original approach, this project engages with these questions in an innovative and distinctive way that makes a valuable contribution to advancing interdisciplinary discourse.

[56] Joan Retallack, 'What is Experimental Poetry & Why Do We Need It?'. Online article. http://jacketmagazine.com/32/p-retallack.shtml [Date accessed: 12/1/22].

PART I: THEORIES AND CONCEPTS

Chapter One

Poetry With Neurohumanities: Interdisciplinary Potential

The relations of poetry are, for our period, very close to the relations of science. It is not a matter of using the results of science, but of seeing that there is a meeting-place between all the kinds of imagination. Poetry can provide that meeting place.

–Muriel Rukeyser, *The Life of Poetry.*

Muriel Ruykeser's preface to her seminal 1949 text *The Life of Poetry* establishes that poetry depends on 'the moving relations within itself' as an 'art that lives in time'. This invocation of time – read here in a historical, contextual sense – suggests the character of poetry: it is associated with a shifting subjectivity that so often depends on the individual reader's response to a poem. While general conceptions of science regard its practices and methods as holding more epistemological certainty than the arts, the specific mutability of the relations of science have been well documented. Mieke Bal interrogates the very notion of the 'scientific': '"scientific" is what is recognized as such within the social-cultural field of scientific practice'.[1] While this chapter does not aim to write a history of the relations between poetry and science, or reconfigure totally the respective definitions of science and poetry, it does lay the groundwork for the areas of potential consilience when bringing the two disciplines into conversation with one another. This idea is not a new one: in 1872 John Ruskin famously contemplated the unification of the two powers during his Oxford lectures, inquiring whether anything could be 'more simple, more evidently or indisputably natural and right, than such connection of the two powers?'.[2] The present project traverses a path from the connection of art and science, to poetry and science, to poetry and neuroscience, to visual poetry with Neurohumanities. As mentioned, the preposition 'with' has been deliberately chosen here to usurp the binary relationship that can characterise many interdisciplinary endeavours. Amongst its goals, this chapter establishes the interdisciplinary potential of poetry with Neurohumanities by discussing and analysing previous interdisciplinary research to theorise how best to contrive an approach that best suits the project's ultimate combination of visual poetry with Neurohumanities.

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[1] Mieke Bal, *Travelling Concepts in the Humanities.* Toronto: University of Toronto Press, 2002. 30.

[2] John Ruskin cited in Tom McLeish, *The Poetry and Music of Science: Comparing Creativity in Science and Art.* Oxford: Oxford University Press, 2019. 25.

Despite the enthusiasm for interdisciplinarity across history, and especially in the contemporary moment, there are several immediate obstacles to the endeavour, no matter how indisputably natural and right its goals. Although Peter Atkins' infamous aphorism 'while poetry titillates and theology obfuscates, science liberates'[3] now rings certifiably false, the legacy of this mindset still inflects interdisciplinary endeavours today. Introducing the field of cognitive literary studies, Lisa Zunshine comments how 'the very nature and diversity of literary artifacts, which are themselves only fully constituted via a complex cognitive process of production and consumption... militate against a programmatically scientific approach to literature'.[5] Literary artifacts, therefore, appear to inherently resist the strictures of science, although the proliferation of studies that combine the two disciplines suggests that this resistance can be creatively overcome. This chapter reviews the creativity on display in this area as it steps onto uneven terrain, mapping the existing topography of research into neuroscience, psychology, and cognitive sciences with literature, as well as considering the potential pitfalls and problems that can plague interdisciplinary study of this kind. Along with what I term as an emerging 'cognitive cognisance' – the awareness or impulse to combine neuroscientific and/or psychological findings with literature – an evident preoccupation with defining 'the literary' or the 'literariness' of certain texts appears to have arisen in tandem. As such, a consideration of the place of literary theory today in relation to Neurohumanities research will also be examined. For all the rousing endorsements of interdisciplinarity in general, there are both concerns and caveats: Tanya Augsburg notes how Roland Barthes argued in 1977 that 'interdisciplinarity is not the calm of an easy security', rather, it can arise from an 'unease in classification' signalling the breakdown of solidarity within existing disciplines. [4] More often than not, this is heralded in the form of an 'epistemological slide' than a 'sharp break'.[5] Yet, the present chapter seeks to turn this aspect into a strength by establishing the existing place for a Neurohumanities approach within poetry studies. In its establishing of potential, this chapter strives to emulate the

[3] Quoted in Gregory McElwain, *Mary Midgley: An Introduction* [eBook]. London: Bloomsbury, 2019. N.p.

[5] Lisa Zunshine, 'Introduction to Cognitive Literary Studies' in *The Oxford Handbook of Cognitive Literary Studies*, Ed Lisa Zunshine. Oxford: Oxford University Press, 2015. 2.

[4] Tanya Augsburg, 'Interdisciplinary Arts' in *The Oxford Handbook of Interdisciplinarity*, Ed. Julie T. Klein. Oxford: Oxford University Press, 2017. 153.

[5] Roland Barthes quoted in Augsburg, 'Interdisciplinary Arts', 153.

starting hypothesis that Tom McLeish advocates when journeying through art and science: that of 'cousinly creativity with constraint'.[6]

What shape is interdisciplinarity?

On one hand, then, there is highly subjective field of poetry studies, with its multiple avenues of interpretation, genres, and subgenres. On the other, science – or more specifically scientific inquiry – a method designed to objectively measure testable stimuli in order to produce quantifiable results. But this rigid bisection of the two fields invites re-examination and reconceptualization before any productive combination of disciplines is attempted. This starts with the very language used to describe the endeavour – poetry is, after all, the '*language* art' as Marjorie Perloff asserts,[7] and attention to the words as studied and used is paramount here. In their insightful overview of the various ways the humanities and social sciences can be integrated with neuroscience, Felicity Callard and Des Fitzgerald note the problems with the word 'inter': a 'deceptively harmless prefix' which 'tends to govern the suturing of discipline to discipline'.[8] This prefix suggests a spatial representation of interdisciplinarity as a Venn Diagram of sorts, but in practice this is not a useful way of conceptualising this approach. One of the main issues with this particular notion – appropriately enough for a project concerned with poetry – starts with semantics:

> The problem for us with the prefix inter- is that it denotes both spatial and temporal 'betweens': it hence locates the point of interest between intervals of time, and between parts of things. The concept of interdisciplinarity, as it is currently practised, thus carries within it a very particular model of spatial and temporal relations – as if there were a chessboard of disciplines, weaving in and out of one another, but never occupying the same, uneven ground.[11]

This very problem immediately arises when combining art and science, and its implications extend all the way through the present combination of poetry and neuroscience. Callard and Fitzgerald establish how essential it is to 'jettison the spatial logics of the inter- if we are

[6] McLeish, *The Poetry and Music of Science*, 28.

[7] Marjorie Perloff, 'Screening the Page / Paging the Screen: Digital Poetics and the Differential Text' in *New Media Poetics: Contexts, Technotexts, and Theories.* Eds Adalaide Morris, Thomas Kirby Swiss. Cambridge, MA: MIT Press, 2006. 143.

[8] Felicity Callard and Des Fitzgerald, *Rethinking Interdisciplinarity across the Social Sciences and Neurosciences.* Basingstoke: Palgrave Macmillan, 2015. 80. [11] Ibid, 81.

at all to make good on the promise that interdisciplinarity holds'— appealing to a departure 'from the temporal frameworks and spatial strictures to which so many of today's practices of interdisciplinarity remain sadly tethered'.[9] This concern with the shape of the approach parallels, however superficially, the experimental component of the present project and its concern with the local and global shape of the visual poems selected for study, as will be extensively outlined in the coming chapters. However, at this point in the journey, configuring the right shape, both theoretically and practically, for this interdisciplinary project is paramount.

At this conceptualising stage, the practical considerations of context are also unavoidable: interdisciplinary collaborations are often structured through very different adjudications of 'epistemic authority'[10] that go beyond the simple epistemological differences between scientific knowledge and artistic knowledge. Different actors have access to very different pots of money, their practices of writing are 'differently legible', they are differentially supported by governments and private foundations, and within policy communities, their views carry differential weights.[11] Research does not happen in a void, interdisciplinary research even less so, so understanding the context of where and when this kind of work is possible undoubtedly influences the shape it takes, and the kind of potential that can be identified across disciplines in the first place. Bal acknowledges one of these initial obstacles, whereby the lack of a shared vocabulary between disciplines, even within the humanities, presents an immediate issue to resolve before interdisciplinary conversations can happen.[12] There is also the sense in which it falls to the humanities side of the dyad to establish a shared vocabulary: 'Paradoxically, while the interrelations between science, technology, and art are increasingly research based, the theorization of interdisciplinary arts continues to be more associated with arts and humanities scholarship'.[13] Despite these practical problems, interdisciplinarity in general has been offered as 'a remedy to claims of academic irrelevance across the academy'[14] and is frequently endorsed, funded and facilitated across universities. It is worth noting here that

[9] Ibid.
[10] Ibid, 101.
[11] Ibid.
[12] Bal, *Travelling Concepts in the Humanities,* 22.
[13] Augsburg, 'Interdisciplinary Arts', 138.
[14] Julie T. Klein and Robert Froedman, 'Interdisciplining Humanities: A Historical Overview', *The Oxford Handbook of Interdisciplinarity*. Eds, Robert Frodeman, Julie T. Klein, and Roberto C. S. Pacheco. Oxford: Oxford University Press, 2017. 154.

the Case Studies of the present dissertation are concerned with visual poetry and poetics – that which pertains to the spatial dynamics, presentation, and impact of words – and as such, attention to this aspect ought to also permeate the initial conceptualising stage of the project. What shape ought interdisciplinary research take, when visual poetry with Neurohumanities is its subject? Is it a multidisciplinary 'layer cake', where 'each disciplinary layer has dominion over a particular kind of expertise, particular methods, and particular objects of knowledge'?[15] The project thus faces a unique set of challenges in determining its ideal shape, especially given the many 'peculiar instabilities' of our present context.[16]

Problematic Prefixes: Inter-, Multi- ,and Trans- Disciplinary Distinctions

Neurohumanities, as a relatively recent field, is established as part of the emerging culture of interdisciplinary research that has proliferated in recent years between the sciences and the arts. It is one of the many new subgenres arising from the 'neurological turn' that characterises much interdisciplinary neuroscientific research of the past decade or so, which often – however erroneously, as will be discussed later in the chapter – appears to promise that 'the neurosciences will explain it all'.[17] Also influenced by the more general 'Cognitive Turn'[18] across disciplines, Neurohumanities can be used interchangeably with 'cognitive humanities' at this point in the evolution of the field. It is, necessarily, a very broad term incorporating the integration of cognitive science, psychology, and neuroscience into the study of the humanities. However, before progressing more specifically on to its definition in the present context, an awareness of the proper use of the different terms in circulation – cross-disciplinary, interdisciplinary, multidisciplinary, and transdisciplinary – and how they can often be deployed interchangeably is necessary. A closer inspection of their function and use is vital at this stage, as each one has different implications for work and practice.[19] 'Cross-disciplinary' in general tends to be used as an umbrella term to 'refer

[15] Callard & Fitzgerald, *Rethinking Interdisciplinarity*, 83.
[16] Nick Thurston, 'Amodern 6: Reading the Illegible' *Amodern 6: Reading the Illegible.* Online article. http://amodern.net/article/reading-the-illegible/#pdf [Date accessed: 10/8/1994].
[17] Jan de Vos and Ed Pluth, 'Introduction: Who Needs Critique?' in *Neuroscience and Critique: Exploring the Limits of the Neurological Turn*, Jan de Vos and Ed Pluth, Eds. London: Routledge, 2016. 2.
[18] The Cognitive Turn or 'Cognitive Revolution' started around the 1950s as a result of – amongst many other factors – the influence of Chomskian linguistics and the emergence of computer science as a field. It heralded a new interest in the model of the human mind as a computer or a machine, and influenced much philosophy of mind throughout the succeeding decades.
[19] Sarah Wall and Irene Shankar. 'Adventures in Transdisciplinary Learning.' *Studies in Higher Education* 33:5 (2008) 551.

generically to work that involves more than one discipline'.[20] While multidisciplinary research usually denotes researchers working on the same problem from within the parameters of their own disciplines, transdisciplinary research is often considered the 'most evolved form of cross-disciplinary collaboration', and thought of as such due to the degree of integration, blurring of disciplinary boundaries, and levels of trust between disciplines and researchers.[21] Interdisciplinary and transdisciplinary research performance and evaluation are both considered to be 'generative processes of harvesting, capitalizing, and leveraging multiple kinds of expertise', where 'individual standards must be calibrated and tensions among different approaches carefully managed in balancing acts that require negotiation and compromise'.[22] Along with this reciprocal dynamic of trust, 'appropriate epistemic communities must also be constructed and new cultures of evidence produced'.[23] Identifying experts to fit the 'problem space' of research ventures is crucial 'because they form an appropriate interdisciplinary epistemic community'; however, this can often be more challenging due to the fact that 'criteria of excellence' have not been defined yet.[24]

Bearing these distinctions in mind, this dissertation utilises the term 'interdisciplinary' in the spirit of the transdisciplinary: aiming to be as inclusive, expansive and evolved as possible. Amid the enthusiasm for suturing disciplines together, applying them in layers over one another, or, as will be explored in due course, unifying them into a coherent and holistic map, it is important to be mindful of the extent to which individual disciplines can still be treated 'uncritically as monolithic constructs'.[25] Often they 'have undergone so much change that characterizing them as stable matrices with consensual evidentiary protocols is problematic'.[26] In *Image Science,* W. J. T. Mitchell writes of the 'border wars' that occur between disciplines and the 'policing' that goes on at these borders.[27] When defining interdisciplinarity itself, it is 'often viewed as dependent on, and a response to, the concept of disciplinarity', and when it comes to interdisciplinary arts, the concept of interdisciplinarity is 'not only a reaction to the division of art mediums—it also

[20] Ibid.
[21] Ibid, 552.
[22] Julie T. Klein, 'Evaluation of Interdisciplinary and Transdisciplinary Research: A Literature Review', *American Journal of Preventive Medicine* 35:2 (2008) 116.
[23] Ibid.
[24] Ibid, 121-22.
[25] Ibid, 121.
[26] Ibid.
[27] W. J. T. Mitchell, *Image Science*: *Iconology, Visual Culture, and Media Aesthetics.* Chicago: University of Chicago Press, 2015. 174.

counters the valorization of the "purity" and "autonomy" of each art medium by modern and modernist aesthetics since the late eighteenth century'.[28] As future chapters will explore, the blurring of mediums signalled by the often hybridised and intermedial poetics of visual and concrete poetry provides an excellent contemporary example of this. In being the focus of the present dissertation, it reifies one of the fundamental research questions of this project: querying the extent to which intermedial artforms might benefit from, or even necessitate, an interdisciplinary analysis. Augsburg expands on this by noting how 'the integrative strategies and techniques of the avant-garde remain to be considered at length within the literature on interdisciplinarity'.[29] This very aspect of the arts – their capacity to be fundamentally interdisciplinary or intermedial by nature – will be explored in greater detail in later chapters during the focus on visual poetry and poetics.[30]

Within the interdisciplinary paradigm, many strategies and perspectives emerge as ordering principles, and some of these have contributed to the present study. Marcus Hartner divides cognitive literary research into different explanatory levels, distinguishing between three relevant hierarchical domains of analysis. He proposes three principles when approaching this kind of interdisciplinarity: coherence, moderation, and autonomy. The principle of coherence dictates that researchers should be cognisant of the criticism of certain theories, in order to differentiate between empirically corroborated findings and speculative hypotheses, and sufficient and necessary conditions for a certain phenomenon. Hartner recommends that 'scholars attempting to build bridges between two cultures need to possess a degree of expertise that allows them to assess potential conceptual conflicts arising from the intersection of the levels of mind, brain, and culture'.[31] The principle of moderation advocates that the transfer of theories and concepts from lower to higher should be moderate in a twofold way — firstly, it should be restricted to established, well-corroborated theories, and secondly, ideally the use of scientific theory should be limited to cases in which new insight into literary objects and phenomena can really be gained. This is valuable advice not just for humanities students aiming to incorporate cognitive approaches into their practise, but for scientific researchers too — it accords with what has already been

[28] Augsburg, 'Interdisciplinary Arts', 133.

[29] Ibid.

[30] Neuroscience itself can even be conceived of having an interdisciplinary identity in its very structure: it has evolved throughout history from a biological field to incorporate diverse subjects such as medicine, physics, chemistry and psychology, to name but a few.

[31] Marcus Hartner, 'Scientific Concepts in Literary Studies', in *Cognitive Literary Science: Dialogues Between Literature and Cognition.* Eds Emily Troscianko and Michael Burke. Oxford: Oxford University Press, 2017. 25.

referenced as the 'seductive allure effect' of neuroscientific terminology. Hartner's final principle of autonomy advocates that the incorporation of scientific concepts into literary analysis should ideally be free from false scientific pretence and 'avoid broad sweeping reductionist claims'.[32] He acknowledges that this final principle should remind us of the differences in methodologies and aims of research evident in the respective fields of literature and cognitive science, ultimately drawing our attention to the fact that 'various methods and research interests may exist and interact on different levels'.[33] Hartner's conclusion is that 'the field of cognitive literary studies should engage in dialogue with, and seek inspiration from, the cognitive sciences without kowtowing to them on a conceptual level'.[37] This practical approach has directly influenced the empirical component of this project and will be elaborated upon further in later chapters.

One of the crucial pitfalls to be avoided when defining the shape of this study accords with resisting the hierarchical nature of combining disciplines: it involves steering clear of the inclusion of neuroscientific content attempting to validate or legitimise the hypotheses of literary criticism and theory. The tendency to view the application of science as finally enabling researchers to prove that which had remained only speculative within the humanities, can give rise to a rightful 'neuroscepticism', which will be elaborated on later in the chapter. Peter Garratt asserts that the value of the cognitive humanities 'should not lie in hoping to secure some regained respect as a scientifically legitimated venture'.[34] Instead, the real challenge of this kind of research is to determine how best to open up 'new contexts for inquiry', as concluded by a 2013 study which explored the semantic and expressive effects of space and pattern in selected cases of contemporary poetry.[39] With all these approaches, prefixes, and considerations in mind, Mary Midgley's use of a cartographical analogy provides one avenue for framing the contours of the current project. The opening query of her seminal text *Science and Poetry* – 'Is there any connection between poetry and science?'[35] – ably showcases the points in which centuries of intellectual thought divested the two disciplines from one another, although she is quick to point out that this 'does not

[32] Ibid, 27.
[33] Ibid, 29.
[37] Ibid, 31.
[34] Peter Garratt, 'Intorduction: The Cognitive Humanities: Whence and Whither?' *The Cognitive Humanities: Embodied Mind in Literature and Culture.* Ed. Peter Garratt. New York: Palgrave Macmillan, 2016. 12. [39] Andrew Michael Roberts, Jane Stabler, Martin H. Fischer, and Lisa Otty. 'Space and Pattern in Linear and Postlinear Poetry.' *European Journal of English Studies* 17:1 (2013) 23.
[35] Mary Midgley, *Science and Poetry.* London: Routledge, 2006. 27.

fit the actual history of thought at all'.[36] Midgley's work clears the philosophical and intellectual space for a reconsideration of these once-polarised disciplines. In the context of examining science and poetry, she outlines the idea of the whole as 'cartographic', where 'each map or perspective provides a different framework which complements, rather than contradicts, the others'.[37] This analogy suits the complementary pairing of poetry and neuroscience, navigating the pitfalls that frequently befall the waxing and waning of various literary theories vying to occupy the definitive approach to literature during the twentieth and twenty-first centuries. Speaking of the 'problem' of consciousness bewitching scientists and philosophers alike at the dawn of the twenty-first century, Midgley states: 'we do not need to find a single atomic structure belonging to that one map and reduce all other patterns to it', instead positing 'we have to see the different maps as answering different kinds of questions, questions which arise from different angles in different contexts'.[43] No approach to literature – or even to science – ought to be seen as totalising and exhaustive: there are always new horizons to explore that can both challenge and complement our dominant worldviews anew. This is the true goal of consilience between disciplines: their willingness to be layered over and among other in order to cohabit in 'a single world'.[38] Moving forward with this cartographical analogy informing the present endeavour – after all, maps are also designed to be both read and seen – this consilience of poetry and science over time can now be examined.

Can Poetry be Scientific? Poetic Truth Versus Scientific Truth

Any combination of poetry and science ought to commence by acknowledging the contrasts and similarities between the 'Two Cultures'. As mentioned, poetry as an artistic medium is traditionally associated with subjectivity – whether the poet's or reader's – that intuitively seems at odds with the pursuit of the ostensibly objective knowledge associated with the sciences. It is poetry's subjectivity that 'dissolves reasoning and epistemology', turning language into 'the music of an internally referential dance of signifiers'.[39] However, this supposed tension between the subjectivity of poetry and the objectivity of science

[36] Ibid, 29.
[37] Gregory McElwain, *Mary Midgley: An Introduction* [eBook]. London: Bloomsbury, 2019. N.p.
[43] Midgley, *Science and Poetry*, 112-113.
[38] Ibid, 113.
[39] Peter Middleton, 'Can Poetry Be Scientific?' in *On Literature and Science: Essays, Reflections, Provocations*. Ed. Philip Coleman. Dublin: Four Courts, 2007. 190.

merits closer examination. Brian Walpert identifies a culture of resistance and critique embedded in the dynamic between the two disciplines, which he observes is mostly manifested in poetry's tendency towards a subjectivity supposedly incompatible with scientific objectivity. This is in spite of the fact that 'poets and philosophers have for centuries claimed a place for poetic knowledge',[40] and both disciplines are often broadly described as having similar motivations: to discover more about the world and the place of humanity within it. Callard and Fitzgerald also posit that experimentation in the arts, although different from the experimentation in the sciences, hold significant potential to contribute to knowledge: 'experimental theatre and experimental poetry promise as much – in terms of methods, knowledges, modes of construing, and intervening in the world – as the rich legacy of experimentation in the natural sciences'.[47] Generalising scientific inquiry as purely a quest for 'objectivity' is another initial obstacle in any potential interdisciplinary endeavour. But given these supposedly fundamental differences, can poetry even be described as 'scientific'? What does 'scientific' mean in this context? While Bal defines it as 'what is recognized as such within the social-cultural field of scientific practice', Midgley notes the double meaning of the word: it is frequently synonymous with '*thorough* [sic]' and '*methodical* [sic]' as well as pertaining directly to work conducted under the rubric of natural sciences and the scientific method – and yet, when the two meanings are mixed, they tend to confer this 'omnicompetence' upon the methods of the natural sciences.[41] Although the means may be different, the manner in which poetic inquiry and scientific inquiry proceed can share some notable similarities.

McLeish notes the importance of identifying the 'close parallels' between the strained relations of science and religion, and those between science and art, and suggests reappraising the relationship of art and science through another lens: that of theology, among the other humanities.[42] This association of art with religion, as two linked spheres wholly distinct from the scientific, is particularly pervasive in the nineteenth century. Despite this association and the resulting binary opposition between fields, from the nineteenth century onwards a general openness to the cross-pollination of literary and scientific thought is evident. Tennyson was dubbed 'the Poet of Science'[43] after his death, his obituary

[40] Bryan Walpert, *Resistance to Science in Contemporary American Poetry*. London: Routledge, 2011. 33. [47] Callard & Fitzgerald, *Rethinking Interdisciplinarity*, 9.
[41] Midgely, *Science and Poetry*, 201.
[42] McLeish, *The Poetry and Music of Science*, 25.
[43] John Holmes, '"The Poet of Science": How Scientists Read Their Tennyson'. *Victorian Studies* 54:4 (2012) 657.

included in *Nature*, where he was praised by astronomer Norman Lockyer for showing that 'science and poetry, far from being antagonistic, must forever advance side by side'.[44] Emile Zola commented that the experimental novel was 'the literature of our scientific age'.[45] There was even a foreshadowing of certain contemporary approaches in Emerson and Wordsworth's enthusiasm for Alexander von Humboldt's scientific prose and influence. In it, they envisioned 'a future in which scientific writing might, without compromising the constraint of accuracy or detail, nevertheless unite both cognition and aesthetic in a close partnership'.[46] The influence of science was also seen, from the mid nineteenth century on, as an appropriate model 'for artistic researches into reality'.[47] And yet, despite these endorsements, can poetry truly be said to be scientific? While poetry may share scientific traits by being both thorough and methodical, can it share in the supposed pursuit of objectivity, associated with truth, that is so tightly wedded to the concept of science? Even the 'Poet of Science' himself had his concerns about the implications of science the further he engaged with it: Tennyson worried about whether science and poetry as he practiced them might ever be 'reconciled'.[48]

Peter Middleton addresses these ongoing issues directly in his overview of the similarities between poetic inquiry and scientific inquiry:

> Poems appear to make no claims to knowledge, offer no commitments or judgements, and don't speak with any of the authority that is invested in a scientist, a scholar, or anyone speaking in an official capacity. Poems are full of ambiguity; unfinished and therefore unasserted propositions are left suspended in evanescence. Postmodern criticism presents this as play and ridicules any claim to truth in such aesthetic discourse.[49]

If poetry appears to have so little epistemological currency, how can the supposed ambiguity of the artform reconcile itself with the strictures of science? And yet, while science can be described as an attempt to move towards greater objectivity, to a more 'accurate

[44] Valerie Purton, 'Darwin, Tennyson, and the Writing of "The Holy Grail"'. In *Darwin, Tennyson and Their Readers: Explorations in Victorian Literature and Science*, Ed, Valerie Purton. London: Anthem Press, 2013. 50.
[45] Lyn Hejinian, 'Two Stein Talks', *The Language of Inquiry*, Lyn Hejinian. Berkeley: University of California Press, 2000. 84.
[46] McLeish, *The Poetry and Music of Science*, 177.
[47] Hejinian, 'Two Stein Talks', 85
[48] Purton, 'Darwin, Tennyson and the Writing of "The Holy Grail"', 50.
[49] Middleton, 'Can Poetry Be Scientific?', 202.

description of the nature of things',[50] this goal does not seem drastically different from that of the poet, who is also concerned with the nature of things, albeit through different approaches. Writing on 'difficult' poetry, George Steiner crafts a scientific analogy, as if tending towards a picture where both might be resolved, or at least occupy the same world:

> the poet's discourse can be compared to the track of a charged particle through a cloud-chamber. An energised field of association and connotation, of overtones and undertones, of rebus and homophone, surround its motion, and break from it in the context of collision.[51]

Reframing the typical conception of science, and how poetic inquiry might share similarities to it is an important step in this journey. It is present, certainly, in the endeavours of the L=A=N=G=U=A=G=E poets to adopt a scientific mode of poetic inquiry – Lyn Hejinian writes eloquently of the distinction between poetic inquiry and scientific inquiry. With particular focus on the evolution of Gertrude Stein's own relationship to science and language, Hejinian posits that it was: 'discovery that language is an order of reality itself and not a mere mediating medium' that replaced Stein's commitment to a medical career with a literary one.[52] This notion in particular – of language not just as a signifying, but a structuring medium – will be returned to in later chapters when the materiality of language is experimented with through the experimental practices of visual and concrete poets. In Middleton's comparative overview, he comments how poets also 'observe changes in the wilderness or trace patterns of human behaviour', but their work is done 'in and through language'.[53] Language, as the main tool in the poet's arsenal, 'on the one hand, apparently mediates between us and reality and, on the other hand, is for most of us the constant, ready, everyday, and natural medium for discovering, defining, and asserting reality—making use of it, expressing it, and, perhaps, creating it', as Hejinian notes in relation to Stein.[54] Middleton observes:

> Poets ask questions and try to find out the answers by methods that may be raw versions of the methods used by scientists and may not always share

[50] Eric Kandel, *Reductionism in Art and Brain Science: Bridging the Two Cultures*. New York: Columbia University Press, 2016. 6.
[51] Steiner, 'On Difficulty', *Journal of Aesthetics and Art Criticism* 36:3 (1978) 264.
[52] Hejinian, 'Two Stein Talks', 90.
[53] Middleton, 'Can Poetry Be Scientific?', 202.
[54] Hejinian, 'Two Stein Talks', 90.

them in a similar manner to the scientific network, nor are they confined to working within an existing paradigm to anything like the same extent.[55]

But another question arises about the extent to which the poet's relationship to language can be paralleled with the scientist's relationship to reality? And ultimately, how might the notion of truth-claims relate to these two different approaches?

Engaging further with these supposedly irreconcilable dynamics reveals a much more nuanced account of the two disciplines. For certain American modernist poets of the 1950s, there was a trend of beginning 'to work out what might be necessary for their poetry to stand alongside the scientific method as a similarly valid mode of inquiry'.[56] Despite this, poetry's supposed inbuilt resistance to the strictures of science and scientific inquiry places the interdisciplinary endeavour in even more of a contested position. Yet, as Kolaiti argues, the general perception that theorising in the humanities is 'intrinsically incapable of making *truth claims*'[57] has proved an impediment – her solution is 'in a sense to plead for interdisciplinarity' and to argue 'in favour of an up-to-date, explanatorily adequate and also empirically and cognitively aware literary and art-theoretical discourse'.[58] Advocating for a version of this 'empirically and cognitively aware' discourse is in a sense what the present dissertation seeks to do: it does so by combining this awareness of cognitive and empirical advances with its approach to contemporary visual poetry. Walpert posits that contemporary poets who concern themselves with postmodernist poetics and an engagement with the materiality of language are the ones who present the best argument against the ideas that science 'holds the strongest claim, or the only claim, to knowledge'.[59] As will be outlined in later chapters, this approach to disassembling and reconfiguring language as a fundamental unit of poetry exemplifies just how radical the implications of poetic experimentation can be: Eric Vos writes how in certain cases visual poetry evolves to 'orient itself not towards analytic "truth-seeking" but towards the purposeful transgression of boundaries, particularly between art disciplines'.[60] Walpert claims that contemporary poetry's supposed resistance to science's ability to make truth claims actually takes aim at a

[55] Middleton, 'Can Poetry Be Scientific?', 202.
[56] Ibid, 199.
[57] Patricia Kolaiti, *The Limits of Expression: Language, Literature, Mind*. Cambridge: Cambridge University Press, 2019. 2.
[58] Ibid, 1.
[59] Walpert, *Resistance to Science,* 4.
[60] Eric Vos, 'Critical Perspectives on Experimental, Visual, and Concrete Poetry: An Introduction to this Volume', *Experimental – Visual – Concrete: Avant-Garde Poetry Since the 1960s*. Johanna Drucker, Eric Vos, K. David Jackson, Eds. Amsterdam: Rodopi: 1996. 28.

false conception of science, one that does not truly exist: the actual picture of science is much more nuanced. If we take this to be the case, it provides us with another ideological and methodological dimension to consider in the combination of these disciplines: Walpert claims that what poetry and science have in common revolves around the 'practice of intervention, rather than representation': where a poetics of intervention is 'in sympathy with contemporary science studies scholarship'.[61] While the poetics of intervention in Walpert's sense refers to a separate branch of contemporary poetry, the manner in which both can be integrated contributes to the Neurohumanities approach construed throughout this dissertation as a whole. There are a few elements at play here: the extent to which poetry might be considered scientific, how it might fare as the subject of scientific inquiry, but also how it can challenge the traditional assumptions of the 'omnicompetent' sciences. This is where the discussion of reciprocal benefit between disciplines arises.

Considering how this dissertation engages with experimentation in a poetic context and also a scientific one, it is important to note the ways in which an 'experiment' can be defined in both fields. A poetic experiment may be a radical reimagining of the artform, or merely mean that 'the outcome isn't determined in advance'.[69] James Wilkes and Sophie K. Scott, poet and neuroscientist respectively, invoke this open-endedness when discussing the approaches of their fields. Wilkes notes how for experimental poetry, the results *are* the experiment, without the separation of these two components, and the emphasis on replicability. However, the ability to replicate is a cornerstone of scientific experimentation, where either the success or failure to replicate is just as important as one another in the quest for knowledge. Comparing the historical and contemporary similarities between creativity in art and science, McLeish contrasts William Beveridge's *The Art of Scientific Investigation* with Henry James' *The Art of the Novel*, noting the parallels between the two processes of creativity, both of which involve distinct components that while separate, often comprise of 'revealingly parallel' paths.[62] McLeish's discussion of creativity here highlights the mutuality of the goal of both the arts and the sciences: their impetus to explore the same kind of subject. Middleton concludes his discussion by advocating for the responsibility that poetry has: 'Poetry has a responsibility to the *scientia* [sic] at its heart, and if it attends

[61] Ibid. The concept of intervention is here taken from philosopher of science Ian Hacking's notion of the two parts of scientific work: whereby theory is representing, and experimentation is intervening.
[69] James Wilkes and Sophie K. Scott, 'Poetry and Neuroscience: An Interdisciplinary Conversation' *Configurations*: *A Journal of Literature, Science, and Technology* 24 (2016) 331.
[62] McLeish, *The Poetry and Music of Science*, 168.

to this can also find a way to be scientific in ways that do collaborate imaginatively with the sciences of today'.[63] As McLeish observes, 'if science gathers to itself a narrative more weighted towards method, and art is more vocal about creative origins, then these retellings of partial truths will conspire to drive an illusory distance between them'.[64] Their supposed irreconcilability of the two fields is part of this illusory distance. However, at this stage, it is a separate endeavour at each step to differentiate between the shared methods of inquiry and experimentation of poetry and science respectively: after all, while this dissertation engages with poetry with science as its subject, and science with poetry as its subject, ultimately, it aims towards as equitable as possible a combination of the subjects with each other. The present chapter aims towards this space where the study of poetry and science in tandem can be a fused endeavour, with reciprocity at the fore. But first, instances where poetry has been the subject of scientific inquiry are examined, their results and methodologies analysed for the purposes of the eventual unification of visual poetry with Neurohumanities as one of the most feasible areas of potential collaboration.

Experimenting With Poetry: The Story So Far

In her literature review evaluating interdisciplinary and transdisciplinary research, Julie T. Klein notes how 'antecedent conditions' strengthen readiness levels when they are 'flexible enough to allow multiple pathways of integration and collaboration'.[65] A brief assessment and overview of the ways in which literature and poetry have been combined and approached through or with the perspective of the cognitive sciences and neuroscience gives an insight into these conditions, but also reveals some interesting trends regarding how the concept of literary theory presents itself within this rubric. Especially pertinent has been the integration of literary theory with empirical approaches, where the scientific component of the research is used to weigh in on debates within the dimensions of literary theory: an approach which, as established, must engender caution. There is also a preoccupation evidenced in these studies of the definition of the literary, and notably an impulse to combine neurocognitive and neuropsychological studies with the theoretical contributions of Roman Jakobson, and a focus on the concept of 'literariness' evident in the proliferation of cognitive literary studies that have emerged within roughly the last two

[63] Middleton, 'Can Poetry Be Scientific?', 208.
[64] McLeish, *The Poetry and Music of Science*, 5.
[65] Klein, 'Evaluation of Interdisciplinary and Transdisciplinary Research', 116.

decades. If, within the remit of literary studies, concepts such as 'literature' and 'literariness' have been roundly upended, or at the very least moved beyond their traditional boundaries as the 'repertoire of explanatory tools and frameworks has expanded',[66] then what can an overview of some of the existing studies tell us? As with any cultural or academic movement or tendency, there are multiple influential factors, but one such approach appeals to simple reason: why should two disciplines that both concern themselves with human thought, linguistic production and literary artifacts not converse? Assessing what has been done thus far, and where this leaves us for this twenty-first century foray into literature and Neurohumanities, constitutes this section.

General studies engaging with poetry and cognition have tended to cover a wide enough range of subjects, with many focusing on memory – such as David Rubin's work on the cognitive psychology of oral traditions in poetry[67] – along with investigations into short term memory in relation to poetry and prose.[68] The results of one study suggested that the 'temporal organisation and rhythmic structure of poetry and music plays a particular role in recall', where poetry's 'highly organised rhythmic structures' and devices such as rhyme at the ends of phrases are 'analogous to the tonal cadences in music'.[69] Research has also been done into poetic metaphor and mental imagery, establishing the importance of mental imagery 'in the creation and appreciation' of poetic metaphors.[70] It is natural that studies such as this arise under the rubric of interdisciplinarity. While refusing to reduce literary study to a 'mere appendage of cognitive science', Vladimir Alexandrov describes the 'missed opportunity' that would result if individuals professionally concerned with linguistic artifacts were to 'ignore the vast amounts of information about language production and perception that continue to emerge from the various disciplines that concern themselves with the human brain and its behaviour'.[71] Many of these studies constitute interesting junctures in the evolution of Neurohumanities/cognitive humanities, where researchers combine a cognitive, psychological, or neuroscientific approach to literature by applying scientific

[66] Ibid.
[67] David C. Rubin, *Memory in Oral Traditions: The Cognitive Psychology of Epic, Ballads, and Counting-out Rhymes*. Oxford: Oxford University Press, 1995. 7.
[68] Barbara Tillman and W. Jay Dowling, 'Memory decreases for prose, but not for poetry' in *Memory & Cognition* 35:4 (2007) 628.
[69] Ibid, 628.
[70] Raymond Gibbs and Jody Bogdonovich, 'Mental Imagery in Interpreting Poetic Metaphor' in *Metaphor and Symbol* 14:1 (1999) 38.
[71] Vladimir E. Alexandrov, 'Literature, Literariness, and the Brain' in *Comparative Literature,* 59:2 (2007) 99100.

methodology to literary stimuli. However, a recurring problem arises: often their conclusions do not prove especially ground-breaking from a literary studies perspective: they do not necessarily illuminate a hitherto undiscovered revelation that holds its own within both fields. A closer examination of some of these studies often reveals a barely concealed desire to utilise neuroscience to 'weigh in' or clarify the claims of different literary theories, heralding the arrival of a misstep in interdisciplinary studies: what has been classed in various guises as 'Neurohype', and will be discussed in detail later in this chapter. While the results of many studies can be subject to this problem, dismissing them all on these grounds would be to throw out the baby with the bathwater. At its most ambitious and valuable, combining disciplines can in fact facilitate the examination of questions about the essence of poetry, literature, and art anew, in a more fully realised discursive field.

Beyond Literary Theory

While assessing existing research in context, it is useful to bear in mind the status of literary theory in relation to interdisciplinarity itself – for example, the dominance of formalist methodologies in the 1940s-50s loosened as interdisciplinary interests in the arts expanded, and other sociological and humanities-based disciplines began to crosspollinate.[72] In this sense, literary theory and literary criticism were changing in tandem with notions of interdisciplinarity: in Europe, interdisciplinary research was promoted as 'the model for a regenerated study of literature opposed to strict formalism and open to historical awareness'.[73] Detractors from this state of affairs included Stanley Fish, who queried the logic of these new interdisciplinary endeavours, pointing out how 'any strategy that calls into question the foundations of disciplines theoretically negates itself if it becomes institutionalized'.[82] Therefore, while reviewing these studies, the historical context is taken into account: there is an often evident tendency for literary theory to be weaponised as a way of trying to monopolise the 'definitive' way of reading a literary text. Ultimately, focusing on these studies emphasizes the ways in which these questions have been approached thus far, and how in turn, they have contributed to realising the potential of a Neurohumanities approach. In the late twentieth and early twenty-first centuries, literary

[72] Julie T. Klein and Robert Frodeman. 'Interdisciplining Humanities: A Historical Overview'. *The Oxford Handbook of Interdisciplinarity*. Eds, Robert Frodeman, Julie T. Klein, and Roberto C. S. Pacheco. Oxford: Oxford University Press, 2017. 151.
[73] Ibid,151.

[82] Ibid, 153.

theorists' commentary on 'literariness' proliferated, as critics debated the essential attributes of literature. The nature of the supposedly inherent 'literariness' of literary works has been questioned again and again: Terry Eagleton insists that there is no 'essence' of literature, rather, it is something that is culturally produced.[74] Fish advocates for a position where the reader projects their own interpretation of poetic qualities onto the poetic text, while E. D. Hirsch decries the attempt to find an essential attribute of poetry through all instances of poetry. Although they occurred within quite a specific time period during which a lot of these concerns were at the forefront of many critical minds, these debates have particular relevance to the present dissertation, considering how experimental and visual poetry often has to fight in order to be perceived as 'literature' in mainstream discourse, or even associated with any definition of 'literariness' in the first place. Implied within the radical reframing of what poetry can be through the existence of visual poetry, there is the deeper-rooted question of what can constitute the 'literary' in the present day. At the points where neuroscience or cognitive science has been proffered as a tool to engage with these debates, some fascinating case studies have arisen, especially evident in some of these early forays into this cross-disciplinary space of literary theory and cognitive sciences.

In 1998, David Hanauer prototyped a cognitive literary studies research project which sought to use an empirical framework to contribute to the ongoing debate about evaluating the different ways in which poetry can be, and ought be, read. He proposes an 'empirical method', which can be used in literary studies 'as a research tool for deepening our understanding of issues arising within a literary system'.[75] Identifying the Formalist/Stylistic and Conventionalist approaches to the analysis of poetry, Hanauer manipulated the graphic structure of certain selected poems, testing verbatim recall in order to contrive a conclusive answer. Most relevant to the concerns of the present study is how Hanauer's research establishes that the graphic element of poetry is considered a determining factor in a poem's reception, as graphic manipulation of the poem elicited 'significantly higher amounts of verbatim recall'.[76] This was quantified by the experiment's results for the extent to which 'graphic manipulation of the poem did result in significant

[74] Terry Eagleton, *Marxism and Literary Criticism.* London: Routledge, 2002. 32.
[75] David Hanauer, 'Reading Poetry: An Empirical Investigation of Formalist, Stylistic, and Conventionalist Claims.' *Poetics Today* 19:4 (1998) 566.
[76] Ibid, 564.

differences in the amounts of verbatim information recalled'.[77] This exploration of graphic manipulation – or as I would term it, visual poetics – marks an interesting investigation into the cognitive implications of poetry's visual presentation. Hanauer concluded that 'the results of this study are not clear cut and could be interpreted as supporting either a modified Conventionalist or a partial Formalist/Stylistic position'.[78] Indeed, the final notes on this survey's results take this inconclusiveness even further: 'they point to a more complex relationship, within which both conventions of reading and specific textual features play a role in the categorization and reading of a poem'.[88] In another study, Miall and Kuiken appeal to empirical research to advance a defence of formalism in literary studies, suggesting that 'response to formal features is based on human psychobiological, cognitive, and psycholinguistic processes'.[79] They engage with Hanauer's findings, querying his conclusions and advocating further for a formalist position supported by their own empirical evidence. They repudiate the idea of various literary theories all vying for the monopoly upon the definitive reading of a literary work, what they perceive as the 'institutionalisation' of literature.[80] Instead, a return to increased attention to the formal aspects of literature as perceived by lay readers, not just experienced academics and theorists, is posited as a way of avoiding the pitfalls of schools of thought such as poststructuralist literary theory. Analysing foregrounding with respect to short stories, Miall and Kuiken reach several conclusions based off their empirical evidence, ultimately supporting the formalist hypothesis. Their overarching point argues that reading takes its place within a 'larger cultural ecology' and that the value of literary reading is 'conferred by a kind of contract that the reader makes with a text' which enables them to 'recontextualize or redefine some significant aspect of experience'.[81] These kinds of studies – which I deem as displaying a proto-Neurohumanities element – all evince a preoccupation with isolating the most 'successful' literary theory: a reflection of how literary theories themselves display different trends. Continuing in this vein, Alexandrov engages anew with Jakobson's conception of 'literariness', initially implying that neuroscientific evidence – along with Jakobson's notable engagement with neuroscientific discourse in his time – corroborates such a definition. The

[77] Ibid, 576.
[78] Ibid, 577.
[88] Ibid, 578.
[79] David S. Miall and Don Kuiken. 'The Form of Reading: Empirical Studies of Literariness.' *Poetics* 25:6 (1998) 327.
[80] Ibid.
[81] Ibid, 340.

conclusions of this overview constitute 'several broad, albeit tentative, generalisations about language processing in relation to hemispheric specialisation and cooperation'; such ideas are 'noteworthy' because they appear to echo Jakobson's most established ideas about the 'poetic function of language'.[82] Alexandrov revels in this potentiality: if neuroscientific research can be wedded to the presumptions of literary theory, and a testable, empirical hypothesis might be devised, then this might point to 'a new (old) direction to literary studies in academe'.[93] While acknowledging the potential of combining neuroscience with the tenets of literary theories in order to reach a more definitive claim, he also notes a necessary fluidity:

> Within the realm of human beliefs there is no absolute ground that can be used to adjudicate what individuals choose to view as true, good, and real…. Ultimately, '"literariness" could be seen as just another ideology that the reader is free to accept or reject in light of other values.[83]

While this concluding note paints an optimistic picture, despite Alexandrov's concession to the fluidity of the term 'literariness', this still demonstrates a desire to use neuroscience to 'prove' Jakobson's definition. This trait is evident in this brief overview of a few initial studies combining the cognitive sciences with literature. Identifying the dynamics in this brief overview of the kinds of studies in existence thus far – those that combine literary theory and cognition – indicates some clear instances of what has already been flagged as a significant pitfall of cognitive literary studies: the trend of utilising the means and mechanisms of cognitive sciences in order to validate or vindicate the assumptions of literary theory. This is not to discredit endeavours such as Hanauer's empirical method, or Miall and Kuiken's appeal to empirical evidence: these are all important steps along the path of interdisciplinarity, and often yield intriguing, useful results. But the relationship between disciplines in these cases, and the resulting hierarchy of power, remains a skewed one. If cognitive science and/or empirical evidence is used to confirm or deny the assumptions of various literary theories, there nevertheless remains an uneven hierarchy of power relations, while also robbing such studies of the chance to bring disciplines properly into conversation with one another.

[82] Vladimir E. Alexandrov. 'Literature, Literariness, and the Brain.' *Comparative Literature* 59:2 (2007) 112-113.
[93] Ibid, 114.
[83] Ibid, 115.

In his *New Guide to Poetry and Poetics*, James Aitchison notes the pervading attitudes of some literary theorists towards the 'scientific' nature of their insights: Literary theorists claim that there is objectivity and science – the science of linguistics and the pseudo-science of semiology or semiotics, which cannot have the status of physical science – in their methods, and so the theorists claim to reject subjectivity and introspection. But no topic, either scientific or artistic, can be pursued without inner thought and reference to the editor and assessor who is present in the mind of the physical scientist and social scientist as well as the artist.[84] As established, from a literary studies perspective, analysing the results of studies conducted in this manner does not shed much light of consequence upon the subjective nuances of the literary reading experience. But inconclusive results do not necessarily mean there is no value to the studies. In Hanauer's case, when conventions of reading and specific textual features both play roles in categorisation, and the importance of the graphic element is emphasised by the study's provisional results, the subsequent discussion and commentary provides a step towards the template of configuring a Neurohumanities framework for exploring the visual element of poetry in learning lessons to take forward into contemporary Neurohumanities research. It is with this in mind that other studies throughout subsequent chapters are referenced.

An important aspect of the relationship between cognitive sciences and literary theory is the different theoretical frameworks which have evolved that directly combine cognitive science with theory: this is especially evident in the field of cognitive poetics. An innovative blend of cognitive linguistics, Gestalt psychology, and literary theory, cognitive poetics was first pioneered by Reuven Tsur in the 1970s, and purports to elucidate certain aspects of literary texts with a methodology that has been derived and adapted mostly from key concepts in cognitive linguistics. Peter Stockwell's account of cognitive poetics positions the field as a natural successor to the different traditions of literary theory, as it can be overlaid onto the triangle of 'author/text/reader', around which the focus of different schools of literary theory traditionally shift.[85] While the present study does not specifically characterise itself as a cognitive poetics approach, its ongoing popularity and standardisation is acknowledged as an important influence on the current project. Joanna Gavins and Gerard Steen have done valuable work in extending the reach of this approach further with their text *Cognitive Poetics in Practice* which suggests 'that readings may be

[84] James Aitchison, *New Guide to Poetry and Poetics*. Amsterdam: Rodopi, 2013. 148.
[85] Peter Stockwell, *Cognitive Poetics: An Introduction*. London: Routledge, 2002. 5.

explained with reference to general human principles of linguistic and cognitive processing, which ties the study of literature in with linguistics, psychology, and cognitive science in general'.[86] In Gavins' most recent work she utilises her linguistics background and Text World Theory – which views 'all discourse as fundamentally grounded in a context of use' – to focus on 'the reading of poetic text in a specific context and on the effects this produces in the mind'.[87] Yet if, as a cognitively-informed practice of literary theory, cognitive poetics assumes its place in the evolution of literary theory, it nevertheless still presents itself as an extension of the theory-based paradigm. This circles straight back to the limitations of positing theory as one the 'proper' means or lens through which to read literature. Returning to the question of theory, Kolaiti identifies the 'increasing imbalance between critical practice and text interpretation' evident in the distinct lack of 'significant literary theoretic accounts' to emerge in the last thirty years or so.[88] If literary theory truly is 'at a standstill',[89] as she claims, then an interdisciplinary approach that takes a cognitive and empirical awareness into account comes at an appropriate point. The kind of Neurohumanities approach advocated for throughout this dissertation is not intended to serve as a successor to literary theory, which is what cognitive poetics often seeks to do, but rather as a timely interdisciplinary perspective aimed towards a more holistic understanding of both poetry and mind, using both qualitative and quantitative scientific methods to explore impact that they have upon each other.

Experimenting With Poetry: A Recent History

Recent empirical studies account for some interesting contributions to methodologies and approaches that have informed the theoretical approaches of the present study. In 2017 Arthur Jacobs *et al* proposed a neurocognitive poetics model of natural language use: it accounts for the processes by which readers understand a text in terms of information processing, but also according to their subjective impressions and emotional response. Crucially, this study claims to render the links between neuropsychological hypotheses about neuronal, cognitive, affective, and behavioural

[86] Joanna Gavins and Gerard Steen, 'Contextualising Cognitive Poetics' in *Cognitive Poetics in Practice*, Eds. Joanna Gavins and Gerard Steen. London: Routledge, 2003. 2.
[87] Joanna Gavins, *Poetry in the Mind: The Cognition of Contemporary Poetic Style.* Edinburgh: Edinburgh University Press, 2020. 3.
[88] Kolaiti, *The Limits of* Expression, 98.
[89] Ibid.

processes with assumptions from linguistics and poetics in such a way that they are 'measurable and testable': this demonstrates how they approach the use of qualitative and quantitative research united in pursuit of a shared goal.[90] Their conclusion emphasizes the pertinent need for methods and models that facilitate a more complete or 'ecologically valid picture of the text and/or mind brain interactions that underlie such natural effects'.[91] Another relatively recent study by Arash Aryani *et al* investigates the relationship between general affective meaning and the use of particular phonological segments in poems, and presents 'a novel quantitative measure to assess the basic affective tone of a text based on foregrounded phonological units and their iconic affective properties'.[92] This commentary on the relation between sound and meaning in language is significant: the history of literary studies is freely juxtaposed with their assessment of psychological experimentation thus far. Jakobson features again, as his model of language function is considered with their own empirical experiment: 'it is still an open question whether and to which extent the overall affective meaning of a text is (co-) determined by the specific use of sound in general, or of phonological units in particular'.[93] Quantitative phonological analyses of poems are presented, the affective impact of which were assessed during a rating study. In a notable feature of this study, the working definitions and sense of poetry is firmly established: 'Poetry can generally be understood as inherently concerned with the expression and elicitation of emotions… while being deeply rooted at the aesthetic and perceptual level in the domains of speech and sound'.[94] Their study distinguishes itself especially in the novel way that it presents 'basic affective tone' in an independent and qualitative manner, and asserts that through the measurement of this aspect they 'can capture significant sublexical contributions to the general affective meaning of a poem', and thus demonstrate that 'sound in poetry can contain a semantic, affective function reflecting the poet's intentions and influencing readers' perception of the general affective meaning of a poem'.[95]

[90] Arthur Jacobs and and Roel M. Willems. 'Towards a Neurocognitive Poetics Model of Literary Reading' in *Cognitive Neuroscience of Natural Language Use.,* Ed. Roel M Willems. New York: Cambridge University Press, 2015. 135.
[91] Ibid, 135.
[92] Arash Aryani, Maria Kraxenberger, Susann Ullrich, Arthur M. Jacobs, and Markus Conrad. 'Measuring the Basic Affective Tone of Poems via Phonological Saliency and Iconicity', *Psychology of Aesthetics, Creativity, and the Arts*. 10:2 (2016) 191.
[93] Ibid.
[94] Ibid.
[95] Ibid, 194.

Approaching this relatively underexplored aspect of poetry with the methods of cognitive science as evidenced here provides a strong case for the mutual benefit of both disciplines.

Studies such as those outlined above demonstrate the innovative nature of their interdisciplinary inquiry. Aryani *et al* assert that 'no systematic empirical research so far has offered an independent statistical measure to quantify the affective tone of texts or poems based on the given phonemic material': they claim to 'formulate an interdisciplinary framework that draws on literary theory, (psycho-)linguistics as well as psychology of emotions, and aim to develop a novel statistical measurement quantifying the basic affective tone of a poem'.[96] In their conclusion, it is explicitly stated that their results support Jakobson's assumption that within poetry, phonological 'structures, particularly powerful at the subliminal level, can function without any assistance of logical judgment and patent knowledge both in the poet's creative work and in its perception by the reader'.[97] They conclude that their 'statistical operationalization provides strong evidence for the importance of sound and supports the idea about a relation between sound and meaning as proclaimed by scholars and poets throughout history'.[98] Yet again, considering this work's revelations from a literary studies stance, the conclusions reached are not especially novel. Rather, they serve to verify and validate — albeit by empirically tested means — aspects that are simply taken for granted in poetry studies. Within the domain of the literary, it is quite possible to authoritatively comment upon the emotional potential or resonance of a poem, but fine-tuned empirical work is required to claim anything similar if approaching a poem's resonance from a scientific perspective. This question needs to be asked: whether this kind of work complements literary studies, or whether it merely validates an aspect of poetry studies that literary scholars can freely and authoritatively comment upon within the domain of the humanities. Do conclusions like this actually serve the interests of a truly interdisciplinary study?

In other recent empirical studies, the impulse to combine poetry reading with experimental methods has yielded some fascinating studies. fMRI has even been used to monitor brain activation by poetry and prose and a comparative analysis done on activity in these separate regions. In a 2013 study, the responses of individual subjects – a combination of lecturers and PhD students from an English Faculty – to poetry and prose were tracked

[96] Ibid, 192.
[97] Ibid, 201.
[98] Ibid.

and analysed for the neural correlates of such features as 'emotionality', rather than isolating the individual linguistic variables responsible for brain stimulation.[99] Ratings of emotionality, literariness, and familiarity were compared across a selection of poetry and prose stimuli:

> i) prose (both 'functional' prose, for example passages from a heating system installation manual, and 'evocative' prose, from the opening passages of novels); ii) poetry (both accessible and more difficult sonnets); iii) self-chosen, favourite, passages of poetry, which subjects considered especially moving and/or personally important.[100]

In the main findings of this study, most pertained to localising the measured brain activity in certain areas, and extrapolating on this data from a neuroscientific perspective:

> i) reading both poetry and prose activates a network of areas previously associated with reading single words, including the 'fusiform word area'; ii) the emotional power of the texts is related to activity in a set of brain regions similar to those associated with the emotional response to music; iii) 'literariness' is parametrically related to activity in regions of the left hemisphere; iv) favourite passages of poetry give rise to bilateral inferior parietal activations but excite less activity in classical reading areas than experimenter-selected passages; v) areas in both hemispheres, associated with introspection, are activated by poetry to a greater degree than by prose.[101]

These findings, in turns useful and intriguing, nevertheless demonstrate only one aspect of the true potential of Neurohumanities research: localising brain activity in response to a variety of different literary stimuli. The fact that it is acknowledged how many further questions and hypotheses that this research prompts, leaves this analysis feeling more like a starting point, rather than a conclusive wedding of neuroscience to poetry. Of the findings, to confirm the activation of brain regions associated with the processing of music is exciting, but, yet again, from a literary studies perspective sheds very little new light upon the mysteries and complexities of the capacity of poetic language to evoke a musical effect: the

[99] Adam Zeman, Fraser Milton, Alicia Smith, and Rick Rylance. 'By Heart: An fMRI Study of Brain Activation by Poetry and Prose.' *Journal of Consciousness Studies* 20:9-10 (2013) 134.
[100] Ibid.
[101] Ibid, 148.

musicality of poetic language is long established within literary studies. While it is valuable that this study conceives of itself as contributing to the effort to open 'a window onto the neural basis of the subjective response to aesthetic material',[102] its actual direct contribution to the literary remains somewhat lacking. Again, the tendency towards using the scientific method to validate or confirm the assumptions of literary interpretation is exemplified. This brings us to the problem of reductionism, and with it, to the very real position of neuroscepticism that accompanies much of this work.

A key lesson from this overview helps clarify where the strength therefore of the current Neurohumanities endeavour ought to reside: in its ability to 'go beyond' theory – not in the sense of discrediting the work done on the subject, but adding another perspective that is not beholden to the typical template of literary theoretical analysis, and this is in order to move past the concept of one totalising or unifying theory to definitively explain a subjective response to a text or to get at the crux of its meaning. While the existence of fields such as cognitive poetics alongside the preoccupation with theory and definition can demonstrate the compatibility of the fields, the truest potential – the one the present dissertation advances – is that of a more holistic and reciprocal picture, whereby the disciplines can be layered over each other in such a way that they may converse. However, before that, the problem identified in the aforementioned research ought be examined further.

Another Problematic Prefix: 'Neuro' -Hype, -Enchantment, -Mania… -Skepticism.

While the 'humanities' component of Neurohumanities remains fairly constant – as Klein and Frodeman remind us, the word derives from 'a cultural movement in ancient Rome under the heading *humanitas*' that defined the arts or studies most suited to 'expressing the goals of Roman culture' thus ensuring 'full humanity'[103] – the 'neuro' prefix poses more difficulties. Alongside the 'neurological turn', vocal detractors from the 'neuro' prefix, and its often overly hasty addition to some disciplines, consistently raise valuable points against subscribing too readily to the belief that fundamental problems can be 'solved' by appealing to neuroscience.[104] Roger Scruton notes how evolutionary psychology and neuroscience

[102] Ibid, 152.
[103] Julie T. Klein and Robert Frodeman, 'Interdisciplining Humanities: A Historical Overview' in *The Oxford Handbook of Interdisciplinarity*, Edited by Robert Frodeman, Julie T. Klein, and Roberto C. S. Pacheco. 2nd Edition. Oxford: Oxford University Press, 2017. 144.
[104] Raymond Tallis, *Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity.* Durham: Acumen, 2011. 9.

have both been deemed relevant to literary studies with the justification that 'both are sciences of the mind, and since culture is a mental arena, both sciences ought to be capable of making sense of it'.[105] However, he critiques this as evidence of 'scientism', which Midgley also cautions against: a question-begging approach whereby 'the science precedes the question, and is used to redefine it as a question that the science can solve'.[106] There are plenty of other critiques against the problematic reductionism at play in these kind of endeavours which often condense the complexities of human existence and experience down to physiological brain states, and/or the physical matter of the brain.[107] This standpoint has engendered a pervasive 'neuroscepticism' in response to the idea that a totalising explanation of art might reside in data gathered from the confines of an fMRI machine. Although firmly in this 'neurosceptic' camp, Raymond Tallis also writes of the sense in which it is unsurprising how 'many secular thinkers look to natural science, which has explained so much of the non-human world, to make sense of ourselves and to fill the explanatory spaces vacated by the retreat of religious thought'.[108] Within the domain of poetry studies, meanwhile, Don Paterson diagnoses a similar state of affairs apparent in much of contemporary thought, although he frames it in different terms: he dubs it the 'theistic fallacy'.[109] He argues that we are in the grip of a 'poorly-interrogated, post-religious paradigm', which manifests itself in literary studies as the belief that there is one meaning or interpretation of a text that is '*intrinsically "*right"'.[110] There is a case to be made that this is also at play in the impulse to combine disciplines through the cognitive humanities in general: as outlined earlier, especially evidenced by the urge to conclusively validate – or invalidate – the theoretical conclusions of literary critical discourse by employing the strictures of science. In his neuro-critique, Tallis advocates for a sense of humanity's 'hybrid status': we ought to conceive of ourselves as pieces of matter subject to the laws of physics, as organisms subject to the laws of biology, and as people who have a complex sense of themselves, who narrate and lead their lives, and who are capable of thinking thoughts like

[105] Roger Scruton, 'Scientism in the Arts and Humanities.' *The New Atlantis* 40 (2013) 35.
[106] Ibid, 37.
[107] David Robson. 'The Trouble with Neuroscience' *New Scientist.* Online article. https://www.newscientist.com/article/mg21829192-600-the-trouble-with-neuroscience/ [Date accessed: 12/11/19]
[108] Tallis, *Aping Mankind*, xi.
[109] Don Paterson, *The Poem: Lyric, Sign, Metre.* London: Faber & Faber, 2018. 107.
[110] Ibid.

these.[111] Taking this into account, a carefully mediated Neurohumanities approach is not incompatible with Tallis' conception of humanity. In fact, it actually highlights the importance of research that pays due respect to this 'hybrid status' in the sense of ourselves, while still appealing to the sciences to combine methodologies in new and innovative ways. As this chapter seeks to establish, the true strength and potential of the interdisciplinary Neurohumanities endeavour lies in its capacity to contribute to both fields being drawn from.

The arguments levelled against the relevance of neuroscience to art in general range from staunchly pessimistic to more moderately so: Nicholas Bullot, William Seeley, and Stephen Davies give an overview of the main detractors from the analytic philosophical tradition.[112] One discipline that receives much critique on philosophical grounds is Neuroaesthetics; most of the arguments that arise are, I assert, aptly positioned against the premise that visual art can be comprehensively explained by appealing to the neurobiology of perception. Some Neuroaesthetics approaches run the risk of attempting to 'explain' art through science, again falling into the trap of implying that a totalising theory of art is possible by appealing to neurobiology. Semir Zeki, one of the original founders of Neuroaesthetics, in fact argues that 'no theory of aesthetics is complete without an understanding of its neural underpinnings',[113] but this claim has come under scrutiny. Zeki's argument ascribes an 'essential explanatory role to the findings of neurobiology in any satisfactory aesthetics': and when this interpreted as a 'strong' philosophical claim, runs into some problems if taken as a totalising solution to questions of aesthetics.[114] Its generalising theories of art aside, the field of Neuroaesthetics demonstrates many innovative methodologies and fascinating approaches to the combination of empirical experimentation and the interpretation of visual art. Yet, it has been argued that it goes astray when it pursues a totalising explanation and 'mistaken ontology of art' with an 'unreasonably reductionist methodology'.[115] John Hyman notes how scientists reducing art down to generalisations such as 'all art is caricature; all great art is ambiguous' – and then appealing

[111] Raymond Tallis, 'What Neuroscience Cannot Tell Us About Ourselves.' *New Atlantis: A Journal of Technology and Society* 29 (2010) 21.
[112] Bullot *et al*, 'Art and Science', 454
[113] Anjan Chatterjee, 'Neuroaesthetics: A Coming of Age Story', *Journal of Cognitive Neuroscience* 23:1 (2010) 53.
[114] David Davies, '"This is Your Brain on Art": What Can Philosophy of Art Learn from Neuroscience?' in *Aesthetics and the Sciences of Mind*. Eds, Greg Currie, Matthew Kieran, Aaron Meskin, and Jon Robson. Oxford Oxford University Press, 2014. 58.
[115] Bullot *et al*, 'Art and Science', 454.

to small select examples to illustrate rather than test these statements – is an approach that would not be accepted within a truly scientific procedure.[116] These controversies over Neuroaesthetics highlight what Peter Garratt warns of: the potential for cognitive humanities research to be viewed as engaging with contemporary sciences of mind in order to put our understanding of literature and the arts on 'firmer footing': an approach that is 'ghosted by the unspoken possibility of consilience and scientific reduction'.[117] There is also space for a healthy skepticism in relation to the fact that in some cases, the recourse to neuroscience also stems from a routine defunding of the humanities across the academy – an thereby constitutes an attempt to make humanities research more 'relevant' or interesting to funding bodies.[118]

Lindsey Grubbs draws attention to another important implication of the popularity of Neurohumanities approaches: the fact that despite ongoing theoretical and methodological gaps in the way laboratory sciences approach the humanities, it is often these studies receive the most coverage in the press. The is a distinct prevalence of studies that loudly proclaim the evidence established that show the brain 'lighting up' in response to certain stimuli: but this is reductionism and overstatement at play within the wider sphere of public discourse. Grubbs uses the term 'Neurohype' to describe this facet of neuroscepticism, a 'much-discussed corollary' to working with brain imaging and cognitive science. Grubbs goes on to note how 'McCabe and Castel (2008) have shown that images of the brain increase credibility compared to graphs, "because they provide a physical basis for cognitive processes, appealing to people's affinity for reductionistic explanations of cognitive phenomena"'.[130] She namechecks Weisberg, noting how irrelevant neuroscientific explanations have been shown to increase credibility, also appeals to a recent study showing that:

> Even those who study neuroscience can succumb to what the authors call "neuroenchantment" (Ali, Lifshitz, and Raz 2014). The charming study used a purposefully shoddy-looking false neuroimaging setup made of a hair drier to show that subjects overestimated the abilities of such a machine to

[116] John Hyman, 'Art and Neuroscience' in *Beyond Mimesis and Convention: Representation in Art and Science.* Eds, Roman Frigg and Matthew C. Hunter. London: Springer, 2010. 260-261.
[117] Garratt, 'Introduction: The Cognitive Humanities', 12.
[118] Ana Hedberg Olenina, 'A Case for Neurohumanities'. *Critical Inquiry.* Online article. (2017) https://critinq.wordpress.com/2017/09/21/a-case-for-neurohumanities/ [Date accessed: 25/9/2019]
[130] Lindsey Grubbs, 'The Arts and Sciences of Reading: Humanities in The Laboratory' *AJOB Neuroscience* 7:2 (2016) 88.

> essentially "read the mind"—even students in the group who had recently completed a course extensively debunking that possibility.[119]

Bearing these caveats of neuroscepticism in mind, assessing the literature and research on the subject reveals this 'hype' embedded in many of the interdisciplinary studies already reviewed. Research like this crops up semi-regularly, using 'psychophysiology, neuroimaging and behavioural responses' to 'show that recited poetry can act as a powerful stimulus for eliciting peak emotional responses, including chills and objectively measurable goosebumps that engage the primary reward circuitry'.[120] Although this kind of work is valuable as neuroscientific research, investigating the 'emotional impact of recited poetry on the electrodermal and cardiovascular responses of the autonomous nervous system'[121] veers dangerously close, yet again, to the pitfall of merely using hard neuroscience to validate aspects of the effect of poetry on its readers that have already been long established within literary discourse. Some aspects of this study do prove especially interesting, particularly the differentiation between 'poetry-elicited chills' and 'music-elicited chills': it is fascinating that the neurological basis of these reactions can be quantified using the methodology of neuroscience. But the subsequent conclusion — that this 'points to the unique qualities of poetic language that could not be replaced by music and singing during the evolution of human forms of emotional expression'[122] — is hardly ground-breaking from a literary studies perspective, or, to put it more bluntly, even from an interdisciplinary standpoint. In this and many other cases, the study's conclusion actually reinforces the respective disciplinarity of poetry and music. The precedent this sets is that one discipline must compromise or concede in order to avoid complete incommensurability. The seductiveness of reductionism also appeals because it 'holds the promise of simplifying immense amounts of data and descriptions of the world into a clean, tidy order' and often implies that 'the true essence of things can be found in their simplest underlying elements'.[123] It speaks to a deeply human impulse to categorise and compartmentalise the vastness of human complexity into palatable and easily-digestible formats that can be easily understood and related to one another. Midgley cautions against this specifically, noting how often the impulse to solve the

[119] Ibid.

[120] Eugen Wassiliwizky, and Stefan Koelsch, Valentin Wagner, Thomas Jacobsen, Winfried Menninghaus. 'The emotional power of poetry: neural circuitry, psychophysiology and compositional principles' in *Social Cognitive and Affective Neuroscience* 12:8 (2017) 1229.

[121] Ibid.

[122] Ibid, 1237.

[123] McElwain, *Mary Midgley*, [ebook], n.p.

'hard problem' of consciousness and thus conquer a 'final frontier' is inherently imperialistic.[124] 'Neurohype' can be avoided if an awareness of its seductive properties is embedded in any endeavour using this prefix. If a strong, yet flexible structure is in place to support an interdisciplinary approach, the conditions for a genuinely reciprocal and enlightening collaboration can be created. Grubbs' commentary concludes with an optimistic note:

> At the moment, literary study still approaches reading with more nuance than these experiments account for, and we must find ways, both in the academy and in the media, to privilege this kind of authority as well. In American culture, scientific data lends legitimacy to a viewpoint and can easily seem objective even when the research is in fact contested. Thus, we need to think carefully about where we draw support for truth claims, particularly when the subject of enquiry is something as subjective as responses to literature.[125]

Thus, in tandem with this awareness, an openness to the reciprocal potential of the interdisciplinary approach is also a way to counteract the skewed hierarchy of Neurohype. The experimental nature of this project thus incorporates this awareness of this common problem, in its endeavour to layer the disciplines together in a shared cartography. The extent to which other interdisciplinary endeavours deal with this obstacle – either succumbing to or overcoming it – will be returned to in later chapters as part of the ongoing assessment of what the present study can offer by way of a critical discourse that can contribute to both disciplines. These discussions about the various approaches to interdisciplinary work inform how the 'Neurohumanities approach' advanced in the present dissertation is constructed – one that synthesises both theoretical and practical perspectives to ultimately produce a cognitively informed reading of challenging visual poetry.

Despite the impulse towards interdisciplinarity evident in academia, Klein and Thompson note how in the case of the humanities, 'the radical vision of a postdisciplinary academy has not materialized'.[126] This is not a bad thing: this dissertation in no way advocates for an academic model where all subjects combine together in infinite iterative combinations, at the detriment of their own disciplinarity. However, as Klein and Thompson optimistically note, both inter- and transdisciplinary efforts across the humanities suggest

[124] Mary Midgley, *Science and Poetry*, London: Routledge, 2006. 13.
[125] Grubbs, 'The Arts and Sciences of Reading', 86-7.
[126] Klein & Frodeman, 'Interdisciplining Humanities', 154.

that these fields are responding in a variety of ways to the changed landscape of twenty first-century society. An 'expanded set of materials and scholarly approaches' now exist that that counter the status of disciplines as isolated domains: boundaries between humanities and social sciences are being broached, productively, while the idea of 'unity' of knowledge and culture is being reconceptualised as '"unifying" strategies' framed by differing contexts.[127] A shift is also evident in the role model of an interdisciplinarian 'from a polymath' to the notion of a 'boundary rider'; a researcher 'skilled at walking the borders of disciplinary expertise and interdisciplinarity'.[128] Despite the optimism inherent in the accounts of these trends, all face the challenges of incredulity and dwindling funding within a culture increasingly focused on 'the bottom line'. Nonetheless, these initiatives suggest that the oldest of disciplines and fields of humanities have the potential for new relevance both within and outside the academy.[129] It is the concern of the rest of this dissertation to experiment specifically with how the visuality of poetry and visuality in psychological terms may converse with one another.

Experimenting With Potential

As this chapter has demonstrated, much interdisciplinary cognitive literary research has served to reify the notion that there is a totalising critical theory that can explain how literature functions with respect to neurophysiology. This dissertation not only avoids this paradigm, but directly challenges it by directing the focus of its Neurohumanities approach to poetry that inherently repudiates standard versions of 'the literary' and 'literariness'. In fact, these notions are challenged outright by poetry that is classed as experimental, visual, and/or concrete. Especially timely is the opportunity for more in-depth focus on this genre of poetry: it is currently being critically re-evaluated from a number of different perspectives, such as the predictive power of concrete poetry as a genre and its relevance to new media and digital poetics, as well as the significant contributions of women to the field of visual poetry, as will be focused on exclusively in Chapter Five. This critical reappraisal makes the application of Neurohumanities to visual poetry and poetics especially relevant. Recent anthologies, such as *Women in Concrete Poetry 1959-1979*, *Judith: Women Making Visual Poetry*, and *Concrete Poetry: A 21st Century Anthology,* have helped establish this

[127] Ibid.
[128] Ibid.
[129] Ibid.

culture, especially where the work detailed within these pages explicitly denounces the gender inequality rampant in many previous anthologies and collections.[130] The multiple different avenues in which the resistance of the poetry of these practitioners manifests itself is also very important to this sense of rejection of traditional notions of the literary. In her essay in the former of the two anthologies referenced, Johanna Drucker observes how some milestone contributions by women to the field of visual poetry were not even strictly 'literary in character', rather, they were visual works by artists who 'used some feature or element of language'.[131] Examining this interrogation and rejection of tradition evidenced through poetry that incorporates both language and the visual, often fusing these elements with the political, makes the integration of Neurohumanities to this kind of art especially relevant.

This chapter has started to map the first layer of the topography of current interdisciplinary terrain. The methodological and theoretical lessons taken from previous studies and recent research teach an awareness of succumbing to either Neurohype or Neuroskepticism. Instead, instances of both can be identified and learned from in order to remain clearsighted about the capacity of the interdisciplinary research of this project to explore and benefit the field. What many of the preceding studies reveal is that a concern with definition and/or 'essences' often tends to be a motivation, showing that pursuit of a definition – or of ways of expanding definitions – still informs and shapes the interdisciplinary impulse. Balancing between Neurohype and Neuroscepticism, there is potential residing here in the idea that the different instances of the poetry focused on the present study, could, when studied in tandem with neuroscience, serve to expand the definition of poetry and highlight both the limitations and potential of a scientific approach to art. Examining the motivation to categorise, to using both qualitative and quantitative methods applied to a form of poetry that itself is inherently resistant to categorisation, poses an exciting theoretical and methodological challenge: one that this dissertation concerns itself with throughout its remaining chapters.

As is made expressly clear in this chapter, the approach outlined here is not one that conceives of itself as a corrective or 'solution' to the established ways of analysing poetry, or as a definitive inter- or transdisciplinary approach. Rather, it establishes a new perspective:

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[130] Alex Balgiu and Monica de la Torre, 'Introduction' in *Women in Concrete Poetry 1959-1979.* New York: Primary Information, 2020. 14.

[131] Johanna Drucker, '(In)Visible Women or Gender in Concrete' in *Judith: Women Making Visual Poetry.* Ed. Amanda Earl. Malmö: Timglaset, 2021.

it is an experiment, in a holistic, unifying sense of the word that unites both disciplines. The artistic experimentation evident in radical visual poetries and poetics actually constitutes one of the most fruitful areas when approaching these ideas from a experimental scientific perspective. This, then, is a point of convergence for the disciplines: a 'meeting-place' for different kinds of imagination, in Rukeyser's sense. This is an opportunity to think about experimentation in a contemporary way, and explore new avenues of consilience between disciplines: as will be demonstrated, visual poetry with Neurohumanities provides these 'new contexts for inquiry', determined through a process in which 'each approach questions the other, calling attention to what may be occluded within a particular, established disciplinary framework'.[132] In this way, there is also room for Hartner's guiding principles – coherence, moderation, and autonomy – to be adapted for the current project. The capacity of reciprocity to level the playing field of the two different disciplines provides an opportunity to redefine the application of neuroscience to poetry, before the problems with the existing methods crystallise into a paradigmatic approach to how these disciplines might be combined. Within the current project, this trait can be explored not just theoretically but at the level of experiment design – constructing this component of the project in such a way that it also seeks to challenge, where appropriate, established methods or assumptions within the scientific paradigm. Furthermore, a carefully mediated Neurohumanities approach could also help to avoid the 'uncritical overstretching of "neuro-facts" and "neuro-explanations" in the popular media and applied neuroscience technologies' – an immensely valuable contribution to the field as a whole.[133] The present project has the luxury of exploring these possibilities in relation to experimental visual poetry, pushing neuroscience past its parameters in pursuit of reciprocity. It can also increase understanding of the limits of neuroscience when applied to poetry, and the negative connotations of the extent to which it can be stretched beyond its capacity. This can be determined by inquiring into the 'social and political consequences of biologically oriented approaches to the human mind', where, as Olenina recommends, mindfulness of the historical picture 'of artists' and cultural theorists' engagement with neurophysiological psychology in the past provides both cautionary tales and forgotten insights relevant for contemporary research priorities'.[134] In

[132] Roberts *et al*. 'Space and Pattern in Linear and Postlinear Poetry,' 24.
[133] Ibid.
[134] Olenina, 'A Case for Neurohumanities'.

these senses, a clear aim for reciprocity is the best solution to the uneven ground onto which the project has stepped after this first chapter.

United in the spirit of experimentation, both creative and scientific, exploring these areas of potential reveals an opportunity for new directions, and a willingness to reimagine disciplinary borders anew. Bearing the lessons of neuroscepticism in mind, and an awareness of the historical and cultural context of this kind of work, the focus can turn to outlining the radical and experimental visual and concrete poetries that constitute the present study's focus. Ultimately, examining poetry with Neurohumanities can contribute to widening the frontiers of human knowledge, and within this framework, a 'new culture of evidence' can be established.[135] As Kolaiti states, a more promising form of interaction with the cognitive paradigm would treat the interdisciplinary merger as involving a radical change in perspective:

> the cognitive perspective on literature and art, as I would like to call it, could fundamentally change our approach to traditional literary and art-theoretical issues and raise entirely new sets of questions. Ultimately, an interdisciplinary merger of this type might be expected to change our view even of the nature of literature and art itself.[136]

While it may not be possible to entirely cast off the spatial shackles and temporal strictures that tether interdisciplinary work, the present dissertation can explore 'how to relate two maps that answer questions arising from different angles'.[137] Drafting the first sketches of this map constitutes subsequent chapters. Poetry and neuroscience do not need to be 'reconciled' in the way Tennyson worried about, but they can be examined side by side, on a more equitable terrain.

[135] Klein, 'Evaluation of Interdisciplinary and Transdisciplinary Research', 116.
[136] Kolaiti, *The Limits of* Expression, 105.
[137] Midgely, *Science and Poetry*, 114.

Chapter Two
Visual Poetry and Visual Poetics

A feebler impress through ear is made / than what is by the faithful eye conveyed.
– Horace, quoted in *The Elements of Euclid*, edited by Oliver Byrne

This chapter examines the phenomenon of visual poetry and poetics from a number of perspectives, culminating in a focus on the contemporary practices of the late twentieth and early twenty-first centuries, specifically those of the poets that have been selected for the project's Case Studies. If the twentieth century has evinced 'a profound visual turn in American poetry',[1] then the twenty-first has deepened and strengthened this turn further, establishing a vibrant culture of visuo-verbal artworks and an engagement with the visual as a signifying dimension within the practice and analysis of poetry, on both the page and the screen. This is reflected in the proliferation of small-press publications of visual poetry, recently founded journals prioritising the materiality of poetry and visual art such as *Inscription*, and the increase in poetry both shared online and utilising digital materialities to explore new poetic potential. Recent anthologies and collections explore the interstices between these formerly delineated categories, in order to interrogate the materiality of language and the world, constituting 'a first step towards a horizon on which the world is imagined anew'.[2] Johanna Drucker's assessment in 1996 still rings true today: she attests to 'the viability of Visual poetry as a heterogenous and diverse field' that has compatibility with a 'seemingly unlimited number of poetic propositions'.[3] She also notes how after the nineteen-sixties, 'it becomes increasingly difficult and unrewarding to trace simple intellectual lineages among delimited configurations of poets as the means of charting the development of visual poetry'.[4] As such, the variegated history of visual poetry and poetics will be considered in this chapter, as it builds towards the practical application of an interdisciplinary lens, by establishing the opening for a Neurohumanities approach to this complicated and fascinating history. Examining the classic routes that are traceable through

[1] Elisabeth S. Frost, 'Visual Poetics'. *A History of Twentieth-Century American Women's Poetry*. Linda A. Kinnahan, Ed. Cambridge: Cambridge University Press, 2016. 339.
[2] Isabel Waidner, 'Editor's Preface', *Intertitles: An anthology at the intersection of writing & visual art*. London: Prototype, 2020. xii.
[3] Johanna Drucker, 'Experimental, Visual, and Concrete Poetry: A Note on Historical Context and Basic Concepts' in *Experimental, Visual, Concrete: Avant-Garde Poetry Since the 1960s*. Eds, K. David Jackson, Eric Vos and Johanna Drucker. Amsterdam: Rodopi: 1996. 47.
[4] Ibid.

visual poetry's history – the 'standard line', [5] as Jay David Bolter terms it – and relating them to the project's selected poets as the scene is set for the interdisciplinary approach constitutes the majority of this chapter. The politicised and gendered dimension of visual poetics – of women poets 'as writers and speakers'[6] – will also be discussed, especially in light of the ongoing critical reappraisal of the unique contribution that women artists have made and continue to make to this area, which will be elaborated upon further in the Case Study of Chapter Five. Materiality – in a number of senses – will also be considered, especially in relation to how poetic meaning might be changed or influenced by the medium within which it is presented. Amongst the chapter's focus, what it means to experiment with the materiality of language, how the material conditions governing the production of these kinds of visual and/or experimental works affects their presentation and distribution, and the theoretical implications of transitioning from or between the printed page and the digital screen will all be examined. Finally, this overview, by turns metacritical and historiographical, will set the scene for a more refined subsequent assessment of the compatibility of Neurohumanities with experimental visual poetry.

Historicising Visual Poetics: 'The Standard Line'

Many histories of visual poetry have already been written: it is not the goal of the chapter to write another here. However, examining how these histories tend to be critically approached is used to establish the project's own terrain, and to lay the groundwork for the areas of potential consilience between visual psychology and visual poetics explored in the project. This endeavour is approached with caution: Jamie Hilder criticises the 'acritical homogeneity' that often characterises the historicising of concrete poetry specifically, cautioning against the collapsing of 'all poetry with a visual character into a monolithic tradition stretching back to the first artefacts of written language'.[7] Therefore, in this chapter's overview of this history, special focus is devoted to how visualism in poetry relates to the materiality of language, and what that implies for contemporary visual poetry. Elisabeth S. Frost defines 'visual poetics' as the different ways in which 'the visual in – or as

[5] Jay David Bolter. *Writing Space: The Computer, Hypertext, and the History of Writing*. 1st. ed. Hillsdale, NJ: Lawrence Erlbaum, 1991. 56.
[6] Johanna Drucker, '(In)Visible Women or Gender in Concrete' in *Judith: Women Making Visual Poetry.* Ed. Amanda Earl. Malmö: Timglaset, 2021. 13.
[7] Jamie Hilder. 'Concrete Poetry: From the Procedural to the Performative', *Letters: Michael Morris and Concrete Poetry.* Vancouver: Morris and Helen Belkin Gallery, 2016. 112.

– poetry' can be considered.[8] This definition must first contend with the critical legacy of Gotthold Lessing's *Laocoon*: the seminal text repudiating Horace's notion of *Ut Pictura Poesis* – 'as is painting, so is poetry' – in which Lessing firmly argues that poetry and painting are separate arts. Lessing differentiates strongly between the two arts, and refutes the idea that 'painting is dumb poetry, and poetry speaking painting': he argues that 'they differ both in the objects and in the methods of their imitation'.[9] He defines poetry as a verbal art necessarily occurring in time, while painting is a visual art occurring in space; although, as will be demonstrated, visual poetry and visual poetics complicate this bisection in their occupying of the visual and the verbal dimensions simultaneously, and their theoretical engagement with 'thing-words in space-time', as Augusto de Campos defines it in his concrete poetry manifesto.[10] Drucker differentiates further the distinctions between visual poetry and visual poetics, where visual poetry is taken as 'the fundamental concept of making use of visual elements to reinforce, extend, inflect, or subvert conventional linguistic meaning in a poem', while also accounting for visual poetics as applicable to poetry beyond the multiple different concrete and visual poetry movements, especially as it 'became detached from the context of Concretism, the linguistic and theoretical constructs with which it is engaged also became increasingly varied'.[11] Frost proceeds to define visual poetics as writing that explores 'the materiality of word, page, or screen', invoking Drucker's aforementioned statement that 'all writing has the capacity to be both looked at and read, to be present as material and to function as the sign of an absent meaning'.[11] This approach to visual poetics informs the present chapter's interrogation of these themes, laying the groundwork for the explorations of Chapter Five which looks at how women poets have reacted to and utilised the articulatory potential of visual space outside and beyond the mere language of poetry. In the 2021 anthology *Judith: Women Making Visual Poetry* edited by Amanda Earl*,* visual poetry is 'a global term used for all work that integrates elements of language with another medium or engages with the graphical elements of text and mark making'.[12] As Charles Hartman notes, throughout its histories, 'the spatial characteristics of

[8] Frost, 'Visual Poetics', 340.
[9] Gotthold Lessing. *Laocoon: An essay upon the limits of painting and poetry*. Boston: Robert Brothers, 1887. xi.
[10] Augusto de Campos, 'concrete poetry: a manifesto'. Webpage. https://www.augustodecampos.com.br/concretepoet.htm [Date accessed: 10/08/2022].
[11] Johanna Drucker, 'Experimental, Visual, and Concrete Poetry', 47.
[11] Frost, 'Visual Poetics', 340.
[12] Amanda Earl, 'Introduction: This Book is an Action' in *Judith: Women Making Visual Poetry*, Ed, Amanda Earl. Malmö: Timglaset Editions, 2021. 20.

poetry have always been secondary'[13] despite the fact that 'the convention of "shaped" verse is as old as print itself'.[14] The timeline of this visualism has varied: Willie Van Peer delineates the chronology of visual poetics and typographic experimentation as flourishing in the sixteenth century, followed by a subsequent waning, before a 're-emergence' at the end of the nineteenth century.[15] Visual form has also been identified as coming into being as a 'potentially signifying space' during eighteenth century poetry.[16] However, much of the critical resistance to visual poetry in general can trace its origins to Lessing's argument, along with the 'underlying (aesthetic) forces which control and direct this process of canon formation in this respect'.[17] Norman Bryson posits in 1988 that the phrase visual poetics itself 'contains a promise: that between poetry and the visual there is a kinship or affiliation which allows us to cross from one domain to the other with some kind of ease or sense of natural right of way'.[18] Bryson proceeds to outline the conceptual difficulties encountered when traversing between poetry and 'the visual'; he invokes *Laocoon* as the classical account of blocking the traffic between the two. Lessing's argument is summarised as positing that both painting and poetry 'employ different and incompatible systems of signs', with the signs of painting being 'simultaneous or synchronic', and the signs of poetry being 'diachronic or distributed in time': the more a poetic text tries to describe a visual or to generate an image, 'the more it displays a constitutional inability to achieve the simultaneity which is the image's essence'.[20] As this chapter discusses, however, concrete and visual poetics strive to prove otherwise.

In his comprehensive accounts of the important, yet overlooked, visual element throughout the history of poetry, Richard Bradford employs the term 'visualism', and relegates the various different kinds of poems displaying this particular visual aspect along a 'sliding scale'.[19] This scale operates as a means of distinguishing between three types of poem: purely graphic texts such as concrete poems, regular verse in which 'no essential tension exists between what we see on the page and what we hear', and finally, poetry that

[13] Charles Hartman quoted in Ian Davidson, *Ideas of Space in Contemporary Poetry*. Basingstoke: Palgrave Macmillan, 2007. 132.
[14] Michael Davidson, *Ghostlier Demarcations: Modern Poetry and the Material World*. Berkeley: University of California Press, 1997. 11.
[15] Willie Van Peer, 'Typographic Foregrounding', *Language and Literature* 2 (1993) 12.
[16] Yra Van Dijk, 'Reading the Form: the function of typographic blanks in modern poetry' in *Word and Image* 27:4 (2011) 407.
[17] Van Peer, 'Typographic Foregrounding', 12.
[18] Norman Bryson, Intertextuality and Visual Poetics', *Style* 22:2 (1988) 183.
[20] Ibid.
[19] Richard Bradford, *Graphic Poetics: Poetry as Visual Art.* London: Continuum, 2011. 20.

displays an effect whereby 'the spoken pattern and spatial juxtaposition engage separately with the cognitive faculties of ear and eye and create two layers of signification within the same text'.[20] Even before Bradford interrogated this aspect of poetry, an awareness of the importance of visual form in poetry in general, especially in the context of silent reading, had permeated critical discourse: Paul Fussell explores this: he discusses how encountering a poem visually, silently, is very different from the 'presumptuous' auditory experience of poetry. He queries, 'what happens when we, as we usually do, encounter a poem through silent, solitary reading? What is the nature of the rhythmical phenomena when our eyes rather than our lips or ears are doing the primary work?'.[21] Although Fussell is speaking here of the metrical context of poetry reading, his questions are important: he also notes how even the technique of scansion, defined accordingly, involves the determining of meter by 'translating it from a temporal into a visual dimension'.[22]

The general histories of visual poetics usually travel along what has 'increasingly become a standard line that includes Mallarmé, Apollinaire, Dada, Russian constructivism, lettrisme, concrete and visual poetry'.[23] After accounting for pattern and shaped poetry from antiquity, this standard line usually pauses at George Herbert's 'Easter Wings' (Fig. 2), the experimental poetic layout of which reveals a 'remarkable symmetry in form and content' where 'typography and theme form a symbiotic whole'.[24]

[20] Ibid, 2.

[21] Paul Fussell, *Poetic Meter and Poetic Form*, London: Random House, 1965. 6.

[22] Ibid, 17.

[23] David J. Bolter quoted in Alan Golding, 'Language Writing, Digital Poetics, and Transitional Materialities', *New Media Poetics: Contexts, Technotexts, and Theories.* Eds. Adelaide Morris and Thomas Swiss. Cambridge, MA: The MIT Press, 2006. 249.

[24] Van Peer, 'Typographic Foregrounding', 11.

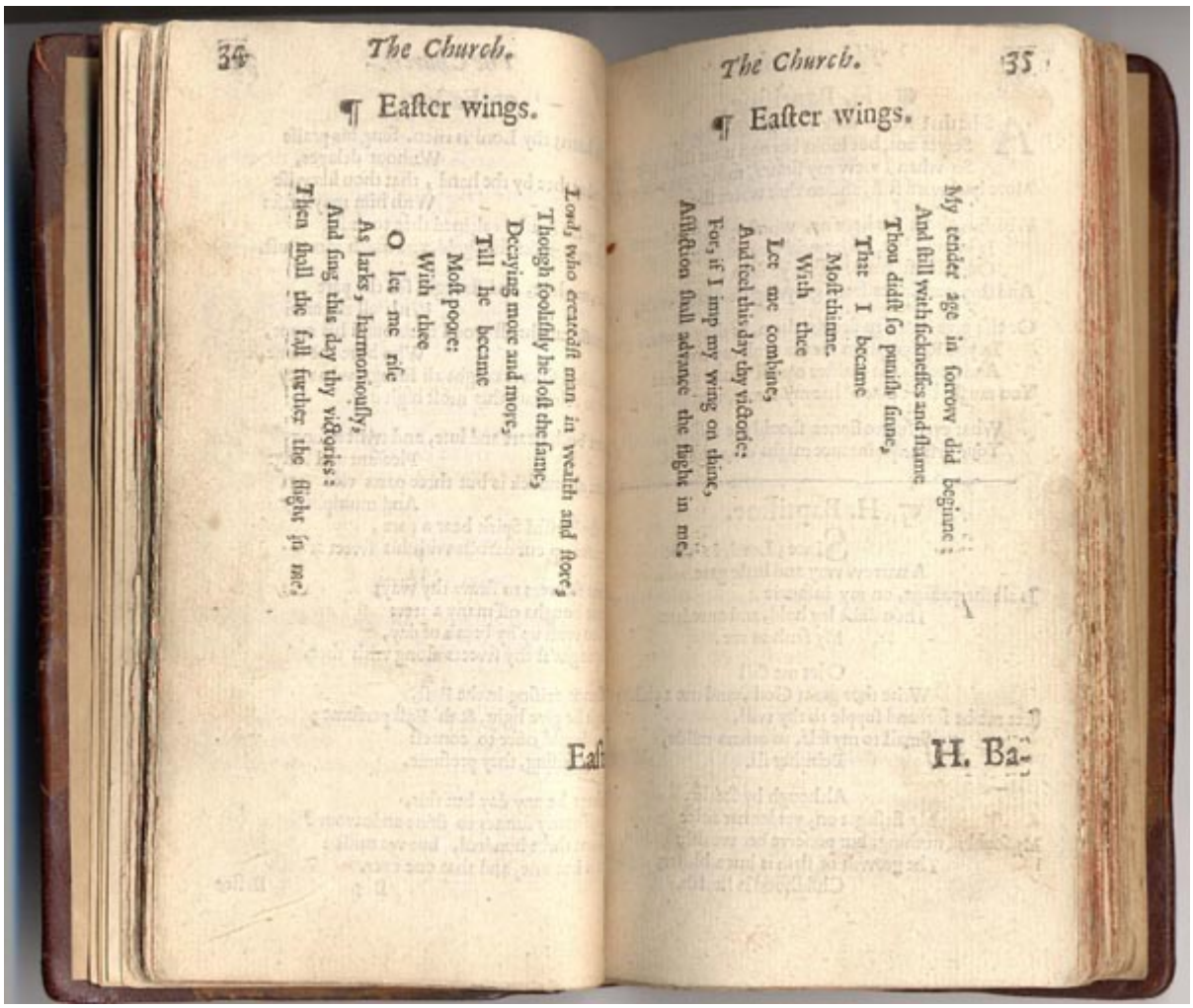

Fig. 2. George Herbert's 'Easter Wings'

Many of the aesthetic and theoretical ideas informing the early concrete poetry movements are present in Herbert's famous poem: it is 'an icon, boiling down complex ideas into a single, easily digested image', its content 'embodied in the image of the words'.[25] Crucially, this poem is important because of how its meaning is not just reflected in its topography, but actually facilitated: 'the poem will not yield its meaning unless one reads the visual shape of as part of its carefully controlled symbolic language'.[26] Revisiting Herbert's poem in the contemporary moment demonstrates its remarkable dynamism in fusing the religious symbolism of wings with other precedents of visual poetry, perhaps most notably Simmias of Rhodes, whose poems in the shape of wings (Fig. 3) and an egg (Fig. 4) provides other ancient precedents along the standard line, participating in the *carmina figurata* tradition,

[25] Kenneth Goldsmith, *Uncreative Writing: Managing Language in the Digital Age.* New York: Columbia University Press, 2011. 56-57.
[26] C. C. Brown and W. P. Ingoldsby, 'George Herbert's "Easter Wings"'. *Huntington Library Quarterly* 35:2 (1972) 131.

which ‘normally but not exclusively resemble the contours of the objects that they describe’.[27]

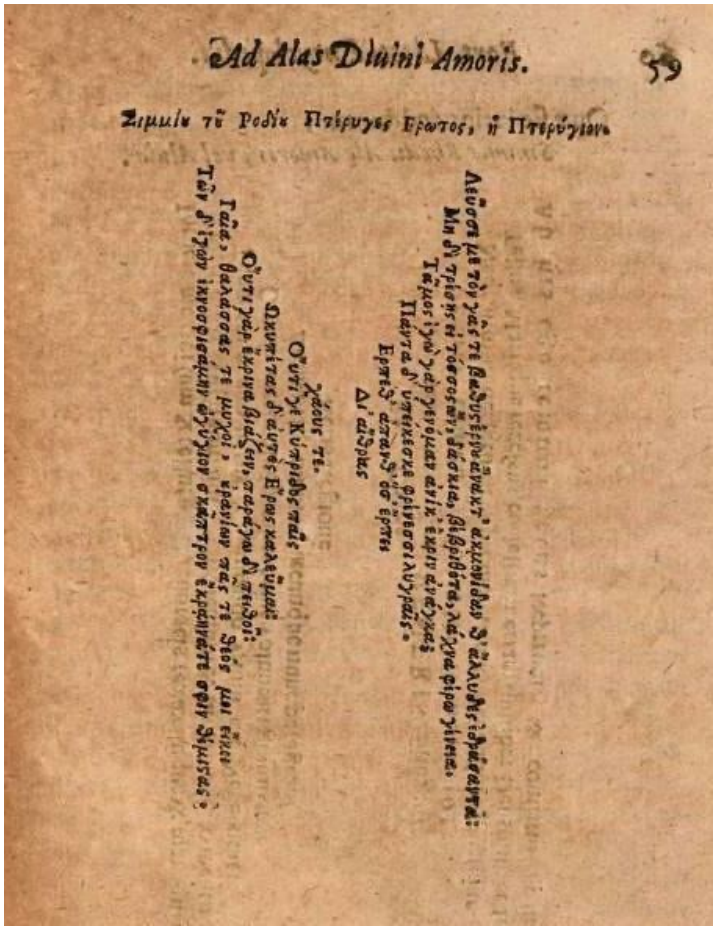

Fig. 3. Simmias of Rhodes’ poem in the shape of wings.

Simmias of Rhodes’ famous depiction of an egg in his poem circa 325 B.C, which has been read as ‘a hermeneutic reflection on the process of poetic creation in the new literary world’, also plays with sound, utilising metrical innovations to ‘produce novel patterns’.[28]

[27] Lars Elleström. ‘Visual Iconicity in Poetry: Replacing the Notion of “Visual Poetry”’ *Orbis Litterarum* 71:6 (2016) 443.

[28] Jan Kwapisz, ‘The Three Preoccupations of Simias of Rhodes’ *Aitia* [online] 8 (2018) https://journals.openedition.org/aitia/2117#quotation [Date accessed 6/8/2022].

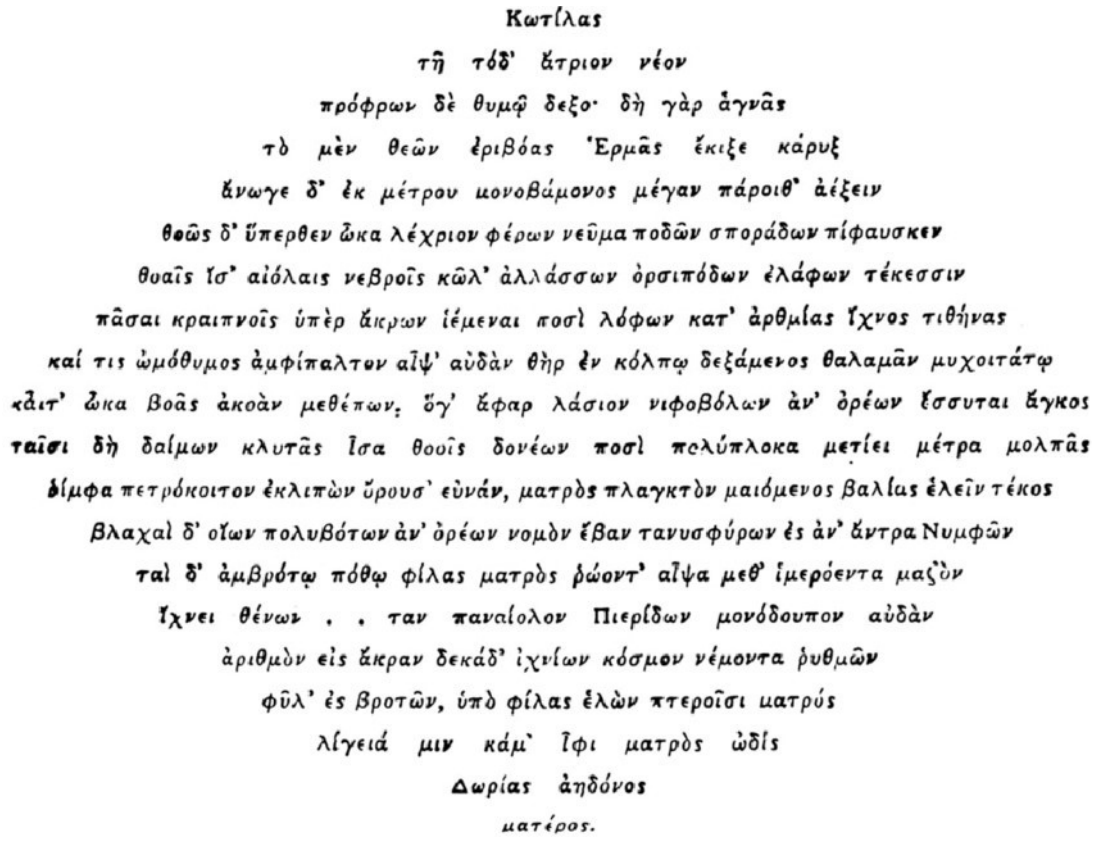

Fig. 4. Simmias of Rhodes' egg poem.

Investigating the standard line quickly reveals how it is always in a state of being redrawn. Its rich history can even be traced through medieval times, Bolter writes how 'medieval illumination threatened to turn letters back into images or abstract designs and sometimes made the letters all but impossible to read'.[29] He continues that the best-known example of this is perhaps in the *Book of Kells*, 'where the Greek letters chi-rho-ta (standing for Christ in *Matthew* 1.18) occupy a whole page': on this page, the design is so intricate that 'the shapes of the letters are almost completely obscured'.[30] Yet, these illuminated letters 'remain part of the verbal text: they have to be included in order to read the verse. They constitute the perfect interpenetration of picture and word space'.[31] Most recently, Marjorie Perloff has suggested the inclusion of T. S. Eliot as a 'precursor of Concrete poetry' in her 2021 text *Infrathin*, where she reads his poetic language in *Little Gidding* as 'a brilliant verbal-visual sonic complex that is an important forerunner, not only of American mid-century poets like Lowell and Roethke, as is generally recognised, but also of Concrete poetry, specifically that

[29] David J. Bolter, 'Seeing and Reading' in *The New Media Reader,* Eds Noah Wardrip-Fruin and Nick Montfort. Cambridge, MA: MIT Press, 2003. 685.
[30] Ibid.
[31] Ibid.

of Ian Hamilton Finlay'.[32] Gregory Betts terms this evolving historical trajectory the 'habitual narrativization of concrete and visual poetry' which maps a path from Mallarmé all the way through the various iterations of visualism and experimentation in poetry, to arrive at the 'coincidental intersection of Swedish poet Öyvind Fahlström's "Manifesto for Concrete Poetry" (1953) and the Noigandres poets in Brazil adopting the same name for their visual poetics in 1955'.[35] This redrawing of the standard line has increasingly come under scrutiny for its initial lack of inclusion of the work of non-Eurocentric artists and practitioners. Betts makes this point especially succinctly when he writes:

> Certainly, any history of visual poetics that does not acknowledge petroglyphs, hieroglyphs, or runic work, or that does not acknowledge the international proliferation of visually impacted literary forms, such as Magha's *Shishupala Vadha* with its palindromes and Chitra-kavya visual language wheels, is a false history of the form, intrinsically local (in Canada's case, ultimately Eurocentric), and of increasingly diminishing value.[33]

This is a very important point. Betts asserts that 'decolonised (and decolonising) visual poetry reacquaints language use with its visual roots while disrupting the political status quo in the present'.[34] While the present project does not engage as readily with the previously unheard voices that deviate from the standard line, it aims to address as much as possible the patriarchal narrative of visual poetics, especially in Chapter Five, which almost exclusively deals with visual poetry by women.

Examining the early twentieth century's explosive proliferation of visual poetry and visual work proves fascinating, especially when considering the overall evolution of the experimental avant-garde during this period, as the much-documented impulse to 'make it new' took hold. Much of the experimentation of this period has actually been deemed interdisciplinary itself, although interdisciplinarity here is meant in the sense of intermediality: the blurring of boundaries between art disciplines that recall the traditions of 'the historical avant-garde movements (Futurism, Dadaism, Constructivism, and Surrealism)'.[35] The anglophone poets of the first part of the twentieth century were acutely

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[32] Marjorie Perloff, *Infrathin: An Experiment in Micropoetics.* Chicago: University of Chicago Press, 2021. 18

[35] Gregory Betts, *Finding Nothing: The VanGardes, 1959-1975.* Toronto: University of Toronto Press, 2021. 179.

[33] Ibid, 207.

[34] Ibid, 210.

[35] Tanya Augsburg, 'Interdisciplinary Arts' in *The Oxford Handbook of Interdisciplinarity*, 2nd Edition. Eds. Robert Frodeman. Oxford: Oxford University Press, 2017. 134.

aware 'of the visual structure and appearance of the work on the page', although even at that time, engaging with materiality in poetry meant more than mere 'typographic manipulation'.[36] As new art forms such as 'collage, concrete poetry, sound poetry, performance art, montage, photomontage, assemblages, constructions, readymades, mobiles, and kinetic sculptures' emerged, they were grounded in artistic innovation, revolutionary aspirations, and a sense of the new, and their radical openness was 'foundationally integrative' for the disassembling of disciplinary boundaries, as 'the avantgarde combined established art genres and incorporated materials not previously included in, or considered as, art or art media'.[40] Along with the presence of these emerging artforms, the complex aesthetic projects of typographic experimentation in the early twentieth century posed a challenge to criticism: to develop a 'critical method which was not derived from either literary criticism or visual arts theory'.[37] Verbo-visual artworks, concrete poetry, Vispo, Lettrism, and all the other associated movements fused verbal and the visual modes as the visual element of artforms became more and more prevalent. While the conception of visual poetics stretches further back than the flurry of concrete poetry movements from the nineteen-fifties onwards, it is arguably around this particular movement that some of the most radical and relevant theoretical experimentation occurs, precisely because it intersected so pertinently with evolving technologies. Although, as Jamie Hilder writes, one of the most difficult obstacles one encounters when writing about concrete poetry in particular is determining 'whether it is a movement or a form, or both, and when, if at all, it stopped being a viable category of poetic composition'.[38] John Corbett writes how the earliest recorded use of the epithet 'concrete' is 'pleasingly' discovered in the *Oxford English Dictionary* in 'a late 15th-century treatise on alchemy', where its original meaning meant 'united or connected by growth': a definition that Corbett reads as apt for a contemporary consideration of the evolving definition of concrete.[39] In its original – and arguably purest inception – concrete poetry aimed for 'the collapse of structure and meaning into a single indissoluble unit'.[40] The influence of Constructivism was also present here, especially the central idea that 'the work of art could be reduced to an absolute

[36] Johanna Drucker, *The Visible Word*: *Experimental Typography and Modern Art, 1909-1923* (Chicago: University of Chicago Press: 1994) 68 [40] Augsburg, 'Interdisciplinary Arts', 134.
[37] Drucker, *The Visible Word*, 2.
[38] Hilder, 'Concrete Poetry: From the Procedural to the Performative', 111.
[39] John Corbett, 'Introduction', *The Translation and Transmission of Concrete Poetry,* John Corbett and Ting Huang, Eds. London: Routledge, 2021. 1.
[40] Drucker, 'Experimental, Visual, and Concrete Poetry', 46.

minimum of compositional elements, shearing away any traces of the expressive ego to communicate from a space of absolute representational accuracy'.[41] The theoretical ramifications of such a radical notion are often misunderstood, misinterpreted, and maligned, as the discussion of critical responses to concrete poetry later in the present chapter will demonstrate. Greg Thomas provides a concise summary of concrete poetry's emergence and evolution from the 1950s onwards, which accounts for its international nature and theoretical motivations:

> concrete was typically a semantically minimalist, visually oriented literature, wherein small groups of words, detached from sentences, were arranged in visually arresting, often phonetically repetitive patterns. The visual – and to some extent the sonic – form of the poem was intended to secure and stabilize the meanings of the words contained in the graphic-phonetic grid, generating a sort of modernist Esperanto: a global meta-language forged through the vanguard endeavours of poets which would be coherent in the same way to any given interpreter.[42]

In his overview of the history of the pattern poem, which he argues has re-emerged 'in its new guise as the concrete poetry genre', Higgins claims that the appeal of such poetry is 'immediate': it involves 'the recognition of the image',[43] although Higgins somewhat controversially notes the inherent 'unsuitability for any sustained argument of emotional persuasion'.[44] Some take this point further, bemoaning concrete poems as artifacts that 'lie beyond meaning'[45] – but as subsequent chapters demonstrate, these artifacts are not necessarily beyond meaning, but certainly can exist alongside, or in direct opposition to, traditional structures of determining it from poetry. Reviewing concrete poetry's relationship to history, and its various narrativizations through history, as is done here, illuminates how it 'overlaps with artistic and literary output on an international scale', which in turn can 'help us understand how and to what end the visual representation of language persists, and how the work responds to various conditions'.[46]

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[41] Greg Thomas, 'Concrete Poetry and Scottish Women's Writing: The Case of Veronica Forrest-Thomson' *Contemporary Women's Writing* 14:2-3 (2020) 200.
[42] Ibid.
[43] Dick Higgins, 'Pattern Poems' in *The L=A=N=G=U=A=G=E Book.* Eds, Bruce Andrews and Charles Bernstein. Carbondale: Southern Illinois University Press, 1984. 87.
[44] Ibid.
[45] Veronica Forrest-Thompson, *Poetic Artifice.* Manchester: Manchester University Press, 1978. 47.
[46] Hilder, 'Concrete Poetry: From the Procedural to the Performative', 111.

While the minimalist immediacy of many visual poems explores its occupation of both temporal and spatial modes, temporality is sometimes completely eschewed for spatiality in explicitly visual poetry. The pervading influence of Mallarméan poetics in particular can be seen in these cases: exemplified by the 'constellation poem', the concept of which, according to Brazilian poet Haroldo de Campos, 'liquidates the notion of linear development divided into beginning-middle-end', substituting the rhythm of ordinary metrification for 'a circular organisation of poetic material'.[47] With his foundational visual text 'Un Coup de Des', Mallarmé developed 'a visual notion of graphic space',[48] and subsequent explorers of visual spatial dynamics extend this technique or paradigm even further. After all, 'it is above all space — with all the abstract, metaphysical associations of the French term éspace — that structures Mallarmé's text, not form or image'.[49] Mallarmé decomposed phonetic and written language 'as an entity', rearranging traditional syntax so that it was 'possible to work with single words and constellations that include the written surface in the narrative', thus laying the foundations for the concrete poets of the nineteenfifties and sixties.[50] This singular contribution of the notion of visual abstraction – of a poem 'whose form could resemble thought'[51] – freed itself almost totally from the constraints of typical referential meaning with its 'historical priority' and 'uncompromising radicality'.[52] At this point, it is worth noting how the critical language used to describe the form of this poetry invokes the vocabulary of cognition, or, implies the search for a more accurate model of reading that accounts for, represents, or mimics, the saccadic movement of the eye of the reader across the page.[53] Eugen Gomringer – one of concrete poetry's 'founding fathers'[54] – continued the legacy of the constellation-poem, of which Susan Howe comments as 'being a reality in itself and not a poem about something or other'.[55] As Mary Ellen Solt writes of Gomringer's constellation poems, the poet 'determines the play-area, the

[47] Haroldo de Campos, 'The Open Work of Art' *Dispositio* 6:17/18 (1981) 5.
[48] Ibid, 6.
[49] Johanna Drucker, 'Visual Performance of the Poetic Text', *Close Listening: Poetry and the Performed Word.* Ed. Charles Bernstein. Oxford: Oxford University Press, 1998. 130-161. 134.
[50] Simon Mager. *Words Form Language: On Concrete Poetry, Typography, and the Work of Eugen Gomringer.* Trieste: Triest Verlag, 2021. 171-172.
[51] Ibid, 133.
[52] Ibid, 134.
[53] Manguel quoted in White, *Reading the Graphic Surface*, 8.
[54] Eric Vos, 'Critical Perspectives on Experimental, Visual, and Concrete Poetry: An Introduction to this volume' in *Experimental, Visual, Concrete: Avant-Garde Poetry Since the 1960s*. Eds, K. David Jackson, Eric Vos and Johanna Drucker. Amsterdam: Rodopi: 1996. 24.
[55] Susan Howe, 'The End of Art', *Archives of American Art Journal* 14:4 (1974) 2.

field of force and suggests its possibilities' – and it is through this configuration that 'the reader, the new reader, grasps the idea of play and joins in'.[56]

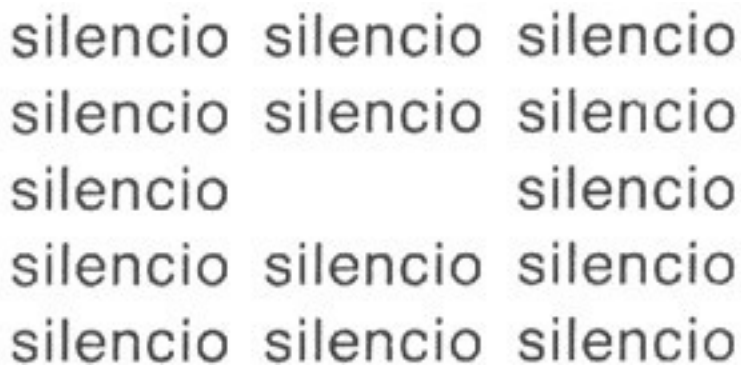

Fig. 5. Eugen Gomringer's 'Silencio' depicting silence as absence.

Gomringer's most famous 1954 concrete poem (Fig. 5) literalises the silence marked by the white space in the centre of the block of repeated word 'silencio', the only true representation of actual silence, revealing the 'relationship between the presence and absence of the typographic sign while at the same time activating its phonetic and semantic qualities'.[57] Of this poem, Gabriel Rosenstock notes the 'essence' rendered visually in the poem's centre: this concrete poem 'asks the same thing of the reader as does the haiku – to complete it. Fill in the silence. With our own silence'.[58] For Simon Mager, the absence of the word 'silencio' charges the blank space at the heart of the poem with meaning: it 'now becomes a semantic value'.[59] This theoretical impulse to include page surface in configuring meaning is also evident in other poetry from roughly this same period and after: in the following Claus Bremer poem, included in Emmett Williams' *An Anthology of Concrete Poetry* (Fig. 6), the materiality of page and text is played with, in a space before the affordances of print technology meant three-dimensional space could be literalised within an artistic context.

[56] Mary Ellen Solt quoted in Bradford, *Graphic Poetics*, 122.
[57] Simon Mager. *Words Form Language: On Concrete Poetry, Typography, and the Work of Eugen Gomringer.* Trieste: Triest Verlag, 2021. 172.
[58] Gabriel Rosenstock, 'Silence! - A meditation of the 1950s poem 'silencio' by Eugen Gomringer'. Poetry Ireland News (2013) https://www.poetryireland.ie/writers/articles/silence-a-meditation-of-the-1950s-poemsilencio-by-eugen-gomringer [Date accessed: 5/8/2021].
[59] Mager, *Words Form Language*, 172.

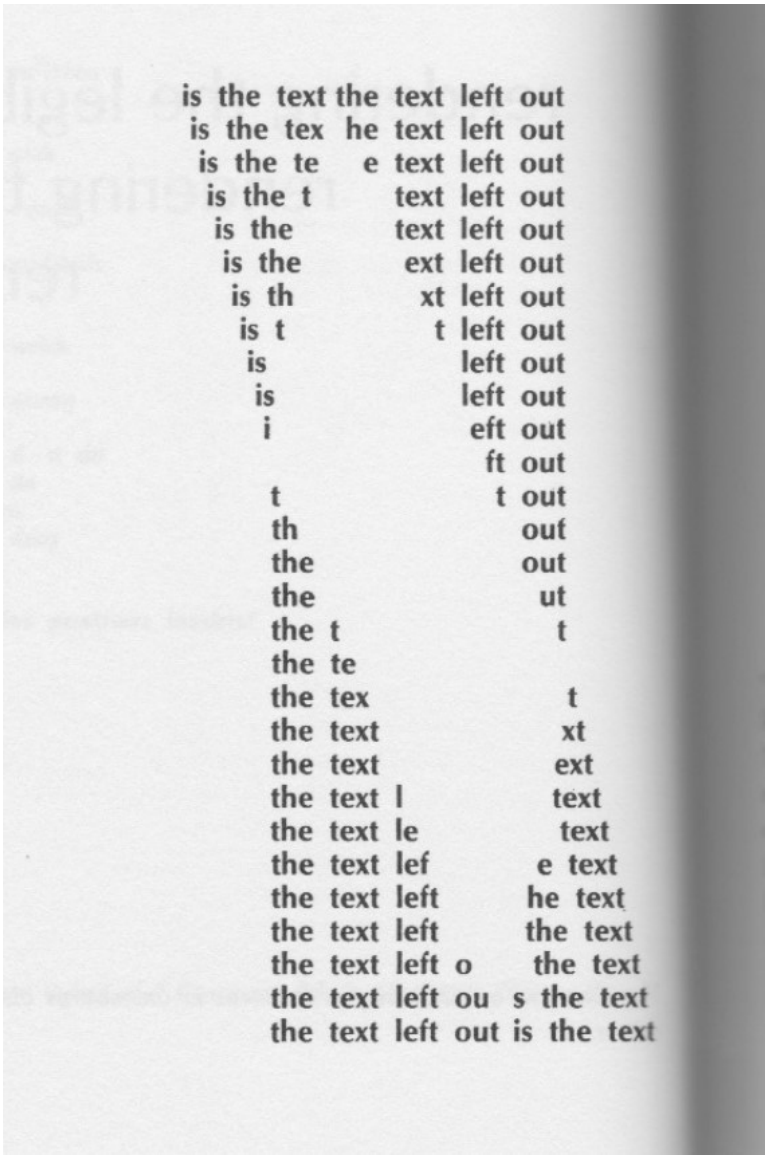

Fig. 6. Claus Bremer's 1964 concrete poem, depicting absence with white space.

Too many instances of this utilising of white space to engage with the materiality of silence and meaning exist to all be categorised here, although most anthologies and collections feature at least some engagement with this facet of meaning: Ilse Garnier explores the limitations of page space, punctuation, silence, and the signifying power of white space (Fig. 7), while in her work *AFTERRIMAGES*, Joan Retallack explores the implications of page and silence through her placement of letters and words: Perloff notes the effect of a 'tiny morphemic afterimage, rendered by Retallack as 's[ ]ent' – a visual reference to the word silent.[60]

[60] Marjorie Perloff, 'Afterimages: Revolution of the (Visible) Word', *Experimental, Visual, Concrete: AvantGarde Poetry since the 1960s*, ed. K. David Jackson, Eric Vos, and Johanna Drucker. Amsterdam: Rodopi, 1996. 341.

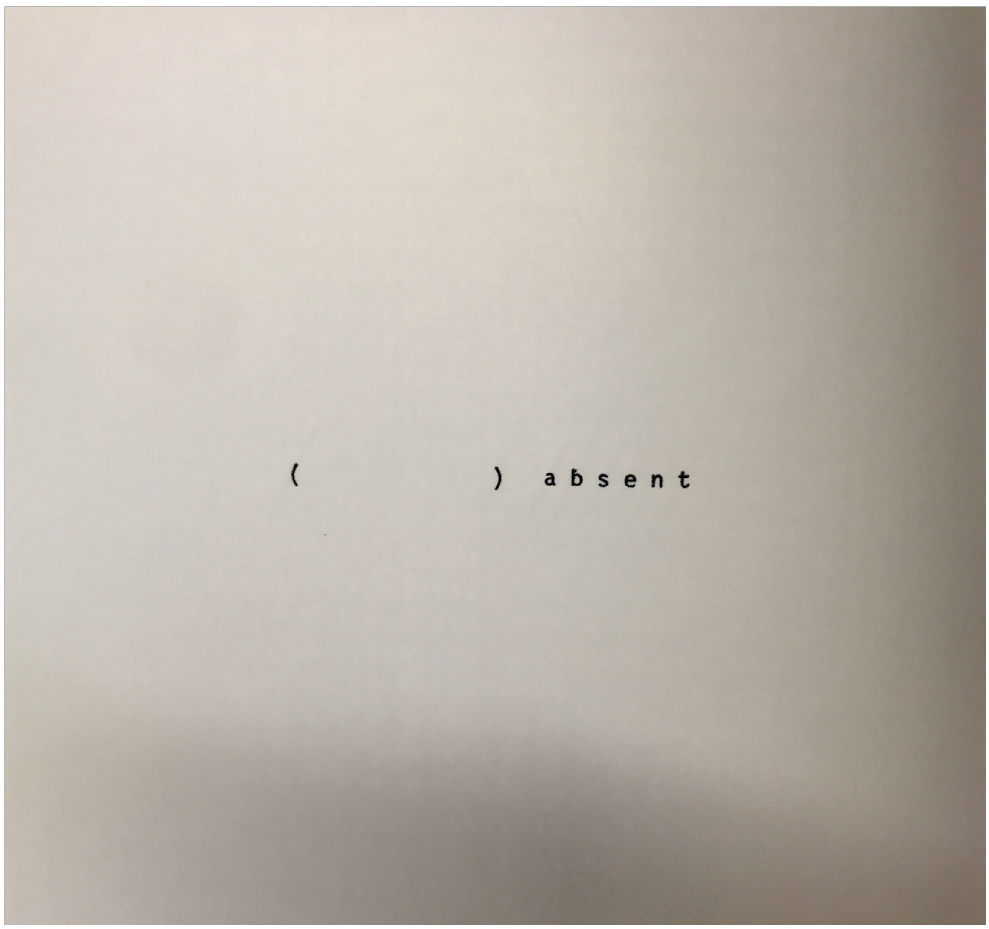

Fig. 7. Ilse Garnier deploying bracketed white space to engage with concepts of silence.

Canadian poet bpNichol also explores the potential of the aural and visual dimension of concrete in an earlier poem (Fig. 8), which plays with the almost silent ‘p’ in the word ‘empty’, again utilising the visual logic of the page to represent the silent ‘p’ in the word.

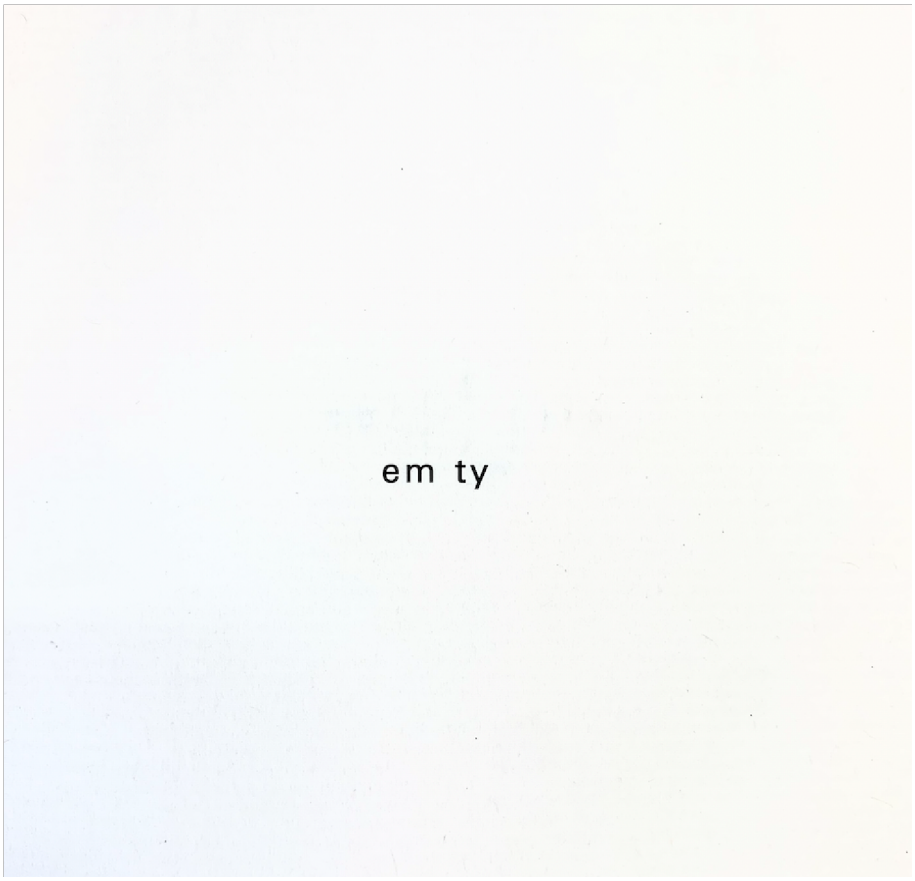

Fig. 8. bpNichol's poem here plays with articulating silence: the 'p' in 'empty' is often not pronounced, thus signifying its own relationship to silence.

The demands that this kind of work places on orienting the reader in relation to the poem is significant: Richard Bradford identifies the interpretive focus in concrete poetry as shifting from 'our awareness of the poet as negotiating and controlling the phenomenon of arbitrary textuality' to the poet as 'having submitted to the autonomy of the text', thereby reducing the 'poet-text-reader equation' to merely 'reader and text'.[61] This anticipates a later theoretical experimentation with 'unreadability', evident in many different poetic works but perhaps most popularised by certain L=A=N=G=U=A=G=E poets – that which according to Bruce Andrews 'requires new readers, and teaches new readings'[62] – thus posing another challenge to the traditional structures of critical interpretation. The occlusion of the presence of the poet in some visual work, often a direct rejection of the lyric 'I', and the demands that this can place on the 'new' reader, again reinforces the critical obstacles that work such as this has faced. 'Unreadability' is a central concern of the present project's critical and empirical investigations: it takes its influence from Andrews' definition here.

[61] Bradford, *Graphic Poetics*, 124.

[62] Bruce Andrews, 'Text and Context', *The L=A=N=G=U=A=G=E Book*, Bruce Andrews and Charles Bernstein, Eds. Carbondale: Southern Illinois University Press, 1984. 31.

Ambiguity regarding the categorisation of work along the standard line still endures: Higgins coined the term 'intermedia' in in 1965 – influenced by Coleridge's use of the phrase 'intermedium' in 1812 – and succeeded in popularising the term as 'an important concept for thinking about new developments in art, even as he eventually lost some of his initial enthusiasm for the term, warning that "it is more useful at the onset of a critical process than at the later stages of it"'.[63] Nevertheless, this term has been useful for describing 'both the blurring of disciplinary boundaries and artworks regarded as "in-between" established art mediums': the concept thus 'introduced multidimensionality to interdisciplinarity with a sense of place (in betweenness) and time (simultaneity).'[64] Higgins' coinage of this term to describe the 'blurring of mediums'[65] and his production of an 'Intermedia Chart'[66] (Fig. 9) to visually demonstrate areas of overlap also indicates this resistance of intermedial work to classification.

[63] Dick Higgins quoted in Augsburg, 'Interdisciplinary Arts', 136.
[64] Augsburg, 'Interdisciplinary Arts', 136.
[65] Chris McCabe, 'A Feldspar of Symbols: A Motorway Journey into the New Concrete', *The New Concrete: Visual Poetry in the 21st Century.* Victoria Bean and Chris McCabe, Eds. London: Hayward Gallery Publishing, 2015. 216.
[66] Davidson, *Ideas of Space in Contemporary Poetry*, 126.

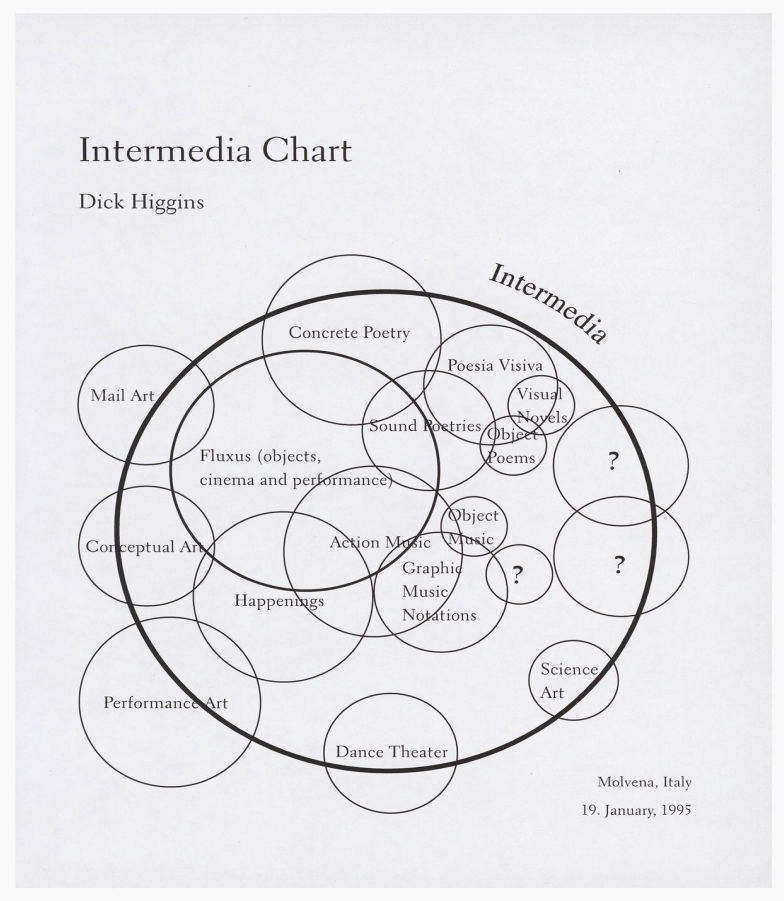

Fig. 9. Dick Higgins's intermedia chart.

Conceptualising the overlapping fields still does not account fully for the work that deliberately occupies the interstices between defined categories and taxonomies. Regarding visual poetry specifically, Higgins identifies three characteristically spatial elements – these comprise of the breaking of linearity, transcendence of the verbal text, and a near separation of *langue* from *parole*.[67] This is often accompanied, as Brian McAllister notes, by an 'outright rejection' of narrative as a structuring system.[68] Yet, in tandem with many of the attempts to define it throughout the decades, there remains the sense that it is the ambiguity of what actually qualifies as visual poetry – and its inbuilt resistance to existent systems of classification and analyses – that constitutes its radical, propulsive nature. Concrete poetry itself – 'concrete as opposed to what? Abstract?' as Emmet Williams queries[69] – was multi-faceted, and often a disharmonious and complex movement, its politics and theory alternately muddied and clear at different points throughout its history.

[67] Brian J. McAllister, ''Narrative in Concrete / Concrete in Narrative: Visual Poetry and Narrative Theory', *Narrative* 22 (2014) 234.
[68] Ibid, 235.
[69] Emmett Williams, *An Anthology of Concrete Poetry*. Primary Information, 2013. *v.*

The makers of this new poetry in the fifties were 'not antiquarians, nor were they specifically seeking the intermedium between poetry and painting'[70] – rather, their visual element tended to be structural, not merely 'textural'.

> This was a poetry far beyond paraphrase, a poetry that often asked to be completed or activated by the reader, a poetry of direct presentation… using the semantic, visual and phonetic elements of language as raw materials in a way seldom used by the poets of the past.[71]

The idea of a poetry that requires 'activating' by the reader places the notions of meaning and subjectivity into a somewhat contested space, and as will be demonstrated in later chapters, it is with an awareness of the history of this genre and its relationship to its reader-viewer that it is incorporated into the empirical paradigm.[72]

Along with the interest in exploring the theoretical limits of language, there were also radical, political origins motivating the experimentation with the visual in poetry, that still enact an influence. This can be seen especially in contemporary visual poetry by women, which often engages directly with the politics of gender. Concrete poetry, touted as 'arguably "the first international poetical movement" of the 20th Century', showcases an engagement with the radical politics that were contemporaneous with its different geographical locations.[77] The 'confused geography of its beginnings' is indicative of 'the universality of its roots': many synchronous instances of this kind of work seemed to arise at the same time, as practitioners experimented with this 'new' form, even coining the term 'Concrete' independently and simultaneously.[73] Its motivations proved rather pure: one of its central concepts, its 'revolutionary mandate, if you will – was that an entirely accessible global culture could emerge from the fusion of visual and literary arts, modelled on but subverting the aesthetic of international corporate advertising'.[74] In Brazil, to take one example, concrete poetry related directly to ongoing political turmoil, evidenced through the Noigandres group, whose work 'eschews representation and emotive content in favour

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[70] Ibid, *vi.*

[71] Ibid.

[72] This idea has been advanced n a 2018 PhD thesis by Patrick Errington, who proposes a 'co-creative' response to contemporary lyric poetry which demonstrates the need to 'pluralise' the attentive orientation of the reader by endorsing imitation, versioning or hommage. This is part of what is construed as an 'enactive' response to such poetry, although Errington does not deal explicitly with visual or concrete poetry. [77] Derek Beaulieu, 'Another piece of reassuring plastic: 8 notes on what the Noigandres group taught me', *A Journal of Canadian Literary and Cultural Studies*, 6 (2017) 69.

[73] Williams, *An Anthology of Concrete Poetry*, vi-vii.

[74] Betts, *Finding Nothing*, 179.

of rationality, graphic design, and the "tension of thing-words in spacetime"'.[75] These political origins are still engaged with today: in Amanda Earl's recent anthology, Brazilian visual poet Lenora de Barros's work 'Silencio' continues on the legacy of the Noigandres group by combining Gomringer's infamous silence with in her ongoing, evolving output (Fig. 10).

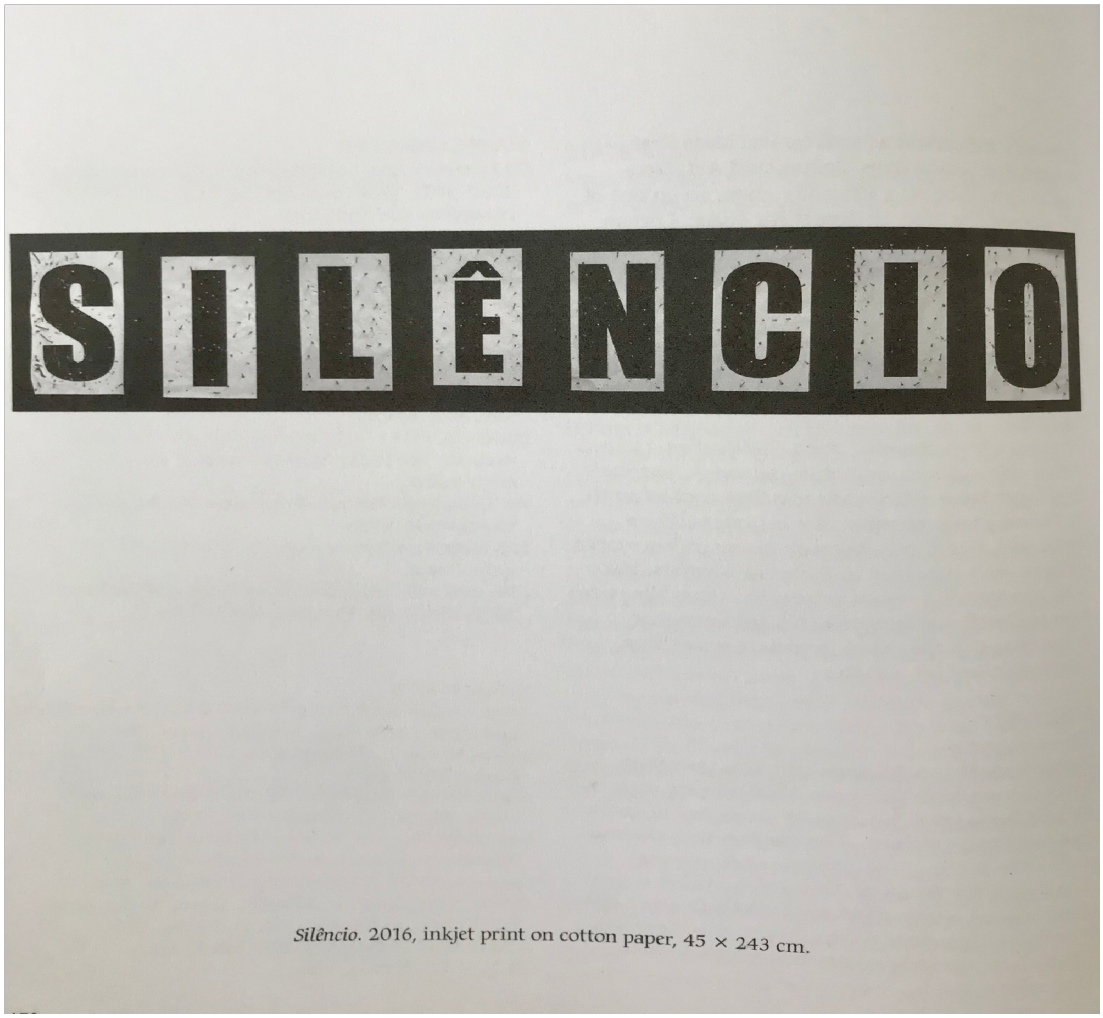

Fig. 10. Lenora de Barros's work 'Silencio'

The nails evident in this poem are loudly affixed by de Barros during a 'performance' of this work (Fig. 11) exploring both the articulation of silence, instantiated by Gomringer, and the question of women's silence in the face of patriarchal authority, and calling into question the 'demarcation between the work of art and the experience of art-making'.[76]

[75] Beaulieu, 'Another piece of reassuring plastic', 69.
[76] de Balgiu & de la Torre, 'Introduction', *Women in Concrete*, 16.

Fig. 11. The active 'performance' of this work, in which de Barros hammers in the nails.

To attempt to define the parameters of concrete and visual poetry here is to work against 'the variegated networks of formal features and other movements that coalesced into the specificity of some types of concrete work'.[77] While concrete is often yoked together with visual poetry, ultimately it is visual poetry in general, that evades critical taxonomies: as demonstrated, the vocabulary to even define it in the first place is often lacking, incomplete, or contested. Concrete poetry, as an especially well documented facet of visual poetry, was nonetheless 'blessed with a disunity that unshackles it from the aims and aesthetic principles of the many manifestoes it has engendered'.[78] Accordingly, as will be detailed later in the chapter, critical approaches to hybrid visual-verbal works tend to vary, depending on discipline, influence, and context. Its very nature marks it out as especially appropriate for innovative approaches to contribute to the discourse on how we respond to, and read, this kind of work.

The history of visualism in prose also merits mentioning, especially since visual poetics, as demonstrated thus far, frequently borrow and engage with other genres and mediums. An experimental use of visualism can be traced too throughout this history: Lawrence Sterne's use of a blank page in Volume 6 of *Tristram Shandy*, Carroll's shaped

[77] Betts, *Finding Nothing*, 187.

[78] Williams, *An Anthology of Concrete Poetry*, *vii*.

mouse tail poem in *Alice's Adventures in Wonderland*,[79] the use of smaller typeface to denote the voice of the flea in *Through the Looking* Glass.[80] Glyn White coins the concept of the 'graphic surface' of the printed page: an element of the field of signification of the literary text that often goes overlooked and unread. Poetry is a medium in which it does not go unnoticed, although his study concerns itself with textual work that does not specifically engage in poetic traditions that are explicitly concrete or visual, setting up an interesting distinction between poetry and prose. White invokes both Viktor Shklovsky and Steve McCaffery in this assessment regarding the importance of the line endings of text: in poetry each shape counts, while prose encourages 'inattention to the right hand margin as a terminal point'.[81] White namechecks the standard line in his own overview of the graphic surface – he also notes Sterne's famous use of the black page in *Tristram Shandy*[87] – mostly outlining the presence of the graphic surface as a site of visual experimentation across prose works as well as poetic, although he interestingly observes a general lack of the visual element evident during the nineteenth century. However, this can be reasonably well accounted for by examining the material conditions of literature production: paper was cheap and 'public appetite for the written word' was high.[82] White observes how this engagement with visualism is reflected in William Morris' approach to type, as well as some of the more diverse authors of prose that are also referenced. Ultimately, the 'muffled and sporadic' use of the graphic surface in literature is accounted for by its being 'at once strikingly new and old hat'.[83] It is both radically disruptive of the conservative space of the page, but also part of a long, active tradition of visualism across literature. The focus of White's study remains on prose texts, on 'how these elements are put to use, and how the arrangement of printed text can contribute directly to the meaning of the narrative that it mediates'.[84]

While most of these critical overviews touch on familiar names and move along the standard line, with some variations in timeline, definitions, and outliers, a valuable perspective on this historical timeline verges on the metacritical. This analysis is one which

[79] Lewis Carroll, *Alice's Adventures in Wonderland*. Oxford: Oxford University Press, 2009. 25.
[80] Glyn White, *Reading the Graphic Surface: The Presence of the Book in Prose Fiction.* Manchester: Manchester University Press, 2014. 59.
[81] Steve McCaffery quoted in White, *Reading the Graphic Surface*, 9.
[87] White, *Reading the Graphic Surface*, 59.
[82] Ibid.
[83] Ibid, 61.
[84] Ibid.

accounts for the differing critical perspectives that analyse the trend of visualism, and what an analysis of these might contribute to an ultimate Neurohumanities perspective. Drucker, for example, attempted the construction of a 'theoretical model of materiality'[85] adequate for the interpretation of typographic signification, the process of which led her to making the argument for the significance of visual materiality in all written forms of language.[86] To return in more depth to Richard Bradford's conception of 'visualism' and the 'sliding scale': Bradford's main focus is on the poetry of what he describes as neither overtly concrete poetry, not poetry that is written to be read aloud, but poetry of a third category. These are instances of poems whereby the 'it' that stands outside the poem – 'the ideational mental image created by the words' – is successfully blended with the 'it' of the poem itself and inscribed within the materiality of the text.[87] When this blend is regular and persistent, it is identified as what he terms the 'double pattern', and his scholarship focuses on this phenomenon by appealing to his selected examples. This account provides perhaps the most nuanced analysis of visualism in relation to the history of poetic tradition. Bradford posits Milton as playing a vital role 'in the founding of visual poetry': in an example he frequently invokes, the opening lines of Book One of *Paradise Lost* play a valuable role in this establishing this visual dimension: 'Of Man's first disobedience, and the fruit / Of that Forbidden Tree, whose mortal taste / Brought Death into the World'.[88] Milton's use of the 'fruit' suspended at the line ending serves as 'both the literal object of man's temptation and the figurative, thematic, fruit of a chain of events which, as the syntax goes on to reveal, 'brought death into the world'. James Longenbach also invokes John Hollander's assessment of Milton's enjambments, slightly more conservatively noting how they serve to 'annotate' his syntax.[89] Bradford's account of poetry's ability to engage with the materiality of language beyond the level of the word alone supports the present chapter's engagement with the effect of visual poetry, and shows how the more pronounced the visual dimension of poetry, the more inaccessible it appears to be to familiar modes of literary analysis. Although, at certain junctures some critics have engaged with this dimension: for example, Christopher Ricks has examined how William Wordsworth found a metaphorical dimension in relating his words 'to that presence on the page which can be potent though invisible: the

[85] Drucker, *The Visible Word*, 2.
[86] Ibid, 3.
[87] Ibid.
[88] John Milton, *Paradise Lost*: *A Poem in Ten Books. Project Gutenberg.* October 1991. http://www.gutenberg.org/files/20/20-h/20-h.htm#link2HCH0001 [Date accessed: 25/6/20]. 14.
[89] James Longenbach, *The Resistance to Poetry*, Chicago: University of Chicago Press, 2004. 14.

white space'.[90] This engagement with the white space of the page anticipates the activation of the semantic potential of page space as referenced thus far. Bradford's focus on what he defines as the trait of 'interaction' – essential for a poem's inclusion on the sliding scale – is important again for how it, yet again, invokes space and time: he defines it as an interaction through which the poem creates a distinction, 'and consequently an interpretive tension between the spatial and the temporal'.[91] His inclusion in this overview is significant because it demonstrates how 'visualism', in his sense of the word, permeates other poetic genres, further blurring the borders of the categories of visual poetry.

Another perspective through which visualism in poetry can be considered concerns this performative element of the visual text: the visual element can also constitute a kind of performance of the poem. Drucker comments how within poetry, a 'performance' of the poem is most often associated with a speaking/performance event whereby the poem is delivered aloud, but in actuality the visual performance of a poetic text is enacted upon the page, or medium, through which the poem is presented, and this also has the qualities of an 'enactment'. Through these means, 'the specific quality of presence in such a work depends upon visual means—typefaces, format, spatial distribution of the elements on the page or through the book, physical form, or space'.[92] This specific conception of performativity, she argues, shifts the focus away from the poet as performer of the work, towards an 'instance of expressive means creating effect without direct connection to the presence of the artist, a performance in which the performer is the visual form'.[93] This way of looking at the visual properties of work, acknowledging that they carry value – 'whether that value is directly translatable into linguistic or semantic equivalents or not'[94] – is a crucial step in conceptualising how the visual poetics of a poem operate. This perspective on the materiality of poetry, and how that can influence the reception of meaning, is evident across different genres of poetry: the 'effect of expressive means' which results in optically perceptible information of material form whose impact varies from insignificantly incidental (merely bearing some trace of the historical circumstances of production) to manifestly

[90] Christopher Ricks, 'William Wordsworth: A Pure Organic Pleasure from the Lines' in *William Wordsworth's The Prelude: A Casebook*, ed Stephen Gill. Oxford: Oxford University Press, 2006. 56.
[91] Bradford, *Graphic Poetics*, 120.
[92] Drucker, 'Visual Performance of the Poetic Text', 131.
[93] Ibid, 159.
[94] Ibid.

integral to the work (the very stuff of the piece itself, inseparable from every aspect of its poetic function).[95]

If this visualism and materiality are so central and linked – never 'an excess, never a surplus, never an addition to the work' but rather the 'performative instantiation of the work, its condition of being as a thing, a piece' – then, as Drucker continues, 'a work that uses visual means as its material makes these an essential aspect of its very existence as a poem'.[96] Therefore, across the spectrum of critical responses to visualism in poetry and prose, there are more and more voices articulating the importance – and often, the essential nature – of this visual dimension across time and across genres. How the visual dimension of poetry – and in poetry – this evasive, ambiguous, but resolutely present element, that engages fundamentally with the materiality of page space, of poetry, and of language itself, can be interrogated using a Neurohumanities approach, constitutes the focus of the remaining chapters.

Materialities: Historical, Transitional, Linguistic

Another aspect to consider in the history of this visualism, especially relevant to the ultimate Neurohumanities perspective of the present project, relates to the material conditions influencing – and in some cases determining – the evolution of visualism in relation to text. Form – poetic or otherwise – is always historically inflected, and whether for better or for worse, 'neither the subject, nor history, nor interpretation can escape the specific constraints of their circumstances of production'.[97] Similarly, the historiographical element to this is also worth noting: Drucker comments upon the sheer cost of reproducing quality visual work in educational materials which, in her own experience, 'mitigated against graphical poetry', in turn influencing the lack of exposure to visual poetry in the education system, and thus reiterating the phonocentric bias evident not just in the criticism of poetry, but in the very circumstances of its dissemination.[98] The significance of material conditions can be traced back much further than the present project has the space to consider, although worth noting is the diligent, painstaking work of medieval illumination, also evident in various different calligraphic traditions, which 'embodied a dialectic between writing and the world', providing a 'means by which writing could describe or circumscribe the world –

[95] Ibid.
[96] Ibid, 159-160.
[97] Drucker, *The Visible Word*, 5.
[98] Drucker, '(In)Visible Women', 10.

not symbolically through language, but visually through the shape of the letter itself'.[99] A brief note on the age of print and mechanisation: the history of typography reveals a gradual trend of defining the writing space with 'progressively less ink and more white space', and an awareness of the diminishing presence of the author/creator in the finished product: utility of design meant that punchcutters produced serifs which became straighter and thinner, as typefaces 'betrayed less and less the hand of the craftsman'.[100] This trait in itself foreshadows the supposed occlusion of the presence of the poet from much visually-inflected poetry, especially across the different international lineages of visual poetries, each of which developed differently according to their differing material and political contexts. In the early twentieth century, Marinetti's Futurist provocations also inspired this move away from the nostalgia of the past within the European tradition; which in typographic terms, called for 'jettisoning the highly decorative pages of Victorian design, with predominantly floral and organic motifs, in favour of a mathematically precise and streamlined mode'.[101] In 1991, Bolter generally assessed the printed page as remaining 'a conservative writing space' – and printing a somewhat 'frozen medium'[102] – certainly constrained by the material conditions of the two-dimensional printed surface. This conservatism of the page was evident even in experimental literature, the writers of which were 'deeply attached to the idea of a transcendent presentation in which the crass material of graphicality played no part', despite the fact that many of these experimental writers were simultaneously insisting upon a Marxist reading of the material aspect of literary production.[103] Although Bolter's work is understandably now dated, his characterisation of the 'late age of print' and critical commentary on the emerging presence of the Internet in the late nineties captures an important moment in the conceptualising of writing space: 'with any technique of writing – on stone or clay, on papyrus or paper, and on the computer screen – the writer may come to regard the mind itself as a writing space'.[104] Bolter thereby posits that the behaviour of this writing space 'becomes a metaphor for the human mind as well as for human social

[99] Jay David Bolter, 'Seeing and Reading' in *The New Media Reader,* Eds, Noah Wardrip-Fruin and Nick Montfort. Cambridge, MA: MIT Press, 2003. 685-6.
[100] Ibid, 680.
[101] Johanna Drucker, *The Alphabetic Labyrinth: The Letters in History and Imagination*. London: Thames & Hudson, 1995. 285.
[102] Ibid, 681.
[103] Drucker, '(In)Visible Women', 13.
[104] Jay David Bolter, *Writing Space: Computers, Hypertext, and the Remediation of Print*, 2nd Ed. Mahwah, N.J.: Lawrence Erlbaum Associates, 2000. 13.

interaction'.[105] This is an idea that echoes the influence of Mallarméan poetics and anticipates some of the more experimental configurations of later North American and women visual poets such as Judith Copithorne, who were undoubtedly influenced by cross-pollination with the European visual tradition. Her hand-written concrete poems navigate the 'complex intersection of concrete poem, body and writing' in ways that her male counterparts did not, foregrounding the nuances of the gendered experience of materialities in poetry, which will be expanded upon in later chapters.[106]

Other determining material conditions that also deeply influenced the development of visual poetry and poetics across both European and North American traditions include the invention of the typewriter, a fundamental instrument for the configuration of a new visual field in print media, which was 'an information machine that, like the computer, radically affected the Western notions of expression and communication'.[107] In some senses, the use of the typewriter in unleashing the latent power of visualism in poetry implemented the logic of the grid, that 'emblem of modernity',[108] within the field of visual poetics by delineating a contained surface area within which to configure meaning via the arrangement of typewriter text upon the 'ground state' of the page. It enabled poets to discover that it was 'a useful device for dealing with language in a material way', particularly within the spheres of the avant-garde, where it allowed the literary world to establish a 'tenuous toehold in the world of the visual'.[109] Although typewriter art has been experimented with since the inception of the machine, the 'golden age' of the typewriter is also intrinsically linked to the concrete poetry movement.[116] However, consideration must also be given to the tension evident between the typewriter's opening up of visualism and Charles Olson's lauding of the typewriter as facilitating 'a more exact register of vocal intentions'.[110] While some artists utilised it to explore the visualism possible within its parameters, Olson and his followers saw its benefit more in terms of aurality and orality. Female poets using experimental poetry to interrogate patriarchal notions of voice and authority, however, sought to upend this notion. In his essay 'Concrete Poetry: from the Procedural to the

[105] Ibid.

[106] Eric Schmaltz, '"My Body of Bliss": Judith Copithorne's Concrete Poetry in the 1960s and 1970s' *Canadian Poetry: Studies, Documents, Reviews* 83 (2018) 14.

[107] Ibid, 15.

[108] Rosalind Krauss, 'Grids'. *October* 9 (1979) 52.

[109] Barrie Tullet. *Typewriter Art: A Modern Anthology.* London: Laurence King Publishing, 2014. 9.

[116] Ibid, 33.

[110] Davidson, *Ghostlier Demarcations*, 14.

Performative', Jamie Hilder writes of the significance of the typewriter in his distinction between these two strains of concrete poetry. Where 'procedural' concrete poetry, which privileges 'rationality and design over expression', may appear justified in the grid, 'performative' concrete poetry, which 'rejects the mechanical and ordered for the manual and excessive', asks questions of 'language's ability to represent, and its role in subject formation' and thus tends to show the 'manipulation of the page by the poet'.[111]

Encoded in the success of the typewriter is its emancipatory role as a tool in the lives of women, through its opening up of new fields of employment – although its role can be somewhat overstated. Eric Schmaltz notes the actuality of the 'complex and alienating relationship of the two at the material level', appealing to Darren Wershler-Henry's assessment of the cliché of the 'Type-Writer Girl' – successful because popular culture painted an exaggerated picture of her independence, while in actuality the majority of labour performed by women typists was exploitative at both material and immaterial levels – constituting the dictation of men in superior positions, 'operating as agents of the capitalist marketplace'.[112] However, taking these considerations into account, the dimension relevant to the present study is the way in which this tool foreshadows the specific exploration on the part of female poets of the articulatory possibilities of visual space through visual poetics and poetry, to be elaborated further upon in Chapters Four and Five. Further evolutions regarding typography and lettering occurred during the mid-twentieth century – perhaps most significant was the transition from physical letterpress to dematerialised phototypesetting.[113] With this technological moment, the way text was set and designed was 'transformed', and 'type (and therefore text) consequently became an image'.[114] Letraset – still favoured today by some contemporary practitioners of visual poetry, although it is 'now an antiquated cultural artifact denigrated to artist production'[115] – along with other dry transfer lettering techniques and new technologies enabled an emancipation from both metal/wood type and eventually, from the grid-like structure of the typewriter, offering 'an instantaneous application on surfaces and total freedom in

[111] Hilder, 'Concrete Poetry: from the Procedural to the Performative', 116.
[112] Schmaltz, '"My Body of Bliss"', 22.
[113] Balgiu & de la Torre, 'Introduction', *Women in Concrete,* 15.
[114] Ibid.
[115] Derek Beaulieu and Natalia Fedorova, 'Conceptualist ostranenie: A dialogue between Derek Beaulieu (Canada) and Natalia Fedorova (Russia)' Online article. https://jacket2.org/commentary/conceptualist-ostranenie-dialogue-between-derek-beaulieu-canada-andnatalia-fedorova-russ [Date accessed: 28/5/21].

composition'.[116] Letraset is of particular interest, with its capacity to shatter but also find pathways through 'systems of controlled language' – on the page, 'collages assume a veneered strength, but are, materially speaking, quite vulnerable and prone to damage'.[117] With the material conditions of visual poetics thus mirroring the liberating potential for the poets exploring visualism conceptually, the materiality of language is both theoretically and practically wedded to the conditions of its production and distribution.

Moving beyond the age of printed matter into the digital realm constitutes another significant move regarding the relationship between materiality and visualism, especially when it comes to the visually experimental – a dimension that is only highlighted, and in some cases expressly facilitated, by the affordances of technology and new media. When it comes to works like this, Alan Golding's analysis of what he terms 'transitional materialities' holds special relevance. Transitional materialities – 'forms of visual text that interrogate the material limitations of the page-based, word-centred poem and look forward to the possibilities and achievements of digital poetics' – are works that 'often position themselves self-consciously as points of reciprocity between the print and digital environments'.[118] The concept of remediation or rematerialisation here, and its effect upon the overall meaning of the poem's configuration is important: it acknowledges the importance of the original presentation, manifestation, and context of the work, and the effect that the transition to a digital format might have upon it. Taking a momentary step back from the specifics of visual poetry, the digitalising of the alphabet – ably outlined in Drucker's historical overview – notes the 'conceptual change that occurred with the introduction of digital designs which treated 'letters as information rather than as visual images'.[119] In coding the alphabet digitally, a quasi-phenomenological question was prompted: was the alphabet a 'set of discrete elements, each with an essential identity which could be coded into a mathematical equation', or was it 'set of marks which gained their identity through differentiation from each other'.[120] If questions prompted by this early configuration of the digital alphabet cut to 'the very heart of philosophical speculation on the identity of letters',[121] then the same questions must apply to the visual poem, once it is rendered digitally. Furthermore, as will

[116] Ibid.

[117] Kate Siklosi, 'Handle with Care: A Study in (Poetic) Fragility', *Judith: Women Making Visual Poetry*. Ed. Amanda Earl. Malmö: Timglaset, 2021. 229.

[118] Golding, 'Language Writing, Digital Poetics, and Transitional Materialities', 252.

[119] Drucker, *The Alphabetic Labyrinth*, 282.

[120] Ibid.

[121] Ibid.

be discussed in later chapters, presenting visual poems with an empirical framework invites these questions anew.

The significance of this move from print to digital – which will be discussed in terms of transitional materialities – is also preceded by the implications of anthologising the first instances of visual poetry collections around the nineteen-sixties. When it came to these anthologies of visual work, standard literary collections were initially 'rekeyboarded collections in which a uniform format is imposed' – however, this policy threatened the autonomy and originality of these visual works as it 'levels the graphic field, turning all works into the same visual object in a way that is fundamentally violent to the original'.[122] Here, there are echoes of V. Khlebnikov and A. Kruchenykh's co-authored 1913 essay 'The Letter as Such', which proposes the fundamental importance of the visual impact of longhand in conveying the 'mood' of a piece, beyond its mere content – they caution against the danger of losing the 'all the charm acquired by means of free handwriting' unless the original experience is relived by the creator or transcriber of the work.[123] This concern over the autonomy of original works and the implications of changing their original contexts was remedied in one instance by the publication of Mary Ellen Solt's *Concrete Poetry: A World View*, which presented the works in their original graphic formats, thus allowing their distinctions and originalities to be properly replicated. And Copithorne's methods of producing hand-drawn concrete poems in the 1960s and 70s, for example, demonstrated how they could 'intersect with issues of embodiment posed by analog writing technologies at the dawn of the computing age'.[124] This element remains to be considered today in light of the prevalence of technology as a medium for distribution, especially when considering contemporary visual and concrete poetry, and its many different material manifestations. Indeed, the motivation behind the 2016 anthology *The New Concrete: Visual Poetry in the 21st Century* sets as its driving factor the goal of showing 'the legacy of concrete poetry' in 'current visual poetry practice' as well as presenting 'how those poets have developed new approaches and how new poets are finding new approaches that concrete wasn't able to deliver in a pre-digital age'.[125] Kurt Beals has commented on this element, arguing how 'in the desire of concrete poets to adapt their poetry to the technical standards of the day',

[122] Drucker, '(In)Visible Women', 10.
[123] V. Khlebnikov and A. Kruchenykh. 'The Letter As Such', *Russian Futurism through its Manifestoes, 1912*1928, Ed. Anna Lawton. Ithaca, NY: Cornell University Press, 1988. 64.
[124] Schmaltz, '"My Body of Bliss"', 15.
[125] McCabe, 'Feldspar of Symbols', 217.

their works 'transformed technical developments and discourses into the foundations of a new poetics'.[126] Beaulieu also weighs in on this predictive and anticipatory dimension of concrete poetry:

Concrete poetry and conceptual writing are the poetic media of the Internet, the forms which are most responsive to the Internet's information malleability and deep use of graphic design for the packaging of text. The poetics of concrete and conceptualism are inexorably tied and deeply responsive to the future of information technology.[127]

Contemporary female practitioners of asemic writing – writing which frees itself of the obligation to present itself in or through language – also use the visual aspect of such writing to raise questions about the 'future' of writing, as Ferris notes, 'in a culture dominated by the image and the medium of the screen'.[128] It is in the context of this culture that the present project operates: as Michael Davidson notes, 'experimentation in computer-generated writing and hypertext have altered the narrative of textuality altogether, rendering the idea of the "visible page" a rather outmoded concept'. [136] However, this does not mean that the historical overview about how this relationship to materiality has changed does not still bear relevance to contemporary work of this kind. As Davidson continues: 'the typographic revolution in modernism made possible the conditions for the page's deconstruction as movable type gave way to photo-offset printing and now to pixel characters'.[129] Even through this brief metacritical and historiographical overview, it is evident that the standard line itself follows many different routes, and is perhaps better reimagined, after Gomringer, as its own constellation-like structure in order to represent the many trajectories of visual poetics.

Degrees of Difficulty: Illegibility, Unreadability, Impenetrability

While the poetic material discussed thus far showcases an exciting experimental foray into visualism, much of the more conceptually and theoretically experimental visual work deliberately challenges the very structures of the standard reading process itself. If form and

[126] Kurt Beals, 'Concrete Constructions: Assembling a Postwar Poetics'. *Journal of Lusophone Studies* 5:1 (2020) 113.
[127] Kit Dobson and Derek Beaulieu. 'Afterword: An Interview with Derek Beaulieu' in *Please, No More Poetry: The Poetry of Derek Beaulieu.* Waterloo, Ont.: Wilfrid Laurier University Press, 2013. 70.
[128] Natalie Ferris, 'A World of Signs: Women of Asemic Writing', in *Judith: Women Making Visual Poetry*. 225.
[136] Davidson, *Ghostlier Demarcations*, 21.
[129] Ibid.

meaning are to be combined, blended, or fused in these different incidences, it is pertinent to note the instances where the very concept and limits of legibility is explored (Fig. 12). Deliberate disruption of the critical strategies used to wrest meaning from poetry in general is a feature of much work that plays around with legibility, be they verbivocovisual experiments, asemic artworks, or 'dirty' concrete poems. In direct relation to visual and concrete poetry in a specifically Canadian context, Mike Borkent characterises the difference between 'clean' and 'dirty' – clarifying that 'clean' visual poems 'visually mimic or enact the verbal content', while 'dirty' visual poems complicate it. Dirty concrete, despite often proving more challenging to examine, can provide a more interesting subject matter 'because the meaning emerges from the material of the words rather than their expressive content'.[130] Either way, the materiality of the language used is emphasised in this definition, emphasising the iconic power of visual poetry which transcends the realm of the signifier. While 'clean' concrete poetry is often associated with a deliberate and accessible clarity – 'readability was the key: like a logo, a poem should be instantly recognisable'[131] – there are multiple examples of visual poetry that just as deliberately obstruct standard readings.

[130] Mike Borkent, 'Visual Improvisation: Cognition, Materiality, and Postlinguistic Visual Poetry', *Visible Language* 48:3 (2014) 3.
[131] Goldsmith, *Uncreative Writing*, 55.

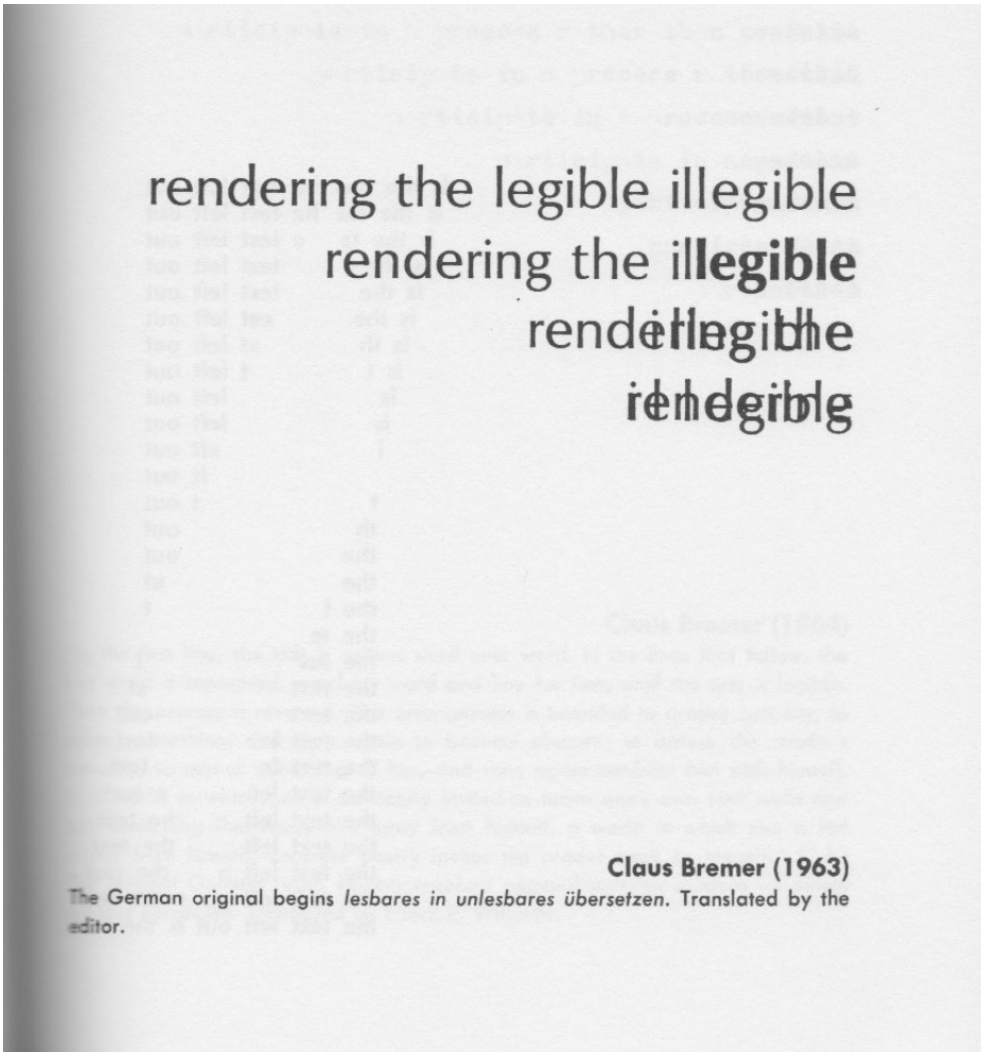

Fig. 12. Claus Bremer, from Emmett Williams' *An Anthology of Concrete Poetry*

I note that this impulse towards illegibility is evident too in some of the L=A=N=G=U=A=G=E poets' exploration of the materiality of the word, which carries within it a challenge to the reader's typical strategies of naturalisation and to traditional modes of discourse, highlighting a new dimension of the purposeful difficulty of the poetic text. Illegibility here dovetails with unreadability – which is defined in a poetic context by Natalya Bekhta as a 'quality of texts (and, simultaneously, an effect on readers) that cannot be easily naturalised or narrativized'.[132] Bruce Andrews writes of the demands that the condition of 'unreadability' places upon its readers – 'that which requires new readers, and teaches new readings'[133] – these are works which require a 'writerly stance on the reader's part'.[134] Some

[132] Natalya Bekhta, 'Reading Experimental Literature: Unreadability, Discomfort and Reading Strategies' in *Reading Today.* Eds. H. Pyrhönen and J. Kantola. London: University College London Press, 2018. 25.
[133] Andrews, 'Text and Context', 31.
[134] Steve McCaffery quoted in Alan Golding, *From Outlaw to Classic*: *Canons in American Poetry.* University of Wisconsin Press, 1995. 155.

later work deliberately dismantles the 'scaffolding of discourse', intentionally creating this literature of 'unreadability''.[135] In his 1978 essay 'On Difficulty', George Steiner writes of the poet as etymologist, attempting to anchor the 'particular word in the dynamic mold of its own history'.[136] Steiner reduces the difficulties encountered in the perusal of the poetic text into different categories – *contingent*, *modal*, *tactical*, *ontological* – classing the subject of difficulty in poetry as central to the aesthetic experience since the late nineteenth century, although 'neither aesthetic theory nor general public feeling' have coped with this satisfactorily.[145] He employs a scientific analogy: the poet's discourse is a 'charged particle' and 'energised field', acknowledging that 'words speak not only to the ear, but to the eye and even to the touch'.[137] Nick Thurston writes of the 'paradox' that characterises the very act of 'reading' illegibility: 'given the mutual exclusivity of said intention (to read) and its object (the unreadable), any attempt to read the illegible should combust at an impasse before it can be said to have begun'.[138]

On a similar conceptual plane, asemic writing – defined as 'a wordless, open semantic form of writing that is international in its mission' – also veers into the conceptual sphere to achieve 'total freedom beyond literary expression'.[139] Its unreadability is a deliberate and sustained strategy: the term was coined in 1997 to 'draw a line around artistic practice "involved with units of language for reasons other than producing meaning"'.[149] It is classed as work existing on the 'edges of illegibility', comprehensible insofar as its significance may 'intuited', as opposed to a precise meaning understood.[140] Natalie Ferris notes how asemic writing was first wielded in the hands of male practitioners and theorists, for whom writing 'is the paradoxical site of secrecy and disclosure' during a climate of 'growing mistrust in the possibility of decoding the sign and its meaning'.[141] However, for female practitioners, the 'gestural, indecipherable, or encoded' offered an opportunity to challenge both language's monopoly on expression and 'the patriarchy's

[135] Andrews, 'Text and Context', 31.
[136] George Steiner, 'On Difficulty', *Journal of Aesthetics and Art Criticism* 36:3 (1978) 264.
[145] Ibid, 276.
[137] Ibid 264.
[138] Nick Thurston, 'Amodern 6: Reading the Illegible'. *Amodern 6: Reading the Illegible.* Online article (2017) http://amodern.net/article/reading-the-illegible/#pdf [Date accessed: 10/10/22].
[139] Michael Jacobson, 'On Asemic Writing', *Asymptote* [Online article]. https://www.asymptotejournal.com/visual/michael-jacobson-on-asemic-writing/ [Date Accessed: 27/5/21].
[149] Ferris, 'A World of Signs', 218.
[140] Ibid.
[141] Ibid.

monopoly on meaning'[142] and in this sense, the radicalism of visual work in female artists' hands 'subverted and transformed the apparent stability of the word to shatter the notion of its absolute authority'.[143] Much like the impulse of the Noigandres group to create a 'visual Esperanto' based upon universally accessible clarity, an impulse behind asemic writing was the 'possibility of a universal and equalising language'; although paradoxically, this universal accessibility resides in the difficulty of determining meaning, placing the reliance upon the reader to configure their own strategy of interpretation. As will be discussed in greater detail, the deliberate obscuring of meaning as an artistic impetus can also be productively viewed through a feminist lens and explored for its relation to the utilising of the radical power of the female poetic voice: in the recent *Women in Concrete* anthology, one of Giulia Niccolai's visual poems reflects this especially. It comprises of a dense rendering of the word 'impenetrability' in a closely typeset bold font, where the overlapping letters obstruct the natural reading process, rendering the poem itself nearly 'impenetrable', therefore fusing form and meaning (Fig. 13).

[142] Ibid.

[143] Ibid.

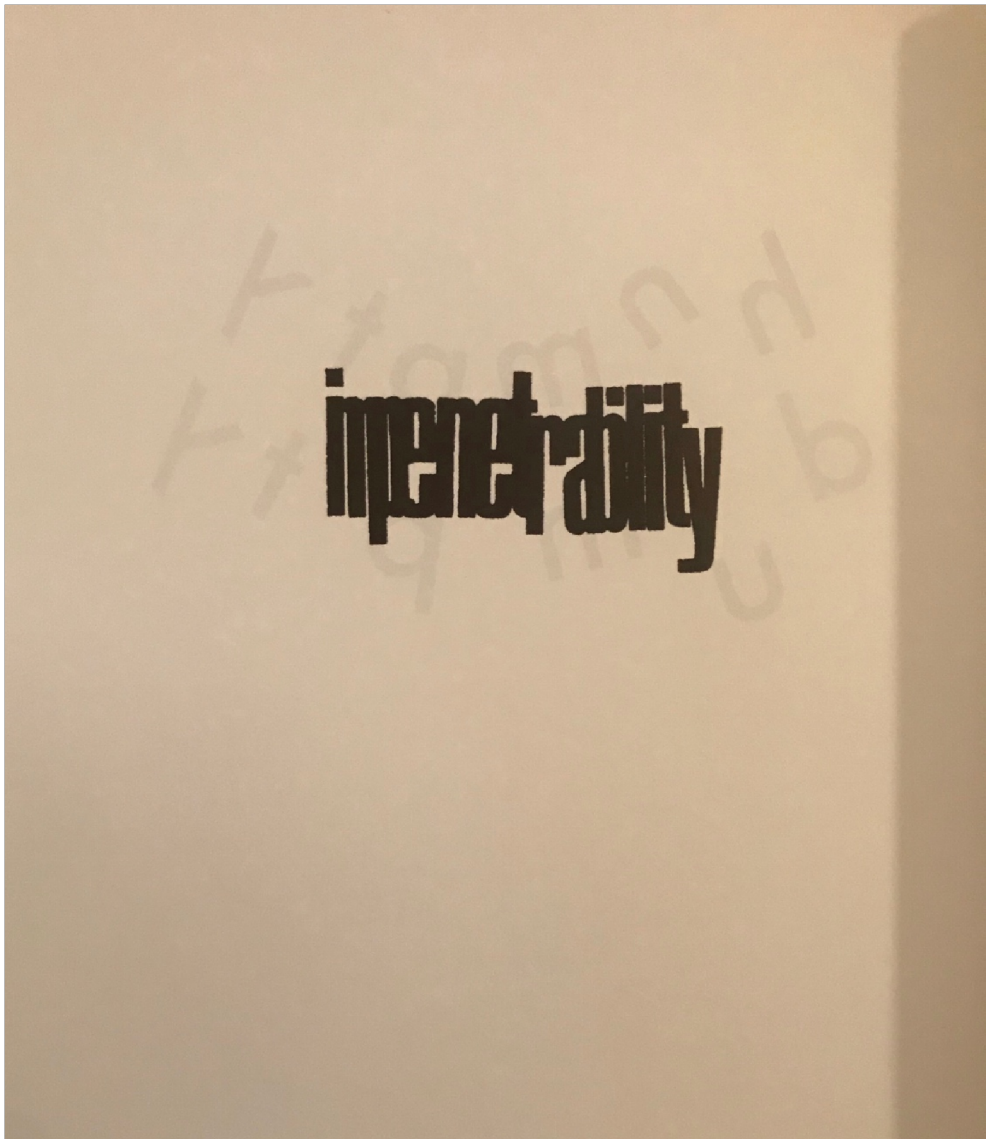

Fig. 13. Giulia Niccolai's 'impenetrability' from *Women in Concrete.*

This work also lends itself, appropriately enough, to a consideration of gender: I read the poem's visual presentation as a defence or resistance to the penetrative presence of the male gaze, the female authorial voice of the poem defiantly resisting naturalisation while the work utilises the materiality of language. Through all her work, Niccolai sought to demonstrate that 'all objects intrinsically possess the necessary elements to be a poem'[144] and it is through these kinds of readings of typically 'difficult' works such as this, that the inherent poetic potential in all objects can be properly interrogated, by examining how gender can be related to the materiality of language. Impenetrability or illegibility therefore becomes a way of politicising this experience of the writing, reading, and reception of poetry.

[144] Balgiu & de la Torre, Eds. *Women in Concrete*, 473.

Degrees of Difficulty: Gender Trouble

As established, another emerging perspective on visual poetry and poetics pertains to gender. When examining this history, and the multiple different avenues traceable around the standard line of 'figured poems and iconic verse stretching back into antiquity',[145] the gendered route through this history has remained, until recently, relatively untrodden. Frost notes how 'many women poets since the early twentieth century have created visual compositions precisely to question the gendered politics of the history of poetry, material culture, and reading or performance'.[146] In her recent essay, Drucker emphasises the importance of women's control of their own language, 'since that is where the political efficacy of our subjectivity resides' – ultimately, what cannot be ignored is 'the legacies structured into our language and the visual presentation of our selves'.[147] In his essay ascertaining the maligning of female concrete poets throughout the history of the field, Beaulieu reflects how this history often suggests that women were relegated to 'minor, or merely occasioned roles': this is also reflected in the omission of all but four women from what has become known as one of the definitive anthologies of concrete poetry, the aforementioned *Concrete Poetry: A World View*, edited by Mary Ellen Solt and published in 1969.[148] This timely critical reappraisal, as mentioned, manifests itself in the recent proliferation of anthologies that inform this dissertation which focus mainly on presenting visual and concrete poetry by women. Anthologising visual poetry is an activity loaded with historical significance: Jamie Hilder notes how Gomringer's 1956 manifesto for concrete poetry was intended as an introduction for 'an anthology that never came to be', one which 'makes clear the relationship between concrete poetry and the technology of the period'.[149]

Frost notes the capacity with which visual poetics can be utilised by female poets exploring both the form and the limits of identity to examine further the contested relationship of gender to language. In its running outside the traditional boundaries of the printed page, the extent to which agency can be capitalised upon when the space of the page is interpreted as a place for visual play merits further interrogation. Introducing their

[145] Gil McElroy, 'Ground States: The Visual Contexts of bpNichol' in *St. Art: The Visual Poetry of bpNichol* (Confederation Centre Art Gallery & Museum, Canada, 2000. https://ubu.punctumbooks.com/papers/mcelroy.html [Date accessed 21/9/2021].
[146] Frost, 'Visual Poetics', 339.
[147] Drucker, '(In)Visible Women', 14.
[148] Derek Beaulieu, *The Unbearable Contact with Poets*. Manchester: if p then q, 2015. 14.
[149] Hilder, 'Concrete Poetry: from the Procedural to the Performative', 112.

recent *Women in Concrete Poetry: 1959-1979*, Balgiu and de la Torre platform women poets from this period who 'focused on multiplying the possibilities opened up by attending to language's materiality' and challenged 'the very constructs that support the binaries divorcing a poem's physical properties from its more subjective ones'.[150] Also worth noting is the extent to which women visual poets approach history and literature: they demonstrate an inclusive, 'diachronic' method, in which their poetry offers 'an opportunity to weave or collage texts from different historical periods or traditions, swerving them, expanding them, and reinvigorating both the past and present through their activations and rereadings'.[151] Often in the cases of poets such as Susan Howe, conventional reading becomes impossible: densely layered typeset adds an element of impenetrability to the text, fusing history and gender dynamics with the aforementioned 'unreadability'. Howe herself 'collages historical texts into poetic sequences', mobilising her poetics to 'create her own intervention in history, in historical argument'.[152] Her moulding and disassembling of language, utilising of fragments, erasing of the verb to enact an 'enunciative clearing'[153] also provides a unique insight into her evolving practice: her work lends itself especially well to a cognitively-informed Neurohumanities exploration, although analyses have not typically focused on this aspect of her earlier formal experimentation. In a stylistic reading, Nancy Gaffield notes how Howe's deliberate removing of the verb from her work evokes an engagement with Charles Olson's sense of syntax in 'Projective Verse': here, Howe's eschewal of the verb 'between two nouns' enacts this 'enunciative clearing'. This impulse is evident in her earlier, explicitly visual work, such as the selections from *Frame Stories* included by way of example in *Women in Concrete* (Fig. 14), which are included in the present project's empirical component: 'a / demon darkened intelle / ct mirror clear receiv / ing the mute vocables of God that rained / a demon daring down in h / ieroglyph and stuttering'.[154]

[150] Balgiu and de la Torre, 'Introduction', *Women in Concrete Poetry: 1959-1979*, 12.
[151] Ibid.
[152] Tony Lopez, 'Susan Howe's Visual Poetics'. *Études Anglaises* 61:2 (2008) 204.
[153] Nancy Gaffield, 'Susan Howe's Landscapes of Language: Articulation of Sound Forms in Time and "The Liberties"', *Women: A Cultural Review.* 26:3 (2015) 270.
[154] Susan Howe, [untitled], in *Women in Concrete Poetry*, Eds, Alex Balgiu and Monica de la Torre, 212.

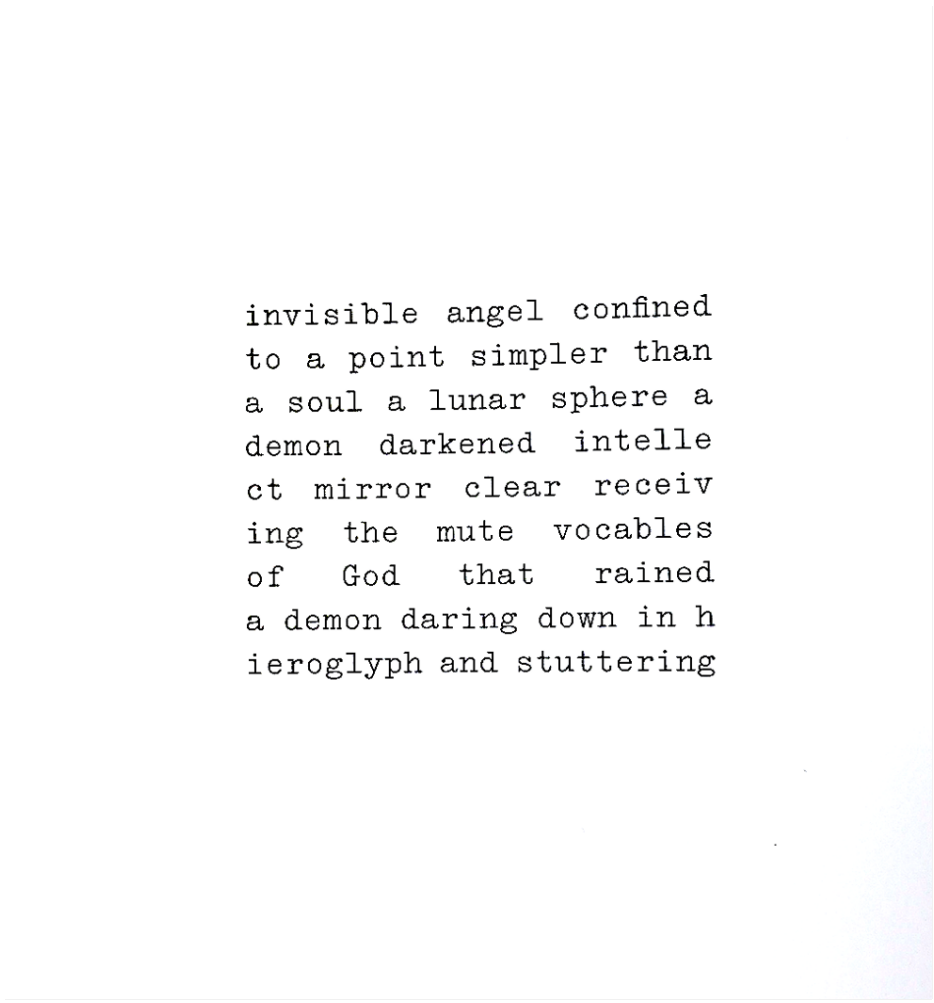

Fig. 14. One of Susan Howe's word-squares anthologised in *Women in Concrete.*

This poem is rendered visually in the format of almost a perfect square, rendered in a classic Courier typewriter font, the muteness of the deity's vocables evoking the format of a godlike bestowing of meaning from a poet on high, yet 'mute'. The poem ends on the word 'stuttering': the last bastion of language before the whiteness of the page takes over, charged with a signifying power as the 'voice' of the poem stutters into silence after these paradoxically 'mute' words have rained down. Here, the use of 'vocables' implies sound that is not necessarily fixed to a predetermined meaning: thus, wordless. Employing these poetic strategies which involve both 'defamiliarisation' and 'extreme fragmentation at the morphemic, lexical, and syntactic levels',[155] Howe's work places the locus of meaning at a point between the producer and perceiver of the work, by exploring the conditions for meaning as 'something that occurs as a result of interaction between subject and object, reader and writer'.[156] Again, the occlusion of the poet from this picture, which utilises visual

[155] Gaffield, 'Susan Howe's Landscapes of Language', 270.
[156] Ibid, 271.

form and the materiality of the word to place the onus the reader to determine a subjective response, evokes this kind of reciprocal relationship evident in many visually distinctive works of poetry. What can also be read here is the reconfiguring of the relationship to space within the field of the poem's meaning. This intensely ambiguous poem was selected as one of the featured poems in the second Case Study of the present project in order interrogate further the reader's response to it from an empirical perspective, and will be analysed further in Chapter Five in juxtaposition with the empirical data gathered. Howe's work interrogates the systems of patriarchal dominance over history by asking 'whose order is shut inside the structure of a sentence?',[157] but this sentiment can also be applied to the critical discourse surrounding the criticism that deals with such ideas. Through the problematising of the gendered experience of poetry, visualism emerges as a an avenue to explore, and counterbalance, hegemonic patriarchal control over histories of, and through, poetry.

Degrees of Difficulty: Cultural, Critical, and Cognitive Obstacles

Visual poetry, and visualism within poetry, receives a mixed and at times colourful critical response across its history. Despite the theoretical, critical, and historical engagement with the field, issues arise when it comes to the actual critical analysis of the kind of work termed as visual, concrete, or experimental. In its complicating of traditional modes of interpretation, visual poetry rarely fits neatly into the traditional parameters of literary study, and critical interpretations generated in response often lack the apparatus to coherently 'read' the visual element present in poetry – any poetry – let alone visual poetry itself. Catherine Gander and Sarah Garland observe how 'criticism as dematerialisation cannot easily deal with the graphic surface of image and text works': and how critical approaches to word and image studies are broadly hampered by 'semiotic readings that seek to bring the methodology of literary studies to visual studies'.[158] Derek Beaulieu's analysis accords with this sentiment in relation to concrete poetry:

> Despite over a century of poetic innovation since Stéphane Mallarmé's "Un Coup de Dès Jamais n'Abolira le Hasard" (1896) & almost 50 years since the

[157] Susan Howe, *My Emily Dickinson*. Berkeley: North Atlantic Books, 1985. 11.

[158] Catherine Gander and Sarah Garland, 'Introduction: to fasten words again to visible – and invisible – things'. *Mixed Messages: American Correspondences in Visual and Verbal Practices*. Manchester: Manchester University Press, 2016. 2.

> publication of Eugen Gomringer's manifesto "Concrete Poetry" (1956), there is still no accepted critical vocabulary for concrete poetry.[159]

While areas of criticism such as the multimodality approach, championed by critics such as Alison Gibbons, can be applied to visual poems in order to garner certain insights into texts that fuse word and image, coherent methodologies for reading visual poetry specifically proves more difficult to determine. Often its very existence and impact is called into question, its intermedial nature posing a threat that can be considered in general from what can be classed as three main kinds of perspectives: cultural, critical and cognitive. Greg Thomas has recently noted the overall sense of 'hostility' and critical apathy that characterises the critical response to concrete poetry, but especially in the context of its reception in the United Kingdom: these responses tend towards the 'mistaken assumption' that concrete poetry 'abandons language in some sense' and that 'the visual or sonic effects that supersede it are meaningless, beyond a rather facile emphasis of language's status as a material object'.[160] In *Structuralist Poetics*, Jonathan Culler infamously borrows the opening gambit from Willard Van Orman Quine's famous philosophical text *From A Logical Point of View*, rearranging its typographical configuration in order to 'release' some of the 'potential verbal energy' that comes from spatial distribution (Fig. 15). Culler observes that while Quine's sentence – 'A curious thing about the ontological problem is its simplicity' – is 'seldom mistaken for a lyric', if it is used in a 'different language game' and 'absorbed by different conventions' it would highlight the irony of the tension between 'thing' and 'ontological'.[161] As Bradford notes however, Culler identifies the typographic layout as more of a means of 'changing readers' perception of "intrinsic" properties of language'.[162]

[159] Derek Beaulieu, 'an afterword after words: notes towards a concrete poetic', Online article. https://ubumirror.ch/papers/beaulieu_concrete_commentary.pdf [Date accessed: 15/1/2020]. 1.
[160] Greg Thomas, *Border Blurs: Concrete Poetry in England and Scotland.* Liverpool: Liverpool University Press, 2019. 6-7.
[161] Jonathan Culler, *Structuralist Poetics: Structuralism, Linguistics, and the Study of Literature,* London: Routledge, 1975. 190.
[162] Bradford, *Graphic Poetics*, 35.

From a Logical Point of View
A curious
thing
about the
ontological
problem
is
its
simplicity

Fig. 15. Culler's rearranging of Quine's opening sentence, in order to release its 'verbal energy'.

Veronica Forrest-Thompson, meanwhile – alongside other critics who lambasted concrete poets for 'discarding language altogether'[163] – traces its genealogy back to the Poundian rupture of the traditional poetic line, rather than placing concrete poetry within its longer historical tradition. Despite her very own experimental forays into the genre much earlier in her career, by the time she wrote *Poetic Artifice*, she was 'excoriatingly critical' of the genre, accusing it of 'irrational obscurity' which prevents assimilation by 'stripping the poem of meaning altogether'.[164] She summarises it as carrying 'discontinuity with ordinary language to its limits by seeking a point where language ceases to be language and becomes simply material, visual or aural, for making patterns'.[165] This assessment of concrete poetry as 'treating words like physical objects', for Forrest-Thompson, constitutes a 'regression rather than liberation', a submission to 'the world of physical limitation/expansion normally mediated through language'[176]: she is wholly unconvinced by the theoretical and aesthetic potential of the 'tension of word-things in space-time'.[166] Bradford assesses Fish, Culler, and Forrest-Thompson as all being roughly in the same camp regarding their perception of visual form as 'something that can be imposed after the primary syntactic and rhetoric mechanisms of the text are in place',[178] and groups them together as constituting a large part of the critical antipathy towards visual poetry, those detractors who argue that it is a

[163] Thomas, *Border Blurs*, 7.
[164] Thomas, Concrete Poetry and Scottish Women's Writing', 207.
[165] Veronica Forrest-Thompson, *Poetic Artifice.* Manchester: Manchester University Press, 1978. 44.
[176] Ibid, 45.
[166] Augusto de Campos, Haroldo de Campos, Decio Pignatari, 'Pilot Plan for Concrete Poetry' in *Novas: Selected Writings*, Haroldo de Campos. Evanston, IL: Northwestern University Press, 2007. 218. [178] Bradford, *Graphic Poetics*, 36.

simple procedure 'to divide up language into typographic segments and offer this to the reader as a "poem" which engages both the visual and auditory faculties'.[167] Perloff notes Hugh MacDiarmid's 'notorious dismissal' of Ian Hamilton Finlay's concrete poetry experiments, in which it was claimed Finlay's work had 'nothing in common' with anything that had been termed poetry across the centuries.[168] However, in contrast to these arguments, Bradford advances his own interpretation of how the 'placing of words within a visual structure' can demand 'the same attention to form and affect as the balancing of metre and rhyme against a syntactic sequence'.[169] He assesses how 'with poetic writing there is an uneasy relationship between the materiality of the poem, the mental register of our initial response, and the subsequent process of naturalisation'.[170] Nancy Perloff, too, in her capacity as editor of 2021's *Concrete Poetry: A 21st Century Anthology* attempts with this selection of works to dispel this common misconception of the 'reductive word choice' and typographic layout in some concrete poetry as superficially resembling advertising, and therefore looking 'simple and easy'; in reality, the deceptive minimalism of many of these poems conceals a much more fundamental engagement with the possibilities of language, since 'spare does not mean easy!'.[171] This assessment extends to poetry that is not specifically concrete, pattern, or visual: the aforementioned 'double pattern' that Bradford observes as identifiable in a lot of poetry in general, where the materiality of meaning is inscribed within the poem's capacity to be read aloud, heard, and seen simultaneously.

How best, then, should this 'peculiarity' of literary and textual studies be addressed: the fact that 'the vast majority of critical thought is devoted to engaging with the meaning of text as if it were not delivered by visual means?'.[172] As discussed, the pronounced phonocentric bias towards the aural/verbal dimension of poetry actively omits its visual component in standard criticism: while most poetry is necessarily comprised of words, ignoring the signifying function of the visual configuration of language often leaves various analyses lacking, especially when the work displays strong visual characteristics. Wolosky introduces a definition of poetry by appealing to what makes it distinctive: 'poetry is

[167] Ibid, 35.
[168] Perloff, 'Afterimages: Revolution of the (Visible) Word', 335.
[169] Ibid.
[170] Bradford, *Graphic Poetics*, 37.
[171] Nancy Perloff, 'Introduction', *Concrete Poetry: A 21st Century Anthology*, Ed. Nancy Perloff. London: Reaktion Books, 2021. 42-43.
[172] Judy Kendall, Manuel Portela and Glyn White, 'Introducing Visual Text'. *European Journal of English Studies* 17:1 (2013) 1.

language in which every component element – word and word order, sound and pause, image and echo – is significant, significant in that every element points toward or stands for further relationships among and beyond themselves'. Wolosky continues: 'No word is idle or accidental. Each word has a specific place within an overarching pattern. Together they create meaningful and beautiful designs'.[173] While visual poetry can quite literally accord with the 'beautiful designs' part of this account, there is already friction between its claim to be poetry by definition because of its relationship to language: Wolosky posits that 'individual words stand as the first, elemental units of poetic patterning', although she concedes that 'words themselves are made up of sound units'.[174] How might visual poetry, which does away with the poetic line and often revels in displaying no discernible language, reconcile itself with this definition, and definitions like it, that rely upon identifying these supposedly essential elements of poetry? It should be noted that experimental poetry subgenres like Lettrism, initiated by Isidore Isou, sought to 'atomise language into its smallest constituent elements', which Isou took to be letters, in order to 'reinvent' poetry.[175] Similarly, poets such as ee cummings dispute this word-based paradigm, for cummings, as de Campos notes, the word is 'fissile': his poems assume the letter as their 'fundamental element'.[176] Somewhat of an outlier within trends of visual poetry, cummings' poems do not fit neatly into a genre such as concrete poetry, but nonetheless, his distinctive visual style marks him as one of the more commercially successful and famous poets to employ an idiosyncratic visualism: his 'stacks of atomised words' propose 'the page as a space where reading and seeing were mutually entangled'.[177] Beaulieu's own subatomic disassembling of language also recalls this history, as will be discussed later on in Chapter Four which outlines this practice in more detail.

Visual poetry and visual experimentation in poetry, then, in all its conceptions, attracts a large degree of critical resistance and detailed, outright dismissal in some cases. This is especially evident in the case of concrete poetry: often deemed as a 'questionable' practice,[178] characterised as 'a frivolous pastime'[179] due to its intermedial status, thus

[173] Shira Wolosky, *The Art of Poetry: How to Read a Poem*. Oxford: Oxford University Press, 2001. 3.
[174] Ibid, 4.
[175] Drucker, 'Experimental, Visual, and Concrete Poetry', 46.
[176] de Campos, 'The Open Work of Art', 7.
[177] Goldsmith, *Uncreative Writing*, 57.
[178] Marjorie Perloff, *Unoriginal Genius: Poetry by Other Means in the New Century*. Chicago: University of Chicago Press, 2010. 52.
[179] Willard Bohn, *Reading Visual Poetry*, London: Rowman & Littlefield Pub, 2011. 13.

relegated to 'critical purgatory'.[180] In her study of typographically experimental works of the early twentieth century, Drucker notes the 'relative paucity' of materials even dealing with typographic activity in any 'serious or systematic manner'.[181] She identifies a trend amongst high modernist art critics of equating visuality with 'muteness' by the mid twentieth century: the idea was that modern art had reached a 'teleological aim through achieving a condition of plenitudinous presence', and this autonomy necessitated a cutting of ties with 'literature, literary modes, or linguistic signification'.[182] Drucker continues, 'the distinction between visual presence and semiotic/literary absence rendered experimental typography an aberration within the well-defined guidelines of high modernist criticism'.[183] The 'most potent aspect of typography's form' is its 'refusal to resolve into either a visual or a verbal mode'[184]: Drucker is here acknowledging how the resolute intermediality of typography – that is, its occupying of both the visual mode of seeing and the verbal mode of reading – posed a problem for existing critical paradigms. This has long been one of the critical oversights of literary criticism, especially in light of the radical experimentation explored by various artists using typography. In the wake of Apollinaire, to take one example that Bohn references, Amédée Ozenfant's transformation of typography 'into an art form' through the work he termed 'psychotype' and 'typometrics' produced in 1916, sought to make 'the typographical characters participate in the expression of thought and the painting of various moods', emphasizing the importance of signs 'having significance in themselves'.[185] Ozenfant's experimentation again demonstrates the links between 'thought' and the visual expressiveness that typographic experimentation facilitated.

The 'crisis of interpretation' generated when poetry breaks free of its 'traditional linear form' provides a general explanation for this literary critical resistance.[186] On a critical level, the complicating of the semiotic code engendered by the presence of simultaneous visual and verbal elements within the domain of one artwork or poem can create a series of interpretative obstacles for the reader-viewer. In its resistance to 'close reading', visual poetry upsets a foundational cornerstone of literary criticism, one which has remained an

[180] Jamie Hilder, 'Concrete Poetry and Conceptual Art: A Misunderstanding' *Contemporary Literature*, 54:3 (2013) 580.
[181] Drucker, *The Visible Word*, 4.
[182] Ibid.
[183] Ibid
[184] Ibid
[185] Ibid.
[186] Kim Knowles, Anna Schaffner, Ulrich Weger, and Andrew Roberts. 'Reading Space in Visual Poetry: New Cognitive Perspectives'. *Writing Technologies* 4 (2012) 83.

essential tool throughout the various different iterations of literary theory. ForrestThompson's commentary against the 'irrational obscurity' of concrete poetry is damning: she takes it as 'one extreme example… where we go beyond meaning and rationality altogether, so that it seems almost pointless to talk of obscurity'.[187] This radical defamiliarization and resistance to close reading, however, is interpreted as a strength by advocates of concrete poetry. Derek Beaulieu comments further that 'concrete poetry momentarily rejects the idea of the readerly reward for close reading, the idea of the "hidden or buried object", interferes with signification & momentarily interrupts the capitalist structure of language'.[188] A primary reason that the persistent undervaluing of visual poetry has occurred thus far is the encoding of the aforementioned phonocentric bias in poetry studies. Mike Borkent maintains that we remain hampered by 'this folk ideology', one which 'privileges abstract linguistic meaning over the means of its relation and other non-linguistic cues that accompany it': he insists that 'the paucity of attention to visual form in literary studies affirms writing as solely verbal rather than as a hybrid of visual and verbal modes'.[189] Identifying why, on a cognitive level, this work is challenging for the perceiver, contributes towards the critical discourse around visual poetry, accords with the accelerating interest in cognitive humanities, and ultimately provides a new perspective on the critical challenge that this kind of work presents. Combining this understanding of the critical picture of visual poetry with a Neurohumanities approach provides an ideal apparatus with which to read – and see – visual poetry. This comes at an appropriate moment: according to Beaulieu, it is due to the 'distancing from traditional poetics that makes Concrete poetry both a marginalised form unrecognisable to many poets and a genre perfectly suited to a 21st Century readership'.[190]

Reading/Seeing Visual Poetry: Critical Methods

In her critical essay 'The End of Art', Susan Howe engages with a reading of Ian Hamilton Finlay's poetry and accounts for Robert Lax's experimentation with visualism through his work: poetry which is 'vertical in form and feeling'.[191] While this kind of reading

[187] Forrest-Thompson, *Poetic Artifice,* 47.
[188] Beaulieu, 'an afterword after words', 6.
[189] Borkent, 'Visual Improvisation', 7.
[190] Derek Beaulieu, 'Text Without Text: Concrete Poetry and Conceptual Writing' Thesis (Ph.D.), University of Roehampton, 2014. https://derekbeaulieu.files.wordpress.com/2017/01/text-without-text-beaulieu-thesisfinal.pdf [Date accessed 20/20/20]. 42.
[191] Howe, 'The End of Art', 4.

is innovative, occasional visual readings like this rarely cohere into a determined methodology; and at the time this manner of analysis did not 'catch on' as a manner of close reading visual poetry. In accordance with the awareness of visualism in poetry studies, however, various critical methods of specifically engaging with visual poetry have emerged: Drucker's aforementioned overview of a method of reading typographic layout also accords with Willie Van Peer's 1993 work on 'typographic foregrounding'. This constitutes a new way of looking at the conventions of poetic layout across the history of the printed word: 'Written or printed poetry presupposes in our culture a typographic lay-out which must be deemed deviant vis-á-vis our everyday (as against our literary) expectations…'.[192] Van Peer posits that movements such as concrete poetry 'derive one of their most basic principles from the compositional potential of the white page' but that this causes an 'inherent contradiction', which manifests itself in the fact that experimental deviation from these norms resulted in a renewed attention to these structural principles, thus rendering intact the maxim that 'poetry exists by deviation from everyday typographic norms'.[193] In this analysis, it is noted how striking it is that devices such as metre, rhyme, and alliteration continue to be used long after 'their original functionality has been superseded by the use of the written language', while verse line and stanza, originally 'a means to facilitate the oral transmittal of culture from one generation to another', has instead acquired 'an almost predominantly graphic character'.[194] The layout of the poetic form upon the graphic space of the page has thus evolved: 'the earlier auditory device thus becomes absorbed in a visual game, in which the delineation of a white space on the page around verse lines and stanzas fulfil a signalling function ("This is poetry!") and give cause to forms of semiotic play'.[195] Van Peer's assessment incorporates references to an empirical study into the effect of typographic layout upon readers' reception of a text, whereby the different responses to changing the typeface that a poem is presented in were researched. This appeal to empirical work again showcases the compatibility of visual in poetry with a Neurohumanities approach that builds on this kind of initial foray into the interdisciplinary critical responses to the presentation of the poem upon the page.

[192] Van Peer, 'Typographic Foregrounding', 2.
[193] Ibid, 3.
[194] Ibid.
[195] Ibid, 4.

Van Peer's assessment of how experimental poetry engages with an awareness of page space links in with the criticism already existing about the significance of this space, which also feeds into the reading of prose fiction. White's aforementioned reading of the 'graphic surface' of the printed page of prose fiction as the site of certain 'graphic devices' – an intentional alteration or disruption of the conventional layout of the page of the text which adds another layer of meaning'[196] – awareness of which are usually elided in the standard reading process. White notes the saccadic nature of the movement of the human eye during the reading process, invoking Alberto Manguel's *History of Reading*, which queries why our sense of reading in the first place is related to the continuity of linear text on the page and not this saccadic movement of the eyes across its surface – a question that 'scientists have not yet been able to answer'.[197] White's reading of the graphic surface, and his commentary on why defamiliarization alone is 'an inadequate concept with which to deal with graphic disruption'[198] further raises these important questions about the nature of the page as a signifying field. Especially during the reading of poetry, readers cannot be oblivious to the circumstances of a poem's presentation, or indifferent to 'the fact, for example, that it is presented in isolation on the otherwise blank page, surrounded by what Paul Éluard called its '"marges de silence" [margins of silence]', as Genette notes in *Paratexts.*[199] The signifying function of this supposedly 'blank' space is so frequently ignored, when in fact the white space surrounding the poem can constitute 'a sign… a frame saying "this is poetry"'.[200] This is evident in some of the visual work discussed thus far, and is also clear in Howe's configuration of her 'word-squares', as well as Beaulieu's use of square shapes to frame his poetry, particularly in his collection *Kern.* Gomringer's configuration of the constellation poem quite literally evokes this saccadic movement of the eye across the page, which utilises the white space to present poems that unfold across space as well as time.

One example of critical methods already in existence for dealing with visual poetry is Willard Bohn's study of key movements and moments in the history of visual poetry, which provides one such step-by-step methodology. Bohn provides a comprehensive, albeit contained, method of engaging with the tradition of visual poetry. He defends it as a

[196] White, *Reading the Graphic Surface*, 6.
[197] Alberto Manguel quoted in White, *Reading the Graphic Surface*, 8.
[198] White, *Reading the Graphic Surface*, 17.
[199] Gerard Genette, *Paratexts: Thresholds of Interpretation*. Cambridge, Cambridge University Press, 1997. 34.
[200] Van Dijk, 'Reading the form', 411.

'legitimate genre with a long history and respectable theoretical credentials'[201] emphasising the extent to which visual poetry elevates perception into the realm of activeness over passivity: it resists the 'well-known semiotic model' that presumes that the artist codes the picture in the first place, and then the viewer subsequently decodes it. He emphasises the polyvalence of visual poetry, conceding that a multiplicity of approaches can function to provide various different readings, depending on the work and the features it demonstrates. Bohn outlines three distinct operations for the reading process, while demonstrating their applicability to a comprehensive, albeit non-exhaustive, range of examples of visual poetry throughout history. As a critical apparatus, Bohn's framework generates some solid readings: the first step involves contemplating the composition's visual design, and he invokes Rudolph Arnheim's dictum that perception is not a passive experience, but a 'highly active process'. [202] Being aware of the image's *gestalt* is a crucial part of this operation: the reader is characterised as functioning as 'a viewer' at this early stage, whose primary concern is to absorb as much visual information as possible in order to 'grasp its most important structural features and compare them to a catalogue of perceptual constants'.[203] The second step in Bohn's outlined approach involves deciphering any text displayed in the work. His general account of this process sees the reader performing a 'series of gyrations in order to arrive at their destination', due to the common feature of non-linearity in visual poetry. In describing this approach, this account finds itself appealing to the vocabulary and referents of cognition, as follows:

> at the purely verbal level, the mind proceeds cumulatively, holding the words in suspension while ordering and reordering them in a continual search for meaning. Not until the conclusion do the various elements in the poem – visual as well as verbal – coalesce to provide a consistent interpretation.[204]

Although he does not invoke cognitive processes further at this particular point in the text, this appeal to the mechanisms of the mind and/or visual perception is important in his account of how to approach visual poetry. Bohn's initial list of the potential visual cues that tell the reader how to proceed is extensive, with as many exceptions as consistent rules. Although acknowledging the range of potential different interpretations, he concedes that

[201] Bohn, *Reading Visual Poetry*, 13.
[202] Ibid, 15.
[203] Ibid, 15.
[204] Ibid, 16.
[217] Ibid.

most commonly, 'visual and verbal cues work together to guide the reader through the intersemiotic maze'.[217]

Bohn's third step in approaching visual poetry serves as an amalgam of the two previous steps: it requires 'readers to synthesise the information that has been acquired from the two previous operations' in order to effectively re-evaluate text and design in light of each other which can subsequently reveal 'new connections between them'.[205] This third step is the most crucial, but also the most subjective and mutable, in determining meaning. It is during this process that modifications to earlier interpretations occur, initial thoughts can be revisited and reassessed, and perhaps a more totalising explanation for the effect of the work in question can be achieved. In the book's concluding chapter, Bohn once again appeals to theories of cognition, this time overtly referencing the capacity that neuroscience has to affirm the validity of this approach, with reference to dynamics between left brain and right brain. While theories of left and right brain and their relevance to literature are generally considered to be reductionist, especially when they are too readily when to humanities discourses, it is nevertheless significant that an appeal to cognition and cognitive processes constitutes part of Bohn's defence and affirmation of visual poetry. While the sweeping appeal to theories of left brain/right brain activity in relation to processing visual poetry is too broad to engage with on a deep level, it nevertheless provides an example of this impulse towards combining these disciplines, and furthermore, of their suitability. This indicates even at an implicit stage the compatibility of visual poetry with a Neurohumanities approach that accounts for the mechanisms of cognition. The present project builds on Bohn's sequential steps by relating these steps to David Navon's paradigm of the 'global precedence effect', which posits that perceivers of a visual scene first apprehend its overall shape – the global features – before noting the finer or 'local' details. This paradigm is investigated in greater depth throughout later chapters, and will be outlined more fully in relation to the empirical component of the project.

Even the term 'visual poetry' falls short of encompassing the full range of works that could be included in such a classification: in criticism in general, and throughout this dissertation, it is a descriptor that has become a 'a catch-all for any poems with a visual element'.[206] While Bohn is content with the general characterisation that 'visual poetry can

[205] Ibid, 17.

[206] McCabe, 'Feldspar of Symbols', 216.

be defined basically as poetry that is meant to be seen',[207] there is ongoing dissent amongst the critical ranks about the best way one should or could categorise this kind of work. As referenced, many terms and phrases have been used to describe or invoke poetic works that demonstrate this kind of 'visualism': the diversity of this range evades, and often outright defies, taxonomic description. The problems of how best to categorise or define this kind of poetry persists. Even within the various international factions of the concrete poetry subgenre there are splits such as these: Steve McCaffery first coined the aforementioned distinction between 'clean' and 'dirty' concrete, as a response to the 'incipient hierarchization within the international concrete movement'.[208] Hilder considers *Carnival* as 'a strong example of how the performative functions within the concrete poetry tradition', not least because the perforated edge invites the reader-viewer 'into a physical relationship with the work, to participate in the performance of the work alongside him'[209] – as such, the 'performative' is designed to extend the concept of 'dirty concrete'. Hilder also extends this distinction between 'clean' and 'dirty' – mostly associated with the Anglo American tradition of concrete poetry – with his aforementioned distinction between 'procedural' and 'performative' in concrete poetry.[210] The updating of these terms is especially useful in the context of this study, considering how Hilder incorporates their distinctions to include the scope of history: for Hilder, the procedural 'operates within the emancipatory potential of design, technology and electronic communication', while the performative is 'suspicious of the rational order the procedural the procedural assumes': it 'recognizes the complexity of the processes of history, of how power circulates through language, and how the body writes and is written'.[211]

Already, the initial attempts to anthologise concrete poetry prompted both concerns about ossification and debate about the optimum way to quantify the shifting ratio between verbal and visual. Lars Elleström actually advocates a total renunciation of the term visual poetry, opting instead for an appeal to the phrase 'visual iconicity in poetry'. Iconicity, commonly defined in relation to literature as 'signs that represent an object to which they are similar', provides an important framework with which to consider the visual impact of

[207] Bohn, *Reading Visual Poetry,* 13.
[208] Mikey Rinaldo, 'Between Paint and Ink: Cy Twombly, Steve McCaffery and Textual Illegibility in North American Art and Poetry 1950s-1970s.' *Journal of Visual Art Practice* 17:2/3 (2018) 152.
[209] Hilder, 'Concrete Poetry: from the Procedural to the Performative', 116.
[210] Ibid, 123.
[211] Ibid.

signs in relation to literature.[212] Elleström extends this more directly towards a framework with which to conduct analyses of visual poetry: 'visuality is actually an irrelevant feature for the specific character of "visual poetry"; it is iconicity that makes the difference'.[213] He argues strongly in favour of iconicity over visuality: the latter being a 'sensory trait' while the former is a 'semiotic trait consisting of meaning created by way of resemblance'.[214] Elleström's compelling characterisation of types and degrees of iconicity accounts for 'both cognition and sensory perception', positing that relations of resemblance 'can comprise both abstract concepts formed in mental space and more palpable visual and auditory structures'.[228]

This repudiation of the idea that iconicity is a 'marginal phenomenon' in language which supports the arbitrariness of the linguistic sign as outlined by de Saussure has been recently touched upon by Paterson when he writes how: 'poets have known for thousands of years that words are definitely not the kind of arbitrary signs Saussure claimed'.[215] Ellestrom supports this account of iconicity by an appeal to cognitive function: he references the mind's inclination to grasp 'abstract ideas in terms of spatial relations' and posits iconicity as depending upon spatial thinking. Foreshadowing the work conducted under the rubric of cognitive humanities, Ellestrom proposes that 'the visual and the auditory must be complemented with the notion of cognitive structure if we are to reach a more complete understanding of how iconic meaning is produced'.[216] This perspective accords with Kolaiti's advocacy of a 'cognitively and empirically aware' discourse, demonstrating the critical momentum towards another kind of critical approach to the visualism that characterises this type of poetry.[217] Again, identifiable throughout this overview of critical methods and methodologies already in existence is the opening for a method of criticising or interpreting this dimension of poetry that poses these questions – one that the present project aims to address through its proposing of a Neurohumanities approach as an interpretative strategy.

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[212] Winfried Nöth, 'Three paradigms of iconicity research in language and literature', in *Iconicity: East Meets West*, Eds, Masako K. Hiraga, William J. Herlofsky, Kazuko Shinohara and Kimi Akita. Amsterdam: John Benjamins Publishing Company, 2015. 13.

[213] Lars Elleström, 'Visual Iconicity in Poetry' *Orbis Litterarum* 71:6 (2016) 437.

[214] Ibid, 437.

[228] Ibid, 442.

[215] Don Paterson. *The Poem: Lyric, Sign, Metre.* London: Faber & Faber, 2018. 168.

[216] Elleström, 'Visual Iconicity in Poetry', 456-7.

[217] Winfried Nöth expands on this notion further, writing about the importance of studying iconicity in language and literature, which is founded on the insight that icons play a significant role in language and the verbal arts.

The *borderblur*, cognitive readings, and beyond

Visual poetries and visual poetics are currently produced as part of a network of interconnected, evolving practices and practitioners in conversation with each other, and with their historical predecessors from the rich legacy that they have inherited. Given its sprawling nature and links with a variety of different theoretical perspectives, the present project directs its focus to a Neurohumanities approach to two main Case Studies that constitute Chapters Four and Five respectively: one on Canadian visual poetry, and one on visual poetry by women. Particularly in Canada, one of the places where concrete poetry initially flourished, contemporary practice is an active and innovative field. It has evolved in tandem with participation in the small-press publishing scene and the distribution of resources online via websites and social media, especially Twitter – which serves as a forum of sorts – a space for sharing and experimenting with work across geographical boundaries in the borderless space of the internet. This freedom and expressiveness allows for a continuation of the influences of the different figures who have moulded the present state of affairs in these poetic circles. Earle Birney's status is acknowledged in overviews of poetry in Canadian literature, especially the significance of his later substitution of 'space for regular punctuation' as a poet 'keenly interested in the visual dynamics of the printed page'.[218] The towering figure of bpNichol, Canada's most famous concrete poet, still wields an influence over North American visual poetry and poetics, as his work is an ongoing part of this dynamic and evolving history. One of its most prominent contemporary practitioners is Beaulieu, whose radical visuo-verbal creations constitute part of the Case Study in Chapter Four of the present project, along with Nichol and McCaffery. Beaulieu is a key contributor to this tradition – 'at various turns, a concrete poet, a visual poet, and a conceptual writer'[219] – he is formally innovative and deeply connected to the rich and vibrant history of concrete poetry in a Canadian context, and his poetic works constitute some of the most innovative approaches to the contemporary concrete. Despite the predominantly visual impact of his output, Beaulieu insists that 'his visual works be considered as writing, and read as such'.[220] He and his contemporaries extend the poetic legacy of bpNichol, and keep it alive through publishing and theorising on visuo-verbal work and its many manifestations. Beaulieu's own

[218] David Staines, 'Poetry' in *The Cambridge Companion to Canadian Literature.* Eva-Marie Kröller, Ed. Cambridge: Cambridge University Press, 2017. 142.
[219] Kit Dobson, 'Introduction', *Please No More Poetry: The Poetry of Derek Beaulieu.* Waterloo, Ont.: Wilfrid Laurier University Press, 2013. ix.
[220] Jonathan Ball, 'Blurring the Borders/Bordering the Blurs: bpNichol and derek beaulieu', *OPEN LETTER: bp + 21* 13:8 (2010) 96.

work finds itself in conversation with that of Nichol: they share the affinity for the *borderblur* and the 'transgressing of literary boundaries', despite their separation by a few decades.[221] Mike Borkent characterises Beaulieu's work as 'post-linguistic', positioning him at the cutting edge of the Canadian visual tradition, as he generates poems 'that require the recognition of typographical linguistic features for interpretations while simultaneously refusing to use words–as embracing the dirtiest edge of the dichotomy, such that one might call them filthy, organic, sensuous'.[222] Beaulieu's occupation of such a pivotal role in the Canadian context of visual poetry, combined with the initial critical forays into the cognitive dimensions of interpretation, marks him as ideal for an illustrative analysis that combines a Neurohumanities approach with a close reading of his work. This is also supported by the diversity of his output, reflected in the innovative, typographically and pictorially complex approaches to his own practice, and will be analysed further in Chapter Four.

Cognitively-informed approaches to Canadian visual poetry specifically are already in existence: Borkent combines a reading of the poetry of bpNichol with the popular notion of embodiment in cognitive literary studies. Borkent appeals to the popular approach of cognitive poetics: he demonstrates a reading of bpNichol's visual poem influenced by Basho's famous haiku, appealing to image-schemas and their relation to embodiment in order to generate an understanding of his selected poems. This particular type of cognitive poetics approach relies heavily on the notion of embodiment as it is construed in a Cognitive Literary Studies sense to generate its close reading. As specified in the Introductory chapter, this dissertation does not apply an embodied reading to its selected poems, but it does acknowledge its presence especially in these types of critical readings which apply the theory, often attributed as arising from cognitive linguistics, that our physical body influences our minds and cognition in fundamentally significant ways. Borkent writes 'while words have for quite some time been regarded as wholly arbitrary signs, cognitive poetics shows that those areas of language which reveal iconic and metaphoric layers are motivated by our embodiment'.[223] Nichol's poem visually represents a frog jumping through the surface of a pond, where the 'o' in the word 'pond' is also shared by the word 'frog' – it serves as the actual surface of the pond which is broken by the frog's jump: this is visually

[221] Ibid.

[222] Borkent, 'Visual Improvisation', 4.

[223] Mike Borkent, 'The Materiality of Cognition: Concrete Poetry and the Embodied Mind'. *WRECK* 3:1 (2010) 7.

[238] Mike Borkent, At the Limits of Translation? Visual Poetry and Basho's Multimodal Frog.' *Translation and Literature* 25:2 (2016) 191.

represented by lines drawn between the words, connecting the letters 'r' and 'g' of the word frog with one another. In examining the literal trajectory of the frog's movement through and by words that operate 'both as icons and symbols'[238], Borkent demonstrates the interpretive possibilities opened up once the alignment and manipulation of words on the page are considered as significant as the words themselves and what they represent. While Beaulieu's work is not quite as perfectly suited to an embodied reading, the direction that he has taken contemporary concrete poetry in as both practitioner, and one of its most eloquent theorisers, also marks him out as an appropriate case study to consider from Neurohumanities perspective.

Beaulieu states that in relation to his own practice, 'concrete poetry is not a score for oral performance & is not meant to be articulated in sound'[224] – this is a radical, canon challenging mission statement. Articulating his position in relation to the challenge that concrete poetry poses to capitalist hegemony, he concedes that while the concrete poet cannot control how the reader will approach or even perform a text, it is his aim to 'step away from performance of these poems in order to further complicate the exchange value of poetry', adding that 'while 'value' & 'commodity' are never completely escaped, its transferal can be troubled by the removal of the verbal from the communication equation'.[225] This 'removal of the verbal' is a contentious notion: in his rejection of the idea of the visual poem as a 'score for orality', Beaulieu positions contemporary concrete poetry as an interruption of 'capitalist exchange-based signification'. [226] He invokes Sianne Ngai's argument that its 'inarticulate mark' – and its refusal to be either displaced or coagulated into a unitary meaning – ultimately expresses a 'poetics of disgust' rather than desire as the effective response to capitalism and patriarchy.[227] This compelling account of contemporary concrete works which claim to retain the ontological status of poetry while placing the primary emphasis on *seeing* or perception by totally eschewing orality, thus positions Beaulieu at a vital juncture in poetry studies on the whole, yet also finds a sense of accordance with the theoretical considerations of an interdisciplinary study. As Beaulieu invokes Sianne Ngai's notion of the 'inarticulate mark' as the only correct response to the capitalist-based exchange of poetry, exploring the ramifications of this with a Neurohumanities empirical perspective provides a fascinating opportunity to explore in an

[224] Beaulieu, 'an afterword after words', 89.
[225] Ibid.
[226] Ibid.
[227] Ibid.

alternate way, poetry that itself explores alternate modes of presentation and existence. It is through his conceptual work that some of his more radical theoretical explorations find their fullest expression – it is not so much the 'self-displacement' but the 'foregrounding of materiality' that constitutes the chief draw for him.[228] As discussed earlier, much visual poetry occludes the presence of the poet themselves in the work, but examining the commentary of these practitioners themselves provides another critical dimension with which to consider it. Beaulieu's self-awareness as poet and practitioner is especially evident in his commentary on his own artistic trajectory. Somewhat unconventionally, his more recent work showcases a move towards what he describes as a more classically inflected concrete poetry, one that pays homage to Gomringer's advocacy for simplicity and utility in the construction of the concrete poem. The historical debate between 'dirty' and 'clean' concrete poetry, ably traced by Lori Emerson, demonstrates the multiplicity of interpretive possibilities, especially when considering the account of bpNichol's statement about how clean concrete poetry 'was a kind you could understand by looking but not reading, and that dirty was the kind that had a visual shape made of phases or clauses or sentences that had to be read as well as viewed'.[229] Yet, it is Beaulieu's own perspective on poetry in general that provides some of the most interesting further dimensions: 'I view poetry, as typified by concrete poetry, as the architectural structuring of the material of language; the unfamiliar fitting together of fragments, searching for structure'.[230]

Similarly, visual poetry by women demonstrates a fascinating engagement with unreadability, moving past conceptions of 'clean' and 'dirty' concrete to veer into asemic, complex work that often challenges patriarchal notions of authorial power. The active attempts of contemporary visual poetry to 'interrupt language's making of capitalist value through the dis-assembly and re-assembly of the mark and the grapheme'[231] thus provides a fascinating theoretical opportunity to examine its impact from different perspectives. In this process of radical dismantling, the fragmented raw material of much of the visual poetry focused on within these Case Studies actually marks itself as ideal for consideration from an

[228] Lori Emerson, 'Afterword: An Interview with Derek Beaulieu', in *Please, No More Poetry: The Poetry of Derek Beaulieu.* 65.
[229] Lori Emerson, 'the origin of the term "dirty concrete poetry" (en route to digital D.I.Y.)', https://talonbooks.com/meta-talon/the-origin-of-the-term-dirty-concrete-poetry-en-route-to-digitaldiy#:~:text=The%20term%20was%20likely%20then,like%20it%20clean%20what%20dew [Date Accessed: 1/6/21].
[230] Beaulieu & Fedorova, 'Conceptualist ostranie'.
[231] Ibid.

empirical perspective. Visual poetry disputes the generally accepted idea of individual words standing as 'the first, elemental units of poetic patterning' as well as disrupting the notion of the poetic line as the 'next elemental unit of poetry'.[232] While this complicates a close reading from a conventional literary critical standpoint, the subatomic disassembling of language into even smaller components arguably results in a more palatable presentation for an interdisciplinary or empirical study. This is especially pertinent in light of current neurocognitive studies of reading which 'traditionally deal with text materials which are simple, short and usually not part of artful literature or lyrics', as Jacobs et al note in the account of their attempt to establish a neurocognitive model of literary reading.[233] Consequently, this muddying of the literary waters in relation to the fractionation of words and language provides a more straightforward stimulus to study as part of an actual experiment, as later chapters will demonstrate.

Returning to Woloksy's definition that underscores what makes poetry 'distinctive': 'poetry is language in which every component element – word and word order, sound and pause, image and echo – is significant, significant in that every element points toward or stands for further relationships among and beyond themselves'.[234] While this can certainly apply to much visual poetry, it is worth noting that this characterisation generates a clash with both some of the aforementioned historical accounts of visual poetry, especially Beaulieu's summary of the contemporary concrete, which deliberately treats language 'as 'raw matter' without a reinforced referent'.[235] If there are instances of contemporary concrete where the language may not point toward nor stand for something beyond itself, then this yet again highlights the contentious relationship that visual and concrete poetry has towards the characterisation of poetry in general. This treatment of language as 'raw matter' and focus on its materiality demands a more active, engaged type of reading. In his critical engagement with one of Beaulieu's many untitled poems, Borkent observes: While aspects of visual meaning generally contribute to formal choices in contemporary poetry, such as through line and stanza breaks, visual poetry utilizes the potential of these components extensively, making them essential to analysis rather than (almost, seemingly) optional. It pushes beyond language's references or representations to draw on the

[232] Wolosky, *The Art of Poetry*, 4.
[233] Arthur Jacobs and Roel M. Willems. 'Towards a Neurocognitive Poetics Model of Literary Reading' in *Cognitive Neuroscience of Natural Language Use.,* Ed. Roel M. Willems. New York: Cambridge University Press, 2015. 137.
[234] Wolosky, *The Art of Poetry*, 3.
[235] Beaulieu, 'an afterword after words', 88.

materiality of writing itself, including its medially and technologically derived qualities. Visual poems must be seen to be understood.[236] Borkent demonstrates a particular type of theoretical approach, which combines arthistorical depictions of materials with 'more nuanced engagements with the phenomenological processes of seeing, seeing-in, and seeing-as...'.[237] Presenting a cognitive poetics approach to one of Beaulieu's visual poems, he identifies the trajectory of Beaulieu's letters in a reading of one of his visual poems as following paths of 'fictive motion', drawing upon Ronald Langacker's notion of 'fictive change', which denotes 'the subjective construal of something in terms of an alternate state of being'.[238] Borkent's theoretical approach proves an excellent template for further analysis that builds on his specific integration of cognition and poetry. These initial forays into the compatibility of visual poetry with an understanding or account of cognition indicate the readiness of the field for this kind of further analysis. As Beaulieu notes, concrete poems often foreground their own materiality: they 'are not rarefied jewels carefully chiseled for a bespoke audience; they are nuts and bolts, factory made, shifting from use to use…'.[239]

So then, if the critical and the cognitive are to coalesce, it is in relation to these elements of visual poetry, making it ideal for a contemporary reappraisal and integration with an understanding of the importance of history, context, critical reception thus far. What this metacritical overview of the history of visual poetry and poetics indicates in the present chapter is the opening for an alternate way of looking at this dimension of poetry, and poetry studies. As will be discussed further in the subsequent chapter, this is by no means straightforward: substantial space will be devoted to the various practical considerations of the endeavour, as the theoretical ones are dealt with in tandem. For example, the use of anthologised work immediately poses both a theoretical and practical potential obstacle in the integrating of visual poetry with Neurohumanities approaches: many of the poets in the volumes selected 'in fact challenge the autonomy of the individual poem in isolation from its context, proposing instead that the final work is not just the isolated composition on the page, but the publication as a whole'.[240] This highlights the problem of context, and the implications of isolating stimuli from their aesthetic context in order to 'test' or study them. How might these problems be addressed in subsequent

[236] Borkent, 'Visual Improvisation', 1.
[237] Ibid, 5-6.
[238] Ibid, 15.
[239] Beaulieu, 'an afterword after words', 88.
[240] Balgiu & de la Torre, 'Introduction', 16.

chapters? And is the attempt to 'read' a visual poem in some senses to 'betray' it? A. Kibédi Varga's commentary in 1989 seems to imply so, noting the complex nature of perceiving and/or reading the visual poem – the challenge of this endeavour is directly correlated to how intensely 'word and image are united'.[241] When dealing with an emblem or illustration, it is completely legitimate to pass from the image to the text and vice versa, to modify alternately and regularly our way of perceiving a verbal-visual object. But in the case of a complete union of verbal and visual elements, we cannot switch from one way of perceiving to another; we in fact perceive in two different ways at the same time. In other words, to read a visual poem is to betray it; to restore it to verbality is to eliminate half of its meaning.[242] The extent to which this viewpoint might be recontextualised in the present day, through sustained study of this 'complete union' of the verbal and the visual on a cognitive level, presents an opening for other means and methods of determining meaning from these kinds of works. As the next chapter argues in detail, an applied, cognitively-informed approach incorporating a carefully curated Neurohumanities methodology can enable us to read *and* see visual poetry anew; and thus to determine meaning from and for a different, valuable perspective.

[241] A. Kibédi Varga, 'Criteria for Describing Word-and-Image Relations' *Poetics Today* 10:1 (1989) 37.
[242] 257 Ibid.

Chapter Three

Visual Poetry and Poetics with Neurohumanities

But don't art and science need each other? Tools with which to think and make marks.
– Robert Mittenthal, *The Last Vispo Anthology.*

The present chapter moves closer towards exploring, in Rukeyser's words, its own 'meeting-place between all the kinds of imagination'.[1] In the context of the project, this involves layering visual poetry, visual poetics and empirical research over one another, laying further foundations in order to move through the theoretical and the hypothetical, and towards a practical, applied instance of this kind of research. Exploring to a detailed extent the combination of visual poetry with empirical experimentation, existing psychological and cognitive studies are examined that have combined poetry with methods from experimental psychology, cognitive science, and neuroscience. Linking back to the theoretical considerations explored in Chapters One and Two, this chapter expands upon the possibilities of a Neurohumanities approach by analysing studies already in existence that have informed the present project's objectives. The chapter considers the most useful inferences and influences from existing empirical methods that have been applied to, or combined with, poetry studies, such as how complex, subjective aspects of literary texts such as 'difficulty' and 'readability' can be classed, quantified, and measured in a scientific context. It introduces the project's experimental – in both senses of the word – empirical approach to visual poetry, outlining some of the different cognitive models and paradigms that have been explored in relation to visual poetry. Finally, the chapter introduces the project's focus on David Navon as its chosen psychological paradigm, in order to investigate local and global processing of visual poetry.

Chapter Two focused on visual poetics and visual poetry almost exclusively in a literary context, while introducing and acknowledging some of the cognitively-informed approaches in existence. The present chapter brings the conceptions of visual poetry explored thus far into a broader conversation with neuroscience and psychology, and establishes the practical, Neurohumanities perspective and methodology required to combine disciplines in the desired manner. As established, visual poetry's often intentional disruption of traditional strategies of naturalisation in reading, and its utilising of iconicity

[1] Muriel Rukeyser, *The Life of Poetry*, Middletown, CT: Paris Press, 1996. xi.

and visuality in ways inherently resistant to literary critical analysis marks it as a frequently undermined art form. Therefore, the present chapter also interrogates how empirical studies can contribute to this debate, being cautious, as ever, not to use scientific critique to validate the literary. As mentioned in the previous chapter, emerging methods of reading visual and concrete poetry often incorporate, to varying extents, theories and ideas lifted from or inspired by psychology and cognitive science. Sometimes, this can be wrongfooted: Drucker's historical overview of the history of the alphabet makes reference to cultural theorist Derrick Kerckhove in the nineteen-eighties, who sought to explore the relationship between the development of the alphabet and cognitive processes, making links between cultural and biological phenomena.[2] While Drucker rightly notes the pitfalls of such research, that nowadays would prompt the ire of many a neurosceptic – overstated leaps linking the alphabet to theories of cognitive development and gene selection, as well as a pronounced Eurocentric bias lionising Greek culture over any other – the fascination with the alphabet and writing systems and how they might influence, or be influenced by, cognitive processes is evident nonetheless. Willard Bohn's final chapter of *Reading Visual Poetry* acknowledges the influence of emerging discourses on how we might approach visually distinctive poetry. Influenced by Rudolf Arnheim's writings in 1969, and invoking his 'eyesight is insight' maxim, Bohn explicitly notes the hemispheric differentiation evident in the lateralisation of the brain, and in a short final chapter considers its implications for visual poetry.[3] He extrapolates on how the distinction between the different cognitive approaches to intellectual and intuitive content in relation to literature and art is significant. He references oft-cited 'multistable' images – Wittgenstein's duck-rabbit, the vase framed by faces – all of which encourage 'contradictory' readings because of their fusion if the visual and the verbal. While Bohn's concluding chapter only briefly acknowledges these burgeoning perspectives on the field about the intellectuality of literature and the intuitiveness of art, the presence of these ideas indicates the critical interest in combining the literary field with some of the considerations of psychology. Bohn writes how this kind of reading could go in a vast array of different directions, because it is 'wedded both to literature and to art'.[4]

More recently, Gregory Betts opens his 2021 monograph *Finding Nothing: The VanGardes 1959-1975* with an appeal to cognitive discourses: he references

[2] Johanna Drucker, *Alphabetic Labyrinth: The Letters in History and Imagination.* London: Thames & Hudson, 1995. 300-1.
[3] Willard Bohn, *Reading Visual Poetry*. London: Rowman & Littlefield Pub, 2011. 196.
[4] Ibid, 199.

neuropsychological studies on attention and recognition to introduce his overview of experimental literary modernism in in Vancouver and how this kind of work entered the 'closed loop of memory' within the parameters of his study.[5] While Betts' study is not a Neurohumanities one, and Bohn's assessment that 'visual poetry derives its distinctiveness from its simultaneous participation in both worlds'[6] is rather reductive, the namechecking of cognition and cognitive approaches in relation to visual poetry indicates at the very least an interest in their compatibility. More directly relevant to the present project, in his 2019 monograph outlining the evolution of concrete poetry in England and Scotland, Greg Thomas appeals to Stephen Bann's 1964 essay 'Communication and Structure in Concrete Poetry' in which Bann utilises structuralist terminology, the work of E. H. Gombrich, and 'psychologist C. E. Osgood's notion of "semantic space"' in order to present the 'visual form of the concrete poem as a manifestation of the underlying, differential frameworks of linguistic cognition'.[7] Bann suggests that the value of concrete poetry 'lay in making that interplay of pre-semantic categories lucid to the conscious mind through its visual materialisation'.[8] These writings are determined to link visual poetry and cognition, and in various ways, indicate this theoretical potential and compatibility. This chapter refines this potential in a number of ways. Firstly, the question must be refined to pertain more specifically to the combination of visual poetry and poetics with neuroscience and psychology, as analysed under the auspices of Neurohumanities. This chapter delves deeper into this question by identifying and exploring some potential areas within psychology and visual poetry that appear especially suited to this combination of disciplines. Simultaneously, the groundwork is laid out for the rest of the dissertation's exploration of the local and global properties of visual poems in an experimental setting.

What is the Meaning of Visual Poetry?

Mieke Bal discusses the 'word-concept' of 'meaning' in *Travelling Concepts in the Humanities*, noting how 'no academic discipline can function without a notion of this concept': although it is over-extended and over-used in a variety of contexts.[9] Students are

[5] Gregory Betts, *Finding Nothing: The VanGardes, 1959-1975.* Toronto: University of Toronto Press, 2021. 3.
[6] Bohn, *Reading Visual Poetry*, 196.
[7] Greg Thomas, *Border Blurs: Concrete Poetry in England and Scotland.* Liverpool: Liverpool University Press, 2019. 9.
[8] Ibid.
[9] Mieke Bal, *Travelling Concepts in the Humanities: A Rough Guide.* Toronto: University of Toronto Press, 2002., 27.

'trained to say that "the meaning of a picture" is identical either to the artist's attention, or to what its constitutive motifs originally meant, or to the contemporary audience's understanding, or to the dictionary's synonym'.[10] Bal instead suggests 'that students ought to be trained to choose – and justify – one of the meanings of "meaning," and to make that choice a methodological starting point.[11] This valuable caveat is kept in mind when considering the visual poetry of the present dissertation, as resistant as it is to traditional, literary critical strategies of determining meaning. Derek Beaulieu comments how concrete poetry 'as a momentarily non-signifying map is an always impossible system of inarticulation, caught in the double-bind of the creation of meaning'.[11] Maggie O'Sullivan extrapolates on this evolution of meaning in experimental poetry throughout the twentieth century, writing how the trust in 'radical form' implies openness to the challenge of meaning generation wherever it may be accessed, and by whatever strategies – a form not handed down, but arrived at, one which the poet discovers in and through the process of work the logical extension of the inherent capabilities of the so-called 'open-field' composition of earlier post-war American poetries such as those of Olson and Black Mountain.[12] As discussed, the convergence of a number of aforementioned different factors makes this conception of meaning, and the Case Studies of the present study timely. These include the ongoing reappraisal of the significance and relevance of concrete poetry, as well as the burgeoning integration of Neurohumanities/cognitive humanities with disciplines not traditionally associated with the sciences. While Kenneth Goldsmith notes that that although by the end of the nineteen-seventies concrete poetry had collapsed 'into a smouldering heap',[13] it has proven oddly prophetic as a specific facet of visual poetry, and this critical reappraisal is ongoing: in 1956 Gomringer wrote that 'concrete poetry is founded upon the contemporary scientific-technical view of the world and will come into its own in the synthetic-rationalistic world of tomorrow'.[14] Despite the legacy of critical and cultural

[10] Ibid.

[11] Ibid.

[11] Derek Beaulieu, 'an afterword after words: *notes towards a concrete poetic*'. Online article. http://www.ubu.com/papers/beaulieu_concrete_commentary.pdf [Date accessed: 15/1/2020]. 10.

[12] Maggie O'Sullivan, *Out of Everywhere*: *Linguistically Innovative Poetry by Women in North America & the UK*. London: Reality Street, 1996. 239-240.

[13] Kenneth Goldsmith, 'Make it New: Post-Digital Concrete Poetry in the 21st Century'. *The New Concrete: Visual Poetry in the 21st Century.* Eds. Victoria Bean and Chris McCabe. London: Hayward Gallery Publishing, 2015. 10.

[14] Eugen Gomringer quoted in Jamie Hilder, 'Concrete Poetry: from the Procedural to the Performative', *Letters: Michael Morris and Concrete Poetry.* Vancouver: Morris and Helen Belkin Gallery, 2016. 112.

resistance outlined in the previous chapter, the prophetic nature of the genre has meant that its 'meaning' has changed over time as technology has progressed, inviting this critical reappraisal of recent years. It is at this juncture that Neurohumanities is especially complementary of the visual verbal element. What is said of concrete poetry also applies to visual poetry more generally, when considering the means and methods of distribution nowadays: 'while concrete poetry has always been a fast poetry – purposely resistant to close reading – in the information age, it seems intentionally designed for short attention spans'.[15] Especially important to reemphasize in this chapter too, is the extent to which visual poetry foregrounds the moment of viewing itself, putting the reader-viewer in an active, engaged role as the reading-viewing subject.

Reflecting on work such as Steve McCaffery's *Carnival*, excerpts of which feature in the first Case Study for example (Fig. 16), demands at the very least a measure of consideration of 'how our perception and interpretation receive these experiments as objects of visual perception'.[16] Thus, this anticipates the need for an awareness (or at the very least acknowledgment) of how our systems of visual perception function in response to a stimulus such as this visual poem; how we make, interpret, or understand meaning in this sense. As will be discussed in more detail in Chapter Four, McCaffery's poetry is challenging not just on a theoretical level, but on a perceptual one too: his work is a densely populated visual landscape of typewritten marks and radical, asymmetrical patterning that saturates the eye of the perceiver. The materiality and dimensionality of this work is one of its most prominent features: Perloff notes how McCaffery, writing with bpNichol, concludes that the page is 'not just a blank sheet, waiting for "meaningful" print to be affixed to it, but a kind of trellis, upon which words and letters are fastened visually as well as semantically'.[17]

[15] Goldsmith, 'Make it New', 15.

[16] Mikey Rinaldo, 'Between Paint and Ink: Cy Twombly, Steve McCaffery and Textual Illegibility in North American Art and Poetry 1950s-1970s.' *Journal of Visual Art Practice* 17:2/3 (2018) 155.

[17] Marjorie Perloff, '"Inner Tension / Inattention": Steve McCaffery's Book Art'. Online article. https://www.writing.upenn.edu/epc/authors/perloff/mccaf.html [Date accessed 1/11/21].

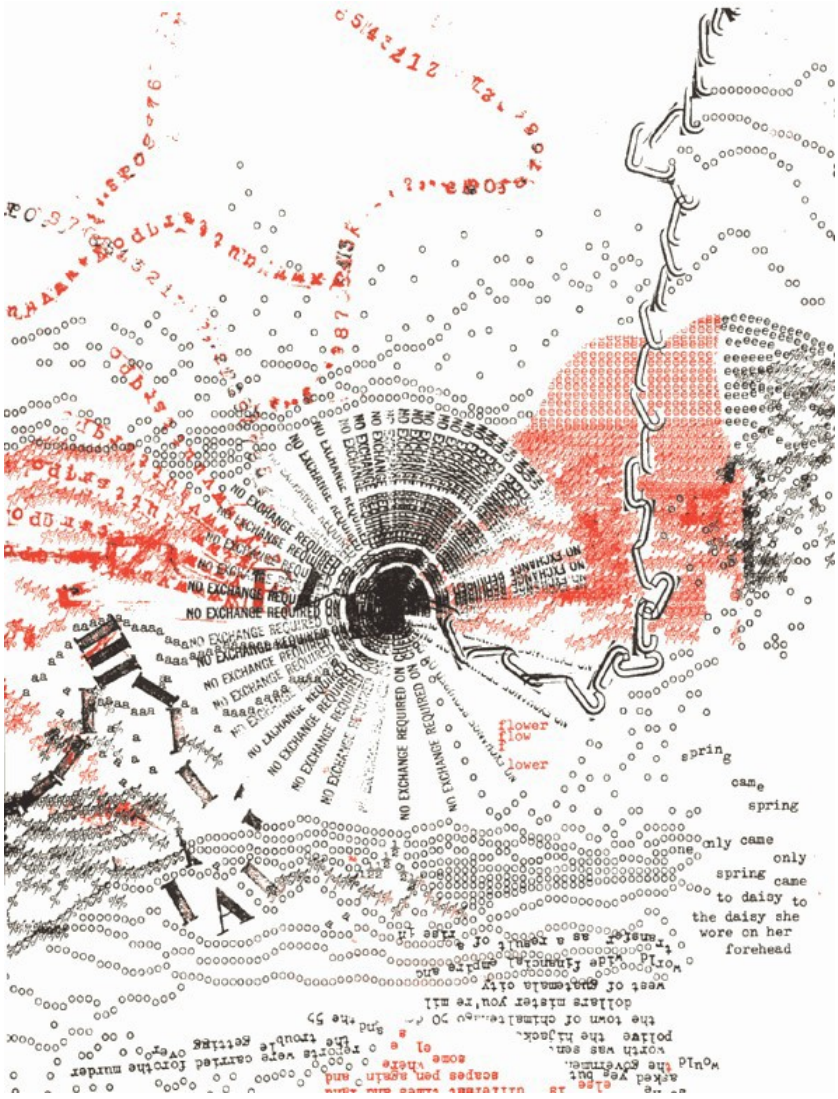

Fig. 16. Panel from Steve McCaffery's *Carnival.*

As established, the range of different approaches and responses that visuo-verbal works engender can often create a critical impasse and cultural resistance: I propose that a cognitively informed reading of visual poetry can contribute towards the discourse around the way this kind of poetry functions *as* poetry – and to interrogate the meaning of this, both on a specific and general level. Once this is established, the more subtle disciplinary constraints may be examined anew, as well as establishing an interdisciplinary picture that allows for the reciprocity between visual poetry and psychology; and by extension, between art and science.

As referenced in previous chapters, Jacobs *et al* have contributed towards a neurocognitive poetics model of natural language use, while Aryani *et al* provide a quantitative measure to assess the affective tone of poetic texts. Also established, however, is the fact that much of this research focuses on measuring and localising brain activity in

response to poetic stimuli. While localisation is not unimportant, focusing on just this element does not necessarily contribute as much to the literary, in-depth understanding of the complexity of poetry and the subjective responses to its meaning that it can facilitate. Most of the time, this approach fails to take poetic *meaning* into account. When it comes to certain aspects of visual poetry, however, empirical experimentation becomes – I argue – a more interesting and fruitful aspect to study. The refrain of the preceding chapters echoes again: visual poetry complicates the usual strategies of interpreting and analysing meaning from and within poetry. Without tackling the wider philosophical question of defining meaning, it suffices to say for the moment that meaning is necessarily conceived of as the perceiver's subjective response to a work of art, informed to various degrees by an understanding of its context and criticism. Regarding the existing studies that deal with poetry and empirical experimentation, the question of meaning is, for the most part, elided in lieu of more easily quantifiable variables. However, the present study makes a concerted attempt not to attempt to quantify something as theoretically slippery as subjective meaning. As will be demonstrated, the approach of this dissertation is to allow the wide range of research consulted to influence the theoretical approach, while attenuating the focus towards the practical experiment design that can complement the ideas explored. While the subjectivity of meaning is not something that can be measured using quantitative methods, the conditions influencing it can be recorded and analysed. In this sense, the experimental component of this study collects both qualitative and quantitative data, employing a 'mixed methods' approach in order to facilitate its investigation of the local and global perception of visual poems.

The Science of Legibility, Readability, and Typography

There are a few important precedents that inform the background of the scientific aspect of the present chapter, such as Charles Sanders Peirce's influential theories of the iconic sign, and in turn, W. J. T. Mitchell's foray into the interstices between visual art and science that are reflected in his contributions to the considerations of word and image through his works *Iconology*, *Picture Theory* and *What Do Pictures Want?* , a 'trilogy' investigating the then emerging discipline of 'word and image studies'.[18] Mitchell writes of the visuo-verbal in terms of how 'visual denotes a specific sensory channel; the verbal denotes a specific

[18] W. J. T. Mitchell, *Image Science*, Chicago: University of Chicago Press, 2015. 13.

semiotic register'; the phrase visual-verbal therefore 'produces a productive confusion of signs and senses, ways of producing meaning and ways of inhabiting perceptual experience'.[19] Of interest in Mitchell's most recent text, *Image Science*, are his definitions of the material difference between a picture and an image: 'the picture is the material object, a thing you can burn or break or tear', whereas 'an image is what appears in a picture, and what survives its destruction – in memory, in narrative, in copies and traces in other media'.[20] Mitchell's appeal to the physicality of materiality in differentiating between picture and image is interesting when considering the scope of the present project and its interrogation of materiality in the poems of the Case Studies. To think of an image as 'an immaterial entity, a ghostly, phantasmatic appearance that comes to light or comes to life (which may be the same thing) in a material support'[21] is, according to Mitchell, to also invoke Peirce's notion of the 'iconic sign': a 'sign whose intrinsic sensuous qualities resemble those of some other object'.[22] This can be read in tandem with the impetus of concrete poetry in its purest form to specifically collapse 'structure and meaning into a single indissoluble unit'.[23] Mary Ellen Solt has written of the parallels between Gomringer's own theory of signs and Peirce's theories, providing a close reading of Gomringer's poem 'pingpong': she reads it as 'an existent, as a material thing in itself'.[24] In another instance of early critical responses to concrete poetry suggesting its consilience with cognitive science, Solt intimates the activation of long term memory in the apprehension of this kind of 'clean' concrete poem: she writes how Gomringer's poem – which visually enacts the motion of a ping pong ball across a table using the words 'ping' and 'pong' – 'could not operate as an iconic sign at all if we did not have stored away in our memories an image of a pingpong game being played', because the poem 'as an audio-visual object, embodies sounds, tensions and movements which are like the sounds, tensions, and movements we recall as qualities of a real game of pingpong'.[25] Mitchell's differentiation between picture and image informs the present chapter's exploration of the studies that bring science into this poetic

[19] Ibid, 40.
[20] Ibid, 16.
[21] Ibid, 17.
[22] Ibid.
[23] Johanna Drucker, 'Experimental, Visual, and Concrete Poetry: A Note on Historical Context and Basic Concepts' in *Experimental, Visual, Concrete: Avant-Garde Poetry Since the 1960s*. Eds, K. David Jackson, Eric Vos and Johanna Drucker. Amsterdam: Rodopi: 1996. 46.
[24] Mary Ellen Solt, 'Charles Sanders Peirce and Eugen Gomringer: The Concrete Poem as a Sign.' *Poetics Today* 3:3 (1982) 197–209.
[25] Mary Ellen Solt, 'Charles Sanders Peirce and Eugen Gomringer: The Concrete Poem as a Sign.' *Poetics Today* 3:3 (1982) 200.

paradigm, especially considering its discussion of materialities in the previous chapter: if an image can survive the destruction of the picture, can a visual poem's essence survive its rematerialisation from the page to the screen?

Some psychological and cognitive scientific research that deals with various aspects of the readability/legibility of textual and poetic material will now be discussed, as it complements the discussion of illegibility, unreadability, and asemic writing outlined in Chapter Two. In the poetry discussed thus far, the limits of legibility are explored in order to explore the materiality of the written word, and/or challenge traditional reading strategies of naturalisation and narrativization. This was discussed in Chapter Two with reference to the deliberate engagement with unreadability and illegibility presented in poems by Claus Bremer and Giulia Niccolai (Figs. 12 and 13). Within the realms of literary criticism and especially in relation to visual poetry by women, illegibility becomes, as mentioned in Chapter Two, a manner in which poets' experience of gender can be articulated, challenged, and reimagined. Within the scope of empirical experimentation, however, the expectations are necessarily curtailed: as they become more practical, they become less ambitious. One such study is entitled 'Is less readable liked better?', which tested the legibility of fonts of poems that were categorised as either 'easy' and 'difficult'. Xin Gao *et al* found – somewhat counterintuitively – that 'hard to read font can be beneficial for language comprehension'.[26] They note the precedence of 'fluency' in cognitive processing in relation to likeability – this is especially present in canonical poetry that assumes very recognisable forms, e.g., a sonnet, and 'empirical evidence indeed shows that increased fluency in the sense of the presence of rhyme or meter leads to increased memory or general appreciation of poetry'.[27] Worth noting, however, is their distinction between perceptual fluency and conceptual fluency: perceptual fluency here relates to aspects of the stimulus such as symmetry, or presentation, whereas conceptual fluency relates to 'how fluently the *meaning* of a stimulus can be understood'.[28] Sometimes 'disfluency' can increase appreciation for a stimulus – it can create a 'mental roadblock' that actually 'intensifies the depth of cognitive processing'.[29] In the context of this specific experiment, the researchers used a selection of Dutch poems, predicting a 'Font Readability x Poem Difficulty interaction effect' which they supposed

[26] Xin Gao, Jeroen Dera, Annabel D. Nijhof, and Roel M. Willems. 'Is Less Readable Liked Better? The Case of Font Readability in Poetry Appreciation.' *PLoS One* 14:12 (2019) 1.
[27] Ibid, 2.
[28] Ibid.
[29] Ibid.

would see difficult poems with less readable font leading to higher appreciation.[30] Ratings for the sample of Dutch poems accounted for structural components such as rhyme, meter, grammaticality; and for conceptual clarity, aspects of ambiguity and topical sentences: these assessments were used to give a general sense of the poems as considered by the authors of the paper. They note that delineating these criteria as instances of 'structural' or 'conceptual' fluency is 'most likely to be a matter of degree': there is no room for 'pure' cases of structural or conceptual difficulty, but rather they are designed as general markers. The fonts chosen to display the poems in were Calibri, deemed an acceptably legible font, and Mistral, considered a 'difficult' font (Fig. 17).

[30] Ibid, 4.

Sterfbed

Mijn vader sterft; als ik zijn hand vasthoud,
voel ik de botten door zijn huid heen steken.
Ik zoek naar woorden maar hij kan niet spreken
en is bij elke ademtocht benauwd.

Dus schud ik kussens en verschik de deken,
waar hij met krachteloze hand in klauwt;
ik blijf zijn kind, al word ik eeuwen oud,
en blijf als kind voor eeuwig in gebreke.

Wij volgen één voor één hetzelfde pad,
en worden met dezelfde maat gemeten;
ik zie mijzelf nu in zijn bed gezeten

zoals hij bij zijn eigen vader zat:
straks is hij weg, en heeft hij nooit geweten
hoe machteloos ik hem heb liefgehad.

Sterfbed

Mijn vader sterft; als ik zijn hand vasthoud,
voel ik de botten door zijn huid heen steken.
Ik zoek naar woorden maar hij kan niet spreken
en is bij elke ademtocht benauwd.

Dus schud ik kussens en verschik de deken,
waar hij met krachteloze hand in klauwt;
ik blijf zijn kind, al word ik eeuwen oud,
en blijf als kind voor eeuwig in gebreke.

Wij volgen één voor één hetzelfde pad,
en worden met dezelfde maat gemeten;
ik zie mijzelf nu in zijn bed gezeten

zoals hij bij zijn eigen vader zat:
straks is hij weg, en heeft hij nooit geweten
hoe machteloos ik hem heb liefgehad.

Fig 1. Example of stimuli used. Displayed is the poem 'Sterfbed', an Easy poem in terms of fluency (Table 1), in the two fonts. On the left is the more readable font (Calibri) and on the right is the less readable font (Mistral).

https://doi.org/10.1371/journal.pone.0225757.g001

Fig. 17. Demonstration of two Dutch poems from this survey in their respective fonts.

The resulting formulae provided, which account for poem difficulty and readability, grants an interesting insight into the way that traits such as 'Difficulty' can be quantified in accordance with the strictures of scientific, empirical experimentation. For example, in their results they noted that supposedly 'Easy' poems are hindered by a difficult to read font, but 'no effects of Font Readability were observed for Difficult poems'[31] which implies that when the poems that are already semantically more complicated are rendered in difficult font, the resulting efforts to understand the meaning are the same. Another significant aspect of this study is the use of 'unmodified' poems; which here means poems in their 'ultimate, published state' in the original Dutch.[32] Naturally, it raises the issue of the translatability of

[31] Ibid, 15.
[32] Ibid, 17.

specific languages being used for specific studies: can research conducted in a language that is not English, be related to a study that is conducted through English? When relating this study to the present project, there are several other questions that immediately arise. Firstly, queries about the extent to which it is productive to analyse responses to poetry by constructing an interaction effect matrix such as the one in this article. Worth querying, too, is the assumption on the part of the researchers that certain poems are quantified as 'Difficult' or 'Easy'. It appears as though some significant assumptions are being made here on the part of the researchers, particularly in relation to the liberties taken with the subjects who participated in the study: the demographic assumptions are fairly normative and neurotypical. Similarly, the sense here of a predetermined expectation of poetry rests upon a presumption about the participants' previous experience with poetry, and takes liberties with the very idea of a poetic expectation. The fact that any predetermined sense of poetry might already exist for participants in this study provokes further questions, arguably undermining the notion of being able to quantify aspects of readers' subjective response to poetry. Nevertheless, parts of this study and the researchers' review of the existing literature related to the topic are of interest for their forays into studying cognition 'in the wild'.[33] The discussion of 'expectation violation' is especially interesting when considered in relation to visual poetry, especially when considering the readability/illegibility concepts of the previous chapter. A somewhat clunky term to use especially in a supposedly scientific context, the 'violation' of expectations can be, in the context of visual poetry, a sustained and deliberate strategy of experimentation. The methodology used here by Gao *et al* nevertheless complemented an understanding of the effect of font upon the reader, which can be extended to the effect of typography upon the reader. As will be detailed extensively in Chapter Four, it influenced the current dissertation's experiment design: after considering the impact that having English as a first language could have upon visual poems presented in English, special care was taken to include some demographic questions at the start of Survey 2. These included asking about whether participants were native English speakers, as well as asking participants to rank their familiarity with both poetry and visual poetry. A later question which asked about how 'readable' and 'enjoyable' participants found the selected poems, was also influenced by Gao *et al*'s methodology in approaching the difficulty of the

[33] Ibid, 18.

content of the poetry and its typographical presentation.[34]While typography is only one facet of the signifying presentation of visual poetry, its bearing on other aspects of reading, not just visual poetics, is significant, especially when considering the theoretical and literary ramifications of deliberate illegibility in relation to some visual works and the literary critical reading they prompt. Drucker articulates this in *The Alphabetic Labyrinth,* where her detailed historical overview of typography's evolution notes the profound influence of industrialisation in the nineteenth century: writers such as Victor Hugo and Arthur Rimbaud ascribed meaning to the stylistic presentation of letterforms. Hugo even tried an aesthetic experiment exploring the symbolic value of the letters of the alphabet, creating a 'hieroglyphic' reading of the letters of the alphabet, although Drucker notes it as a 'purely subjective exercise, a projection of images through a process of personal association'.[35] Mallarmé also provided a kind of personal reading of the symbolism of the letters of the alphabet, deriving their meaning from his own sense of their iconicity: he used the body as an analogy for his belief that 'letters were the "bones and tendons" of language'.[36]

Regarding typography from a more practical, theoretical standpoint, Boris Veytsman and Leyla Akhmadeeva consider letter design and readability in a short literature review and subsequent experiment proposal. Tracing the lineage of typography – interestingly dubbed 'both a science and an art'[37] – back through centuries of calligraphic design, they acknowledge how letter design has always influenced readability. This historical approach to typography is well-established in Herbert Spencer's seminal text *Pioneers of Modern Typography*, first published in 1969, which acknowledges in its opening how 'the roots of modern typography are entwined with those of twentieth-century painting, poetry, and architecture'.[38] Born of the need to evoke the 'violence' of 'highly industrialised' modernity, the modern typography of the early twentieth century heralded a revolutionary impulse: a potent means of evoking new, emerging concepts of art and society in tandem with new technologies and mechanisation.[39] Regarding the rules governing typography from a more

[34] For the purposes of the study, in Survey 2 definitions of 'Readable' and 'Enjoyable' were provided to participants of Survey 2. 'Readable' was defined as 'the extent to which it is possible for you to 'read' this poem, understand it, and/or engage with its meaning', while 'Enjoyability' was defined as 'how much you, as a subjective observer, enjoyed your experience of reading these individual poems.'

[35] Johanna Drucker, *The Alphabetic Labyrinth: The Letters in History and Imagination.* London: Thames & Hudson, 1995. 245.

[36] Ibid.

[37] Boris Veytsman and Leyla Akhmadeeva, 'Towards evidence-based typography: Literature review and experiment design'. *TUGboat* 32:3 (2011) 285.

[38] Hebert Spencer, 'Introduction', *Pioneers of Modern Typography*. Cambridge, MA: MIT Press, 2004. 11.

[39] Ibid.

empirical standpoint, some are purported to be 'aesthetic', while others supposedly 'reflect the neurophysiology of reading'.[40] Discussing the applicability of an evidence-based approach to typography, 'readability', along with the somewhat more clunkily-named 'understandability' of texts in relation to the fonts that they are presented in is measured in this study.[41] Their article reviews the psychological experimentation conducted upon fonts and the influences they exert over their readers. For example, in the case of one experiment measuring reaction times, when the word 'strong' was rendered in bold and the word 'weak' rendered in lightweight font, reaction time for the subjects were significantly faster than in the opposite case.[42] These results imply an evidence-supported and fairly straightforward relationship of iconicity and meaning: the word 'strong' rendered in a perceptibly 'strong' or bold font mirrors or reflects linguistic content of the word, producing an emphasis upon its semantic meaning. Influenced by this aspect of the research, the focus on 'readability' provided an especially interesting variable to analyse using the mixed methods approach of the current project's experiment design, and will be outlined in Chapter Four. However, in the cases of some types of visual poetry, there is a deliberate tension between presentation and meaning, which evolves to explore the implication for meaning that can be configured through this tension: as will be discussed later on in this chapter with reference to Apollinaire's *calligrammes*.

It is possible, especially in an interdisciplinary context, to consider every single possible aspect of the text as a determining or influencing the meaning of visual poetry. This is especially true of visual and conceptual experimentation such as asemic writing, as discussed in Chapter Two, or 'dirty' concrete poems, which revel in the deliberate obfuscation of the determining of straightforward meaning by means of making a conceptual point about the readability of writing. Often utilised as an epigraph, Gertrude Stein's quotation from *The Geographical History of America* playfully articulates this: 'it is wonderful how a handwriting that is illegible can be read, oh yes it can'.[43] However, this is also true of writing that does not necessarily take legibility as the sole focus of its conceptual execution. The influence, for example, of the legibility of print upon the reading process is outlined by Miles Tinker in his seminal studies on this area.[44] While this work serves as more

[40] Veytsman & Akhmadeeva, 'Towards evidence-based typography', 285.
[41] Ibid.
[42] Ibid, 286.
[43] Gertrude Stein quoted in Perloff, '"Inner Tension / Inattention": Steve McCaffery's Book Art'.
[44] Miles Tinker. 'Experimental Studies on the Legibility of Print: An Annotated Bibliography.' *Reading Research Quarterly* 1:4 (1966) 84.

of a technical overview, the considerations of its findings provide some interesting contextual notes, especially when considering the studies that methodically analyse font size and letter legibility as vital contributors to the configuration of the reading process. Tinker was one of the first researchers to measure eye movements during reading in order to streamline these ongoing investigations into legibility during the 1960s. As discussed, measuring or acknowledging saccadic eye movements in relation to reading has been a significant area of study for both literary and cognitive studies, and seems to intuitively lend itself to a combination of the two disciplines. More recent studies exist that seek to determine letter legibility and font size as determining factors in the perception or ease of reading a piece: 'text legibility is directly related to the ease with which the visual system can detect characters and words and is important for the initial, data acquisition phase of reading'.[45] In a similar focus in on the scientific investigation of letterforms, Shimron and Navon have investigated the importance of 'various letter segments for letter recognition' in English and Hebrew, comparing how much a 'mutilated' version of a letter can still activate the internal representation of that letter in memory.[46] While the interpretation of visual poetry requires a more engaged kind of reading than mere 'data acquisition', or appealing to scientific studies of letters, it is worth noting the empirical studies that engage specifically with this aspect, and the various methods they use to measure this kind of perception of text. While Tinker's research is established entirely separately from a poetic context, the discussion of the impact of computer displays on the legibility of print proves interesting, especially when considered in relation to the ongoing discussion about the anticipatory power of concrete poetics, and the influence of the material conditions governing the text during the reworking of source material from a print to a digital format.

Digressions: The Stroop Effect, Cognitive Interference, and Working Memory In the initial stages of exploring visual poetry with Neurohumanities, there were some cognitive paradigms and models considered in tandem with visual poetry, and explored for how they could be placed in conversation with each other: the most significant of these serve as important layers of the cartographical journey of the project. Firstly, there were several superficial parallels between visual poems and some paradigms typically associated with

[45] James E. Sheedy, Manoj V. Subbaram, Aaron B. Zimmerman, and John R. Hayes. 'Text Legibility and the Letter Superiority Effect.' *Human Factors* 47:4 (2005) 797.
[46] Joseph Shimron and David Navon, The distribution of information within letters'. *Perception & Psychophysics.* 30:5 (1981) 483.

visual psychology. For example, the Stroop Test, which is used both for experimental and clinical purposes in neuropsychological research. This test is used to 'assess the ability to inhibit cognitive interference that occurs when the processing of a specific stimulus feature impedes the simultaneous processing of a second stimulus attribute'.[47] Briefly, this test involves the presentation of words – the names of different colours – and sets the challenge to the participant to make the distinction between colour naming and word reading. In general, what is known as the 'Stroop Effect' reveals that when naming aloud the print colour of an incongruent colour word, people are 'much slower and more error prone than they are when naming aloud the colour of a neutral letter string': for example, saying 'red' to the string 'xxxxx' rendered in the colour red, or of a non-colour word, such as saying 'red' to the word 'table' presented in the colour red.[49] The 'cognitive interference' referenced in relation to the Stroop Effect manifests itself in the difficulty experienced when trying to ignore the printed word and complete the task at hand, because 'when a subject encounters a written word, he or she automatically extracts its meaning, even when this is detrimental to the performance of another task'.[48] An example of an online Stroop test is included below (Fig. 18).

[47] Federica Scarpina, and Sofia Tagini. 'The Stroop Color and Word Test.' *Frontiers in Psychology* 8 557 (2017) 1. [49] Colin MacLeod, 'Stroop effect.' In *The Oxford Companion to Consciousness*. Eds, Tim Bayne, Axel Cleeremans, Patrick Wilkens. Oxford: Oxford University Press, 2009. [Online version]. https://www.oxfordreference.com/view/10.1093/acref/9780198569510.001.0001/acref-9780198569510-e314. [Date accessed: 24/08/2021].

[48] Katherine Shingler, 'Perceiving Text and Images in Apollinaire's Calligrammes' *Paragraph* 34.1 (2011) 80.

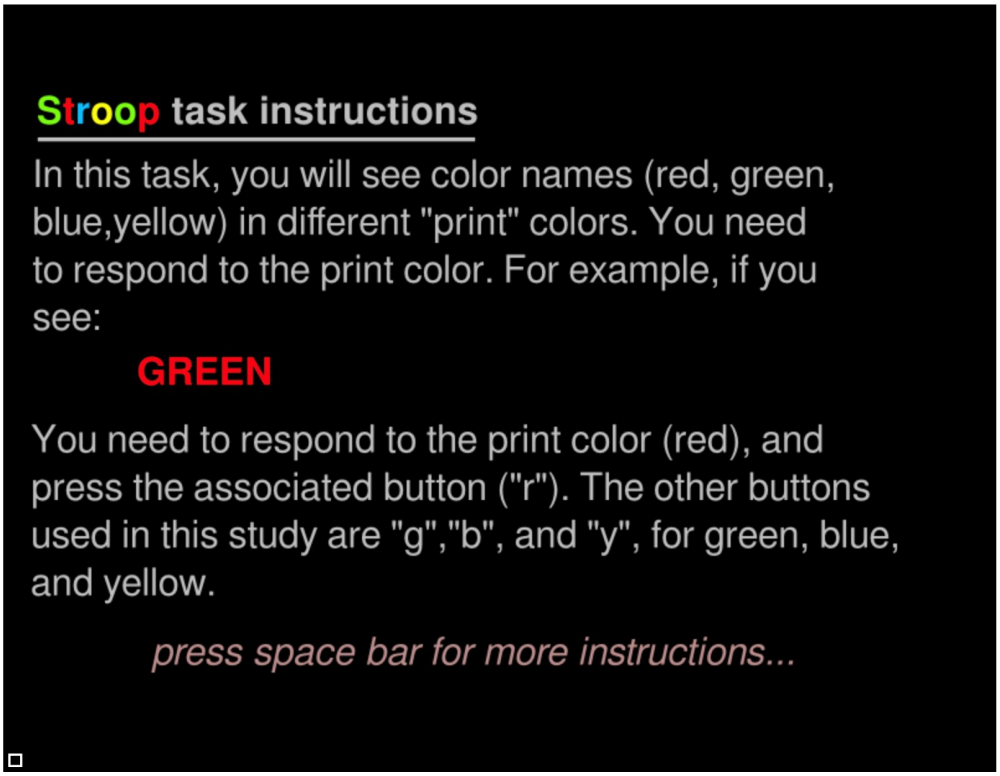

Fig. 18. Excerpt from an online Stroop test.

There are several different variations of this test and interference tasks, and they are mostly used as an index of attention and attentional disorders. They are now often used throughout psychology as 'an index of the relative activation of the to-be-ignored words'.[49] Colin MacLeod summarises and comments upon the results of half a century of Stroop Effect research, and gives some interesting insights into how human subjects respond to stimuli in these kinds of contexts.[50] Stroop's findings, still established in practice today, revolve around the idea that word reading is a 'highly practiced skill', that is perhaps carried out automatically, 'without intention and even beneath awareness', whereas colour naming is a less practiced skill, therefore requiring more effort and attention to accomplish.[51]

Recently, as MacLeod notes, the history of evolving research in relation to these processes that occur during the Stroop has advocated for the idea that both word reading and colour naming actually happen in parallel, although, as with any theoretical scientific framework, it has remained up to subsequent empirical testing to validate these theories.[52]

[49] Ibid.
[50] Colin MacLeod. 'Half a Century of Research on the Stroop Effect: An Integrative Review.' *Psychological Bulletin* 109 (1991) 164.
[51] MacLeod, 'Stroop Effect'. 167.
[52] MacLeod, 'Half a Century of Research on the Stroop Effect', 193.
[55] Shingler, 'Perceiving Text and Image', 80-81.

In her interdisciplinary research into the perception of Apollinaire's *calligrammes*, Katherine Shingler appeals to the logic of the Stroop Effect to defend the idea that the reader-viewer can appreciate both the word meaning and the radical shape of the calligrammes. For Shingler, the direction of attention towards the ink colour during the Stroop Test, and the ability to name the ink colour despite the interference from the incongruent word – such as having to name the colour blue when the word spells 'green' – evokes the logic of visual poetry.[55] Shingler references Jasper Johns' painting *False Start* as exemplifying this (Fig. 19): the false start of the painting's title 'might refer to the interference of the colour name, which is automatically processed, with the viewer's recognition of the coloured patches themselves'.[53]

Fig. 19. *False Start* appears to replicate the logic of the Stroop Test.

[53] Ibid, 82.

The logic of the Stroop Test, and how it measures cognitive interference in a variety of contexts, can be extended to instances of visual poetry in superficial and more nuanced ways: both the Stroop test and experimental visual poetry seek to challenge typical interpretative strategies when viewing a visual stimulus that involves both words and visual attributes. Knowles *et al* also appeal to the test when empirically investigating poetic linearity, where results of their study suggest that 'when participants encounter linguistic signs that are arranged in pictorial but ordered fashion, the primary instinct is still to adopt a classical reading approach': this corroborates the findings of the Stroop test, which 'established that linguistic information is automatically accessed, even when readers direct their attention to visual information'.[54] I consider a further example in particular from the oeuvre of Derek Beaulieu that ostensibly resembles the logic of the Stroop test, involving an excerpt from one of his conceptual works (Fig. 20). There are some uncanny similarities here between the mechanism of this test and the conceptual exploration being made by Beaulieu here through this work:

[54] Kim Knowles, Anna Schaffner, Ulrich Weger, and Andrew Roberts. 'Reading Space in Visual Poetry: New Cognitive Perspectives'. *Writing Technologies* 4 (2012) 98.

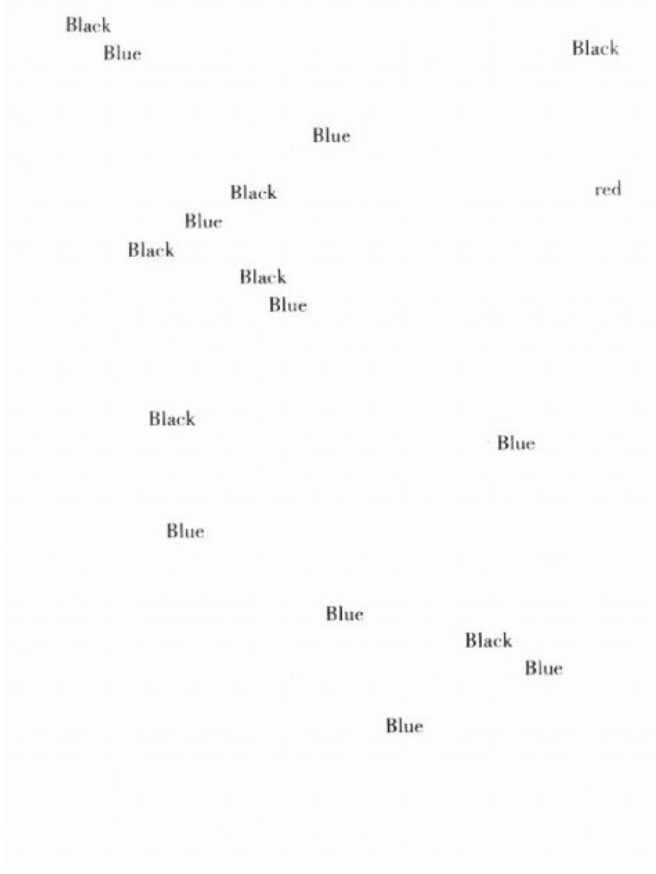

Fig. 20. Excerpt from *Local Colour (Black and White Version)*

The impetus behind this conceptual work was originally a page-by-page interpretation of Paul Auster's novel, *Ghosts*[55] – Beaulieu removes the entirety of Auster's text 'leaving only chromatic words—proper nouns or not—spread across the page as dollops of paint on a palette'; what remains from this reworked text 'is the written equivalent of ambient music—words which are meant to seen but not read'.[56] This version in Fig. 20, reproduced in black and white and featuring the words of colours rather than the 'dollops of paint' that present the colours in the original, extends Beaulieu's conceptual framework further to omit the use of colour entirely, the choice to render these works in black font sets up an instant tension between the use of the words 'black' and 'blue'. Conceptually, we are being asked to consider the colours of the words 'black' and 'blue' in the same way: their respective

[55] Beaulieu often generously engages the work of other authors in order to facilitate his own conceptual works. His artistic output, so frequently in conversation with the work of other poets, thus invites a consideration of his work along a continuum.

[56] Derek Beaulieu, 'Local Colour'. Blog post. https://derekbeaulieu.wordpress.com/2011/01/31/local-colour/ [Date accessed: 18/8/2021].

potencies are rendered equal, constrained by the black and white reproduction of this work. The presentation of the work as such is an intentional decision that aims to explore an extension of the work's original conceptual manifestation. Although they are technically rendered equal, the fact that they are both presented in the colour black prioritises the blackness of the word, while also emphasizing the manner in which most printed work is presented: black type on white background. This evokes the traits that the Stroop test measures: investigating the ease of word reading versus the challenge of colour naming.

Pointing out superficial similarities between the mechanism used to measure cognitive interference, and a conceptually complex aesthetic reworking of a Paul Auster novel, does not necessarily amount to a full instance of the consilience between poetry and psychology. But noting these kinds of similarities is valuable when specifically considering how visual poetry functions; at this point, it can be related to the way that neuropsychology tests its subjects' responses to different stimuli. This example also generates some further considerations: undoubtedly, in a literary context, an understanding of the framework informing this extract of Beaulieu's conceptual visual work enables a deeper understanding of how to read and understand it, and thus, how best to engage with its meaning further. As Shingler notes, 'the Stroop effect tells us much about the way in which spectators might perceptually deal with verbal elements incorporated into visual works of art'.[57] Most settings for clinical visual psychology test offer no such indulgences: no background information is provided and they are specifically designed to be contextless. Reflecting on this difference in context, there is nevertheless the sense that both the Stroop test and Beaulieu's conceptual work here are generating a similar effect, despite their very different methodologies and motivations. As Mieke Bal discusses in *Travelling Concepts in the Humanities*, the 'pervasive predominance of intentionalism' which she defines as 'the conflation of meaning with the author's or artist's intention' – is a phenomenon that is due to an 'unreflective conflation of words and concepts'.[58] But visual poetry, in its relationship to – or rather, with – the reader-viewer, usurps the standard idea of intentionalism by what it demands of its perceivers. This is evident in Beaulieu's work here: it engages directly, whether intentionally or unintentionally, with the interplay of both word and concept in its fusion of word and colour to make a conceptual, artistic point. While it may be too much of a stretch to say that the

[57] Shingler, 'Perceiving Text and Image', 81.
[58] Mieke Bal, *Travelling Concepts in the Humanities: A Rough Guide.* Toronto: University of Toronto Press, 2002. 23.

Stroop test does the exact same thing by requiring participants to reflect upon words (the words that spell colours in the test) and concepts (the actual colours), its measuring of the abilities of subjects to bypass their propensity for word reading in order to favour colour naming is frequently used in neuropsychology, and as mentioned, is often deployed in tests for conditions such as attentional disorders. While the present project does not deploy the Stroop test as such, it does incorporate an understanding of the superficial and more nuanced parallels between visual poetry and the techniques used to test and/or measure visual psychology, reflecting on the manner in which these two very different approaches might complement one another. It also incorporates an understanding of the general concept of cognitive interference that occurs when being instructed to note the colour of the word, as opposed to what the word itself says: this is also a strategy used by visual poetry to complicate readings in its occupying of visual and verbal modes. Reflecting on these parallels invites a consideration of the ways in which visual poetry utilises the strategies often studied in visual psychology; although, after Bal, I do not posit that this is intentional on the part of the poets, but rather an interesting parallel to note. As will be discussed in more detail later in the chapter, even within the practical constraints of the experiment, some observations about the parallels between the configuration of visual poetry and the use of the Navon task to measure local and global processing of participants.

Another cognitive model has been considered in relation to poetry in general, but also in relation to how it can be related empirically to visual poetry, is the model of working memory. Put very briefly, working memory is a component of short term memory and plays an integral part of how we make sense of the world on a daily basis.[59] Fundamentally connected to intelligence, it serves as the brain's workspace, where auditory and visuospatial information about one's environment is held temporarily, while complex tasks are performed such as reasoning, comprehension and learning.[60] To take a musical analogy, it functions as the brain's 'conductor', controlling and organising all the instruments in the orchestra of the mind.[61] In its most popular cognitive model, first proposed by Alan Baddeley and Graham Hitch in 1974 and subject to many revisions since, working memory is conceived of as having two separate subsystems, phonological and visuospatial, as well as an

[59] Classic examples that are frequently invoked to describe working memory in action include remembering a phone number as it is being called out (auditory), or recalling what route you took into a supermarket (visuospatial).

[60] Alan Baddeley, 'Working Memory', *Current Biology* 20:4 (2010) 136.

[61] Tracy Packiam Alloway and Ross Alloway. *Working Memory: The Connected Intelligence.* New York, Psychology Press, 2013. 4.

episodic buffer (Fig. 21). These two subsystems relate to aural stimuli and visual/spatial stimuli respectively, and they hold units of information for a limited amount of time (a matter of seconds).

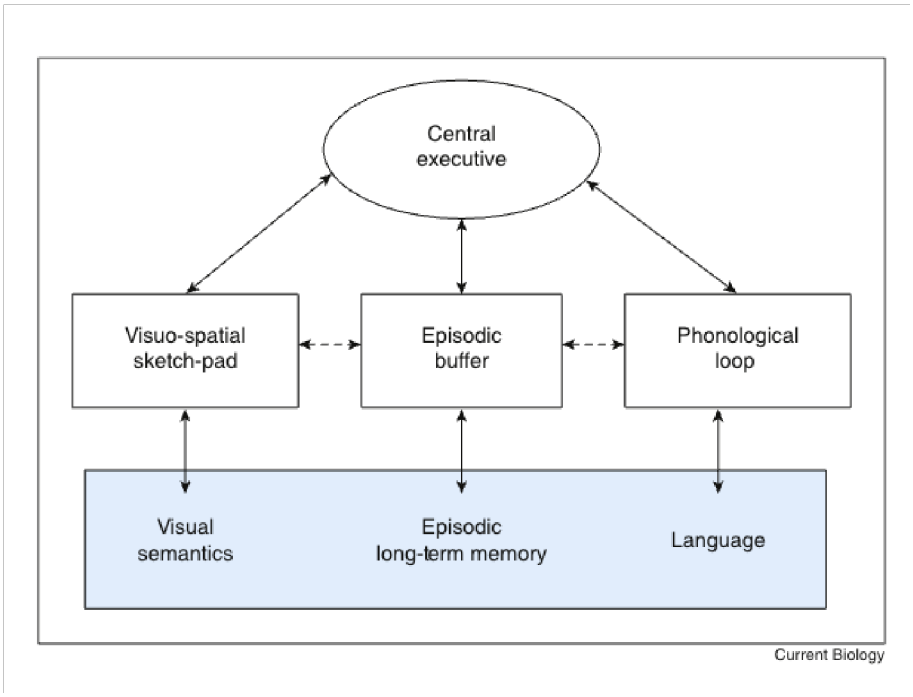

Fig. 21. The updated Baddeley-Hitch Model of Working Memory.

Nigel Fabb integrates a consideration of working memory into his proposed definition of poetry and the poetic line, demonstrating a cognitively-informed approach to defining the poetic line. While Fabb's study limits itself to poetry written mostly before the twentieth century, his approach nevertheless provides a valuable template for considering poetry that breaks with tradition, especially that which moves into more experimental visual territory. Fabb's research into the constraints of working memory and its effect on the poetic line also informs the background of the present dissertation's approach to combining visual poetry with empirical methods. He provides a comprehensive account of the relationship between models of working memory and a characterisation of poetry and the poetic line. His premise is that sections of a poem – such as lines – are not necessarily determined by linguistic structure, but are instead influenced by their propensity to be held as whole units in working memory.[62] In a compelling account of how he integrates working memory models with a definition of poetry, Fabb establishes that in poetry, 'added forms' – which he characterises as meter, rhyme, alliteration, and parallelism – are all added to the poetic line, where they

[62] Nigel Fabb, *What Is Poetry?: Language and Memory in the Poems of the World*. Cambridge: Cambridge University Press, 2015. 3.

are processed in working memory.[63] He proposes that 'poetry is processed section by section, by holding whole sequences of words in working memory and processing parts of their added forms while each sequence is held there'.[64] Fabb appeals to the Baddeley and Hitch model, noting the two input stores – the visuospatial sketchpad and the phonological loop – which send information to the 'episodic buffer'. The episodic buffer takes material from the phonological loop – in the case of verbal material heard when listening to spoken literature – and 'chunks' this information, where it is subsequently processed. In the modality-independent episodic buffer, where Fabb claims poetry is processed, the poetic line is held as a whole unit. It is held here because the episodic buffer can hold the equivalent of 'fifteen words of English prose'.[65]

Fabb's research focuses on the phonological loop component in relation to poetry that occurs mostly before the twentieth century: he explicitly avoids concrete and other experimental and visual forms of poetry. However, his concession that 'the visuo-spatial sketchpad may have some relevance to poetry which is significantly distributed in visual space'[66] provides an opening to consider the implications for poetry where the impact is primarily visual. Considering that less research in general has been done on the visuo-spatial sketchpad, juxtaposing an understanding of this component with visual poetry provides an opportunity to consider this less-explored aspect of working memory further. Fabb also acknowledges this:

> nothing prevents individual texts that fall outside my definition of poetry from exploiting universally available aspects of linguistic and general cognition, including working memory… It may also be that free verse, pattern poetry and concrete poetry all exploit aspects of visual psychology in characteristic and generalizable ways, despite their variety of visual forms.[67]

This interrogation of the poetic line in Fabb's study also accords with what Bradford identifies as a controversy that has lasted the 'best part of a century': he asks, 'how can a poetic line be a poetic line if it does not satisfy some abstract formal criterion?'.[68] In this sense, the challenge that visual poetry poses to the traditional sense of poetry as a linear,

[63] Ibid, 1.
[64] Ibid.
[65] Ibid, 171.
[66] Ibid, 175.
[67] Ibid, 13.
[68] Bradford, *Graphic Poetics*: *Poetry as Visual Art.* London: Continuum, 2011. 3.
[72] Ibid, 9.

linguistic medium is also evident in the work conducted with working memory and poetry thus far. While the present study does not concern itself any further with empirically investigating this combination of working memory and visual poetry, theorising towards this kind of juxtaposition can prove especially interesting. Fabb uses this well-established cognitive model to craft a definition of poetry: he uses this approach, therefore, to explore how definitions of poetry can be reaffirmed or established by appealing to psychology. In its frequent eschewal of the conventions of the line, visual poetry presents a new challenge to the manner in which Fabb presents his theoretical integration of working memory and poetry. Conceiving of how the dominant features of visual poetry might be configured in the visuo-spatial sketchpad, and in the working memory system as a whole makes intuitive sense: if, for visual poetry, 'in a sense, the page becomes a stage',[72] then the spatial distribution of visual-verbal material across the space of the printed (or digital) page is bound to engage the visuo-spatial sketchpad while the poem is being read. Differences in capacities of working memory amongst individuals is also an active area of study in psychology research, and also influenced the project's later consideration of individual differences in response to the data gathered in Survey 2. While there is an apparent opening here to conceive of a meeting-place for these disciplines, ultimately the Case Studies of subsequent chapters, constrained somewhat by the context within which they are operating, means that working memory remains only a background contextual exploration rather than serving as the primary area of focus. However, it provides a valuable step in this project's conceptualising of visual poetry and how it might be complemented with certain cognitive models, especially those that focus more on visual psychology.

Reading Versus Seeing: A 'Single Overall Interpretative Process'?

Apollinaire, already occupying his rightful place along the standard line of the history of visual poetics, also provides an important opening for the combining of visual poetry with cognitive science, and the manner in which his *calligrammes* are combined with an understanding of visual psychology here provides a crucial point for the present study to build on. Katherine Shingler comments on the capacity for scientific research to be integrated into the critical approach to literary texts, specifically visuo-verbal texts, and presents an investigation of reading versus seeing in relation to the *calligrammes*. Her study considers poems informed by a 'theory of verbal-visual simultaneity stipulating that the

reader should be simultaneously aware of both textual and pictorial aspects of the poem'.[69] In consilience with Drucker's maxim that all language has the capacity to be both read *and* seen, Shingler asserts that 'all poems are visual in the sense that they consist of words laid out on the page, and the reader must look at those words in order to access their meanings'.[70] Taking Apollinaire as her chosen example of a poet who actively engages with the way his poems are perceived by the reader, the 'perceptual experience' of those reading the calligrammes is investigated in light of experimental research into 'the processes underlying reading and picture perception, and the nature of visual attention and awareness'.[71] Apollinaire's calligrammes are distinctive, however, because of the sense in which their visual aspect is 'brought to the forefront of the readers experience', and 'rendered salient in a way that invites us to view as well as to read them, to attend to their visual as well as their linguistic qualities'.[72] They showcase an experimental style, what the poet himself termed 'a "visual lyricism"', which as S. I. Lockerbie observes, is informed by a conviction that 'the simultaneous nature of consciousness can be even more powerfully rendered by abandoning not only discursive expression but the traditional linear layout of the poem as well'.[73] Apollinaire's own writing on the subject is cited in Shingler's paper, with a focus on his commentary on how the visual poem is something to be read in one instance, like one would read a musical score. However, this is not to be interpreted as him advocating for the collapsing of reading and viewing into one process, or a belief that one glance is all that is needed to apprehend a *calligramme*: rather, what is required, or demanded, is a '*simultaneous awareness of textual and visuospatial elements* [italics original]*,* with reading and viewing conceived as two aspects of a single overall interpretative movement, action or process'.[74] In his pursuit of characterising the 'modern consciousness', spatial layout is prioritised in the *calligrammes*: 'where the poem is displayed in a multiplicity of patterns on the page rather than being arranged in one linear sequence'. In this sense, the reader is forced 'to grasp the complex interrelationship of the whole in a global perception which is (apparently) more instantaneous than his recombination of the fragmented structure of the conversation poem and leads to a more powerful

[69] Shingler, 'Perceiving Text and Images', 66.
[70] Ibid, 67.
[71] Ibid.
[72] Ibid.
[73] S. I. Lockerbie, 'Introduction', in *Calligrammes: Poems of Peace and War (1913-1916)*, Guillaume Apollinaire, translated by Anne Hyde Greet. Berkeley: University of California Press, 1980. 9-10.
[74] Shingler, 'Perceiving Text and Images', 70.

illumination'.[75] Lockerbie's use of the term 'global perception' in his introduction to Apollinaire – used independently of a scientific context – is significant here for what it implies for the processes of grasping an understanding of the whole poem. His commentary here accords with one of the central tenets of Navon's research: the 'global precedence effect', whereby the 'global' or bigger picture is determined first. While Lockerbie's use of 'global' is not necessarily meant in Navon's psychological sense, nor is it a 'travelling concept' in the sense outlined by Mieke Bal, it is nevertheless significant that encoded in Lockerbie's language is an analysis that is complementary with visual psychology in this regard.

Introducing literary theory to the concepts of local detail and global detail in the *calligrammes*, Shingler notes the tension between these accounts of how Apollinaire intends his poems to be read, versus the sense in which Michel Foucault deems visual-verbal simultaneity a failure: the calligramme can never simultaneously both 'say' and 'represent' at the same time: 'this thing that is both viewed and read is silenced during viewing, masked during reading'.[76] According to Foucault, 'text and image cannot be apprehended simultaneously'.[77] He touts this division of attention between local and global as one of the reasons for this failure: the way in which attention must be devoted to the local level of detail 'at the expense of global layout', 'so that when we read, our awareness of the poem's shape dissolves'. In order to explore Foucault's argument, Shingler investigates the analogy Foucault makes between the *calligrammes* and Joseph Jastrow's well known Duck-Rabbit figure (Fig. 22):

[75] Lockerbie, 'Introduction', 10.
[76] Michel Foucault cited in Shingler, Perceiving Text and Images', 71.
[77] Shingler, 'Perceiving Text and Images', 71.

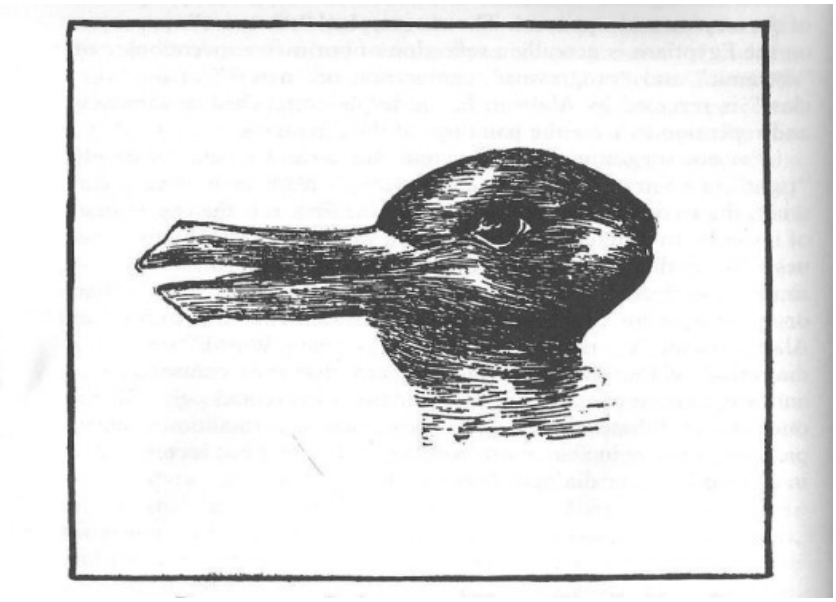

Fig. 22. The 'multistable' Duck-Rabbit image.

This 'ambiguous figure' of the Duck-Rabbit yields the perception of either a duck or a rabbit, but never the two simultaneously. It demonstrates, in W. J. T. Mitchell's terms, the trait of 'multistability', and is a 'familiar feature of textbooks on the psychology of vision since the late nineteenth century'.[78] Ludwig van Wittgenstein also read the Duck-Rabbit as an 'emblem of resistance to stable interpretation, to being taken in at a glance', and in its 'apotheosis' – where it featured in *Philosophical Investigations* – he pared it down to a simpler version (Fig. 23) eliminating 'all the features of realism (shading and modelling) that would facilitate such a glance'.[79]

Fig. 23. Wittgenstein's simplified Duck-Rabbit.

[78] W. J. T. Mitchell, *Picture Theory*: *Essays on Verbal and Visual Representation.* Chicago: University of Chicago Press, 1994. 50.
[79] Ibid, 50.

For Wittgenstein's philosophical aims, this was in order to explore the idea that we 'can in fact experience it as a composite, synthetic figure': Mitchell writes how the search when viewing the figure 'is neither for a duck nor a rabbit but a curious hybrid that looks like nothing else but itself'.[80] Mitchell continues that, as a multistable image,

> the Duck-Rabbit is about difference and similitude, the shifting of names and identities – that is, metaphoricity – in the field of vision: it solicits the self-knowledge of the human eye by aligning it with the eye of the animal, depicted as a still centre across which waves of shifting identity may be seen to flow.[81]

The figure has also been recruited by Kenneth Goldsmith as a way of explaining one of the 'fundamental tenets' of conceptual art – 'the difference between seeing and thinking' – because in order to stabilise the unstable Duck-Rabbit image, 'at least momentarily', you must name what you see.[82] However, as Shingler notes, Wittgenstein's discussion of the figure notes that we 'cannot identify in our own visual experience a "neutral" stage of vision which precedes the interpretation we clamp on it'[83] because the viewing subject will always engage one way or another with a stimulus that provides both a visual and verbal element. However, when considering visual poetry along the same lines, as Foucault does, this generalisation does not necessarily take into account the nuances of visual poetry's exploration and exploitation of the visual and the verbal, as in cases of some of Apollinaire's *calligrammes*, in which form both enacts – and contests – content in a variety of different iterations (see Figs. 24 and 25).

[80] Ibid, 53.
[81] Ibid.
[82] Kenneth Goldsmith, *Uncreative Writing*: *Managing Language in the Digital Age.* New York: Columbia University Press, 2011. 63.
[83] Ibid, 72.

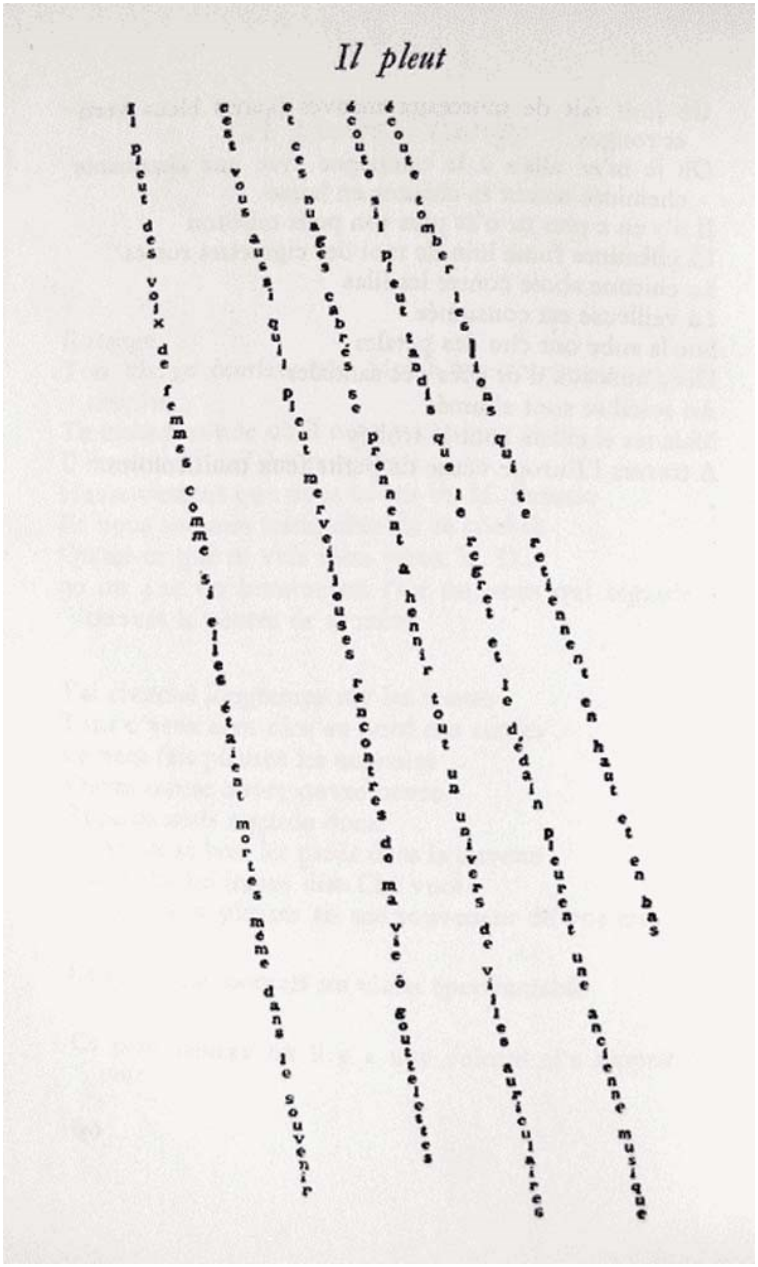

Fig. 24: 'Il Pleut (It's Raining)'

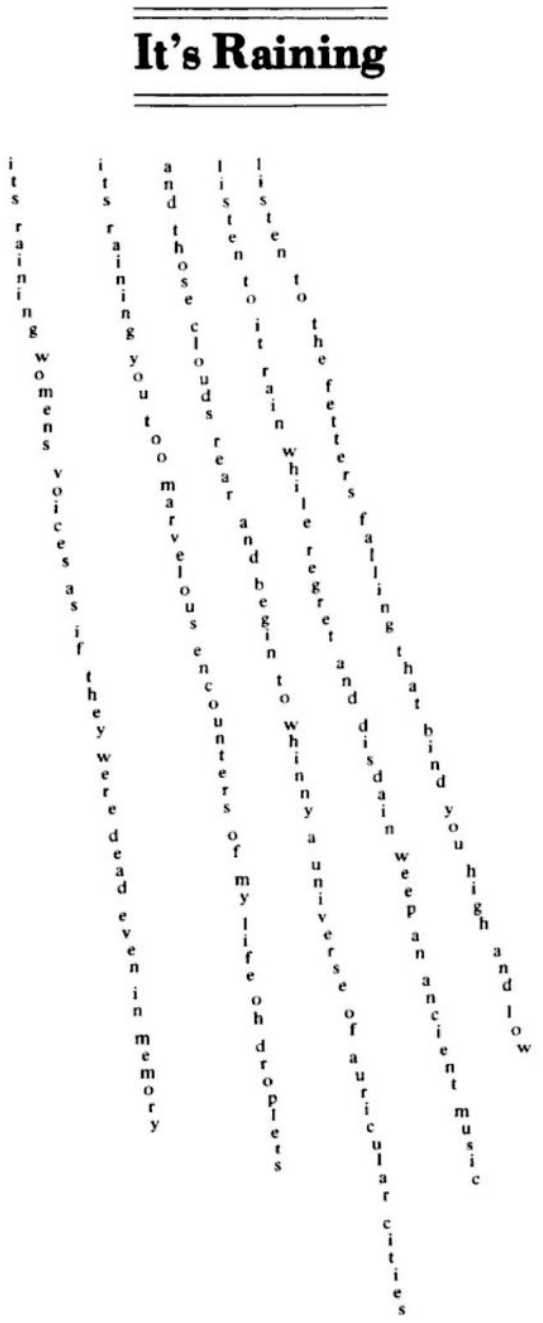

Fig. 25. 'It's Raining' (English translation)

Lockerbie specifically notes how, in the evolution of the *calligrammes*, it is easy to fall into the trap of thinking that 'the shape is simply a tautological repetition of what the referential or discursive meaning of the words already clearly conveys' – as for example, at first glance one may think of the *calligramme* 'Il Pleut' ('It's Raining') – when in actuality this is not the case.[84] The intimations about how to read this visual poem are important to note here: in that first glance, the apprehension of the overall structure or 'global' shape, implies a

[84] Lockerbie, 'Introduction', 11.

straightforward relationship between form and content: this is a poem about rain, presented in the shape of falling rain. Yet, closer inspection reveals a tension here, such as the intense metaphorical imagery that evoke darker themes: the clouds 'begin to whinny a universe of auricular cities', and 'regret and disdain weep an ancient music'. These moments within the vertical lines of the poem present, despite its radical visual form, a focus on the aural as much as the visual, while the vertical typographic layout presents a challenge to the eye used to travelling along a linear progression, imbuing each word with more significance. Apollinaire also experiments with this in his other visual works: he is sensitive to the 'possibilities of spatial expression', and to instances, such as in the war poem 'Du Coton dans les Oreilles (Cotton in the Ears)' (Fig. 26) where 'certain graphic forms' are so 'imprinted with associations that they contradict the verbal statement that the poem is making and create a much more complex mood than is immediately apparent'.[85]

[85] 89 Ibid, 11-12.

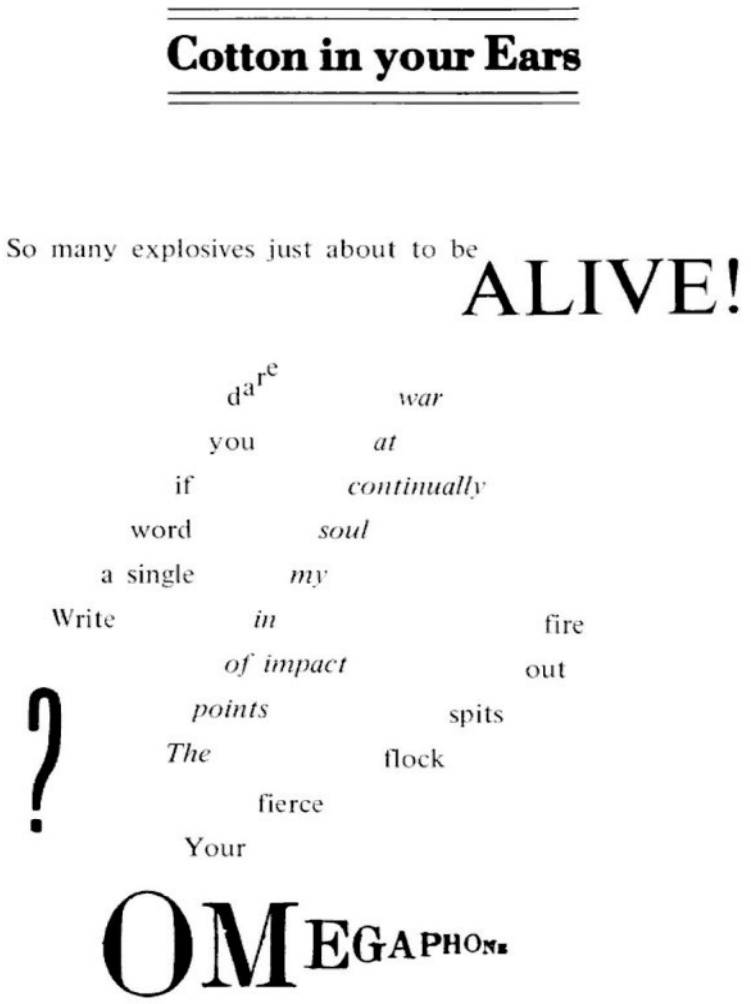

Fig. 26: Excerpt from 'Du Coton dans les Oreilles' (English translation)

Shingler's engages with this element of Apollinaire's work, and incorporates a small study involving eye-movement tracking and responses to the *calligrammes*, although this is accompanied by a caveat about the smallness of the sample size (only twelve participants) and the study was not intended to posit definitive scientific conclusions, rather to put forward some 'very provisional observations' that can be followed up with more 'refined' experimental methods.[86] In her study, participants were presented with a selection of *calligrammes* on the monitor, for 40-60 seconds, while their eye movements were tracked with a high-speed video tracker, and their 'scan paths' in relation to the poems were

[86] Shingler, 'Perceiving Text and Images', 73.

recorded. This amount of time allocated per *calligramme* was significant: it was noted that the allocation of a mere sixty seconds for each poem led some participants to apparently prioritise the verbal aspects of some of the poems, as some subjects reported that they 'had been too focused on the words making up the poem to give the global shapes any attention, and this was borne out by the eye movement records'.[87] Therefore, the time constraint appeared to demand 'that attention be devoted either to global or local information'.[88] Furthermore, in these cases, neither 'order of scanning nor attention to visual and verbal elements can be fully determined by the poem itself': this supports the idea that a single perceptual model, specifying the experience of a single *calligramme*, is impossible. One can 'only aim to establish some rough parameters regarding what it is *possible* for readers to do in terms of attending to the visual and verbal aspects of these poems': thus, analysing their individual scan paths is only going to take them so far in terms of whether visual and verbal elements are dealt with 'concurrently, or separately'.[89] What arises here – alongside a healthy acknowledgement of the ambiguity of the reading and/or viewing subject – is the sense that ultimately, eye movement data can often 'beg the question' that experimental literary research sets out to answer. Findings from this study indicated that readers 'are free to approach Apollinaire's *calligrammes* in any number of different ways', and ultimately 'neither order of scanning nor attention to visual and verbal elements can be fully determined by the poem itself'.[90]

However, this is not to say that work of this kind is not useful: on the contrary, the subsequent discussion yields a fascinating insight into how this kind of research may be combined with that of a more literary focus, and has directly influenced the experiment design of this project in a number of fundamental ways. In its combining of local and global concepts of perception with poetry, this research clears the space for the present project to engage more deeply with Navon's paradigm. While Shingler rightly notes how in this context, the research methods 'cannot tell us whether at any given moment the subject was perceptually aware of both word forms and the global shape of the poem'[91], the mixed methods approach of the present project's experiment design engaged directly with this element, inspired by Shingler's investigation. It also inspired important considerations about

[87] Shingler, 'Perceiving Text and Images', 73.
[88] Ibid, 79.
[89] Ibid, 75.
[90] Ibid, 74-75.
[91] Ibid, 75.

exposure time, and how that can affect the reader-viewer's response to the poems. The measuring of participants' tracked scan paths in Shingler's study, and whether they can accurately reflect 'reading' or 'viewing' when exposed to the poems using the methods of visual psychology, also cleared space for more detailed experimentation.

Shingler's references to working memory also accord with some of the ways in which visual poetry can be considered in relation to the aforementioned cognitive model of working memory. This is especially in relation to what she terms as 'efficiency of processing', where the burden on working memory is reduced: she references experimental psychologist Alan Kennedy's work on spatial coding in reading. The spatial coding hypothesis as a result of this research is considered from the perspective of configuring the page as spatially-addressed 'external memory'.[92] This provides yet another manner in which to consider the significance of page space, and enabling the reader to relate to this space as an available 'stable record' that refixations of the movement of the eye can be directed to. During the reading of Apollinaire's work, Shingler references the burden on working memory potentially being reduced, due to the simultaneous presence of visual and verbal elements which are possibly processed together, rather than separately. It seems intuitive to suggest that there could be further, inventive ways to combine visual poetry with an understanding of this cognitive model. Aligning visual poetry with these separate systems and theorising towards how they may interact is one of the ways in which visual poetry might be combined with cognitive models. Shingler also appeals to Navon's distinction between local and global processing to refute Foucault further: 'Navon's study clearly contradicts the part of Foucault's thesis which states that it is impossible to attend to local detail and simultaneously be aware of global structures or patterns'.[93] The study also overlaps in an interesting manner with the theoretical considerations of previous chapters. Rather than usurping Lessing and the legacy of *Laocoon*, Shingler points out that what this understanding of cognition actually does here is 'ironically' reinforce the notion of the imperfect union of painting and poetry, which she is quick to clarify is what Lessing always claimed, rather than saying their union was 'impossible', it is rather 'imperfect'.[94] While one will always be subordinated to the other in the perceptual moment, this does not make the sought-after simultaneity impossible: 'visual-verbal simultaneity is possible to the extent that readers are capable of integrating

[92] Alan Kennedy quoted in Shingler, 'Perceiving Text and Image', 75.
[93] Shingler, 'Perceiving Text and Image', 78.
[94] Ibid, 81.

awareness of both visual and verbal aspects of the calligramme, and their experience of the poem is, in this sense, "two-folded".'[95]

Considering the 'broad' potential of this interdisciplinary approach designed to shed some light on the *calligrammes*, Shingler considers the other fields that an approach such as this could have some relevance to, including other works that combine word and image. Amongst other potential avenues, she suggests that debates relating to the

> structural isomorphism of visual and verbal semiotic systems might, for instance, take into account the issue of whether the interpretative processes applied to visual and verbal signs are themselves structurally similar (either at the level of cognitive processes, or at the level of neural events).[96]

This consideration takes into account a spectrum – put broadly, ranging from softer science to harder science – from psychology to cognitive science to neuroscience, and opens the door to further, more 'scientific' methods of approaching poetry. The crux of the matter comes down, yet again, to issues with meaning: while 'experimental psychology ought be used to 'supplement, rather than to supplant, literary analysis', it cannot 'provide a full account of the way in which *meanings* [sic] are generated, through text or through image, or indeed through a combination of the two': she concludes that 'that is a matter for literary criticism'.[97] Shingler's recourse to the interpretation of meaning residing solely in the province of literary criticism is an interesting one. In the present project, this will be considered further in depth over the coming chapters.

Regarding visual poetics and the practical empirical research that has been conducted thus far, this chapter moves closer to its own integration of visual poetry with Navon's paradigm. As discussed, bridging theory and empirical approaches has remained an important focus of this integration. Knowles *et al* explored the theoretical ramifications of visual space in poetry using experimental psychology to investigate what happens 'on a perceptual and cognitive level when verbal and visual codes are fused together? How do we "read" spatial values in visual poetry, and how do we interpret the gaps that signify?'.[98] To hearken back to the previous chapter's referencing of white space as famously deployed by Gomringer, and by Bremer, when Knowles *et al* used eye-tracking to measure participants' responses to 'poems where conceptual and material empty spaces overlap', they observed

[95] Ibid.
[96] Ibid, 82.
[97] Ibid.
[98] Knowles *et al*, 'Reading Space in Visual Poetry', 81.

how participants often fixate on the empty space while they ponder the meaning of the poem. While they are preoccupied with meaning construction and problem solving, their eyes dwell on the material gaps which seem to hold the clue to the mystery, and thus function simultaneously as empty projection planes and as a signifying fields in their own right.[99] These results were visually represented by the two figures shown below, and affirm how fixations are 'indicated by some of the heatmaps that summarize the fixation density ("heat") on a given area'.[104]

Figure 7: Sample heatmaps of fixations on Eugen Gomringer's 'silencio'

Fig. 27. Heatmaps taken from the study investigating 'silencio'.

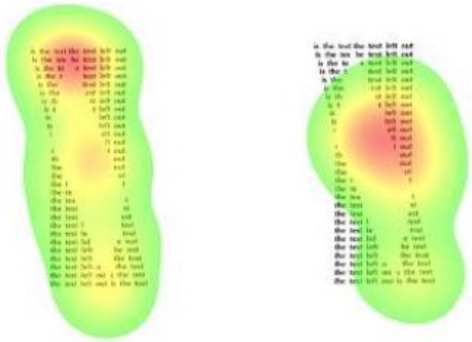

Figure 8: Sample heatmaps of fixations on Claus Bremer's 'is the text the text left out' (1964)

Fig. 28. Heatmaps showing how Bremer's poem fared in the study.

The scientific results as shown here, demonstrate the innate capacity of white space to hold a signifying power.

The semantic and expressive effects of space and pattern in innovative forms of contemporary British and American poetry were also investigated using eye-tracking by

[99] Ibid, 99.
[104] Ibid, 95.

Roberts *et al* who also provide a backdrop of theoretical and historical contexts for this empirical investigation into the significance of poetic space. Poems by Geoffrey Hill and Susan Howe were analysed, using the results of experiments that use eye-tracking, manipulations of text, memory tests and readers' recorded responses and interpretations.[100] Taking Hill's *Canaan* (1996) as an example of text that demonstrates an innovative approach to visual space, the displacement or 'delineation' of the poetic line is discussed. They state early on that 'one of the meta-methodological conclusions of the two research projects was that a certain degree of incommensurability between the humanities and human experimental psychology is inevitable and, at times, productive'.[101] After this discussion, they note how 'the further potential of this work with the cognitive humanities lies particularly in the study of hybrid visual-textual forms'.[107] This article demonstrates further the compatibility of eye-scanning and visual poetry, and the inclusion of Howe's poem *Pythagorean Silence* for study in particular signifies a promising inroad into the fusion of visual poetics with cognitive studies. While this poem is lineated quite typically compared to some of Howe's other more experimental works, sections of its semantic content appears to intimate her more radical visualism, where formal expressiveness explores the limits of page space. Here, Howe's words evoke an image of McCaffery's radicalism, or Beaulieu's non-linear poetic creations: 'a sentence or character / suddenly / steps out to seek for truth fails / falls / into a stream of ink'.[102] Roberts *et al* invoke Marjorie Perloff's assessment of how the status of the poetic line is called into question by Howe along with a host of other women poets: they all challenge Olson's conception of the 'LINE' as the 'embodiment of the breath, the signifier of the heart'.[103] This empirical approach to Howe's poetic significance has had an important influence on Chapter Five specifically: for readers of excerpts of *Pythagorean Silence*, Roberts *et al* found evidence of a shift from reading to "scanning", where scanning can be defined as the relative predominance of vertical and/or diagonal eye movements, compared to the standard horizontal saccades and return sweeps from the end of one line to the start of the next.[104]

[100] Andrew Michael Roberts, Jane Stabler, Martin H. Fischer, and Lisa Otty. 'Space and Pattern in Linear and Postlinear Poetry.' *European Journal of English Studies* 17:1 (2013) 23.
[101] Ibid, 24.
[107] Ibid, 37.
[102] Susan Howe, 'Excerpt from "Pythagorean Silence"'. Webpage. https://poets.org/poem/pythagoreansilence-excerpt [Date accessed: 13/09/2022].
[103] Roberts, *et al*. 'Space and Pattern', 29.
[104] Ibid, 31.

Reading and viewing are, yet again, united by challenging visual works: and how this aspect of Howe's visualism might be addressed in tandem with Navon's paradigm is engaged with during the experimental component of this project in Chapter Five. Roberts *et al* leave the kind of opening that the present project seeks to explore: 'the further enquiry to which this points is a more systematic study of how readers look at pattern poetry, at concrete poetry, and at the whole field of modern and postmodern poetry'.[105] One study which does just this by Ruth Koops van t' Jagt *et al*, who appeal to Charles Hartman's adage that 'poetry is language in lines' in their eyetracking investigation into the visuospatial aspects of reading poetry. They establish that the poet determines where the line breaks, rather than the 'width of the page or the screen'.[106] In this investigation, Koops *et al* inquired whether poetry was processed differently from prose, whether enjambments influence readers' processing of poetry, using eyetracking technology to measure differences in reading patterns 'on the basis of the layout in which the text was presented'.[107] The selection of Dutch poems were taken from an anthology of young Dutch poets, and this choice of materials is motivated by 'the assumption that readers will probably not be familiar' with them, and for the investigation were formatted as fragments either of poetry or of prose.[114] The results indicated that the investigation found a number of differences between processing poetry and processing poetry fragments, particularly for the manner that they process enjambment. This study is fascinating for the manner in which it used eyetracking technology in conjunction with poetry, although the present study also seeks to incorporate the qualitative aspect, not just quantitative. Koops van 't Jagt *et al* were able to measure the eye movements of participants in such a way that they could conclude that readers 'process poetry differently from prose', they nevertheless did not incorporate a qualitative element. In the present project's assessment of these elements, qualitative questions were incorporated into the study to hear from participants' own perspective about their subjective experience of viewing the poems presented. Considering the chapter's literary theoretical investigation into subjectivity, and categorising the participants according to Navon's distinction between local and global processors, it was thought that these kinds of

[105] Ibid, 36.
[106] Ruth Koops van 't Jagt, John Hoeks, Gillis Dorleijn, and Petra Hendriks. 'An Eyetracking Investigation into the Visuospatial Aspects of Reading Poetry' (2011) Online article. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.190.5438&rep=rep1&type=pdf [Date accessed 8/7/2022]. 1.
[107] Koops van t' Jagt *et al*, 'An Eyetracking Investigation', 1.
[114] Ibid, 2.

questions provided a more appropriate context for the investigation, although it was not possible to quantify these responses in the same manner as the questions that measured their answers on a Likert scale**.**

For Mike Borkent, engaging with the strategies from cognitive literary research that incorporates embodied mind theory is one way to generate readings of Canadian visual poetry. He also engages with eye movement research to approach Derek Beaulieu's poetry: during his analysis of a poem, he drafts an account of the potential movement of the eye across the composite parts of his chosen work (Fig. 29).

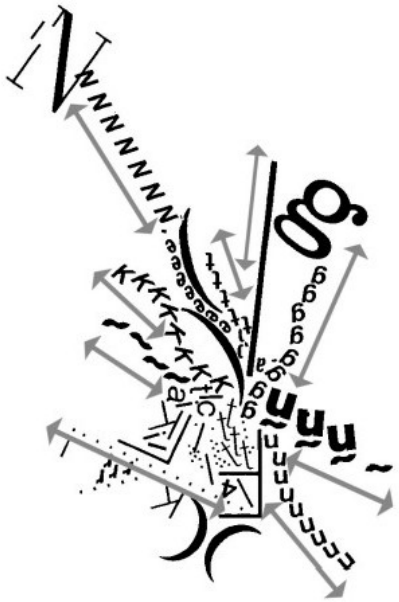

Figure 4: Possible fictive motion paths (arrows), correlating to groups of letters and punctuation, superimposed on Figure 2. Poem altered with permission.

Fig. 29. Borkent's account of fictive motion paths in relation to Beaulieu's poem.

Borkent's cognitive literary reading incorporates the idea of embodiment: he notes how the poem 'focuses this energy on the reanimation and alteration of letters, thereby revitalizing the poetic eye and its graphemic extensions prior to articulation, injecting the dynamicity of the body into typographic space, opening up new perceptions of writing'.[108] He expands on how this kind of poem gestures through postlinguistic language towards 'a poetic, altered future, offering, in a sense, a poetic manifesto to transform type'.[109] The focus is on what is

[108] Mike Borkent, 'Visual Improvisation: Cognition, Materiality, and Postlinguistic Visual Poetry'. *Visible Language* 48:3 (2014) 21.
[109] Ibid.

expected of the reader – 'revitalising the poetic eye and its graphemic extensions prior to articulation, injecting the dynamicity of the body into typographic space' – earns the moniker 'postlinguistic'.[110] Borkent also writes more generally about how visual poems employ the materiality of language 'to help develop their meanings, thereby synthesizing visual and verbal cues'.[111] He conceives of visual poetry as a 'multimodal genre', positing a framework based on embodied cognitive research of fictive motion, frames, simulation, and blending'[112] which he advocates for as a means to 'contribute substantially to a discussion of poetics, literary genres, styles and traditions'.[113] For Borkent, visual poetry relies primarily on a 'materialist view of written (visible) language, in which the formal features of letters, words, the page, and even the book are important components of the poetic meaning'.[114] His cognitive approach takes into account the foundational work of Giles Fauconnier and Mark Turner on conceptual blending, whereby two inputs with cross-mappings 'project essential knowledge into a third, blended space to form an emergent structure'.[122] While the present study does not extensively engage with Fauconnier and Turner's reading, it acknowledges their foundational work for cognitive literary studies in general.[115]

In the postlinear poetics of Derek Beaulieu, Susan Howe, and the poets studied in this project, transcending the constraints of the limits of the poetic line is not just a formal or aesthetic choice but a fundamentally important statement on the nature of poetry, one that prompts a method of reading – and seeing – hitherto underexplored. Yet, as established from the onset, this potential to utilise the means and methods available to experimental psychology does not just bear relevance to poetry studies. Central to the impetus of the present project is the prioritising of reciprocity between disciplines, which can be assessed once a definitive area has been focused upon via the Case Studies. So, it has been established that visual poetry challenges the traditional strategies of literary analysis in multiple different ways: but how does this occur, on a different, practical level? And how

[110] Ibid.

[111] Mike Borkent, 'Illusions of Simplicity: A Cognitive Approach to Visual Poetry.' *English Text Construction* 3:2 (2010) 145.

[112] Borkent, 'Illusions of Simplicity', 145.

[113] Ibid, 157.

[114] Ibid, 146.

[122] Ibid, 147.

[115] Fauconnier and Turner's work has been of immense importance in the establishing of Cognitive Literary Studies, especially for their contribution to conceptual blending and metaphors, extending to poetic metaphors. Also useful to bear in mind for the present discussion is the notion here how under Fauconnier and Turner's rubric, the visual and the verbal constitute two separate inputs, which contribute to the eventual emergent structure of the blend.

might it be explored within, or in juxtaposition with, a scientific paradigm from visual psychology? One of the more promising avenues, and the one to which the rest of the dissertation focuses on, relates to the concept of the 'global precedence effect', and the classic psychological research of David Navon.

'Forest For the Trees':

David Navon, Global Precedence, and Postlinguistic Visual Poetry Navon opens his 1977 paper on local and global features with the question 'is the perceptual whole literally constructed out of the percepts of its elements?'.[116] This now classic paper proposes the precedence of global features in visual scenes, rather than local: establishing what is known as the 'global precedence effect'.[117] The proposition that 'global structuring of a visual scene precedes analysis of local features' has remained a popular cornerstone of much psychological theories on visual perception.[118] According to Navon, perceptual processes are temporally organised 'so that they proceed from global structuring towards more and more fine-grained analysis',[119] and as such, a scene is 'decomposed' rather than built up: he uses the famous metaphor 'the forest for the trees' to outline how the 'forest' is generally perceived first, and then the individual trees that make up its collective existence as a forest.[120] In his overview of the preceding literature and empirical evidence, Navon concludes that 'the perception of the global unit or the overall theme is more veridical than the perception of the elements', also citing previous studies that note the precedence of global relations that are perceived first.[121] This proposal of global precedence aims to demonstrate how the local level of a scene can be voluntarily ignored in order to focus on the global: thus the 'global precedence effect' takes place. A few points are especially worth highlighting from Navon's initial overview of the perceptual system, before going into more depth about how visual poetry can be considered in light of this. Navon notes the importance of context in the perceptual moment: especially in the sense that the perceptual system 'ignores' details that are inconsistent with interpretation indicated by context, 'or

[116] Ibid, 353.
[117] David Navon, 'Forest before trees: The precedence of global features in visual perception. *Cognitive Psychology, 9*:3 (1977) 353.
[118] Ibid.
[119] Jan W. de Fockert and Andrew Cooper. 'Higher levels of depression are associated with reduced global bias in visual processing' *Cognition and Emotion* 28:3 (2014) 542.
[120] Ibid.
[121] Ibid.

even completes features that are missing in the actual scene'.[122] The composition of the visual scene in this context is described by Navon as 'hierarchical':
'interpreted contents of a scene can be viewed as a hierarchy of subscenes interrelated by spatial relationships'.[123] This notion of a 'hierarchical structure' of a visual stimulus means that it is constituted by 'multiple smaller local elements' which 'together form a larger global structure'.[132] Examples of what is now known as a 'Navon figure' is shown below: this is a 'compound' figure, where a larger figure is composed of smaller elements that make it up. These figures are used to test the local and global processing of participants involved exposing them to these figures and requiring them to press either 'H' or 'S' depending upon instructions (Fig. 30).

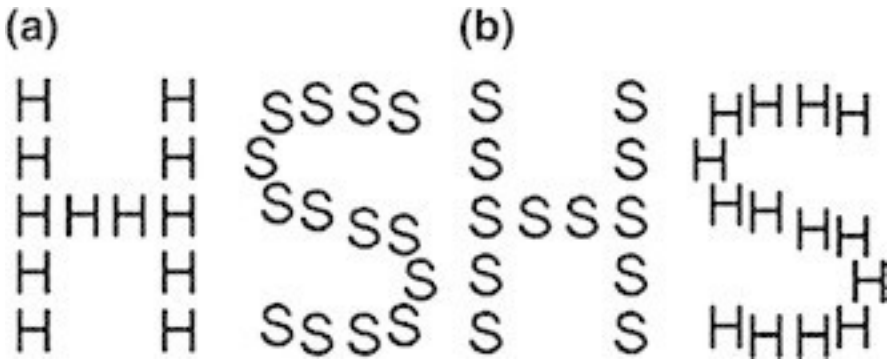

Fig. 30. Examples of congruent Navon figures in (a) and incongruent Navon figures in (b).

In the version of the Navon task that is used in the present project, participants are asked to press letter 'H' or 'S' as corresponding to the larger letter that is made up of the smaller letters, or to press 'H' or 'S' in correspondence to the smaller letters making up the larger one (Fig. 30). The way the global precedence effect is hypothesised to work in relation to this figure is that the larger letter will usually be perceived first, even if it is composed of an incongruent letter: in this case in the diagram where smaller 'S' letters make up the larger 'H'. In general this Navon task can be used to class participants roughly as either 'global' or 'local' processors, testing out the impact of the global precedence effect upon the individual. There is plenty of evidence in favour of this effect: 'global advantage and global interference are indicative for global precedence in visual processing, suggesting that perception of the

[122] Ibid, 357.
[123] Ibid, 354.
[132] Ibid, 357.

global level occurs before perception of the local level', it is a well-established phenomenon within cognitive psychology, although there is plenty of research which interrogates the paradigm further.[124]

At this theoretical juncture, where the post-linguistic, post-linear aspect of visual poetry resides and artforms that are not necessarily comprised of language still stake a claim to be classed as poetry, there is a potential touchpoint – a 'meeting-place', after Rukeyser – to consider Navon's notion of global precedence in relation to visual poetry. In the case of reading or looking at visual poetry, Navon's opening query can be reconfigured to bear direct relevance to its often complicated, contested visual configuration: the question 'is the perceptual whole literally constructed out of the percepts of its elements?' can be juxtaposed with questions of how visual poetry is perceived. In Navon's original paper, the concept of global precedence is 'suggested, discussed, and tested'[125]: for the purposes of this project, ideas about the processing of visual poetry in accordance with Navon's paradigm are also suggested, discussed, and tested. Initial questions underlying the study involve the global precedence effect: how might this effect fare when visual poetry is used as the stimulus? What has subsequent investigation into this paradigm since Navon's early research reveal about this dichotomy of local and global features in a visual scene? Can integrating Navon's paradigm with an understanding of the mechanisms of visual poetry, with its many visuo-verbal configurations, generate further readings of this kind of poetry? As an aside, before the chapter moves towards the layering of disciplines over and among one another in pursuit of their consilience and compatibility, it is worth first noting the surface-level synchronicity here between the two elements of the separate disciplines before they are combined. Much like the aforementioned Stroop test, the Navon task and visual poetry bear some superficial similarities. The manipulated letters of the Navon task shown above that are arranged to demonstrate the differences between local and global perspectives also evoke the organising principles – or lack thereof – evident in visual poetry, where the disruption of linearity and usurping of traditional modes of reading that often characterises visual poems manifests itself. While it is used to indicate global precedence, from an interdisciplinary perspective there are parallels with the aesthetic impulses of visual poems. There is a certain poeticism to the Navon task in its invitation to reconsider the local

[124] Mark Rijpkema, Sandra Van Aalderen, Jens Schwarzbach, and Frans A. J. Verstraten. 'Beyond the Forest and the Trees: Local and Global Interference in Hierarchical Visual Stimuli Containing Three Levels.' *Perception* 36:8 (2007) 1115.
[125] Ibid, 353.

texture of the invitation to perceive the array of smaller letters composing a larger letter and to differentiate between the two. Although this parallel is a superficial one, it is significant to consider how letters are used here: how they function in a different sense as the building blocks of meaning through language wielded through, and as, artistic expression. During the process of suggesting and discussing the juxtaposition of Navon's paradigm with visual poetry before the empirical component of the project was actualised, many research articles were consulted, and considered in light of the theoretical points arising from the general overview of visual poetry. The approach demonstrated throughout the upcoming sections analyses this cognitive psychological research in existence, relating it to the research concerns of the present project and suggests how it can be used within the current interdisciplinary context. This analysis is then used to inform the subsequent experiment design of Survey 1 and Survey 2 that will be outlined further in Chapter Four.

More Than the Sum of its Parts: Visual Poetry and the Global Precedence Effect

From a wider, interdisciplinary perspective, considering Navon's concept of a 'visual scene' in relation to visual poetry is feasible, especially when it is displayed on a computer monitor. Nonetheless, a visual poem is something altogether more dynamic, reflecting the 'interpenetrative' intertextuality that Norman Bryson writes of in relation to paintings. Considering visual poetry as a visual scene comprising of both local and global elements and analysing the global precedence effect in relation to visual poetry in light of research like this thus contributes to the combination of visual poetry and psychology of the project. Within the domain of cognitive psychology, Ruth Kimchi establishes that a visual scene can be 'viewed as a hierarchical network of subscenes interrelated by spatial relationships', where the 'globality' of a visual property 'corresponds to the place it occupies in the hierarchy'.[126] The example Kimchi uses here is the human face: which 'as a whole has global properties (e.g. shape, expression) as well as a set of local properties, or component parts (e.g., eyes, nose, dimples)'.[127] Visual perception depends on the integration of local elements of a visual scene into a global frame: this is supported by Navon's 'elegant, now standard paradigm using compound stimuli', and the global precedence effect is, according to Beaucousin *et al*, comprised of a phenomenon called 'global advantage'. This establishes that the detection of

[126] Ruth Kimchi, 'Primacy of Wholistic Processing and Global/Local Paradigm: A Critical Review'. *Psychological Bulletin* 112:1 (1992) 26.
[127] Ibid.

the global frame of a visual scene occurs faster than the detection of the local parts, and an interference of the global shape that is also present during local processing.[128] Interference in this sense refers to what happens when the processing of global features of a visual scene 'interferes' with the processing of the local features, thus delaying this process. Can interference in this sense be related to the processing of visual poetry, and how best could this be quantified?

Kimchi's commentary on the literature on local and global processes informs the present project's approach to visual poetry in an empirical context, which is especially indebted to her discussion of the inferences made about 'wholistic [holistic] processing from the processing advantage of the global level of stimulus structure'.[129] Her overview touches briefly on the historical controversies between two schools of perceptual thought in contest with one another within the field of psychology: structuralism (although unrelated to the literary theoretical approach conceiving of language as a system of signs associated with Ferdinand de Saussure) and Gestalt. While structuralist psychology historically claimed that the human mind could be analysed in terms of how its simplest components fit together, the Gestalt school arose in response to structuralism, claiming that overall patterns are perceived by organisms, not just individual components, and is frequently associated with another common metaphor: 'the whole is more than the sum of its parts'.[130] Defining her use of the term 'wholistic perception', Kimchi notes its interchangeability with the word 'global' in relation to processing, and how Navon's global precedence is 'considered by many cognitive psychologists to be a modern version of the Gestaltists' claim about the primacy of wholistic or global processing in perception'.[131] Kimchi uses the letter H to explore this further: 'the local properties of the letter *H,* are, among others, vertical and horizontal lines, in much the same way as eyes, nose, and mouth are local properties of a face'.[132] Kimchi's review of the empirical forays into the global/local paradigm establishes the multiplicity of factors which affect global advantage, and therefore impact global versus local superiority,

[128] Virginie Beaucousin, Grégory Simon, Mathieu Cassotti, Arlette Pineau, Olivier Houdé, and Nicolas Poirel. 'Global Interference During Early Visual Processing: ERP Evidence from a Rapid Global/Local Selective Task'. *Frontiers in Psychology* 4 (2013) 1.

[129] Kimchi, 'Primacy of Wholistic Processing' 24. In this case, there are entirely coincidental parallels to be made here between bpNichol's concern with his beloved 'H', and the evocative approach of likening the vertical and horizontal lines making up letterforms to the local features of eyes, nose and mouth, thus linking the human body with letters in an unintentional commentary on the possibilities of the material embodiment of letters.

[130] Kimchi, 'Primacy of Wholistic Processing', 24.

[131] Ibid, 25.

[132] Ibid, 26.

noting how it is 'not easy to localize the source of global advantage'.[133] The global precedence effect is actually affected by factors including visual angle, retinal location, attention allocation, and exposure duration; in short, the context is extremely important when investigating global and local features of a visual scene. Of Kimchi's listed factors, the present study acknowledges those that pertain to the present study. It is important to account here for the ones most relevant to the present study, and to outline the limitations of the empirical paradigm in relation to this context.

Despite the popularity of the paradigm, then, any overview of the psychological literature establishes that the global precedence effect can be 'reduced or even reversed' by a variety of factors: including but not limited to task variables, position of local elements, and visual angle.[134] It is worth emphasising here the spectrum of science encountered throughout the interdisciplinary journey traversed thus far: cognitive psychological paradigms – no matter how supported they are by empirical evidence – are not designed to be set in stone. Further research supports this idea: in a study that influenced the present project's structure, Beaucousin *et al* used Navon's classic paradigm to investigate the potential interference of global information during local processing at early stages of visual perception. They observed a global advantage for the detection of global targets as well as global-to-local interference, and conclude that their results suggest 'an interference effect on early steps of visual processing'.[144] They also note how important information regarding the timing of global/local perception has come from electrophysiological studies. In light of this, as well be outlined in more depth in the subsequent chapter, the response time of participants was measured in Survey 2, and factored in to the subsequent analysis. Katherine Shingler's research introduces another interesting theoretical thread that the present study within this chapter seeks to follow further. There have been many references to the 'perceptual moment' of viewing something that is both visual and verbal, and the supposed inability of the viewing subject to apprehend the visual and verbal elements simultaneously. Yet, every instruction on the subject, from Willard Bohn to Crag Hill, mentions the sequential steps involved in the apprehension of a visual poem: the emphasis on temporality that characterises much of the discourse around visual poetics is thus jettisoned. While Foucault may have argued that text and image cannot be apprehended

[133] Kimchi, 'Primacy of Wholistic Processing', 30.
[134] Beaucousin *et al*. 'Global Interference During Early Visual Processing', 1.
[144] Ibid, 4.

simultaneously: claiming that the *calligramme* 'never speaks and represents at the same moment', that 'the very thing that is both seen and read is hushed in the vision, hidden in the reading',[135] this does not necessarily hold for many more recent instantiations of visual poetry, especially not for the works selected for the present chapter. And in visual psychology, it is well established that 'our visual world can be thought of as being organised in a hierarchical manner'.[146] As is further established in visual psychology, there is a generally acknowledged 'coarse-to-fine temporal dynamic in visual object processing'.[147] To pivot to Navon: attention to global detail at the expense of local detail, and vice versa, does not necessarily mean that the holistic view of the overall impact of a visual poem is impeded, if the time is allocated for the necessary negotiation between the two modes. In fact, as Shingler tangentially notes in relation to Apollinaire, this method of presentation actually reflects the aesthetic impulse of many of the creators of visual poetry themselves, who seek to interrogate this inherent tension between modes. This is why timing, as ever, is of the essence in both a literary and empirical context: throughout the experimental component of this project, timing is a crucial variable.

Although, as discussed, visual poetry repudiates the idea that letters are the only elemental building blocks of language when it comes to artistic expression, examining how they fare when subjected to further investigation with Navon's paradigm in cognitive psychological research has provided some intriguing points of convergence with the aesthetic and theoretical concerns of this project. One study which investigated the global precedence effect in relation to letters found that when compound, hierarchical letters and non-letter shapes were used, the global precedence effect disappeared when letters were used but remained when non-letters were used. This served to have a 'disrupting' effect upon Navon's classical paradigm.[136] During the experiment, the stimuli comprised of compound, hierarchical letters and non-letter shapes (Fig. 31).[137]

[135] Michel Foucault, *This Is Not A Pipe.* Berkeley: University of California Press, 1983. 25. [146] Rijpkema *et al*. 'Beyond the Forest and the Trees', 1115.
[147] Ibid.
[136] Thomas Lachmann, Andreas Schmitt, Wouter Braet and Cees van Leeuwen. 'Letters in the forest: global precedence effect disappears for letters but not for non-letters under reading-like conditions' *Frontiers in Psychology* 5:705 (2014) https://doi.org/10.3389/fpsyg.2014.00705
[137] Ibid.

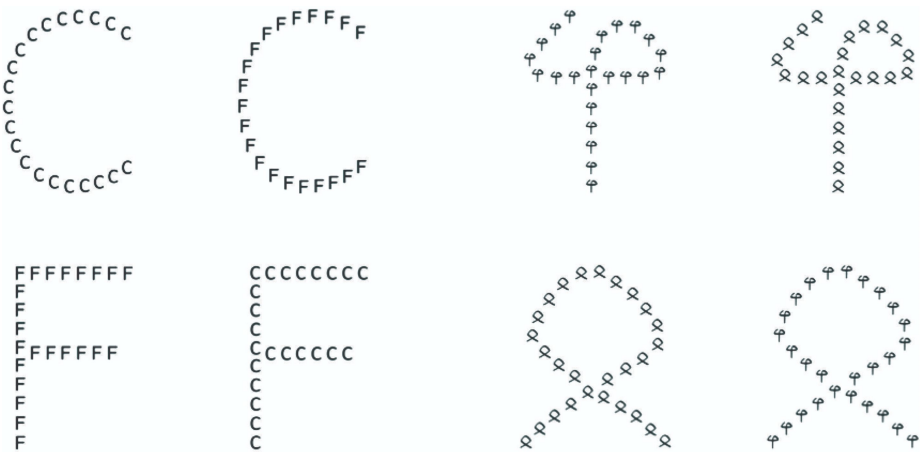

Fig. 31. Navon figures made of letters and non-letter shapes.

As per a standard Navon task, in two of the four blocks of tests, one with letters and one with non-letters, participants were instructed to respond to the identity of the local elements 'and to ignore the global shape'.[138] In the other two blocks, again comprising of one with letters and one with non-letters, the instructions were to invert this by focusing on the global elements rather than the local. The reaction times of participants were subsequently measured, and the results indicated that what had been obtained was a 'a differentiation in the GPE between letters and non-letters: The GPE remained intact for nonletter stimuli but disappears for letters'.[151] While this is a very general, context-specific extrapolation from the results, it is still worth noting: these results appear to accord with the other empirical investigations referenced earlier, which note that in the context of the Stroop Test, words were processed automatically. The researchers here, however, acknowledge that these experimental conditions do not closely resemble that of reading. Inferences can here can be considered in relation to visual poetry as a stimulus that also complicates the conditions of reading through its appeal to the visual dimension of the text in the perceiving moment, especially during its use of letters as signifying factors. To consider this element further in relation to the poetry of the present project, invites the question of how the global precedence effect fares in relation to visual poems, and this will be discussed in the Case Studies of the two subsequent chapters.

Nicolas Poirel *et al*'s investigation into the nature of the stimuli when testing the global precedence effect, provides another facet to consider in how letterforms and

[138] 'Blocks' in this context refers to a set of tests used during a psychological task.
[151] Ibid.

nonletterforms impact the global precedence effect. They investigated the extent to which the effect is 'affected by the meaningfulness of the stimuli': here, meaningful stimuli constituted letters, as normally used in the Navon task, and a series of recognisable objects such as 'tree, fish, bell, pear, boot, butterfly, boat, umbrella, cup, flower'.[139] They investigated the effect of interference in the case of meaningful stimuli, but not in the case of 'nonmeaningful' stimuli.[140] To generate non-meaningful stimuli for this experiment, 'non-object drawings' were created by 'pseudo-random spatial shuffling of the object drawings', which were tested in a pre-experimental study in which participants were forced to name the nonobject drawings. These non-object drawings were only included if participants required more than five seconds to identify and name an existing object as present in a non-object drawing.[141] Categorisations such as 'meaningful' versus 'meaningless' that are quantified along these lines are fascinating from a literary perspective geared towards visual poetry. In the context of this experiment design, these categorisations were purely functional, but considering these distinctions in light of what Beaulieu writes about the resistance of language to the capitalist imperative to 'mean' something in a poetic context: his is poetic language that revels 'in an indigestibility',[142] thus intentionally disrupting binary categories such as meaningful/meaningless. Similarly, this chapter's discussion of asemic writing and post-linguistic poetry has revealed dimensions of signification in even supposedly 'meaningless' marks on paper or digital screen.

For Poirel *et al*, their subsequent proposal based on their results suggests that 'the GPE involves both "sensory mechanisms" (responsible for the global advantage) and "cognitive mechanisms" (responsible for the interference effect)'.[143] While acknowledging how the GPE can be 'reduced or even reversed' by a variety of factors, their study's results showed that an 'interference effect' occurred 'only for stimuli based on the letters and objects', while this effect was not found for non-objects.[144] They acknowledge how based upon the seminal work of Navon, it has been suggested that it the GPE 'could be affected by factors such as complexity, salience or recognisability'.[145] They also note how at the time of

[139] Nicolas Poirel, Arlette Pineau, Emmanuel Mellet. 'What does the nature of the stimuli tell us about the Global Precedence Effect?' *Acta Psychologica* 127:1 (2008) 2. These are objects whose symbolic resonance from a poetic perspective could comprise of a whole other chapter of analysis.
[140] Poirel *et al*, 'What does the nature of the stimuli tell us about the Global Precedence Effect?' 1.
[141] Ibid, 2-3.
[142] 'Interview with Derek Beaulieu'. See Appendix A.
[143] Poirel *et al*, 'What does the nature of the stimuli…', 1.
[144] Ibid.
[145] Ibid, 10.

their article, little is known about the 'influence of the type of material, and specifically, the effect of identification processes on global/local tasks'.[146] Poirel *et al* use their findings to propose that the 'global advantage' and 'interference effect' are mediated by two different mechanisms, one sensory and one cognitive, thus providing a 'more fine-grained analysis' of the GPE. Their study has influenced the present study: as mentioned it has expanded its notion of meaningless/meaningful visual stimuli, and invited a consideration of these notions in relation to the visual poems of the current project. While it is beyond the remit of the present study to investigate fully the effect of identification processes on local and global tasks, it does intersect with this particular aspect of the present project's specific use of visual poems as the stimuli in question. Their consideration of letters, objects, and nonobjects, invite consideration of whether the selection of poems, given their experimental nature, can be recognised as poems immediately by participants in the study. It invites consideration of the question of poetic meaning, and whether something like this can be quantified.

Another influential study that considers local and global processing in relation to visually complex artworks influenced the present experiment design. Boccia *et al* juxtapose an exploration of Navon's paradigm with the famous paintings of Giuseppe Arcimboldo (Figs. 32 and 33). Arcimboldo's paintings, as Shingler notes, are 'composite figures' like the *calligrammes*: they are not ambiguous figure but can be read similarly to Navon figures as being comprised of a number of different local elements combined to create a global shape.[147]

[146] Ibid.

[147] Shingler, 'Perceiving Text and Image', 76.

Fig. 32. Arcimboldo's painting where the fruits make up the local detail of the overall face.

This study investigated this consideration directly. It considered 'esthetic experience [sic]', defined as 'the result of the coordination of a number of different cognitive processes'.[148] For the purposes of this analysis, an understanding of aesthetic attitude as consisting of two distinct cognitive events, taking place at different time spans, is posited. These distinct cognitive events comprise of an initial general appraisal of aesthetic qualities, and then an appraisal of detailed aspects of the aesthetic experience. Invoking Anjan Chatterjee's theoretical model of visual aesthetic experience, which seeks to localise brain activities associated with the aesthetic appeal of portraits and paintings, Boccia *et al* also incorporate readings of other studies into their overview, positing that aesthetic experience is 'not independent from sensory, perceptual, and cognitive processes' but is instead 'interwoven

[148] Maddalena Boccia, Paola Guariglia, Laura Piccardi, Giulia De Martino and Anna Maria Giannini. 'The detail is more pleasant than the whole: Global and local prime affect esthetic appreciation of artworks showing wholepart ambiguity'. *Attention, Perception, & Psychophysics* 82 (2020) 3266.

into these processes, as has also been suggested by neuroimaging studies'.[149] Regarding the stimulus selected here, the ambiguous paintings of Arcimboldo (see Figs. 32 and 33), previous research supported the idea that aesthetic appreciation of Arcimboldo's ambiguous artworks 'is prompted by appreciation of local parts'.[150] Overall, the previous research suggested that the aesthetic pleasure experienced during the observation of Arcimboldo's portraits is 'connected more with local processing of the objects than with global processing of the face'.[151]

Boccia *et al* acknowledge previous neuroimaging research on the effect of local or global priming on face recognition using composite-face illusion and Navon stimuli, which found that 'allocating attention to the global level of prime (i.e., Navon stimuli) increased the tendency to process faces holistically'. They used a similar paradigm to investigate whether local and global prime affected aesthetic appreciation of artworks showing whole part ambiguity.[152] Based upon their consideration of these previous studies, their prediction was that 'local prime' increased 'esthetic [sic] appreciation of ambiguous artwork and that this effect was further affected by PS [Perceptual Style]': Perceptual Style here refers to the manner in which subjects perceive local and global aspects of a stimulus, and was assessed using a Navon task. Their results pointed towards two key findings: firstly, that 'local prime yielded to higher rate of esthetic [sic] appreciation of Arcimboldo's ambiguous portraits'.[153] Secondly, that 'effect of prime interacted with perceptual style': what this meant was that only participants with a 'local' perceptual style differed on local versus global prime, meaning they showed a 'lower rate of esthetic [sic] appreciation for globally primed artworks as compared with locally primed ones'.[154] When looking at a painting, they note how perception is 'usually dominated by the whole spatial layout' and focusing on individual details requires more of a concerted effort – 'effort and purposeful scanning' facilitate the observing of local details. They speculate that local prime facilitates a focus on local parts and allows for the determination of details within the ambiguous portraits – and this thus increases appreciation and strengthens 'our fascination with the holistic processing of the whole'.[155]

[149] Ibid, 3267.
[150] Ibid.
[151] Ibid.
[152] Ibid.
[153] Ibid, 3270.
[154] Ibid, 3271-2.
[155] Ibid, 3271.

Fig. 33. Arcimboldo's face composed of books.

Boccia *et al* close with a caveat – a caution against 'possible generalisation' of the results.[156] They acknowledge that while part-whole ambiguity within Arcimboldo's artworks 'offers a good tool for testing our experimental hypothesis without spurious perceptual effects', for future studies, using a different range of artworks as stimuli would be essential due to the uniqueness of the portraits used in this study.[157]

How might the findings of this research be related to the processing of visual poetry? While a visual poem is not a face, nor a painting of a face, there are some parallels. As mentioned, Kimchi refers to the local properties of the letter H as corresponding as an analogy to the smaller, local features of a face in the overall process of perception. While Arcimboldo's paintings are quite clearly paintings and not intermedial visual-verbal works, their structural organisation and elements of visual complexity has some relevance to the more ostensibly visual of the visual poems selected in the survey. As such, the implication of

[156] Ibid.
[157] Ibid.

their results – which imply that more focus on local detail begets greater aesthetic appreciation – is considered in relation to visual poetry. As will be elaborated on in the next chapter, this consideration of Arcimboldo also influenced the survey design of the present project, which also utilises a Navon task to class participants according to their Perceptual Style, categorising them as either local or global processors, before subsequently juxtaposing these results with their qualitative responses to the visual poems. It has also influenced an understanding of the visual poems selected in this survey as either locally or globally 'primed': here understood to be the extent to which their global or local features are more prominent/dominant.

From Theory to Practice

Considering the findings and questions prompted by the studies consulted, how does a visual poem fare when these psychological elements of local and global processing, precedence, interference, are taken into account? What are the variables in relation to a visual poem that could be quantified in an empirical setting? Firstly, despite their complexity, one advantage of visual poems being used as stimulus is their constitution as a visual scene: they can be displayed on a monitor.[158] To take an example from Derek Beaulieu, as evident in his Letraset-rendered visual poetry (Fig. 34): it becomes possible to theorise towards questioning and refining this paradigm with a specific, challenging stimulus such as this poem, despite its visual density. Described by Geof Huth as 'either a visual poetry epithalamium' or simply a 'joyous celebration of the physical beauties of lettershape and writing',[159] this poem's title is one of the only clues towards its theme. It is typical of Beaulieu: visually arresting, distinctive, and purposefully resistant to the usual structures of close reading. Before investigating a poem like this within the empirical paradigm, what can be theorised about the effects of local and global precedence upon the reader-viewer's

[158] A study by Geyer *et al* affirms the use of shorter poems as more compatible within an empirical framework. Geyer *et al* build upon the work of Arthur Jacobs to develop what they articulate as a neurocognitive poetics approach, the aim of which is to 'bring together the cognitive and affective perspectives in one account of literary reading'. They analysed short forms of poetry – in this case, haiku – which they took as 'paradigmatic' material for studying the reading of poetic texts. This suitability for empirical studies is due to a number of factors including their 'compositionally well-constrained' and 'highly similar' structure which made them especially appropriate for scientific investigation. This affirms the compatibility of short-form poetry with the empirical setting.

[159] Geof Huth, 'Visual Poetry Today'. Online article. https://www.poetryfoundation.org/poetrymagazine/articles/69141/visual-poetry-today%20 [Date accessed: 20/3/2019]

experience of this poem? And how best might this knowledge be utilised and refined in tandem with a literary close reading?

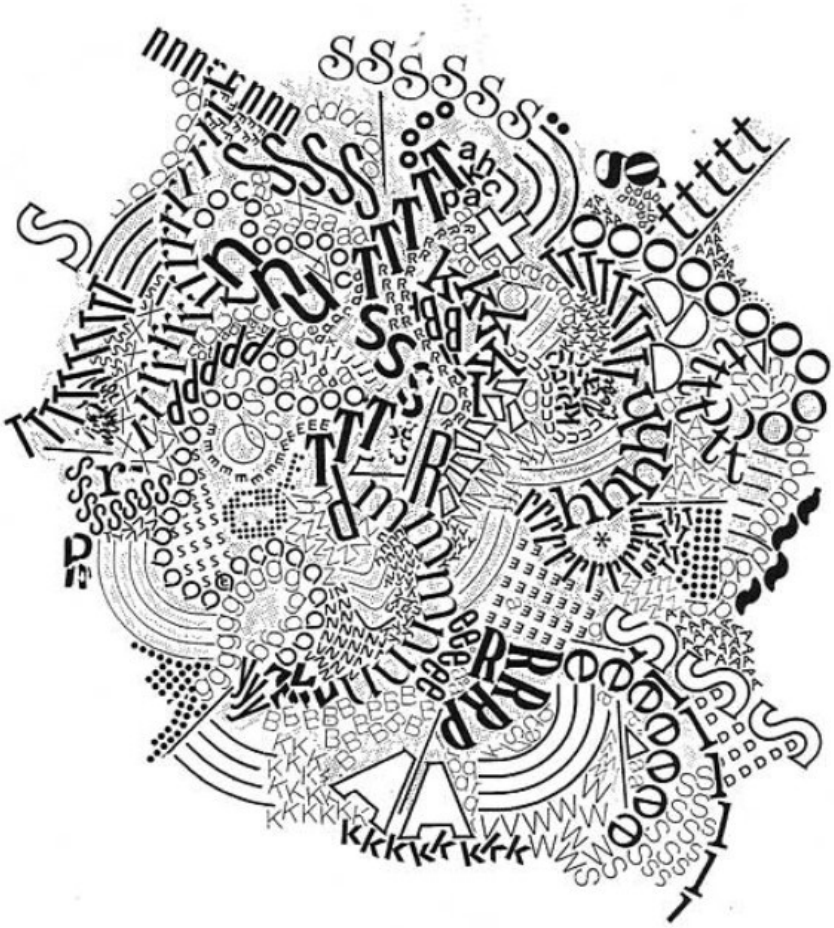

Fig. 34. Derek Beaulieu, 'untitled (for Natalee and Jeremy)'

Appealing to Willard Bohn's aforementioned framework for approaching this kind of work is useful in the initial stages of attempting an analysis. Grasping the poem's structural features proves complicated: before noting the individual separate letters and shapes that constitute its form, its surface structure seems to resist any instantly characterizable shape, although as Navon's has posited, our propensity to view this poem will be to appraise its global shape first. Beaulieu's amorphous verbo-visual creation is conceptually dense, positioning the individual letters that constitute its distinctive patterning at different angles, creating a kind of aural repetitive effect even though no individual, linearly constructed words arise from its patterning, and its texture requires several different movements of the eye over and around it before the full scope of its effect can be grasped in one instance. The *gestalt* of the poem is therefore perceived as a cartographical rollercoaster: in a typical fashion, abandoning any semblance of linearity, rejoicing in and celebrating the vibrancy of letterforms in unorthodox

combinations. The poem has no discernible beginning or conclusion: there are no line endings to process any poetic forms, and aside from the dominant letterforms rendered in boldface, no definite point to commence the reading of the poem.

Deciphering the text of this poem therefore becomes yet another interpretative obstacle, resistant to Bohn's sequential steps. Commencing with the most prominent visual cues first, the predominant letters in Beaulieu's poem consist of the following letters 'T', 'S', 'U', 'N', and 'R', all arranged in their own distinctive patterns of varying repetition. It is hard to resist anagrammatic mental rotations when confronted with such a mix of letters together, yet deciphering words from the patterning is, not the author's intent for the reader-viewer of his work. While it may be a natural impulse to try to determine words from the letters, especially for those familiar with the Latin/Roman alphabet system, the careful configuration Beaulieu's text resists this: the aural effect is such that we are left with a series of graphemes vying for our attention in a complex and densely layered visual and textual terrain. To what extent could these larger letters be considered local features? They arguably dominate the perception of the poem, but in the ratio of forest to trees, where do they reside? Beaulieu's provocative plosives generate an aural effect for the reader-viewer that is mediated by its visuality: in the silence of the white page, the noise of this poem is unavoidable, even though its main effect is visual. Its form is mechanistic: Beaulieu's predilection for expressive and varied fonts, some in boldface, also contribute to the visual impact of the poem, which appears to evoke both movement and friction simultaneously. The poem's plosives at the base of its structure grate against the white space that surrounds it: the repeating letter 'k' in bold typeface creating both an aural and visual traction at its base.[160] The rereading process that this poem demands overwrites the sense in which it is possible to wrest meaning from linear poetry; Beaulieu's creation is in a perpetual state of self-reinvention, freed from the constraints of language yet still luxuriating in the privileges afforded to words, complicating the hierarchy of reading and seeing by demanding both. Affording a theoretical close reading informed by an understanding of some elements of visual psychology is all very well, but the most interesting test of this is to introduce the empirical paradigm and subject poems like this to the rigours of an experiment.

[160] The famous example of the 'kiki/bouba effect' is invoked here: when presented with images of two shapes, one with jagged edges and one with round edges, and asked to ascribe the labels 'kiki' or 'bouba' to each one, the vast majority of test subjects will ascribe the tern 'kiki' to the jagged edged shape. This demonstrates the inherent awareness of the iconicity of language.

This chapter has mapped a topography of the different ways in which an understanding of global and local processing, the global precedence effect, and Navon's paradigm can be studied in relation to certain aspects of visual poetry. Throughout the next three chapters, this dissertation will outline how these theoretical, conceptual and methodological frameworks were utilised to construct the empirical component of this study. A few final points are worth considering before the next chapter. Given the limitations of the empirical paradigm, it is useful to consider the practical questions that arise and inform the next chapter. For example, what are the actual, realistic variables of poetry that it is both possible and practical to measure in an empirical context? It is well established in the domain of the cognitive sciences that neurocognitive studies of reading 'traditionally deal with text materials which are simple, short and usually not part of artful literature or lyrics'.[161] This is due to constraints both technological and methodological – the facilities to empirically investigate subjects' responses to writing as a stimulus only extend to parts of text or small extracts. Longer poems or poetic works are often too complicated to study in full – it seems that often, poetry can only be studied by way of its parts, with the coherent whole remaining tantalisingly out of reach. Again, even within interdisciplinary work on poetry, the emphasis is most often on the aural or linguistic element of poetry.

Bearing this in mind, on a purely practical level, some forms of visual poetry seem intuitively suited to empirical testing: these are works that often comprise of only one or two 'figures', which can be represented within the parameters of an empirical study. For example, visual poems can be presented on a computer screen as typically used in an experimental setting. They may display fragmented parts of visual text – as Bohn emphasises, often the *gestalt* of the image can technically be grasped in one moment. This opens up a space whereby accounting for the impact of visual poetry upon cognition can provoke questions about how cognition itself is configured and understood in relation to poetry. Furthermore, within the paradigms of this kind of experimentation, can the much sought after reciprocity still be prioritised across disciplines? Can visual poetry be conceived of as a stimulus to contribute to the way that experimental psychology or cognitive sciences are understood, as the case of lateralisation and global/local processing seems to imply? As discussed, the potential for further study of hybrid visual-textual forms resides not just in

[161] Arthur M. Jacobs and Roel M. Willems. 'Towards a Neurocognitive Poetics Model of Literary Reading' in *Cognitive Neuroscience of Natural Language Use.,* Ed. Roel M. Willems. New York: Cambridge University Press, 2015. 137.

their capacity to be reassessed critically, but in their ostensible compatibility with Neurohumanities research, and from there, in the capacity that this has to facilitate the reciprocal potential across disciplines. Research in this area can provide an opportunity to refine and challenge already established methods and models, thus addressing ingrained hierarchies. Another factor worth noting is the fact that a pattern seems to be emerging here, as the project moves from theory towards practice: whereby the 'softer' the science, the more compatible it seems to be with the empirical study of poetry. By this, I mean that the psychological end of the spectrum of psychology to hard neuroscience appears more compatible with the questions and concerns that directly stem from the humanities regarding the study of poetry. Is this trend indicative of the rigidity of disciplinary boundaries, and how might it be resolved? This trait will continue to be marked over the coming chapters, and returned to and reflected upon in the final chapter. Given the demands that visual poetry places upon its reader-viewers, there is potential for Neurohumanities and visual poetics to be considered in relation to this particular facet of cognitive humanities research. This also leads to the issue of the subjective construal of meaning from the perspective of the individual. In fact, one of the deeper-rooted questions that this chapter finds itself refining and returning to, is at its heart a more philosophical matter: is it possible to combine visual poetry with Neurohumanities in such a way that the plurality of meaning, as perceived by the subjective agent, can be accounted for? And, taking this into account, would an overview of the individual differences between participants in a study, as conceived of from a cognitive/psychological standpoint, complement or contradict the defence of subjective response as construed by poetry interpretation?

In his overview of the places art and sciences converge and diverge, Tom McLeish writes of the sense in which art, unlike science, is reluctant to lay bare its processes; it is 'shy about the sweat and tears of working out the form of an original idea'.[162] While this comment is not intended to be totalising, it is worth noting the extent to which concrete and visual poetry – particularly concrete poetry on the dirty end of the clean to dirty spectrum – repudiates this notion visually by playing with legibility. Oftentimes the motivation behind this impetus to show the working out, seems to evoke or replicate the very cognitive processes prompted by the work itself, with varying degrees of awareness of this trait. This is evident from Gomringer to Apollinaire to Beaulieu – from the constellation poem to the

[162] Tom McLeish, *The Poetry and Music of Science: Comparing Creativity in Science and Art.* Oxford: Oxford University Press, 2019. 4.

calligrammes to 'dirty' concrete poetry and marks of materiality evident in typewriter art and Letraset. The link between this recourse to materiality and its compatibility with an understanding of cognition will be explored further in the subsequent chapter throughout its focus on Canadian concrete poetry. From this chapter's overview of existing research that has been used to inform the present project, it is worth reviewing again some of the areas that bear superficial resemblance to the engagement of science with poetry that have been detailed here. Working memory, although innovatively combined with poetry in Fabb's research, remains a very broad topic to combine visual poetry and poetics with – although Fabb's acknowledgment that nothing prevents poetry that falls outside his definition of poetry, i.e., poetry that is concrete or visual, from being combined with an understanding of working memory is a tantalising proposal. The brief overviews of the Stroop test and discussion of how its visual configuration might lend itself well to the use of visual poetry as a stimulus in an empirical setting also provides another point over which the disciplines might be overlaid. Ultimately, however, it is the consideration of Navon's paradigm, and the local and the global in relation to visual poetry that subsequent chapters are devoted to, as the project moves from its theoretical and conceptual stages to its practical, applied component.

PART II: APPLICATIONS

Chapter Four

Case Study: Canadian Visual Poetry

language rises
over the edge of mind its rays
visible when the brain transmits them into print. –
bpNichol, *Gifts: The Martyrology Book(s) 7 &.*

The present chapter builds on the research outlined over the previous chapters, and applies them to a selection of poems from three of Canada's most well-known visual poets: bpNichol, Steve McCaffery, and Derek Beaulieu. This chapter also introduces several questions pertaining to the act of close reading in a contemporary context, the limits of combining disciplines, and interrogate the motivations for exploring this particular combination of subjects. Poets from this Case Study have been grouped as such for the following reasons: those selected for this chapter – bpNichol, Steve McCaffery, and Derek Beaulieu – all hail from what can be recognised as a Canadian tradition, their work is in conversation with one another, and as will be shown, a literary critical analysis demonstrates their engagement with the possibilities of materiality. Nevertheless, the limitations of a defined geographical marker to categorise inherently international work like concrete and visual poetry serves to only restrict analysis of these poetic movements, whose very impetus is transnational. However, within the Canadian tradition of influence there are conditions of overlap. These idiosyncratic, unique, complex works all reinvent and reimagine the syntax and semantics of traditional language use, welding ideas from literary theory, the avant-garde, the rejection of capitalism, and the potential that playfulness as a motivating factor has to reinvent language within the visual fields of each poem.

This chapter blends two approaches together to create the Neurohumanities analysis of this Case Study. These approaches are firstly, the typical, contemporaneous close reading characteristic of a literary critical scholar, and secondly, a mixed methods empirical analysis that treats certain aspects of the selected poems as psychological variables that the experiment seeks to measure. This approach has been facilitated by two surveys, Survey 1 and Survey 2: the former survey was used to select the twelve poems for inclusion in the latter. Survey 2 comprised of more in depth questions in response to the poems presented, as well as a Navon task that participants were required to complete before being presented with the poems. As outlined in the previous chapter, an understanding of David Navon's

classical paradigm is used here to explore the theoretical ideas advanced by these three poets as part of the wider tradition that they participate in. Taking Navon's definition of a 'visual scene' – which has 'different hierarchical levels of structure' ranging from 'the most local elements to the largest global level of organisation'[1] – this chapter invites a series of questions about nature of visual poetry. This involves asking how visual poetry fares as a stimulus when subjected to the strictures of cognitive psychology, and crucially, can a 'close reading' of visual poetry – already a contested methodology – be reconciled, expanded, or reimagined anew with the empirical study of psychological variables? Can an understanding of Navon's paradigm be used in combination with selected works by these poets in order to study this kind of poetry within an experimental setting? As this hybrid approach uses mixed methods, the extent to which quantitative and qualitative data can be integrated with close reading in general will be discussed with reference to the selected poems. Before this methodology is specifically outlined, this chapter discusses close reading in more depth, and considers the context of the Canadian tradition of poetry from which this Case Study takes its works. The poets selected were chosen for their innovative approaches to visual poetics that lend themselves especially well to this Neurohumanities approach: much of their work anticipates the technological and digital paradigms that have come to characterise the modern age, as well as engaging with how science and technology impact the materiality of language and letterforms. This chapter also explains the development of the mixed methods methodology demonstrated here, and builds on the previous chapter's outlines of how existing research influenced the ultimate experiment design. This structure aims to reflect how at this stage in the project, the visual poetry of Nichol, McCaffery, and Beaulieu can be approached using an understanding of Navon's paradigm, discusses some of the survey results, and how the resulting productive tension between disciplines can be explored.

Close Reading Today

One of the central research questions of this dissertation investigates whether a close reading, in the literary sense, can be productively combined with a scientific study incorporating empirical data. This is informed by Mieke Bal's plea for a 'qualified return' to the practice of close reading: a practice that according to her, has 'gone out of style'.[2] Bal

[1] Nicolas Poirel, Arlette Pineau, and Emmanuel Mellet. 'What does the nature of the stimuli tell us about the Global Precedence Effect?' *Acta Psychologica* 127:1 (2008) 1.

[2] Mieke Bal, *Travelling Concepts in the Humanities: A Rough Guide.* Toronto: University of Toronto Press, 2002. 10.

writes specifically of the 'visual text' in a way that informs the present study, as she acknowledges that the word 'text' has become oversaturated and laden with meaning and associations: 'in its travels, it has become dirty, come to imply too much, come to resist too much'[3] (as language tends to do, hence much of the aesthetic impulse of many visual poems to move beyond its seemingly inescapable connotative associations). However, she nevertheless posits the usefulness of certain phrases such as 'visual text', writing that the advantage of speaking of "visual texts" is that it reminds the analyst that lines, motifs, colours, and surfaces, like words, contribute to the production of meaning; hence, that form and meaning cannot be disentangled. Neither texts nor images yield their meanings immediately. They are not transparent, so that images, like texts, require the labour of reading.[4] The current and subsequent chapters attempt to fuse a 'qualified' close reading with the cognitively informed understanding of the Case Studies of selected visual poetries, supported by the results of Survey 2. The variables selected for the present study, which include classing participants as either 'local' or 'global' processors, asking specific questions pertaining to the local and global features of the visual poems, and requiring participants to 'rate' their experience of the 'enjoyability' and 'readability' of poems along a Likert scale, will be subsequently analysed. This, in turn, invites further meta-methodological questions. How do the variables selected for study, as construed in a psychological sense, reconcile themselves with the subjective, highly personal act of close reading in a literary sense? If something is technically measurable, does that mean it should be measured? And, above all, what is the value of approaching visual poetry and poetics in this manner, and how should it be quantified?

In *Poetics in a New Key*, Marjorie Perloff writes how techniques of close reading enable us to answer the essential and enduring questions of poetry. For her, 'both text and context' are 'always intertwined, whether historically or geographically', and close reading is an act of '*rereading*', while poetry is resolutely 'that form of writing which cannot be "read" – it can only be reread'.[5] Close reading, then, ought be construed as a series of strategies that enable the rereading of poetry through different lenses and perspectives, and despite the trends of different literary theories emerging and receding, should be necessarily conceived as non-hierarchical. New literary theories, and thus new methods of close

[3] Ibid, 26.

[4] Ibid.

[5] Marjorie Perloff and David Jonathan Bayot. *Poetics in a New Key: Interviews and Essays.* Chicago: The University of Chicago Press, 2015.2 6.

reading, emerge as a result of new technologies, new ideas. In her latest critical text, *Infrathin*, Perloff advocates for an even closer close reading, appealing to Marcel Duchamp's notion of the 'infrathin': this proposes reading at the 'microlevel' in order to explore poetry on the level where 'every phoneme, every morpheme, word, phrase, rhythm, and syntactic contour has been chosen with an eye to creating a brilliant verbal, visual, and sound structure'.[6] Perloff's approach complements the critical approach of the current project: in fact, she appeals to many of the elements of concrete poetry to further her close reading of these 'micropoetics' that contribute to a poem's meaning. Her commentary on this approach is important: she ensures to differentiate it from the formulae of New Criticism, where 'rhythm, sound structure, visual patterning, etymology' are 'all but ignored'.[7] This is another element that has been considered in the present project's experiment design: the removal of poems from their literary contexts – and the deliberate omission of full titles in all but one poem (bpNichol's 'Mind Trap') in both Survey 1 and Survey 2 – runs the risk of replicating the conditions of the New Critics' deliberately contextless approach to poetry. However, my analysis avoids this pitfall by directing the focus almost solely upon the visualism of each poem presented, rather than metaphor, irony, paradox, and the other elements associated with their particular literary theory. Concrete poetry in particular resists these techniques, placing itself 'firmly within the grand flow of modernism' by 'shedding all vestiges of historical connotation – including metaphor, lineation, spontaneous composition and organic form'.[8] Recourses to the concept of the 'ideal' or 'implied' reader that are associated with New Criticism were also deliberately avoided by circulating Survey 2 to as many different types of participants, with no limitations on who was allowed to complete it.[9] This democratising decision to remove both context from the poems, and any presumption about the type of participant who would complete the study, will be returned to in Chapter Six, and its implications for the project overall will be assessed. Accordingly,

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[6] Marjorie Perloff, *Infrathin: An Experiment in Micropoetics.* Chicago: Chicago University Press, 2021. 2.
[7] Ibid, 8.
[8] Kenneth Goldsmith, 'Make it New: Post-Digital Concrete Poetry in the 21st Century'. *The New Concrete: Visual Poetry in the 21st Century.* Eds. Victoria Bean and Chris McCabe. London: Hayward Gallery Publishing, 2015. 11.
[9] In psychological terms, there was no 'criterion group' in this experiment. A criterion group is a group that is tested for traits that its members are already known to possess, such as a group of dyslexic children being given a test pertaining to how they process written language. A criterion group in the context of this study could, loosely, be defined as a group with the trait of being very familiar with poetry: such as undergraduate university students studying modules on poetry, or university lecturers who deliver modules on poetry. In future studies into poetry using psychology, some investigations might benefit from a criterion group. [10] Eric Schmaltz, '"My Body of Bliss": Judith Copithorne's Concrete Poetry in the 1960s and 1970s' *Canadian Poetry: Studies, Documents, Reviews* 83 (2018) 14.

participants in Survey 2 were asked about their familiarity with poetry in general, and then visual poetry in general. While context was not provided for the poems presented, individual participants' familiarity with poetry was factored in to the qualitative and quantitative analyses. And, from the more theoretical standpoint, considering the manner in which the visual poems of the study configure both subjectivity and authorial presence, removing overt references to authors or context was a deliberate strategy in the experiment design, in order to isolate this as a variable more effectively.

Regarding the more traditional literary critical close reading of the present chapter: examining how authorial intent can intersect with close reading is an aspect that has been considered extensively. Authorial intention in relation to visual poetry is one which is complicated further still – especially when considering the relationship of subjectivity to the varying motivations for creating visual poetry in the first place – as established in Canadian visual poetry, which is often marked by the eschewal of the 'lyric I', as Eric Schmaltz notes.[10] (Although, as will be focused on more specifically in Chapter Five, there are often innovative and exciting ways of reconfiguring the author's own presence and subjectivity within a visual poem.) So where to place the notion of authorial intention in relation to visual poetry? While the present project aims to avoid the recourse to simulating the context-less conditions of the New Critics' approach to poetry, the specific focus on visual poetics actually bears recalling Wimsatt and Beardsley's enduring notion of the 'intentional fallacy': whereby 'the design or the or intention of the author is neither available nor desirable as a standard for judging the success of a work of literary art'.[10] This commentary is appropriate for the poetic works studied in the present dissertation. Perloff also advocates for this perspective, noting how pertinent the 'fallacy' that we can judge an author's work by their stated intention.[11] Similarly, Wimsatt and Beardsley's conception of 'meaning', an ongoing concern when considering any poetics but particularly experimental poetics here, is immensely useful:

> A poem can only *be* through its *meaning* – since its medium is words – yet it *is*, simply *is*, in the sense that we have no use for inquiring what part is intended or meant. Poetry is a feat of style by which a complex of meaning is handled all at once. Poetry succeeds because all or most of what is said or

[10] William K. Wimsatt and Monroe Beardsley, 'The Intentional Fallacy' in *The Verbal Icon*: *Studies in the Meaning of Poetry*, Ed William K. Wimsatt. Kentucky: University Press of Press, 1954. 3.
[11] Perloff, *Poetics in a New Key*, 4.

> implied is relevant; what is irrelevant has been excluded… In this respect poetry differs from practical messages, which are successful if and only if we correctly infer the intention…[12]

Considering visual poetry in relation to this mission statement of sorts, their definition proves rather apt. For the more manifesto-driven work, such as concrete poetry which is concerned specifically with utility of form, the idea that the locus of meaning exists through 'being' is an especially interesting one. Whether it is truly the case that the author of a visual poem removes themselves completely from the poetic equation, releasing the visual poem as an autonomous machine into the world for interrogation, remains to be explored. But ultimately a close reading that does not or cannot take into account the presence of the author in the text appears to be the norm. Can any poem ever be truly divorced from its context, historical or otherwise, even within the empirical paradigm? Furthermore, studying an author's words on the subject, while fascinating, can also be 'partial or misleading', as Perloff cautions.[13] Despite these considerations, from a literary critical perspective, engaging with a poet's commentary on their own work, and consulting their critical writings, provides a crucial tool for the overarching contemporary project of poetry criticism nowadays, and informs the present chapter's overall analysis. While participants in Surveys 1 and 2 were not provided with any contextual information about the poetry presented, critical writings by the poets themselves have been referenced in the overall analysis, interviews consulted, and where possible, conducted, as in the case of Beaulieu. In tandem with the analyses of the empirical data gathered, this consideration of authorial intent is factored in to the cognitively-aware approach to visual poetry that provides a new perspective on close reading in our present moment.

Kenneth Goldsmith's essay 'Language as Material' engages with the material conception of language and has influenced the present project. He writes of its instability, especially nowadays: 'even in their most abstracted form, letters are embedded with semantic, semiotic, historical, cultural and associative meanings'.[14] In some senses, this reflects Derek Beaulieu's commentary on how visual poetry 'benefits as much from close reading just as much as more traditional writing': and that in many ways, the same set of skills are applicable to understanding how the author situates their work 'within a larger

[12] Wimsatt & Beardsley, 'The Intentional Fallacy', 4-5.
[13] Perloff, *Poetics in a New Key*, 5.
[14] Kenneth Goldsmith, *Uncreative Writing: Managing Language in the Digital Age.* New York: Columbia University Press, 2011. 34.

conversation of exchange and influence'.[15] Even when language is pared down to its letters or reduced to its non-linguistic elements, from asemic lines to punctuation marks, it is still suffused with this rich potential for meaning. Goldsmith elaborates on this: 'when nonobjectivist painters tried to rid painting of illusion and metaphor, you can see why they chose geometric forms, not letters, to do so'.[17] In a close reading context, language and even individual letters, as Goldsmith notes, are nowadays unavoidably laden with various connotative as well as denotative associations: as will be discussed later in the chapter, the letters 'H' and 'S' that are used in the Navon task bring their own, unavoidable associations to this project, even when utilised within a functional, psychological task.

As noted in previous chapters, despite the critical and cognitive obstacles discussed, there are plenty of instructions in existence regarding the actual close reading of a visual poem. Sequential steps shape this reading process: a process which rarely, if ever, happens 'in an instant', as is often implied in the historic Lessing debates over the separation of poetry and painting that the existence of visual poetry contests. In *The Last Vispo Anthology*, Crag Hill writes of the 'minimum of three steps' involved in reading a visual poem. These are, firstly, to 'Read the entire page/space at once': this is important because of the fact that 'the visual poem is designed to first be read whole (unlike most poems on the page chained to left to right, top to bottom regimens)'.[16] Secondly, the parts of the whole ought be read and their 'position on the page/in space' and their 'relationship/s to other parts', because 'much that happens in a visual poem happens here'. Finally, the full poem ought be read again: 'Read the full poem again at the same time reading its elements as they combine and re-combine to create the whole'.[17] The hierarchy of these instructions, presented semi-playfully and not necessarily intended to act as a totalising method in which to approach a visual poem, nevertheless imply, from my perspective, a series of perceptual steps: global, local, then global again within their hierarchy. While it may be overextending the point to say that these instructions on visual poetry appear to reaffirm the global precedence effect, it nevertheless does refute the idea of the instantaneous grasping of meaning that so characterised the Lessing debate. To take a quick example: in an applied reading of Beaulieu's poem 'this half is for the ceremony' (Fig. 35), the focus is on the title as a key

[15] Derek Beaulieu, in discussion with the author, March 2022. (See Appendix A) [17] Goldsmith, *Uncreative Writing*, 34.

[16] Crag Hill, 'Why Write Visual Poetry When So Few Readers Read It?' in *The Last Vispo Anthology: Visual Poetry 1998-2008.* Crag Hill and Niko Vassilakis, Eds. Seattle: Fantagraphics Books, 2012. 12.

[17] 19 Ibid, 12.

indicator of an appropriate 'interpretive frame', so this is closely read first, as it suggests the possibility of ritual language as being important within this poem.

Fig. 35. Derek Beaulieu's poem 'this half is for the ceremony'.

Then the 'imagistic' elements are read by appealing to the overall shape of the poem itself – it is read as depicting a figure, either dancer-like, bird-like, body-like, evoking outstretched arms and legs. The attention is subsequently devoted to the more densely packed letters, whose contrasts in typeface produce 'a rich visual texture' that show repeated letters which 'mimic a feature of ceremonies' through their repetition, this also prevents fixation on a single letter for too long. The work can also be treated more abstractly as well by focusing on the 'patterns of relation and transformation that move throughout its textured figure'.[18] Again, the sequence of steps here corresponds with instructions to consider a local, global, and then local approach to the close reading process. This demonstrates the potential for

[18] 'Reading Notes: "this half is for the ceremony"'. *CanLitGuides*. Last Revised: September 20, 2016. https://canlitguides.ca/canlit-guides-editorial-team/reading-visual-poetry/reading-notes-this-half-is-for-theceremony/ [Date accessed: 4/4/2022].

the close reading of the visual poem to be combined further with the understanding of local and global visual hierarchies, as will be discussed in the rest of the chapter.

Canadian Visual Poetry

Before focusing on the three individual poets of the Case Study, some commentary on their relationship to the Canadian tradition – 'so variegated and so diverse'[19] – and to cultures of science, technology, and poetry will be discussed here. In his historical overview of Canadian poetry, David Staines notes how A. J. M. Smith, eminent publisher, editor and poet and a vital figure in the evolution of Canadian poetry, encapsulates the modernist strain in Canadian poetry of the twentieth century which is especially evident in his best known poem, 'The Lonely Land'. Smith views the 'harsh reality' of the Canadian landscape from a poetic perspective[20]: 'This is a beauty / of dissonance, this resonance / of stony strand, this smoky cry / curled over a black pine'.[21] The Imagist tendency in this poem, evoking Poundian 'petals on a wet, black bough', incorporates a fusion of the phonic and the visual: Smith was concerned with the 'union of the abstract and concrete' in the poetry of seventeenth-century metaphysical poets who he studied extensively, and it influenced his own output.[22] The visual poetics of 'The Lonely Land' seem to anticipate the later virtuosity of the Canadian concrete poetry movement: the poem's short, truncated lines visually enacting the 'resonance' of the stony strand and the echoes of the 'smoky cry' over the pine trees. Also mentioned in Staines' overview is Earl Birney, often referred to as the first forerunner of concrete poetry in Canada,[23] who expanded the language of his poetry to substitute 'space for regular punctuation', becoming 'keenly interested in the visual dynamics of the printed page'.[24]

Within this context of this Canadian tradition of poetry, and along 'the standard line', arrives the experimental definitive concrete poetry movements, which Nichol, McCaffery, and Beaulieu all participate in and define. I argue that all three poets embody Alan Golding's aforementioned notion of 'transitional materialities' in differing but overlapping ways: their works interrogate the limitations of the page-based poem, anticipating the future expansive

[19] David Staines, 'Poetry', *The Cambridge Companion to Canadian Literature.* Eva-Marie Kröller, Ed. Cambridge: Cambridge University Press, 2017. 153.
[20] Ibid, 140
[21] A. J. M. Smith quoted in Staines, 'Poetry', 140.
[22] Staines, 'Poetry', 140.
[23] Jack David, 'Visual Poetry in Canada: Birney, Bissett, and bp'. Online article. https://journals.lib.unb.ca/index.php/scl/article/view/7870/8927 [Date accessed: 28/3/2022].
[24] Staines, 'Poetry', 142.

potential of digital poetics, while retaining a fealty to the materiality of the printed page. Beaulieu's work in particular participates in this continuum between material page and digital screen: his output simultaneously champions the spontaneity of hand-crafted Letraset creations, while also engaging extensively in the possibilities of digital poetics. He frequently advocates for the free and total distribution of works online, and regularly circulates links to freely-available PDFs of his oeuvre.[25] This, in context of the wider perspective on visual poetry and poetics, provides another important aspect of the idea of the contemporary circumstances of distribution. No longer solely reliable on print materials, poetry is free to be almost infinitely prolific on the internet, as well as when the internet is used as a repository for work, as with UbuWeb, the online 'pirate shadow library consisting of hundreds of thousands of freely downloadable avant-garde artifacts' founded by Kenneth Goldsmith.[26] A recent visual poem by Canadian poet Laura Kerr – appropriately enough, shared on the platform Twitter – intimates this expansive potential by utilising mathematical notation for limits and infinity (Fig. 36):

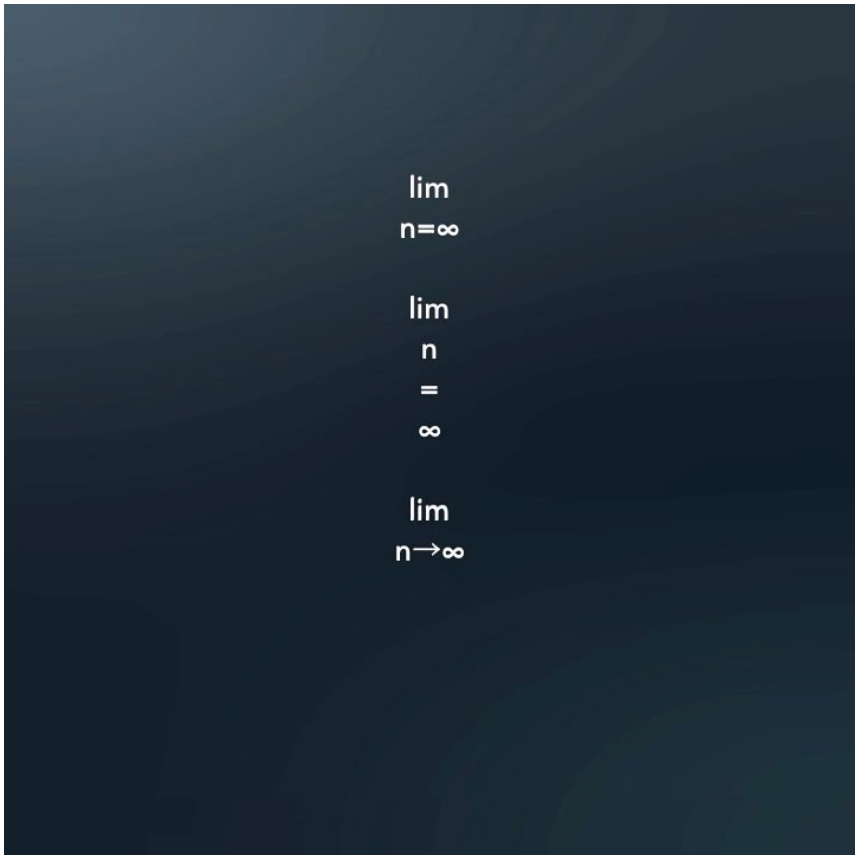

Fig. 36. 'a limitless poem' shared by Laura Kerr on Twitter.

[25] Derek Beaulieu. Twitter Post. December 18, 2021, 5:50PM. https://twitter.com/derekbeaulieu/status/1472262945811828740

[26] 'About UbuWeb' [online article] https://www.ubu.com/resources/about.html [Date Accessed: 27/3/23].

Although not the focus of the present study, Kerr's poem expresses this trend of experimental poetry and mathematics finding more avenues of consilience of late. A newly incarnated *Poetrishy* journal combines poetry and mathematics, and hails the differences between the two as the commencement of a fruitful relationship celebrating a shared root of poetry and mathematics, one of convolution. 'Both poetry and mathematics are willing to take up big questions bearing on the infinite, the ideal, the real', reads their newly established website.[27] Another contemporary Canadian critic and poet, Gary Barwin, writes playfully of the 'impossible shape' of language, employing concepts from quantum physics to explore typography in one of his collections, *Quantum Typography* (Fig. 37), which in the poem shown here joyfully explores the colour and shape of language's visual relationship to physics, while also utilising the shape of a Necker cube from visual psychology: a 'multistable' image that will be discussed further in Chapter Five in relation to the wordsquares of Susan Howe.[28]

[27] *Poetrishy.* https://www.poetrishy.org/menu/ [Date accessed 5/11/21].

[28] Gary Barwin, *Quantum Typography*. Malmo: Timglaset Editions, 2018. 13.

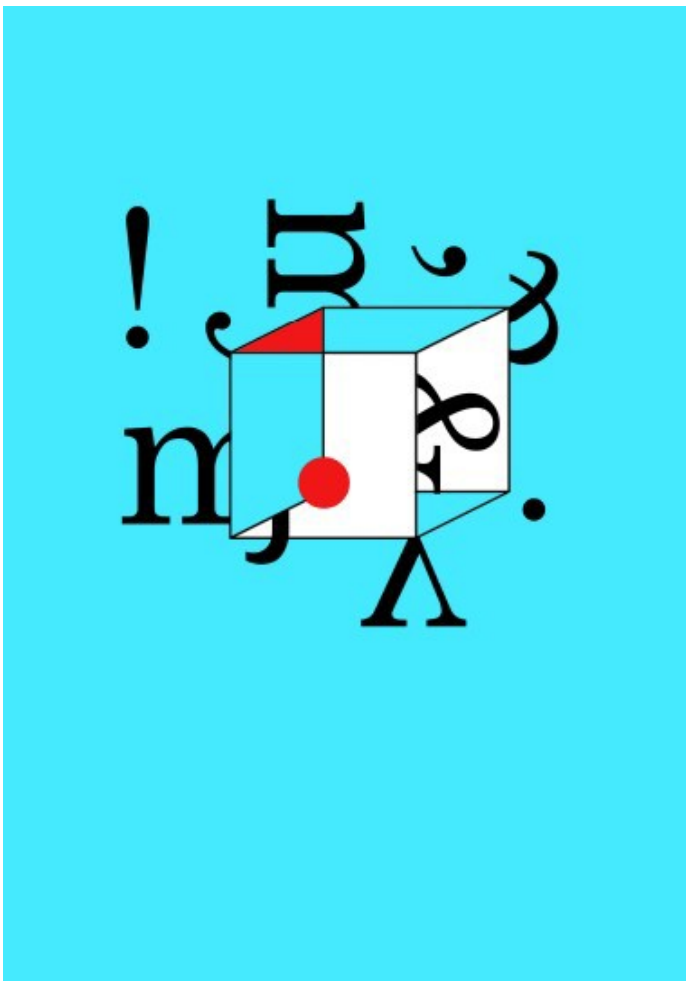

Fig. 37. Gary Barwin's quantum poems play with the idea of being both poems and not poems at the same time.

Some of bpNichol's poems have also demonstrated the capacity to be read according to the mathematical principles they explore – or more importantly – play with. The alphametrics and cryptarithms at play within his work – particularly in his work *Probable Systems* – are invested in exploring the quasi-scientific and potentials of computer programming. Brown *et al* have commented how Zultanski writes of Nichol's 'interest in imaginary science [and] quasi-scientific poems'.[29] Nichol's work has been shown to be compatible with an analysis that draws much of its tools from computer science: his are poems that can be read using 'scientific approaches from computer programming', by appealing to the concepts of natural language and advancing a reading that allows for the application of '*cryptarithms*' and '*alphametrics*' to his poems.[30] It is also further posited that his poetry appeals not just to fans of literature but to 'mathematically literate readers' because of his creation of the

[29] Joseph Alexander Brown, Terry Trowbridge, and Jozsef Szabo. 'The poetic metrics of bpNichol'. Conference paper (2009) 10.1109/TIC-STH.2009.5444363. 934.
[30] Ibid, 936.

conditions of 'original thinking' by turning words into equations 'with ambiguous synergy between verbal and numerical readings'.[31] His 'probable systems' describe nothing, 'yet appear rationally sound', while also serving as an interrogation of poetry's relationship to scientific knowledge:

> this sort of play, rationality put to the test of the imaginary, does not simply highlight the arbitrary aspect of scientific production of certainty, it attempts to illustrate the certainty of the imaginary, the reason inhabiting every thought, every whim, the realism inherent in the most fantastical or 'irrational' writing.[32]

This impulse is also evident in Nichol's work 'First Screening: Computer Poems' (excerpt in Fig. 38) which playfully explores the poetic potential of coding to animate poetic text, thus anticipating the future prevalence of digital poetics.[33]

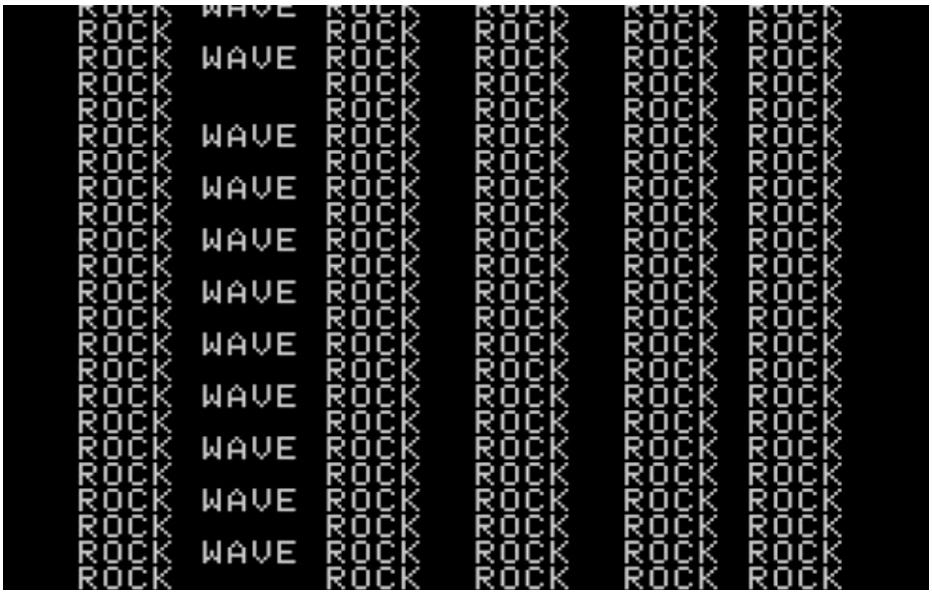

Fig. 38. An excerpt from 'First Screening: Computer Poems' in which Nichol used coding to 'animate' these poems.

In a similarly engaging manner, McCaffery's own interest in science and art also pervades his work. Often invoking science in his own practice and critical commentary, he appeals to Alfred Jarry's invention of 'pataphysics' – the 'science of imaginary solutions' – which for

[31] Ibid. .

[32] Steve Zultanski, 'Men Write What Men Mean: The "Pataphysics of bpNichol's *Zygal*' in *Open Letter: bp + 21* 13:8 (2009) 113.

[33] μαρια γιαπαλακη – χαλαζα. 'bpnichol's 'First screening'. YouTube video. 9:19. 24th Jan 2013. https://www.youtube.com/watch?v=MWftX6SstZU [Date accessed 30/3/2022].

McCaffery serves as 'an important intermediary between poetic creativity and scientific discourse and practice'.[34] He states, 'science is a vital component, in a different way, offering a readily transportable, or "highjackable" body of concepts that poetry can plunder'.[35] And, while Beaulieu does not 'engage science directly' in his writing, he is influenced by an understanding of the scientific method and its appeal to 'hypothesis, experimentation and testing, exploration, results', which he reads as both 'the tenets of scientific thought and of the avant-garde'.[36] Continuing in this vein, Schmaltz notes how Lori Emerson 'situates poets such as Nichol and McCaffery as proto-hackers who were 'hacking 'reading/writing interfaces' like the typewriter during the age of "activist media poetics" – they have been celebrated for pushing their media beyond their functional limits as a response to the dawn of the computing age'.[38] Schmaltz continues on to elaborate on the relationship between concrete poetry and machines and technology. He states that 'positioning concrete poetry as a mode of composition in direct relationship to machines does not necessarily mean that all concrete poetry is composed with machines', instead he characterises concrete poetry as 'having a distinct relationship to writing machines regardless of whether they explore or actively swerve away from machine-based modes of writing'.[37] Indeed, in Johanna Drucker's history of the alphabet, this relationship between materialities and typography is discussed. Particularly in the 19th century, typography was majorly influenced by industrialisation. Freed from the constraints of metal type and buoyed by the 'flexibility of lithographic reproduction', lettering and calligraphy artists created new means of typesetting, often utilised in advertising which transformed the experience of language to 'one of overblown commercial persuasion' and 'rhetorical inflation': typographic specimen sheets from the 19th century still 'resonate across the space of more than a century with particular poetic and cultural suggestivity'.[38] The invocation of advertising here intimates or anticipates a certain engagement with the visual psychology of promotion and advertising, acknowledging the power of typesetting in relation to its influence upon audiences. This also links here to another trend identified by Drucker in her historical overview: the utilising of older styles in the various Arts and Crafts movements in England, Europe and the USA, which had in

[34] Ryan Cox. 'Trans-Avant-Garde: An Interview with Steve McCaffery.' Online article. https://www.raintaxi.com/trans-avant-garde-an-interview-with-steve-mccaffery/ [Date accessed: 2/2/22].
[35] Ibid.
[36] Derek Beaulieu, in discussion with the author, March 2022. (See Appendix A). [38] Schmaltz, '"My Body of Bliss", 14.
[37] Ibid.
[38] Johanna Drucker, *The Alphabetic Labyrinth*, London: Thames & Hudson, 1999. 242-243.

common ‘a keen attention to the visual aspects of letter design’ as well as a ‘conviction that the stylistic choices had some impact on meaning production’.[39] This contextual commentary on typography can be related to Nichol, McCaffery, and Beaulieu who, especially in the present selection of poems, wield the historical and cultural associations of typography and letterforms in their works.

The selection of Canadian visual poets in the present chapter therefore reflects three fundamentally important approaches from the tradition that exemplify differing, yet interconnected methodologies regarding how they treat letters in order to construct and configure their poetry. The overlap with new media poetics and the shifting materialities of Nichol, McCaffery and Beaulieu span nearly five decades of an evolving and distinctive tradition, and the scope of this work also incorporates the theoretical spectrum of clean to dirty. Both McCaffery and Nichol are often linked in the scholarship on the Canadian tradition as forerunners of the Canadian concrete movement: both have been said to ‘exemplify an aesthetic of “dirty concrete” (signalling a difference from cleanly designed and minimalist concrete poetry)’.[40] McCaffery’s is more often seen as ‘dirty’: it is both visually and conceptually complex. Nichol and McCaffery were also frequent collaborators, producing works like *Rational Geomancy*, which dealt with their investigations into what can be gained from a ‘break with the one-dimensional view of translation’, amongst other theoretical concerns.[41] Their intellectual and artistic efforts were therefore intrinsically linked: their work has perhaps more appropriately been described as ‘post-concrete’. As referenced in Chapter Two, post-concrete poetry represents a different type of relationship between the visual and the verbal – either complementary or complicating – while clean concrete involves the relatively straightforward visual enactment of the words’ semantic content. Dirty concrete, however, complicates the relationship between the visual and verbal elements at play within a poem, while also usually being visually more complex and dense. Beaulieu’s own work negotiates this distinction between the two: for him, clean concrete refers to influence by modernist typefaces and graphic design, while dirty is ‘typified by disintegration, overlap, digital interference, and other more Post-Modernist aesthetics’.[42] Ultimately Beaulieu’s practice aims to interrogate how our understanding of

[39] Ibid, 243.

[40] Schmaltz, ‘”My Body of Bliss”’, 16.

[41] Steve McCaffery and bpNichol. *Rational Geomancy: The Kids of the Book-Machine.* Talonbooks: Vancouver, 1992. 27.

[42] Beaulieu, in conversation with the author, March 2022. (See Appendix A).

reading and writing can benefit from exploring both poles of clean and dirty, or 'by seeing no poles at all'.[43] The influence of both McCaffery and Nichol upon Beaulieu was also a determining factor in their selection: he comments how both practitioners have influenced him over the years, while Nichol's idea of 'apprenticeship to language' has remained a guiding principle in his own work.[44]

Norman Bryson's discussion of intertextuality and visual poetics again has some relevance to the discussion of these three poets within their tradition, especially when considering his commentary on the saccadic movement of the eye: 'what vision experiences is an image distributed across discontinuous leaps'.[45] Bryson's commentary anticipates in its language a tendency towards the resources of visual psychology:

> Each act of looking attends to a different area of the image and discloses a partial view, as vision transits through the image in endless stops and starts. Each view finds a different perch or purchase on the image, and the successive views are strung together serially, in a flow of time. One might want to say that gradually these partial views are assembled, like the pieces of a jigsaw, into a complete image, a total state, which gathers together and supersedes the work of assemblage.[48]

Bryson also comments on the capacity for these works to provoke a 'saturation': vision is interminable – we never actually reach this kind of terminus. The poems selected for this study prompt this response again and again: they force the eye along these roads of interpretation, rerouting and reconfiguring the manner in which the eye moves over the page, and demanding a 'rereading' both literally and in Perloff's close reading sense. As mentioned before, this is not to beg the question or to suggest that part of the authorial intent here is to generate a poetry that directly capitalises upon these understandings of visual psychology. But in their repudiation of traditional linearity, perhaps the 'hijackable' analogy can also be extended to the body: and considered in light of the acrobatics

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[43] Ibid.

[44] It cannot be ignored that the present chapter's selection is a very typically canonical overview of visual poetry of the Canadian tradition: Karl Kempton's assessment of how Western-centric most notions of visual poetry almost certainly applies to the selection explored here. Despite the canonical clichés of this and many other literary movements, an awareness of this homogeneity informs the overall chapter, and the focus on women poets in the next chapter especially in light of the critical reappraisal of female voices of the tradition significantly informs the present dissertation, serving as a counter of sorts to the male-dominated narratives that characterised visual poetry throughout history thus far.

[45] Norman Bryson, 'Intertextuality and Visual Poetics', *Style* 22:2 (1988) 184.

[48] Ibid, 184.

demanded of the eye when looking at their work.[46] To consider the capacity of poetry to impact the body, and the relationship between poetry, body, and mind is an intriguing path, and one which bpNichol's work in particular invites us to follow. Nico Vassilakis' incendiary introduction to *The Last Vispo Anthology* proclaims, with a manifesto-like declaration that we are looking at the alphabet in 'every possible and available position you can imagine': an alphabet 'after it's exploded and word/letter cohesion is broken'.[47] All the poems discussed in this chapter treat language and letters with this 'post-linguistic' degree of experimental roughness, while their work expands upon the material possibilities of language. As previously mentioned, concrete and visual poetry of the Canadian tradition can be described as 'non-lyrical' poetry.[48] This description carries with it a consideration of subjectivity: most notably the eschewal of the 'lyric I' from the poetry in question. However, Beaulieu gently repudiates this notion: while the poetry that he endorses and attempts to create 'works against authorial voice and singular meaning', instead striving to point 'across potentialities', it nevertheless still holds room for the subjectivity associated with lyric and narrative poetry.[49] Integrating this with the psychological/empirical paradigm associated with the survey therefore poses an immediate factor to consider. The empirical survey does not seek to recreate the conditions of encountering visual poetry, rather, it takes a curated selection of visual poems, distributed to as wide a range of participants as possible, and used a mixed methods approach to gather quantitative and qualitative information from their responses to these poems. Firstly, however, some further elaboration is provided about the influence of these theoretical considerations upon the experiment design of Survey 1.

Introducing the Experiment Design: Survey 1

To introduce another layer of objectivity, and to best utilise the scientific paradigms available to the project, an initial survey – Survey 1 – was designed in order to decide on the final selection of poems for Survey 2. This was achieved by appealing to the 18 anonymous participants of Survey 1, by requiring them to rank a selection of poems by each of the

[46] Ian Hamilton Finlay's 1954 poem 'Acrobats' literalises these movements by forcing the eye to travel along the linear path of the word 'acrobats' which is laid out in different configurations.

[47] Niko Vassilakis, 'The Last Vispo: toward vispoetics' in *The Last Vispo Anthology*, Crag Hill and Niko Vassilakis. 8.

[48] Eric Schmaltz, '"My Body of Bliss", 14.

[49] Beaulieu, in conversation with the author. March 2022. (See Appendix A).

chosen poets.[50] Twelve poems were deemed the maximum amount feasible for inclusion in Survey 2 in order to keep the time required for participants to complete it in full under approximately thirty minutes. These curtailments were included because of the project's cognitively-informed methodology, which accounts for the limited mental capacities available to reader-viewers: attention, perception, memory, and analytical resources are required to complete a Navon task and survey without fatigue or dwindling concentration impacting the results too much. The selection process for the works from the chosen poets for Survey 1 was a complex one: how best to encapsulate or represent the scope of these highly individual oeuvres? Ultimately, the larger selection of poems for each poet (that can be viewed in Appendix B) were chosen according to a variety of subjective and stylistic factors including – but not limited to – their availability, their exploration of themes discussed in relation to the visual in poetry, and – of course – their visual uniqueness. After this larger selection of poetry from this dissertation's selected six poets had been curated and shortlisted (see Appendix B for the full selection, as well as further details on this selection process), a short ranking survey was designed using Qualtrics, straightforward survey software, with this selection of poems and sent to 18 random participants who had indicated they were willing to fill out this Survey. This larger selection of poems was curated in order to showcase the poems by poet that showed, as much as possible, a range of poems that, taking influence from the study by Boccia *et al*, were either locally or globally primed. This was in order to represent as much as possible the range of the selected poets, but also to have variation on display in their works.

Participants of Survey 1 were thus presented with a series of sets of four poems organised by poet (although the poets remained unidentified, and the poems untitled except for Nichol's 'Mind Trap'). Participants were required to rank their favourite poems according to which they found most 'visually appealing' by numbering them 1 through 4, where 4 denoted the poem they liked the best, and 1 the poem they liked the least.

[50] The wider selection of poems, a justification of this selection, and the results of Survey 1 generated by Qualtrics software, can be viewed in Appendix B.

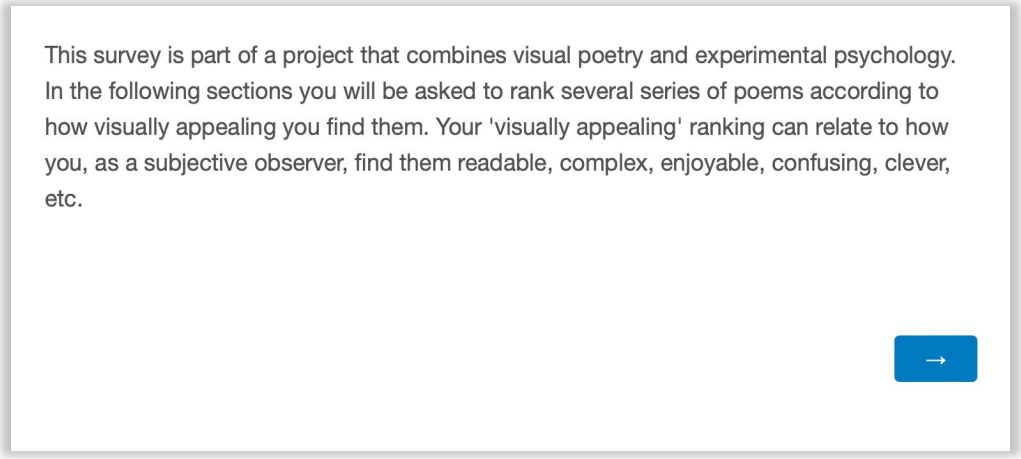

Fig. 39. The opening page of Survey 1.

A definition of 'visually appealing' was provided to participants to simplify this ranking as much as possible: 'Your "visually appealing" ranking can relate to how you, as a subjective observer, find them readable, complex, enjoyable, confusing, clever etc' (Fig. 39). This definition was left deliberately general because Survey 1 was designed only to measure quickly what the initial responses to these challenging visual poems was like amongst the very small sample size of 18 participants.

In order to have a reasonably equal distribution of poems per selected poets, a few governing criteria were applied. Considering the centrality of both recent and established anthologies to the present research, and particularly accounting for the female visual poets of Case Study 2, where possible the poems were taken from the recent anthologies that have already been critically engaged with in the previous chapters. Given the present project's exploration of local and global distinctions, along with the different materialities and subjectivity evident in the works of the selected poets, poems that proved especially notable from this perspective were selected for inclusion. In this sense, appealing to the different participants in Survey 1 also contributed to avoiding any 'begging the question' element of Survey 2, whereby the distinctive local and global elements of the poems may have overly influenced their selection. While the idea behind this kind of selection was to investigate poems with distinctive local and global features, exploring this element benefitted from this extra layer of remove from the selected poems. For example, considering the spectrum of poems by Nichol, Beaulieu, and McCaffery, the selection of their poems provided in Survey 1 was curated to showcase, as much as possible, the breadth of their works while also evincing the unique aspects of their individual approaches to visual poetics. Crucial to their selection in this Case Study was that the poems would demonstrate

various iterations of clean, dirty, and post-concrete elements (see Appendix B for full statistical results). In most cases, clear preferences were indicated by participants, and the final poems for Survey 2 were thus selected accordingly.

As outlined in the previous chapter, the mixed methods approach outlined here is influenced by existing research into Navon's paradigm and the global precedence effect, as well considering other factors such as local and global interference. The more specific research questions pertaining to Navon's paradigm will be discussed in due course in relation to the results of Survey 2: for example, can this study reveal anything into the extent or impact of global-to-local interference, whereby the local features of a visual scene, or in this case a visual poem, interfere with global perception? How does the matrix of 'enjoyability' versus 'readability' compare, when presented to participants? What inferences can be made from using poetry as a stimulus to examine the existing structure of Navon's paradigm in relation to individual participants? Demonstrating some of the ways Navon tasks have been utilised thus far in existing research, and considering how that can be applied to visual poetry within the remit of the present study's own experiment design, informs a significant component of the overall experiment design, but especially for the more detailed requirements of Survey 2. Given the parameters of the project, the areas I have identified in which the experimental portion of the project may be able to contribute to the wider field involves some of the following considerations. Firstly, there is the novelty of using visual poetry as a stimulus in tandem with a Navon task, and the (hitherto) unprecedented experimental combination of these selections of visual poetry with the investigation of Navon's paradigm. Secondly, there is the beginning of a framework for examining practical and theoretical investigations stemming from this combination. Also, the aspect that seeks to tie together the project's overarching ethos on interdisciplinarity, that will be discussed in this and the subsequent chapters, involves a proper investigation into whether any meaningful – again, a subjective term – research can be done into the global precedence effect by using poetry as a stimulus.

Experiment Design and Demographics: Survey 2

Survey 2 employed a combination of mixed methods to gather both qualitative and quantitative data from participants, and took about thirty minutes to complete on a laptop

or PC.[51] It was comprised of two sections: Section A and Section B. Section A constituted a Navon Task, where the quantitative data was gathered about participants tendency towards local and global precedence in visual perception. Section B was a rankings questionnaire investigating their subjective responses to the visual poems selected for the study, in which they were instructed to elaborate on the rankings of 'Readability' and 'Enjoyability' that they provided in a free text box. Once gathered, results from the two sections of the Survey were juxtaposed in order to examine the relation between the local and global precedence of the visual processing of participants, and their responses to the local and global elements of visual poetry: this approach will be outlined in further detail later on. Survey 2 was constructed using Pavlovia software and accessed via a link that was sent to participants: it was distributed through a variety of different channels, and designed to be completed on a laptop or PC, wherever participants' preferred to complete it, although it was stipulated that it should be completed in a relatively quiet space without too many distractions. It was promoted widely via a number of online channels: social media accounts, primarily Twitter, and amongst various networks and mailing lists within Trinity College, including the School of English, the Institute of Neuroscience, and Trinity Long Room Hub. It was also requested that participants forward it on others, thus expanding its reach as much as possible. While Survey 2 was designed to be completed by anyone, naturally, the networks within which it was circulated were especially likely to recruit those from an academic, creative, or visual arts background.[52] To keep track of this element in a general sense, amongst the demographic information requested, participants were required to rank along a Likert scale their 'familiarity' with both poetry and visual poetry in order to compare this information with their responses to the survey and results on the task. While all participants remained anonymous, of the 132 eligible participants, there were a few demographic points to summarise. The data gathered showed that 57% of participants identified as female (75),

[51] The data gathered, reviewed and analysed in this section of the dissertation was, as mentioned in the Introductory chapter, curtailed by the restrictions of the COVID-19 pandemic. Despite initial hopes for an in-person study, data collection was moved online in accordance with the University's guidelines and conceptualising the work in question within a survey framework for gathering information was established. As will be outlined in Chapter Six, this methodology, constrained as it was by the circumstances, indicates the potential for future methods of combining the resources of psychology/neuropsychology with the theoretical investigation of visual poetics. As such, its degree of interdisciplinarity resides at a unique juncture, conceived as part of a continuum, which will be elaborated upon further in Chapter Six.

[52] This was identified as an external factor that potentially affected the results of the experiment, in that participants from these networks were more likely to be familiar with literary criticism, visual psychology, or the context of the poems and Navon task presented. This understanding has been factored into the project's overall analysis.

29% identified as male (38), 1.5% identified as nonbinary or Other (2), and 13% did not specify their gender (17). The average age of all participants was 30 years old. For all participants, the average ranking for familiarity with poetry on a scale from 1 to 5 (where 1 indicated strong familiarity and 5 indicated least familiar) was 2.5, indicating an average distribution of experience with poetry. Meanwhile, the average ranking for familiarity with visual poetry was 3.6, indicating that (as expected) participants in general were less familiar with visual poetry specifically. Participants were also required to specify whether they were a 'native' English speaker or not: again, as expected, the majority were native English speakers (82%), with 16% marking themselves as non-native English speakers, while 2.3% (3 participants) left this question unspecified.

Once they had completed the demographic information section, participants progressed to the Navon task component. After a trial round to familiarise participants with how the Navon task functioned, participants were asked to firstly, press 'H' or 'S' corresponding to the larger letters, and secondly, to press 'S' or 'H' based on the smaller letters. In short, at different points they were asked to differentiate between sets of the following figures (Fig. 40):

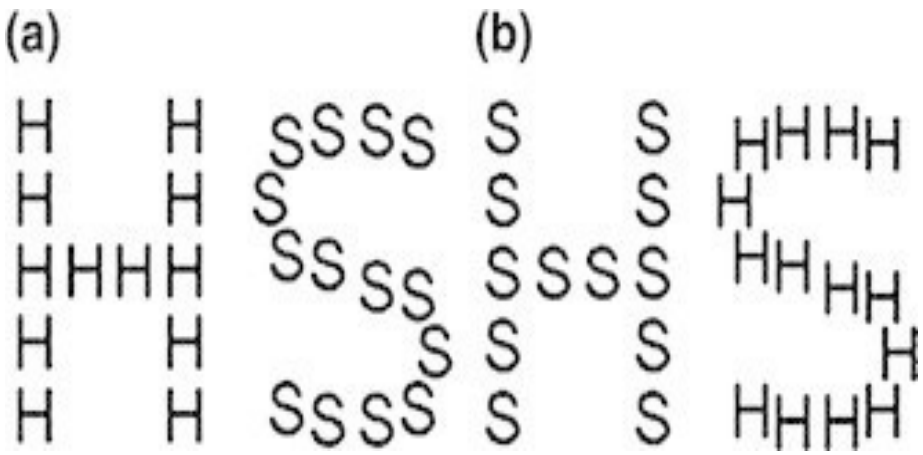

Fig. 40. Navon figures

For the purposes of this study, the Navon task was used to measure participants' ability to determine local features from global features in a visual scene: their individual ability to see – or not see – the 'forest for the trees'. According to their results of Section A, participants

were classed as either 'local' or 'global' processors, a relatively simple measurement of their visual processing and global precedence effect, and the impact of global interference in individuals.

Section B consisted of a questionnaire pertaining to the 12 visual poems selected by Survey 1 for the study. When presented with each of the 12 poems for a minimum of 20 seconds, participants were asked specific questions after each one which had been designed to relate to the local and global features of each poem. No titles or author names of any poems were included in their presentation to participants: this was justified for a number of reasons, including to ensure that no extra verbal information impacted their responses in the free text boxes, as well as to remove any explanatory power that the title may give to individual participants, as well as neutralising the gendered dimension of providing author names. The order in which the poems were shown to participants was randomised.[53] As an example of the questions asked: for the two panels from Steve McCaffery's *Carnival* that were shown in Survey 2, certain sentence fragments in the panel from were categorised in the experiment design as being 'local' features, since they occurred in the poem in smaller sections rather than dominating the whole visual field of the poem. Participants were also asked to rank a series of features specific to each poem in terms of how prominent they found them, including sharing their impression – if they had any – on what shape best described the overall shape of the poem. For the conceptualising and execution of Section B of Survey 2, I brought my own, informed yet subjective literary critical analysis of the poems consulted for this project into conversation with the empirical paradigm. For example, certain visual aspects of each poem were categorised according to distinctions of 'local' and 'global', and participants were asked to rank how prominent these features were, after being exposed to each poem for a minimum of 20 seconds. Participants were also asked about how they responded to the 'overall shape' of the poem. This was directly investigated by asking them how they would categorise the shape of the poem according to certain overall shapes such as 'square', 'circle', or whether they noted the individual shapes within the overall visual field of the poem. This study categorised the overall shape of the poem as

[53] It is important to note is that while this chapter's analysis of the poems progresses sequentially, the order in which participants were shown the poems was randomised. This was to ensure that within the setting of the experiment, participants were not subject to the same amount of fatigue or saturation at the same points in the experiment due to waning attention or energy over the course of completing it. This was due to the fact that within the psychological paradigm, it is recognised that mental capacities of reader-viewers are limited: this also reflects the project's avoiding of presuming any type of ideal or implied reader, or reader-viewer in this case. Understanding that participants have limited processing resources thus influenced the design of Survey 2 in significant ways.

feature of global perception, whereas the finer details relate to the local detail. For example, in bpNichol's 'Mind Trap', an overall rectangular composition is permeated with smaller circles and squares, leading the 'mind' via the eye along a series of M. C. Escher-like 'traps' which I read as Nichol's playful visualisation of the process of determining meaning from a visual poem, or indeed, any poem in general. In 'Mind Trap', which has no visible words in it other than its title, the local features were categorised as these smaller, varying shapes evident the overall visual field of the poem. Participants' ranking of the prominence of these features were then compared to participants' results on the Navon task, designed to class them as 'local' or 'global' processors. In this manner, for each of the twelve poems selected for the survey, the different local visual aspects of the poems selected were categorised according to this logic, by applying Navon's categorising of local and global features in a visual scene.

Participants were also asked to rate the poems along a Likert scale – a scale from 1-10 to measure intensity of feeling, itself an imperfect ranking system – according to two metrics: 'readability' and 'enjoyability'.[54] For the purposes of the survey, 'readable' was defined as 'the extent to which it is possible for you to "read" this poem, understand it, and/or engage with its meaning'. Considering how many preceding studies had engaged with 'readability' as a variable, this influenced the qualitative question asked of participants, where they were required to write why they had given the ranking of the poems based on their 'readability' and 'enjoyability'. The rationale behind this was to examine, from both quantitative (the rankings) and qualitative (the free text box) methods, to what extent the readability of the poems was a determining factor in how much participants enjoyed them. 'Enjoyability' was defined within the experiment as 'how much you, as a subjective observer, enjoyed your experience of reading these individual poems'. These specific definitions were provided to participants before they were shown the poems in the survey, so as to avoid too much confusion over what definitions they were expected to work with. Asking participants to rank, and then justify, their ratings of 'readability' and 'enjoyability' was part of the project's overall goal of combining an experiment design with a literary critical analysis, so as

[54] Commonly used in Psychology, Likert scales are simple ranking tools designed to assign a numerical figure to the measuring of attitude to a given response or statement. They are used in the present project with a full understanding of how they do have the capacity to reduce information down to overly simplistic intervals of scale, when in reality the nuances of feelings most likely cannot necessarily be quantified along a scale of regular intervals. This in and of itself provides another interesting dimension when considering the attempts that the present study makes to measuring subjective responses to poetry within the context of this study.

to scientifically engage with what Kenneth Goldsmith terms the 'trope of unreadability' in experimental poetry.[55] After providing these, they were provided with a text box and asked to justify both these rankings in fifty words or less, which constituted the qualitative section of the study, granting participants this opportunity to say in their own words why they ranked the poems accordingly. The definitions were included in order to avoid any confusion amongst participants about the definitions of enjoyability and readability, and also in order to gather information about participants' self-awareness by asking them to make a critical judgement about the poems based on their own responses, getting them to quantitatively rank the poems and then provide qualitative answers justifying those readings. Requiring participants to rank these variables, and specifying the difference between their definitions, was also designed to encourage participants to properly consider their answers, rather than affixing hasty rankings to questions of whether they merely 'liked' or 'disliked' the poems. This distinction between the two variables was specified in order to get to the heart of some questions of poetic essence by prompting this reflection in participants. As outlined in Chapter Two, Bruce Andrews' categorisation of unreadability – that which 'requires new readings, and teaches new readings'[56] – is an important assessment of visual poetry's tendency towards usurping traditional interpretations and critical strategies. Examining this trait in relation to the poems displayed in Survey 2 – poems which display varying degrees of 'unreadability' – was thus engaged with through this line of questioning.

Enquiring after these variables enabled the creation of an 'enjoyability' versus 'readability' matrix, through which the two variables could be contrasted and examined in relation to each other in the context of the overall trends for all participants. [57] From a literary critical perspective, the inclusion of these variables introduced an aspect of measuring the subjectivity of both the reading of poetry in this setting, but also required participants to justify in their own words why they ranked the poems accordingly.[58] From

[55] Goldsmith, *Uncreative Writing*, 174.

[56] Bruce Andrews, 'Text and Context', *The L=A=N=G=U=A=G=E Book*, Bruce Andrews and Charles Bernstein, Eds. Carbondale: Southern Illinois University Press, 1984. 31.

[57] When analysing the qualitative comments, of the data collected 132 participants completed the task, ranked the poems, and left proper comments, so their responses are the ones gathered for inclusion, and any statistics relating to the qualitative data pertains to them. Where numerically significant, relevant percentages are included in relation to the qualitative analysis: for example, when there is a certain trend identifiable in the comments that constitutes a significant percentage, it is included out of the overall figure of these 132 participants.

[58] Due to the nature of the Pavlovia software used, the qualitative data gathered in the form of the comments written by participants displays a large number of spelling errors. As the free text box of the experiment was only rudimentary, it was not possible to type uppercase letters in the text box, so the use of the personal

both perspectives, the question is being asked about the relationship of the reading experience to how much the reader-viewer nonetheless enjoyed the poem – with the aim of the combination of approaches bringing us closer to a different understanding of poetic meaning. In this sense, the empirical quantitative component, using the Likert scale, is designed to generate quantitative data about people's responses to the poems, while comparing the qualitative component which measured their individual responses justifying these rankings in their own words, as gathered in the text boxes where they were free to write their own responses.[59] In order to distil the qualitative information from the textboxes, all data was copied into Excel, and analysed for patterns, recurring commentary or keywords repeatedly noted by participants. A summary of any patterns or significant themes and trends from the data were then integrated into the individual readings of the selected poets, supported by direct quotations from the data. This strategy lent itself especially well to the close reading methodology demonstrated throughout these chapters: it proved a rather novel method of integrating the qualitative data gathered in this context.

As part of the latter half of the study, there was a general comparison conducted between the two different sections of Survey 2, investigating how the responses gathered from Section A compared with the results of Section B. An early hypothesis here was that if there was a contrast between participants' responses in Section A and Section B – i.e., if a participant was classed as a 'global' processor in Section A but ranked the local features of the poems as more prominent in Section B – then this could yield a discussion about the capacity that poetry has to divert or direct attention and thinking away from participants' natural way of responding to a visual scene, when the content is not poetic. In that case, visual poetry, demonstrated here in a measurable, testable, empirical context, would prompt the eye to see what it wouldn't otherwise automatically engage with at first. This

Writing on the merits of qualitative research for cognitive literary studies, Laura Otis references the relevance of visual mental imagery to literary analysis and 'the need to consider individual variations in mental experiences' because 'scientific knowledge of visual

pronoun 'I' is rendered in lowercase for all comments that are discussed in this and subsequent chapters. Other significant spelling errors are acknowledged through the use of 'sic' where appropriate.

[59] From a metacritical perspective, it is also interesting how the use of the Likert scale reinforced the linearity of left to right reading that so much visual poetry seeks to undermine. Likert scales are also not perfect scales. The reduction of an individual's response to rankings of 'enjoyability' and 'readability' is overly simplistic in literary critical terms, but for the purposes of a psychological experiment and within the parameters of this study, they are measurable variables.

processing can help reveal the ways that literary texts work'.[60] This research – rich, rewarding and fascinating – nonetheless differs somewhat from the concerns of the present project, which seeks to analyse less the mental or visual imagery arising from poetry, but more to focus on the actual visualism of visual and concrete poetry. The analysis of this project seeks to avoid its own investigation concerning itself with surface level presentation only – i.e., a visual poem only analysed as a visual scene and not as an artistic expression with mutable meaning – by employing both qualitative and quantitative methods. While this investigation is not into the visual imagery created by poetry, Otis' comments in defence of the importance of qualitative research, particularly her comments on 'individual variations' has influenced the present approach in sections of the project, and can be seen not only in the experiment design of Survey 2, but also in the general analysis of its results, to be discussed in more detail in Chapter Six. However, firstly the works of selected poets in this chapter are introduced and then discussed with respect to the empirical data gathered through Survey 2.

bpNichol: Bodies, Boundaries, Beyond the Word

Examining bpNichol's poems by appealing to empirical data serves to provide an interesting perspective on the two poems of his that were included in Survey 2, 'Mind Trap' and 'Blues', especially when juxtaposed with the contextual account of how he approaches his work. Nichol's enduring sense of playfulness with language remains one of the most important aspects of his output, and it is commented upon by most interpreters of his work. This playfulness characterises his singular contribution to language and its materiality, and Staines summarises it as such: 'when he is at his most playful with language he finds the words, then contorts them, wrestling them into new meanings, new forms, and even new words'.[61] Nichol's commentary accompanying his works often yields the best insights into his artistic impetus. A journal note from 1964 that serves as part of the extended epigraph in *The Martyrology* expands upon this, reading 'To go beyond THE WORD. exercise control over it? no NO NO – BEYOND THE WORD. not to merely control it but overcome it, go beyond the point where it is even necessary to think in terms of it'.[62] A selection of his 1967 poems 'eyes' (Fig. 41.) included in Emmett Williams' anthology of concrete poetry are also

[60] Laura Otis, 'The Value of Qualitative Research for Cognitive Literary Studies', in *The Oxford Handbook of Cognitive Literary Studies*, Ed., Lisa Zunshine. Oxford: Oxford University Press, 2015. 506.
[61] Staines, 'Poetry', 151.
[62] bpNichol, *Gifts: The Martyrology Book(s) 7 &*. Toronto: Coach House Books, 2003. N.p.

accompanied by some commentary characteristic of Nichol – he deems the selection as 'tight imagistic things. intended for what they teach the eye on one looking tho some tend to be pleasing if looked at a few times [sic]'.[63] Here, authorial intention immediately comes into tension with the empirical context of looking at poetry in such a manner – poetry of this kind also demands of its readers a certain participation that goes beyond other genres of poetry, the act of rereading, and re-seeing, that Perloff deems so central to close reading.

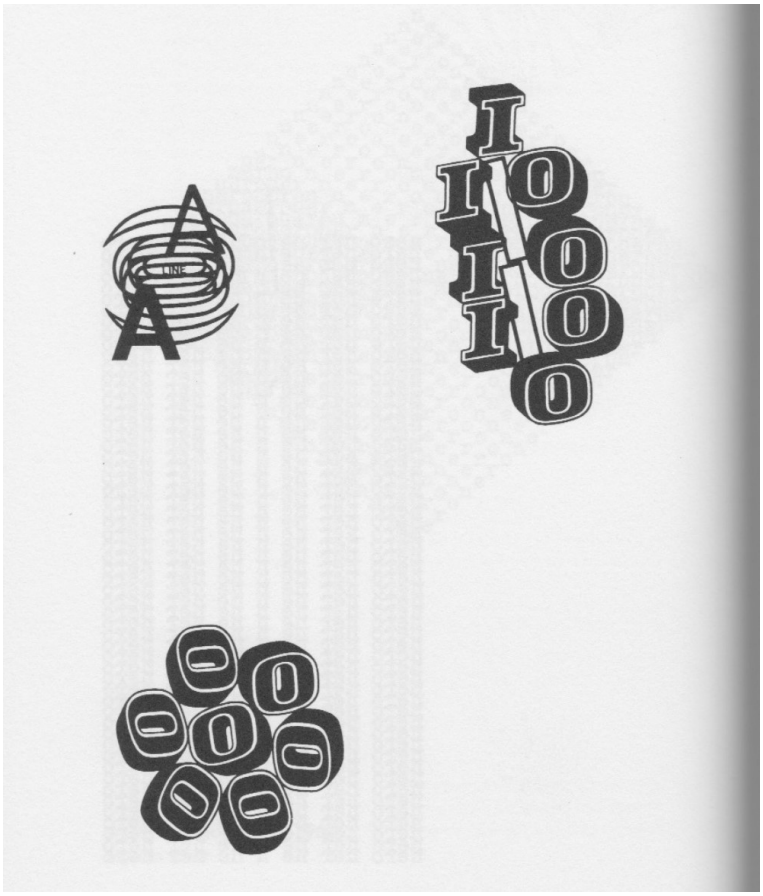

Fig. 41. Nichol's experimentation with vowels.

For a poet that produced such wide-ranging works, often utilising a scattershot, sprawling dynamic within his oeuvre, selecting appropriate examples of Nichol's poems for inclusion in the study proves difficult: none of his works seem composite, characteristic or totalising, as their resonance and importance seems to stem mostly from its diversity and divergence even within his output. These are poems that are designed to be seen and read together, as each one is in conversation with one another, and an understanding of this is

[63] Emmett Williams, *An Anthology of Concrete Poetry*. New York: Something Else Press, 1967. N.p.

central to accessing the full scope of his artistic impetus. Nichol's characteristic playfulness in his approach to the completeness of his output is accompanied by a profundity and clarity about the limits of language. This can be seen in his work *The Complete Works* (Fig. 42) – from which Justin Stephenson's film[64] dedicated to Nichol takes its name – Nichol here 'emphasizes the poem as mediated by the tools used to create it',[65] placing the alphabet before the viewer as the totality of his works – although crucially it is not simply the alphabet, but 'specifically the alphabet as it is laid out on a typewriter'.[66]

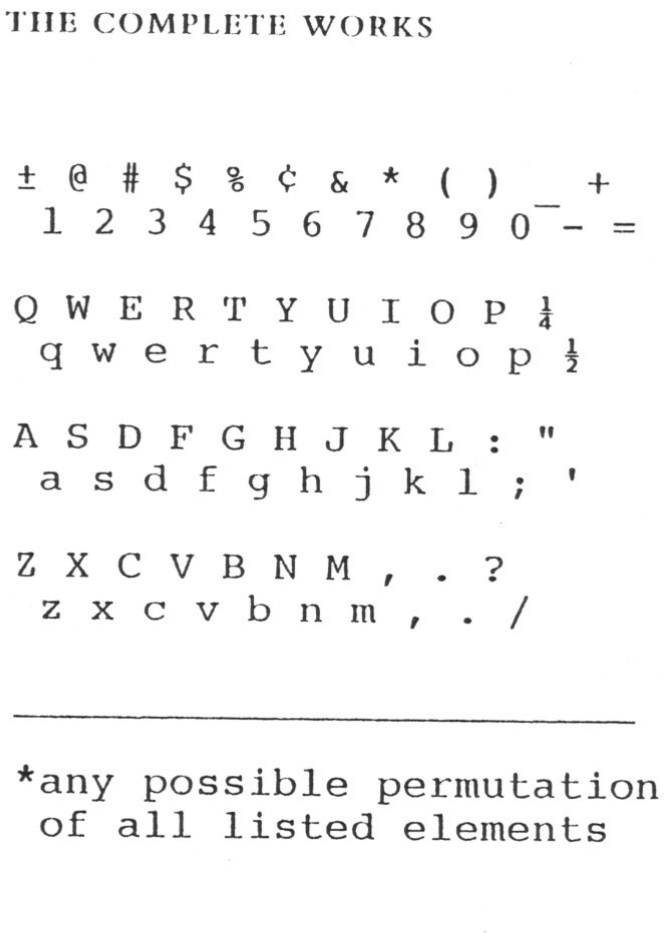

Fig. 42. Nichol's complete works incorporating all elements of the typewriter.

[64] Justin Stephenson, dir. *The Complete Works.* Toronto: VTAPE, 2018.
[65] Justin Stephenson, *The Complete Works.* https://thecompleteworks.ca/2015/04/15/the-actual-completeworks/ [Date accessed: 17/12/21].
[66] Ibid.

Nichol's approach to the letters that make up his poetry, how they structure and govern his wide-ranging poetics and shape his oeuvre, marks him as a unique practitioner of wielding the materiality of language – he writes in *Gifts* how 'the letters let him glimpse a truth / none of which they meant'.[67] This reverence for individual letters is present throughout his work, and also in his commentary on his own practice: 'individual letters have always had a lot of emotion for me for some reason… I started to write the way I draw'.[68] This radical reimagining and redrawing the parameters of what can be achieved by treating letters as a kind of fundamental unit to work from is also entwined with personal motivation for Nichol, as his love for his favourite letter H stemmed from his childhood factors of H serving as a geographical marker for the section of the Winnipeg subdivision he grew up in.[69] It was also a logo for one of his favourite comics, Harvey Comics[70] and is a letter imbued with significance: Steve Zultanski writes of Nichol's 'H' as 'an I on its back, the personal pronoun pronounced silently, as a breath, breathing reimagined as the assertion of selfhood, but also silence'.[71] His notes on the 'borderblur', where work 'comes from that point where language &/or the image blur together into the inbetween [sic] & become concrete objects to be understood as such'.[72]

Playfulness – a phrase that consistently crops up in critical literature on Nichol – is utilised carefully in his overarching project. The improvisatory nature of his specific type of play enables him to explore a kind of space where his work, and the work that he collaborated with others on, can be read as an overarching project to overturn the representational use of language, an enterprise 'grounded in a vision of literature as a function of the integrated sensory experience that language is, involving body and intellect, ear and eye'.[73] His ability to make connections and forge communities again emphasises his innovative approach to materiality and the radicality of letters as conceptual building blocks.

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[67] bpNichol, *Gifts: the martyrology book(s) 7 &*. Toronto: Coach House Books, 1998. N.p.

[68] Justin Stephenson, director. *The Complete Works.* 42:12 (2015)

[69] As referenced, 'H' is one of the letters making up the compound figures chosen for the Navon task in this experiment. Again, there some superficial parallels with the poetic material here, since H is Nichol's favourite letter. Within the empirical paradigm that also accounts for the poetic approach, letters become supercharged with meaning.

[70] Paul Dutton, 'bpNichol, Drawing the Poetic Line'. Online article. https://www.thing.net/~grist/ld/DTTNBPV.HTM [Date accessed 23/3/2022].

[71] Steve Zultanski, 'Men Write What Men Mean: The Pataphysics of bpNichol's *Zygal*' in *Open Letter: bp + 21* 13:8 (2009) 109.

[72] bpNichol and Margaret Avison, Eds., *The Cosmic Chef: An Evening of Concrete.* Ottawa; Oberon Press, 1970. 78.

[73] Dutton, 'Drawing the poetic line', n.p.

He is spoken of as a 'community builder', who democratised the page as a writing space, his 'commune was the page, open to all. True to his nature, that page harboured no prejudice concerning medium – poem and cartoon were equally welcome, as were prose and poetry (and, in poetry, long and short)'.[74] His work with the Four Horsemen saw another unique endeavour to perform language in the abstract through experimental sound poetry, and as Justin Stephenson's film observes, he managed to retain his interest in form, and explore the 'connection between form and emotional content'.[75] Nichol, then, is an unparalleled contributor to visual poetics, and has been included in the present study for his singular contribution to the field, and this dedication to moving his poetry 'beyond the word' in its awareness of language as 'both model and shaper of the human mind in its intellectual and psychological operation'.[76]

As reflected in much of the critical literature on Nichol's output, this approach anticipates and facilitates the ideas of embodiment, one of the cornerstones of cognitive humanities considerations (although, it bears repeating, not the chief concern of the present study). Justin Stephenson notes how in Nichol's *Selected Organs*, playfully taken from a larger collection termed *Organ Music*,[77] Nichol 'writes about parts of his body; instead of a body of work, he writes a work of the body'.[78] Embodied critical cognitive humanities readings of his work exist: Mike Borkent has contributed much valuable scholarship on this aspect of Nichol's work. He appeals to the concept of image schemas to read Nichol's frog poem, inspired by Basho's haiku, writing how it 'requires an embodied mind to perform it, to engage with its uses and abuses of metaphors and iconic connections, and to synthesize the perceptual and conceptual meanings rooted in the materiality of language and the page'.[79] A degree of awareness of this element can also be determined from Nichol's own writing: 'The mouth remembers what the brain can't quite wrap its tongue around & that's what my life's become. My life's become my mouth's remembering, telling stories with the brain's tongue'.[80] Paul Dutton notes how despite the engagement with the possibility and potential

[74] Jed Rasula, 'Letters to the World'. Online article. https://www.bookforum.com/print/1405/bpnichol-spoems-celebrated-the-mutability-of-words-2070 [Date accessed: 10/1/22].
[75] Stephenson, dir. *The Complete Works*.
[76] Dutton, 'Drawing the poetic line', n.p.
[77] Ibid, 5.
[78] Justin Stephenson, 'The Mouth'. Webpage. https://thecompleteworks.ca/2015/04/14/the-mouth-2/ [Date accessed 10/1/22].
[79] Mike Borkent, 'The Materiality of Cognition: Concrete Poetry and the Embodied Mind'. *WRECK* 3:1 (2010) 9.
[80] bpNichol, *Selected Organs: Parts of an Autobiography*. Ontario: Black Moss Press, 1988. 14.

of page space, it is always back to the surface of the page – 'where the depth is'[81] – that Nichol directs the reader-viewers' attention. The poems selected for presentation in Survey 1 (Fig. 43) were chosen for how they demonstrate Nichol's typical approach: they display his use of the materiality of the page and direct the eye along new pathways of interpreting language and letters. The two poems selected as most 'visually appealing' by participants of Survey 1 – 'Blues' and 'Mind Trap' – are, respectively, one of Nichol's full-realised best known poems and a not especially well known early work. Together, they are not designed to represent the full scope of his oeuvre, but rather they present two interesting representations of the kind of impact his works can have in the moment of viewing.

[81] bpNichol quoted in Dutton, 'Drawing the poetic line', n.p.

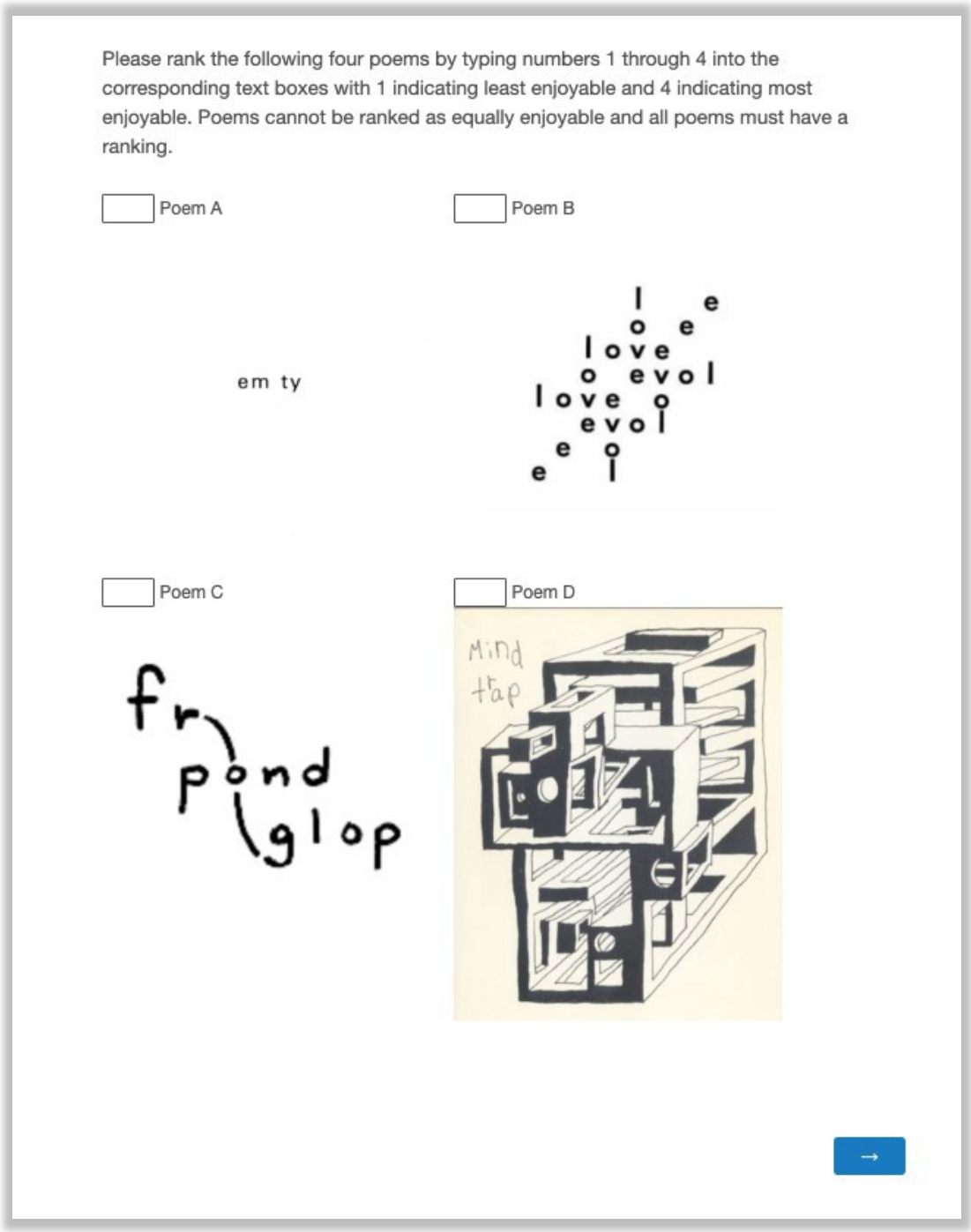


Fig. 43. The selection of bpNichol's poems provided for selection in Survey 1. Poem B ('Blues') and Poem D ('Mind Trap') were selected for inclusion in Survey 2.

Focusing more closely on the qualitative data introduced a different dimension to this analysis of Nichol's poems. While the data from individual participants in the quantitative section was all equal so that no one response was deemed more important than another, the qualitative data revealed a different dimension. As was to be expected, considering the open nature of Survey 2's distribution, some of the individuals surveyed showcased a greater depth of understanding from the literary critical perspective, such that

some comments were more insightful and engaged than others. As established, the qualitative data gathered here in the free text boxes required participants to justify the rankings of 'readability' and 'enjoyability' that they ascribed to each poem. In the case of 'Blues', perhaps more than any of the other 12 poems surveyed, some clear themes corresponding to rankings arose in the comments. Reviewing all 132 responses to this poem demonstrated a few recurring trends. The majority of the comments were classed as pertaining to one of the following loose categories: shape, meaning, simplicity, and the overall theme of love. Of the references made to 'shape', several participants commented on the shape of the poem being pleasing to look at, although while asked to categorise the overall shape out of the options 'square', 'circle', 'no shape', and 'other', the most popular ranking of its overall shape was 'other', with 'no shape' being the second most common response. This result implies that the focus was more on the local elements of the poem, as many of the qualitative responses referenced how the words and letters in this work caught their attention. A few participants elaborated on the overall shape of the poem in their commentary, referring to it as a 'star', 'sunburst' or 'starburst'. Most of the comments pertaining to readability scored it quite highly: of all participants surveyed, 'Blues' received an average ranking of 8.12 for readability, and 7.3 for enjoyability, thus demonstrating a strong correlation between these two variables in the case of this poem.

References to the shape of the poem, its theme of love, and the linearity of the letters characterised many of the qualitative responses. Several participants also referenced their satisfaction at being able to read the word 'love' in the poem, and of the responses deemed eligible, 4.5% also made explicit reference to the 'symmetry' of the poem, and how this contributed to their enjoyment of it. Regarding the linearity of the poem's presentation, a significant percentage of the participants explicitly referenced how they noticed the inversion of the word 'love' to form 'evol'. Of these responses, 16.6% of participants made direct reference to either 'love' or 'evol', intimating the evolution of love, as represented by its playfulness with the linear configuration of the word. This showed that for these participants, the poem prompted a reflection of the kind of emotional evolution associated with love and relationships, inviting the reader-viewer to reflect this idea of love in a narrative sense that is at odds with the poem's immediacy through its visual configuration. Several participants referenced enjoying the poem's simplicity, although some of the more insightful comments involved direct references to the poem's materiality: one response read i like the simplicity of this and that it just keeps away from simple harmonies and its

potential to extend the semantics of the most obvious word but think it could have just wrestled with its own material potentials a little more. This participant had ranked their familiarity with both poetry and visual poetry as 1, indicating the maximum familiarity with the subjects.

'Mind Trap' fared differently to 'Blues': overall it was ranked 6.3 for readability, and 6.83 for enjoyability, again indicating a strong correlation between these two variables. Significant trends in response to this poem emerged as pertaining to the significance of the poem's title, included in its overall presentation, and its similarity to other works. As one of the only poems in this selection with a visible, clearly discernible title included in its presentation, 34.09% of participants referenced its impact upon their apprehension of the poem, and thus its impact on their rankings of readability and enjoyability. While many appreciated the guidance that the title gave them in terms of their readability and enjoyability, several participants found this element of the poem off-putting or limiting, commenting responses such as: '…i felt that the title was an unsubtle directive as to how I should respond to the image', and 'it felt like an image with a title. it was too literal with the text just explaining the image'. Other participants close-read the slightly misplaced 'r' of the title (Fig. 44), noting how its configuration made them consider the meaning of the poem in more depth: 'very readable with title. double meaning of tap and trap spelled out. a form that looks like a car park, labyrinth, or faucet. clear connection there'. These quite differing responses to the title's impact were, evidently, important for the overall determining of meaning from the poem, and again showcase just how differently individual participants could respond to the poems they were presented with.

Fig. 44. The 'title' section from 'Mind Trap'.

Of note in the comments were 10 separate references to M. C. Escher. These participants noted the superficial similarities between Escher's dense, visually complex contradictory compositions and Nichol's configuration of different shapes in the composition of this poem along with its 'Mind trap' title, granting an interesting insight into the intertextuality that can characterise visual works: not for the first time, Bryson's commentary about the gaze bringing with it 'the wake of previous views' is called to mind.[82] Unprompted, several participants commented upon the degree to which they felt that the lack of readable words made this poem more of a work of visual art, some of them outright refused to characterise the work as a poem, preferring to explicitly state that they were viewing it rather than reading it. The references to Escher prompted a consideration of how previous experiences of visual texts can be awakened by other visual stimulus. In a recent study, Christian Gerlach and Nicolas Poirel consider Navon's classic paradigm afresh in a recent article that can be considered in tandem with results and discussion of Survey 2, especially in relation to the perception of 'Mind Trap' here. Gerlach and Poirel posit that despite its usefulness, it remains uncertain whether effects found with Navon stimuli – in a Navon task, the larger letters formed by smaller letters – 'relate directly to visual *object* recognition'.[83] This has special relevance to this chapter's consideration of the various different materialities at play within Canadian visual poetry: taking it that exposure to a visual poem in this sense facilitates that combination of information from a global and local level, the conception of visual object processing in this article can be considered in relation to this Case Study's concern with materialities. When considering the qualitative results of 'Mind Trap', however, the 'global-to-local interference effect' that Gerlach and Poirel discuss relates to 'the extent to which global shape dominates when information from the global and local levels are combined'.[84] Gerlach and Poirel's analysis is based on the two main operations of 'shape configuration' – the binding of visual elements into elaborate shape descriptions – and 'selection', which refers to 'the matching of visual impressions to representation stored in visual long term memory (VLTM)'.[87] The steps outlined involved in visual processing according to this model, especially the 'matching' process, is fascinating when considering

[82] Bryson, 'Intertextuality and Visual Poetics', 184.
[83] Christian Gerlach and Nicolas Poirel. 'Navon's Classical Paradigm Concerning Local and Global Processing Relates Systematically to Visual Object Classification Performance.' *Scientific Reports* 8:324 (2018) 1.
[84] Ibid.
[87] Ibid.

how the global shape of a visual poem might influence participants' reaction to it, in those first moments of exposure. According to Gerlach and Poirel, this matching process is thought of as 'a race among VLTM representations that compete for selection', where the VLTM representation that matches the configured representation the best according to a given criterion will 'win' the competition, and hence be selected. This 'race' is initiated by 'matching the outline (gestalt) of the stimulus to VLTM representations'.[85] Gerlach and Poirel's article also engages with representations in visual long term memory. They found that individual differences on those indexes can explain variance, thus suggesting that 'Navon's paradigm does relate to visual object processing'.[86] They note the three general effects that are usually found: the global precedence effect, an interference effect 'with slower responses to inconsistent than consistent stimuli', and an inter-level interference effect.[87] Their first objective was to examine if performance differences on Navon's paradigm 'relate systematically to differences in their ability to recognise common objects such as dogs, cars, etc'.[88] Similarly, the second objective of Gerlach and Poirel's study was to 'examine whether and how these effects vary with visual object recognition performance'.[89] The approach of this study also influenced the present survey design on both practical and theoretical levels.[90] Practically, it reaffirmed the tactic of including the Navon task prior to the visual poems as stimulus, in order to class participants as either local or global processors for the purposes of the study. The way these performance differences on the Navon paradigm are construed to be related to the differences in ability to recognise common objects is replicated in the present study: as established, a Navon task precedes the participants exposure to the visual poems, in order to ascertain their processing of the local and global features of the selected poems and class participants as either local or global processors. This was an especially interesting trend to note in these responses, considering

[85] Ibid.
[86] Ibid.
[87] Ibid.
[88] Ibid, 2.
[89] Ibid.
[90] The tasks used in Gerlach and Poirel's study to measure whether performance on Navon's paradigm varies systematically with object recognition of common objects involved a 'superordinate categorization' task, where participants had to decide whether stimuli depicted natural objects or artefacts. It also involved a 'difficult object decision' task – participants were required to decide whether pictures represented 'real objects or nonobjects'. In this study, the hypotheses were deemed correct and the tasks worked as intended.
[94] Schmaltz, '"My Body of Bliss"', 16.

the relatively cleanliness of Nichol's two works here. How the dirtier concrete works fared, especially those by McCaffery, provides another interesting juxtaposition.

Steve McCaffery: Beyond Syntax

The importance of McCaffery's *Carnival* – his 'repudiation of linearity in writing' – marks an essential moment in history of poetry: not just for visual poetics but in the relationship of visual art in general to materiality. *Carnival*, as discussed earlier, is a multidimensional work: Schmaltz describes it as 'multi-directional, coloured with both black and red typewriter tapes and the additional employment of rubberstamps, xerography, hand lettering, and stencils to create a large-scale, chaotic page-based environment'.[94] The participatory nature of the original work – which required a tearing along the perforated panels of its presentation in order to assemble it, thus destroying it in the process (Fig. 45) exemplifies McCaffery's ingenious, rebellious act against the dominant generic approach to language that had been facilitated by the functionality of the typewriter. The work itself demands to be 'annihilated': the reader-viewer is instructed to 'destroy the book — removing the pages from the codex and arranging these panels in a predetermined order — to read it', and this constituted McCaffery's rejection of 'the typewriter's propensity toward the standardization of language'.[91] In this sense, McCaffery's work, in its original form, demands the particular embodied response to the now reoriented act of reading: to 'read' it is to 'damage' it, to change it irrevocably. In visual terms, the disordered effect of *Carnival* is further enhanced by 'the frequent use of textual-overlay and abstract shapes, usually created from repetition of letters and words in a single area and fragmented lettering'.[92]

[91] Ibid.
[92] Ibid, 16.

Fig. 45. McCaffery's original work required a participatory act of materiality from its reader-viewers: they had to tear along its perforated edges in order to read it.

McCaffery's work been described as 'post-Concrete': Perloff writes, 'the difference between a "post-Concrete" poet like McCaffery and his mentors – the *Noigandres* group in Brazil, Ian Hamilton Finlay in England – is that McCaffery's unit has always been the page rather than the individual concrete poem, and, beyond the page, the book'.[93] This comment highlights both his relationship to the physical space of the printed page, and also the aforementioned point about the problematising of the very act of assembling an anthology, as explicitly referenced in previous chapters: whereby lifting the work specifically from its original context is to problematise its new context. Yet, there is no avoiding this aspect: work such as this is guaranteed to be decontextualised, uprooted, taken away from its original context in order to redistribute it, to find new audiences, and be reimagined anew. Perloff continues: 'A page… is not just a blank sheet, waiting for "meaningful" print to be affixed to it, but a kind of trellis, upon which words and letters are fastened visually as well as semantically'.[94] As such, McCaffery's engagement with the materiality of the word is a highly distinctive approach, and much like Nichol coincides with the idea of embodiment

[93] Marjorie Perloff, 'Inner Tension / In Attention': Steve McCaffery's Book Art'. Online article. https://www.writing.upenn.edu/epc/authors/perloff/mccaf.html [Date accessed 1/11/21].
[94] Ibid.

especially well from a cognitive humanities perspective. It also offers us a radical reimagining of the experience of the typewriter: moving beyond and above and below its limits in a multidimensional, experimental cartography. This multidimensionality also foreshadows the future porousness of page and screen that is heralded by the inevitable ubiquity of the internet, thus exemplifying the 'transitional materialities' that Golding writes about.

McCaffery's stylistic impact has undeniably endured, hence his inclusion in the present study. Hilder's analysis of his panels even intimate the processes of local and global processing: he writes how they 'play with the space between the legible and the illegible, and use syntactical and narrative fragments to draw the reader-viewer closer to the page, so that there is a movement required of the reader to focus and re-focus'.[95] Perloff invokes his conception of 'carnivalisation' when discussing Joan Retallack's work *AFTERRIMAGES*, noting her engagement with 'language graphics' through the mechanism of 'visual constellation (the lamination of the paradigmatic onto the syntagmatic axis)' which 'can produce what Steve McCaffery has called a "carnivalization of the semantic order"'.[96] This carnivalization also extends to syntax: his creation of a self-declared 'multi-panel language environment'[97] showcases his conceiving of the space of the page as 'an active linguistic environment where a single letter is used as its compositional starting point'.[102] This is combined with his Biblical and spiritual references to what he terms as the 'geomancy' informing the configuration of *Carnival* – this, read in tandem with McCaffery's commentary on the excommunication of the lyric I is important for the insights it grants into subjectivity and its place within visual poetics. His approach invokes this exclusion of subjectivity, and anticipates the extended discussion on subjectivity in the next chapter. Similarly, his divergence from Olson's 'breath-based poetics' is also important to note here, and will also be returned to in Chapter 5 in the theoretical section on female poets who deliberately move away from this element of the legacy of Olson's poetics. Similarly, his use of paragram is significant – which he defines as a text where the organization of words facilitate its moving beyond conventional reading

[95] Hilder, 'Concrete Poetry: from the Procedural to the Performative', 116.
[96] Marjorie Perloff, 'Afterimages: Revolution of the (Visible) Word', *Experimental, Visual, Concrete: AvantGarde Poetry since the 1960s*, ed. K. David Jackson, Eric Vos, & Johanna Drucker. Amsterdam: Rodopi, 1996. 339.
[97] Craig Santos Perez, 'Interlude: Steve McCaffery' *Craig Santos Perez* (blog). Wordpress. 25th August 2008. https://craigsantosperez.wordpress.com/2006/08/25/interlude-steve-mccaffery/ [Date accessed 30/3/2022].
[102] Fiona McMahon, 'Iconicity and Typography in Steve McCaffery's Panel-Poems'. *Revue LISA / LISA e-journal, Presses Universitaires de Rennes* 5 (2007) 142.

habits – it is 'that aspect of language which *escapes* all discourse'.[98] It should be noted that McCaffery's work, for all its radical multidimensionality and interpretative possibilities, upon reappraisal does presume as Eric Schmaltz notes a certain unquestioned bodily experience that revolves around a default white, patriarchal experience. The invitation on McCaffery's part to 'leave the material body behind' does not take account of the experience of minorities, non-normative bodies. [99]

For both McCaffery and Nichol, within the larger unit of the page, 'letters and words become important variables: words are compared to "stars" which when broken up into their individual letters and reorganised in new patterns, "clusters" or "constellations", retrieve their auras of semantic meaning', meaning which has somehow been 'lost or concealed in previous patterns'.[105] McMahon describes McCaffery's project, although somewhat unrealised, remaining as 'the model for an environment that encapsulates an ideal of poetry as an object of performance and of the poet as polyartist plotting experience in new spaces'.[100] McMahon observes that while the page 'graphically' directs the reader's vision to 'a central point of focus', it also relies heavily on 'techniques of scattering and layering that undermine centrality'.[101] The dynamic visual impact of *Carnival* thus captures a crucial moment in the evolution of visual poetics, redrawing the boundaries of the possible with regard to syntax and meaning and, when considered as a 'visual scene', invites both densely local and global features to be looked upon. Four panels from *Carnival* were presented to participants of Survey 1 (Fig. 46), with the two that were ranked most popular (Poem I and Poem J in Fig. 46) included in Section B of Survey 2.

[98] Perloff, 'Inner Tension / In Attention', n.p.

[99] My counter to this issue is to invoke the much-lauded proliferation of the key anthologies, essays, and critiques that centre work by women in relation to visual poetry and poetics. This will be explicitly engaged with in the subsequent chapter's Case Study which focuses explicitly on visual poetry by women.

[105] McMahon, 'Iconicity and Typography', 141-142.

[100] Ibid, 149.

[101] Ibid, 146.

Fig. 46. The four sections of *Carnival* that were presented for ranking in Survey 1.
Poem I and Poem J were the two sections selected for Survey 2.

In her close reading of the excerpt from *The Second Panel*, McMahon notes the manner in which McCaffery wields paragrammatic play to filter words so that they arrive at multiple variables – the multiplication of letters and phonemes can be 'construed as circulation', as in the case of the word 'flower'. McMahon comments: 'aside from directing our attention to the materiality of the signifier, paragrams highlight a fascination for mechanisms of all kinds' .[102] The 'no exchange required' rubber stamp section of the panel (Fig. 47) used to create the 'centrifugal core' while contrasting with the other typeface and colour is read by McMahon as suggestive of the notion that 'unlike a commodity in consumer culture, the aesthetic construct is neither exchangeable nor interchangeable'.[103] McCaffery in this sense is especially evident as the forerunner of Derek Beaulieu: Beaulieu has commented about

[102] Ibid, 146.
[103] Ibid, 147.

disrupting the exchange value of language in visual writing – the linear flow between poet and reader-viewer – extending the legacy which Marjorie Perloff writes of in 1996 with reference to Susan Howe and bpNichol. Perloff expresses how this kind of writing 'uses the resources of spacing and typography, phonetic spelling, rebus, and paragram so as to contest the status of language as a bearer of uncontaminated meanings and to question the one-way linear flow between poet and reader'.[104] This also exemplifies what Gregory Betts articulates as a crucial impulse of concrete and visual poetry in general: the 'antienvironmental ambition of visual writing: to defamiliarize public language enough that readers might learn how to see what it is doing to them in a capitalist environment.'[105] Perloff writes of the 'resistance of the individual poem to the larger cultural field of capitalist commodification where language has become merely instrumental'[106] – it is in this kind of local detail of McCaffery's work that this idea can be both read and seen.

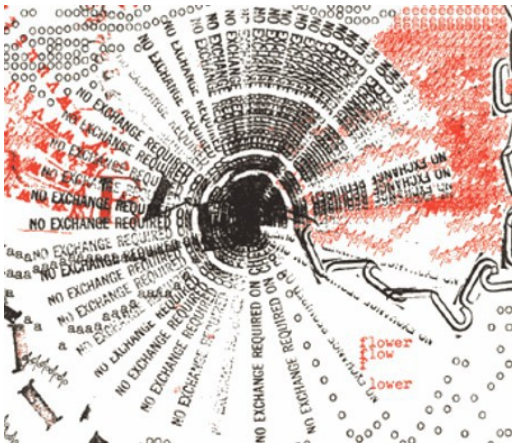


Fig. 47. The 'centrifugal core' of McCaffery's panel.

While McCaffery has since dismissed his inclusion of coherent words and phrases in the panel as 'naïve',[107] their inclusion within the poem, particularly as presented here, in its state separate from the original material context and the 'reading paths' that despite its density, the original full form of the work allows for, provide a rich element for close

[104] Perloff, 'Afterimages: Revolution of the (Visible) Word', 339.
[105] Gregory Betts, *Finding Nothing*: *The VanGardes, 1959-1975.* Toronto: University of Toronto Press, 2021. 188.
[106] Marjorie Perloff, *Unoriginal Genius: Poetry by Other Means in the New Century*. Chicago: University of Chicago Press, 2012. x.
[107] Perloff, 'Inner Tension / In Attention', n.p.

reading. The contrast between 'flower', evoking a bloom at the 'centrifugal core' of the work's centre, adapts to 'flow', denoting movement, and then mutates to 'lower', the letters placed literally at the lowest point of the section. This shows the syntactical and semantic possibilities present in the movement of this section, made possible by this disassembling and reassembling of the language, and this aspect was picked up upon by multiple participants of Survey 2 and referenced in the comments as an 'eye' or 'map'. These references cropped up repeatedly: 'chaotic nature of words and fragmentation could affect readability, as could the colours but I enjoyed how they combined into images that looked like an eye or a map'. This cartographical element led some participants to comment on the journey-like elements of the poem, thus evoking a narrative effect despite the arrestingly visual mode of the work's presentation: 'i felt like i could read it again and again and find new words, new connections, new pictures. i really loved the maplike quality. it made me feel like i was being taken on a journey.'

While an analysis of the aural component of visual poems is beyond the parameters of the present study, McCaffery's live 'reading' of the poem provides another perspective from which to consider it: he offers a potential interpretation of it by reading it aloud, his performative embodiment of the aural field of the poem evoking a whole new dimension of interpretation.[108] Unlike Beaulieu's active eschewal of his work as a score for orality, McCaffery's commentary on this facet of the poem is interesting – he writes of the 'sounding' of Carnival as somewhat more possible than the visual configuration of the text might imply – it is not simply reading aloud, rather, it is 'a creative engagement with the sonic potentiality of letter-constellations and even asemic material'.[115] The verbal and visual elements of these two 'uprooted' panels from *Carnival* were engaged with by participants, generating several readings that related to these conflicting modes. Some commented overtly on this tension between modes that they experienced in their apprehension of the poem. One participant, who ranked the poem the lowest (1) for readability and enjoyability, decisively commented: 'its not really possible to read the text and see if it has any originality or meaning. it is designed to make reading impossible so it is therefore a poem. this limits the enjoyability because as a work of art it is not particularly strong'. Another participant

[108] shufflboil. 'Steve McCaffery reading from Carnival, @ Instal 09, Glasgow'. YouTube video, 6.52. 25th March 2009. https://www.youtube.com/watch?v=Z5sB_YvvSS4 [Date accessed: 1/4/2022]. [115] Ryan Cox, ''Trans-Avant-Garde: An Interview with Steve McCaffery.' Online article. https://www.raintaxi.com/trans-avant-garde-an-interview-with-steve-mccaffery/ [Date accessed: 2/2/22].

evoked Lessing, whether intentionally or unintentionally: 'i like that this feels like a poem and a painting at the same time although the font was too small to read much'. This observation aligns itself with McMahon's literary critical analysis: she identifies McCaffery's work as being indicative of the intent to bring 'pictorial concerns to writing'.[109] A male-identifying participant, who ranked himself as highly familiar with both poetry and visual poetry, commented on each panel respectively 'this poem came closer to releasing the potential of the letters in space but retreated to a familiar visual aesthetic closer to either pleasure of harmony and didn't allow the letters or sentence fragments the potential to take meaning further', and 'this poem does attempt to produce an experience between understanding ie semantic and aesthetic but as it retreats visually toward something too visually familiar it loses the potential of the letters themselves'.

Other comments were somewhat mixed: one participant commented how 'without any context, i struggled to engage with this poem in any meaningful way', while several found these excerpts' complexity 'thrilling to look at'. As to be expected, the specific challenge that McCaffery's work poses was bound to generate varied readings. Some of the more directly relevant comments pertained to the very materiality and conceptual aspects that the work itself explores: one participant who ranked the piece's enjoyability a 9/10 noted how 'this is beautiful and I would love to see it on paper, so that i can turn it around and interact with an object', while another commented how 'the partially smudged words were a little difficult to determine in the context of a laptop screen and would have rewarded more time. the use of printed layers to create deeper texture was thrilling to look at'. Statistically, readability was low at an average of 5.08%: one participant also commented 'it wasnt readble on my computer screan [sic], I really like the visual of the typewritter [sic] but the letters and words were really difficult to make out on a screen. i would like the chance to see the poem on paper', while another responded 'i would like to hold a printed version of this poem in my hands and spend more time trying to read it'. McCaffery's work, represented on a screen as so, nevertheless facilitates an engagement with its own messy materiality. As mentioned, a significant portion of the comments (9.84%) referenced the similarity the words 'map' or used the words 'cartographical' or 'map-like' to describe its visual impact: 'it looks like an image of an apocalyptic landscape, on looking longer it came to resemble a map'. There were several references to the use of colour in the comments

[109] McMahon, 'Iconicity and Typography', 134.

throughout both pieces, and colour was, on average, ranked the most prominent feature of the poems, as participants were requested to rank the colours red and black for how prominent they found the colours as overall attributes. A participant who ranked the work a 10/10 for 'enjoyability' commented how it was a 'great contrast of red and black on a white background… striking at first sight, better content after observation'.

Both McCaffery poems also invited a straightforward correlation between the average readability versus average enjoyability interaction: one poem received rankings of 5.05 for readability and 6.47 for enjoyability, while the other averaged 5.18 and 6.89 respectively. Overall, there were some strongly worded comments reflecting strong aversion to the two sections of *Carnival* selected for inclusion, as well some emotional reactions elicited from the participants. Many used emotive language to describe its effect upon them, including one participant who used the term 'traumacore' to describe its aesthetic.[110] While his connections to Nichol are well-documented, McCaffery's 'celebration of craft', aligns 'aesthetic uniqueness with vitality derived from manufacturing'[118] and in this sense his work both informs and links directly to Beaulieu's Letraset poetic creations. This commentary on McCaffery is especially interesting in relation to the current project and the survey results: McMahon posits that he employs the typographical medium to explore the relationship between the materials of writing and how poetry is 'both crafted and received' and formalise poetry's 'relationship to time and to space'.[111] In this sense, the theoretical explorations started by McCaffery so many years ago are extended and explored within the remit of the present project's investigation of the local and global processing of his poetry, as it explores the most prominent or significant features apparent in the densely layered terrain of *Carnival*'s typestracts, which provide a fascinating exploration of the global precedence effect in relation to visual poetry.

Derek Beaulieu: Reading, Looking, and Revelling in 'Indigestibility'

[110] Overall, the emotional responses recorded in the qualitative data were interesting for their variation and in some cases, their strength of feeling. While it was not the aim of this study to refute the critical angle that visual poetry fails to elicit emotions in its reader-viewers, some of the qualitative data gathered here provides strong evidence for the case against the assertion that visual poetry cannot, or does not, elicit emotion.

[118] McMahon, 'Iconicity and Typography', 146.

[111] Ibid, 134.

As mentioned, Beaulieu is an active, contemporary, and prolific visual poet, who incorporates the influence of McCaffery and Nichol in his own work: while Nichol remains 'in a mentorship role', McCaffery's *Carnival* remains 'a key visual text' for Beaulieu.[112] His approach to his own artistic practice, commented upon extensively through publicly available interviews, his own publications, and the new interview conducted as part of this study, provides a valuable context for understanding his work: 'I construct my poems without an architectural plan or previous sketch, allowing the work to build gesturally in response to shapes and patterns in the letters themselves'.[113] Concerning the poems of his that constitute the present chapter's Case Study, we see this artistic approach in practice: Poems are constructed one letter at a time, each placed by hand. Once fastened to the page the dry-transfer letters are permanently affixed and cannot be erased or removed. These works are thus a physical embodiment of Allen Ginsberg's dictum extolling "first thought, best thought."[114]

Beaulieu attempts the crafting of his work with 'an eye to graphic design and typography—a poetry that looks to the evocative potentialities of kerning, letter-spacing, x-height, and ascenders'.[123] In this manner, meaning – that contested element – moves its locus beyond the mere semantic content of the words, introducing an alternative, more expansive dimension of understanding his poetry. In the Author's Note included in his 2016 collection *Kern*, from which the present Case Study takes an example, Beaulieu comments upon his use of dry transfer lettering, a frequent if not dominant technique that characterises much of his recent works. Now 'relegated to use by artists and hobbyists', Beaulieu classes this technique as 'unforgiving' – once a letter is placed on the page or canvas, it cannot be edited.[115] The poems of this collection attempt 'to refuse linearity in favour of the momentary' – as such, integrating the poem selected from this collection with the clinical constraints of empirical experimentation provide their own sets of criteria to consider. As with any practitioner working in a visual field, an inherent awareness of the local and global properties of his poetry, then, informs his creative process, as does an overt reckoning with the endurance of Gomringer's maxim that concrete poems ought be as easily understood as airport and traffic signs. This analogy with the visual language and properties

[112] Derek Beaulieu, in conversation with the author, March 2022. (See Appendix A).
[113] Derek Beaulieu, *Please, No More Poetry: The Poetry of Derek Beaulieu.* Derek Beaulieu and Kit Dobson. *Please, No More Poetry:* Waterloo, Ont.: Wilfrid Laurier University Press, 2013. 69.
[114] Ibid.
[123] Ibid.
[115] Derek Beaulieu, *Kern*. Toronto: Coach House Press, 2016. 90.

of universal language is a direct invocation of the aesthetic impulse of the Noigandres. On concrete poems specifically, Beaulieu cautions that they 'need to be cognizant not of readability but of lookability. Airport signage is designed for instant and momentary recognition and comprehension as ultimate goals; viewers need not read, they only need momentarily stare and receive'.[116] The conceptual plane that Beaulieu operates on positions the poems of *Kern* as 'the street-signs, the signage, the advertising logos for the shops and corporations that are just beyond reach', evoking the tradition, originating with the experimentation of McCaffery, and Nichol, of 'pataphysically impossible businesses'.[117] Beaulieu goes on to comment upon how the 'way-finding' properties of his poetry speaks to an artistic impetus that is 'responsive to a new reading milieu'. The 'poetic intercession into the language of signage' produced by these poems also complicates 'the need to "panlinguistically" communicate in favour of co-opting the discourse, and the form, of the advertising logo and the plastic'.[118]

Beaulieu's awareness of his work's theoretical ramifications also shines through in his commentary on the concrete poetry that he both endorses and endeavours to produce involves 'a poetic without direct one-to-one signification'. Invoking Deleuze and Guattari, Beaulieu describes his work as 'rhizomatic in composition', in that it points both to and away from multiple shifting clouds of meanings and construction.[119] Beaulieu's poetry in this chapter is the theoretical and visual representation of the multiple entryways to meaning explained by appealing to the rhizome – construed in Deleuze and Guattari's sense as 'a non-centred, supportive system – an "anti-geneology" (7) resistant to the type of the modernist situating within a historical framework to which concrete poetry is so often subjected.[120] In the personal interview I conducted, Beaulieu answered how concrete poetry is 'perfectly situated' to interfere with the impulse of language, co-opted by capitalism, to sell something.[121] In his utilising of the varying shapes and fonts that make up the letters of the text, Beaulieu's approach to the individual components render them more object-like: divorced from typical semiotic constraints, the letters are freed from their obligation to form coherent words, instead they replicate and co-mingle radically, the locus of their meaning

[116] Ibid.
[117] Ibid.
[118] Ibid.
[119] Derek Beaulieu, 'Concrete & "What Looks Like Poetry"' *The Last Vispo Anthology: Visual Poetry 1998-2008.* Eds. Crag Hill and Niko Vassilakis. Seattle: Fantagraphics Books*, 2012*. 74.
[120] Ibid.
[121] Derek Beaulieu, in conversation with the author. March 2022. (See Appendix A).

not constrained by the plane of language, but instead delighting in the mutability of their materiality. His poetry also includes typographical marks which, while not necessarily letterforms, still contribute to the poem's visual effect and therefore to its meaning: closer inspection reveals the 'dirty' concrete content of Beaulieu's creation, and these are the markings between the individual letters that make up the poem's overall composition. This kind of material can be conceived as a kind of background buzz or hum – a visually represented noise that constitutes the relationships between the more easily recognisable and discernible letters – these smaller, less distinct letters and forms influencing the relationships between the larger letters, forcing the reader-viewer to confront the lack of semantic coherence. The individual letters of Beaulieu's creation resist the interpretative strategies afforded to the reader-viewer, inviting the perceiver to refine their strategies.

This is not to claim that Beaulieu's choice of letterforms was somehow influenced by a deliberate sense of our propensity to recognise familiar letters in unfamiliar combinations, or to comment specifically on the difference between local and global configurations. This would be to beg the question; yet considering the effect his work has on our perceptual and memory systems provides an even deeper understanding of the meticulous construction of his work. The freedom he affords himself as practitioner, constructing his poems such as the selected pair without architectural plan, proves an interesting dynamic with his eloquence and understanding of the nuances of the theoretical ramifications of such an approach to mark-making. Beaulieu's wielding of letterforms, reinforced through the increased attention to materiality that the use of Letraset, itself a nostalgic practice, is complemented here by considering Drucker's focus on the alphabet and alphabetic writing. Drucker has focused on the alphabet as 'a symbolic matrix, whose letters are assumed to encode in their visual shape the history of their origins, of some fundamental cosmological or philosophical truth, or some mystic or ritual power'.[122] His is a 'provocation to unlearn the injunctions of lyric and representational forms',[123] a theoretical but also a cognitive one, forcing the eye to consciously move against the known patterns of linear left-to-right reading, but also to forge new paths of theoretical and critical interpretation, looking and seeing letters anew. It is this subtler, yet more radical orientation of Beaulieu's artistic impetus that makes his work so theoretically and cognitively challenging, but ultimately rewarding. Therefore, to consider

[122] Drucker, *The Alphabetic Labyrinth*, 12.

[123] Kit Dobson, 'Introduction', *Please, No More Poetry: The Poetry of Derek Beaulieu,* Derek Beaulieu and Kit Dobson. Ontario: Wilfrid Laurier University Press, 2013. xiv.

Navon's paradigm in relation to local and global perception provides an exciting, fresh take on his work, already rife with global and local tensions. Four of Beaulieu's poems, selected here, provided participants of Survey 1 with an array of his works that showcased his rhizomatic, anti-linear approach, while also giving space for his frequent use of Letraset in the typographic compositions of his work (Fig. 48).

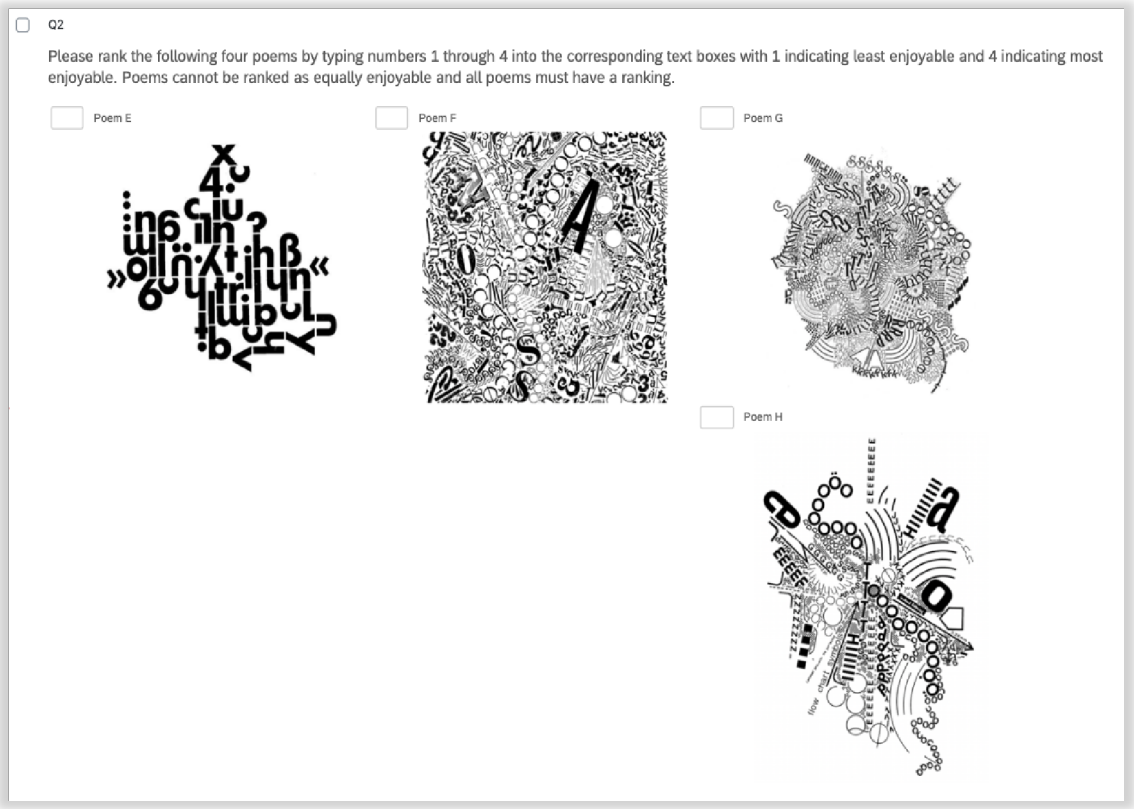


Fig. 48. The selection of Beaulieu's poems presented for ranking in Survey 1. Poem E (from his collection *Kern*) and Poem H (available on Beaulieu's website) were selected for Survey 2.

The poems selected by Survey 1 for inclusion in Survey 2 – Poem E and Poem H that can be viewed in Fig. 48 above – prompted some specific trends that were especially interesting when reviewing the qualitative data. Poem H prompted persistent references to the sound of the piece, or the onomatopoeic effect of its visual impact: 10.6% of participants made explicit reference to this poem's aural dimension. Some of these comments frame this element in a positive way, with comments such as 'the repetition of characters to create onomatapaic [sic] stutters was clever'; 'the sound of the letter is triggered by the shape of the poem, which creates a musical experience'; and 'i enjoy the splash of letters and the sense of vibrancy of the "utterance" of the poem without having to understand a narrative context'. This poem's demonstration of an aural dimension rendered visually actually

somewhat contests – to a productive degree – Beaulieu's assertion that his work is not a score for orality. Others, however, interpret this element in a less positive light: 'my mind just thought of many sounds, as if the long letters were screaming. i didnt like it because i found it a bit too simple and it didnt make me feel anything'. The most recurrent words and phrases in this section of the comments pertained to meaning or understanding. There were repeated references to the poem's 'meaning', or perceived lack thereof: of all the comments that brought up meaning, many expressed a struggle to understand or determine meaning which thus directly impacted their enjoyability score: 'appears as a random arrangement of meaningless letters' and 'hard to read … not particularly enjoyable although i did like the words that read 'flow chart' as it kind of gave me a sense of direction as to what the poem was saying. but ultimately [sic] i found it hard to meaningfully engage with this poem'. In accordance with these comments, this poem was ranked 5.05 for readability on average, and 6.28 for enjoyability. However, others found this quality intriguing: 'the significance of the poem wasn't easy to determine from the arrangement of the letters. however, the way those letters were arranged and the wild composition encouraged me to look more carefully'.

The second Beaulieu poem from *Kern* (Fig. 49) also generated some significantly mixed responses.

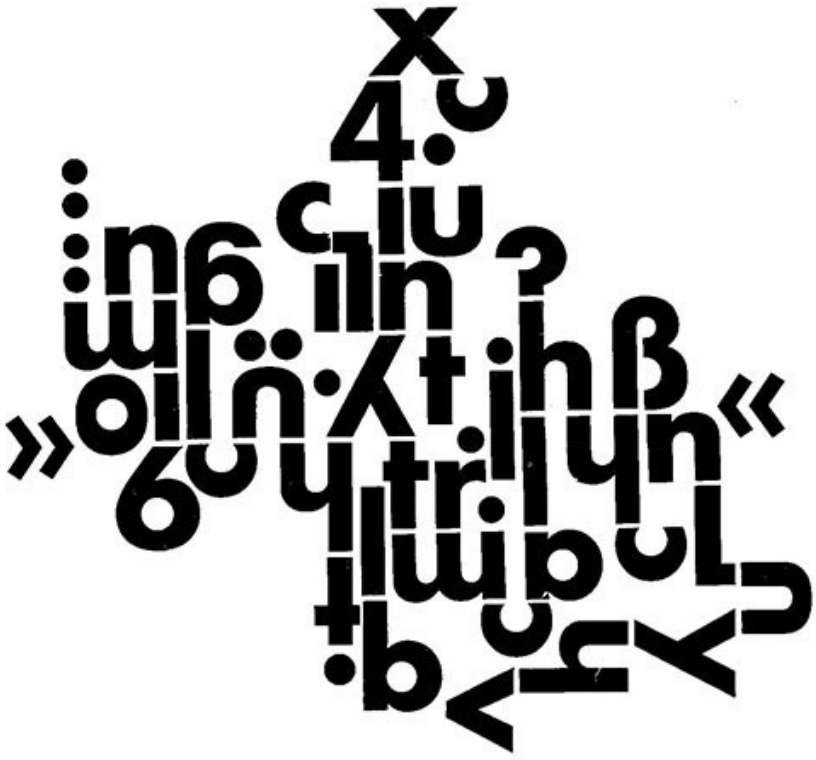


Fig. 49. Beaulieu's poem from *Kern.*

Trends in response to this poem included several issues with readability which a significant section of participants linked directly with their enjoyment, stating how the lack of understanding they experienced impacted this score negatively: ‘i didn’t understand the poem nor did i enjoy it’ was very similar to the comment which read ‘could not read the poem and hence couldnt enjoy nor understand it’. Another participant expressed the same kind of frustration: ‘nearly unreadable. no direction or undertsnding [sic] gained from it. not ata ll [sic] enjoyable, i didnt't [sic] like the font and felt like the poem was giving me a headache’; ‘i didnt think the poem was readable at all, i could only see shapes. and so i didnt enjoy it either’. The average ranking of readability was one of the lowest for this poem, averaging at 3.94, while enjoyability averaged at 5.05. However, reviewing the data for the individual participants revealed quite polarised results, which accounts for the average ranking referenced here. For those who ranked the poem 9 or higher, the experience of reading the poem was a positive one. One of these participants, who ranked it a 10 for enjoyability and a 9 for readability, even directly anticipated the one of the experiment’s research questions – which queries whether there is a relationship between readability and enjoyability – by writing ‘i loved teh [sic] form of teh [sic] letters and how they flowed in to eachother [sic] by the arrangement. this was really enjoyable. maybe tehre [sic] is a correlation between readability and enjoyment, the more readable the more enjoyable’. Others discerned that while the poem was not necessarily readable in a traditional sense, it nonetheless had more to it than a deliberate obfuscation of meaning: one participant wrote that it was ‘unreadable in normal sense yet “readable” in its assertiveness, almost confrontational. disconcerting too in upside down letters making for dizziness. appreciated rather than enjoyed the poem because of its direct impact’.

On readability specifically, another especially interesting comment referenced how for the participant the poem is:

> it is readable as an image. map like. the commas at either side holding it like corn on the cob. letters lines up. leaking into each other. it has a plumbing vibe. the german ss letter. lettraset. graphic. urban. modernist. the enjoyability comes from a recognition of these codes but its a bit cold in the end. a bit academic. despite its somewhat expressive layout.

A participant who self-identified as male and ranked his familiarity with poetry in general as a 2 and visual poetry a 3, wrote an insightful in-depth comment:

> not very readable because it doesn't seem to carry any semantic meaning like traditional poetry. very enjoyable though as a piece of art, as sort of typographic asemic calligraphy. i really liked the font choice, the roundness of the letterforms, the round circles of full stops being used to balance out the piece. the use of u, n, m l forms upside down and rotated to create these pipework effects, and to give the piece a sort of lopsided but balanced outline, was really nice. it seemed friendly, interstingly [sic]. i'd like a print of it.

Other responses again, without direct prompting, turned their focus onto the idea of poetic essence, calling it into question with comments such as 'it was fun to view as an artistic piece although i would not call it a poem', and 'i saw the words gum and oil i enjoyed it as an illustration not a poem really'. This comment reflects that despite the automaticity of letter processing in the case of this participant, and their tendency to seek out words within the visual scene of the poem, they still struggled to conceptually conceive of it as poetic. This was also reflected in one comment which also picked up on this element, writing how 'something about the shapes and different textures made it more visually interesting, even if I didnt get any meaning form [sic] words themselves, it was more like looking at a painting', while another commented 'it was more about a graphic pattern, which was striking. but for me it was more graphic and less poetic'. One participant found it 'interesting from a typesetting point of view and nice enough to look at. However there was no coherent word or sentence that could be considered poetry as such', while another shared this sentiment: 'it strook [sic] me more as a piece of abstract visual art than a poem'. Some touched on the theoretical considerations of materiality that drive the literary considerations of this poem, with comments such as: 'i enjoyed the weight of the font and the sculptural presence of the letter forms', and 'nice to consider indivdual [sic] letters for their shapes rather than what they usually represent. my eyes followed the lines by hopping from one letter to the next. interesting.'

General Results and Discussion

The mixed methods approach outlined here – firstly, the examination of the overall quantitative statistics, before focusing in on the qualitative details written by individuals –

once again evokes the considerations of shape that inform the whole project. There are also parallels to be made with how the perception of a visual scene itself, which in general is apprehended globally before the local details are focused upon, replicates the approach of this chapter, with its sequential approach to the different types of data gathered. This data can be combined with the literary critical perspectives on materiality, and related to the reading of the impact of the works of Nichol, McCaffery, and Beaulieu. General and overall summaries of this Case Study indicate a correlation between enjoyability and readability which is to be expected of the challenging works provided. One consideration that arises in this Case Study is the dirty concrete element of most of the poems selected. Eschewing language for typographic marks in many cases as in *Carnival*, invites the recurring question about the limits of language. Here, I compare this aesthetic concern with further existing research into Navon's paradigm in order to bring these elements better into conversation with one another. To engage further with materialities, there are several dimensions to consider here. In the context of Gerlach and Poirel's investigation of global precedence and interference, the compound stimuli used in the Navon task that are referenced differ from actual objects in the sense that they are not actual objects but rather 'formations of elements'. But what are the implications for poetic language on this level? Even further – how best to consider the poetic language of visual poetry? If a 'visual object', as defined by psychological studies, can be applied to a visual poem in this context, how best can it be studied or measured? How might this considering of the stimulus as a visual object relate to the materiality of the visual poem, as discussed in preceding chapters?

This multi-faceted problem of materiality, presents this theoretical issue that can better be articulated with the resources of literary critical approaches. This is the problem posed by the medium in which the poetry selected for the present project is presented: chiefly, the fact that it is digitally rendered. Drucker writes in the context of *The Alphabetic Labyrinth* that the 'immateriality of the electronic medium' presents the issue of, or at the very least, puts into new perspective 'the status of documents susceptible to change, erasure, duplication without a trace – all so radically different from texts produced on parchment, paper and stone whose history resides in their material as well as in the substance of their linguistic expression'.[124] The point about transitional materialities here, when considered in relation to the individual circumstances of each participants'

[124] Drucker, *The Alphabetic Labyrinth*, 307-308.

undertaking of the survey also provides certain considerations that could be deemed problematic within the overall project. The aforementioned comments viewed in the qualitative section, particularly in response to McCaffery's work, imply this awareness was touched on in the study. Different computers display resolutions differently, and the same standardisations do not necessarily apply to the works in question. Goldsmith terms this problem in general as a pervasive 'instability'; stability and neutrality are no longer a given within the digital paradigm, which Goldsmith assesses as being a problem also related to the persistence of language.[125] In his reflection on this mutability of language in the digital era, he reflects on 'how language is suspect [sic] to so many variables: linguistic, imagistic, digital, and contextual' and that 'writing must take into account the multiple, these fluid and ever-shifting states, from the very conceptual to the very material'.[135] This does not all have to be problematised, of course: as mentioned, the anticipatory power of the various concrete poetry movements can be seen in the way that concrete poetry in many ways predicted the communicative power of the internet's interface. Indeed, the internet has given concrete poetry a new means to be both produced and experienced: while 'concrete poetry has framed the discourse of the Web', the Web has, 'in effect, given a second life to concrete poetry. Backlit by the screen, dusty, half-century-old concrete poems look amazingly bright, fresh, and contemporary'.[126] In this sense, the transitional materialities of these poems illuminates – quite literally – the poetry anew.

Another theoretical consideration that ought be considered for its potential complications from the perspective of an interdisciplinary psychological approach relates back, yet again, to Bryson's discussion of visual poetics and intertextuality. Specifically, his account of the intertextual, interpenetrative structure nature of the painting/image. Bryson finds in paintings an 'interpenetrating' intertextuality – a trait that I posit is also evident in visual poetry – that refutes the arguments associated with Lessing pertaining to the necessary apprehension of the image in one moment. He writes: 'To think of paintings as mutually interpenetrating is to discover in the realm of the image the same phenomenon of mobile intertextuality made familiar to us by Barthes and Derrida in the field of literary criticism'.[127] Theoretically, and from a literary perspective, this makes sense for visual

[125] To contextualise this within the present moment: the current trend of minting digital artefacts as 'NFTS' ('non-fungible tokens'), promises to immortalise digital 'original copies' using blockchain technology, but poses multiple problems considering the technical, financial, and ethical ramifications.
[135] Goldsmith, *Uncreative Writing*, 71.
[126] Ibid, 61.
[127] Bryson, 'Intertextuality and Visual Poetics', 187.

poetry: as discussed in this chapter already, visual poets are in conversation with one another across time just as much as any other kind of artist's work is in conversation with another. However, within the empirical context, it is very difficult to retain this sense of the implicit and explicit intertextuality of visual poems. It is possible to juxtapose this notion within the parameters of this study, however tenuously, with the aforementioned empirical research of Gerlach and Poirel. Their description of the activation of representations in visual long term memory when presented with the stimuli in their study evokes Bryson's descriptions of the interpenetrating structure of visual poetry. This notion will be returned to again in Chapter Six, during the reflection of the mixed methods approaches utilised in the project as a whole.

Chapter Five

Case Study: Visual Poetry by Women

But there are days – let's not forget real days – when language loses speed
Then it lags as the nights lag, brief and nonetheless long
And one submits to a sensation
It's something entirely meaningless and unexpected
It's devoid of interpretation, a perfect quiddity
The long awaited meeting of signifier and signified –
Lyn Hejinian, from *Oxota: A Short Russian Novel.*

The present chapter expands upon the theoretical paradigms already explored in Chapter Four, but considers in more depth the poetry of this Case Study, relating these theoretical aspects to the data gathered in Survey 2. While the previous chapter dealt quite extensively with issues of materialities – transitional, historical, digital – in relation to Canadian visual poetry and poetics, this chapter integrates the results of Survey 2 with another literary critical dimension of the visual texts studied in the present dissertation. Chiefly, it presents a reading of the selected works of female visual poets, and investigates how gender has influenced the visual configuration of their poems, and their subsequent explorations of subjectivity. As previously noted, the poems studied in this chapter – taken from the oeuvres of Mirella Bentivoglio, Judith Copithorne, and Susan Howe – are doubly divorced from their original contexts. They are lifted from the pages of anthologies or from the Web, where they have already been removed from their original contexts, and as previously discussed, recoded and reconfigured, often from a print-based medium to a digital one. They have also already been subjected to the strictures of anthologising, and in some cases taken as excerpts from longer works: the wider selection of all of Howe's and Bentivoglio's poems presented for ranking in Survey 1 were taken from the recently published anthologies of visual poetry by women that inform the present project. While the poetry of this chapter is generally contemporaneous with that of the previous chapter, the context differs. This chapter engages more deeply with the authorial subjectivity of female poets, building on existing criticism about the resistance to the constrictions of linear poetics from a specifically gendered perspective, and discussing how the experimental poetics of the female poets selected for specific focus in this chapter can be analysed for their commentary upon subjectivity itself. Each poet has been selected from the existing canon of female visual

poets for their unique engagement with these themes, and because they feature, often multiple times, in the aforementioned proliferation of recent anthologies critically reappraising the contribution of female poets to the field.

Dealing with the topic of subjectivity itself within the constraints of the empirical component of the project presents another suite of more sophisticated problems to discuss. Quantifying subjectivity within the parameters of a psychological survey such as this is a complex endeavour, which again is supported by the appeal to quantitative and qualitative mixed methods to examine these ideas within the constraints of the empirical paradigm. As with the selection of poems in the previous chapter, the range of poems presented in Survey 1 were selected for their range within the oeuvres of the chosen poets and because they account for the different kinds of materialities, the dimensions of gender and subjectivity, and the point in historical time in which the poetry itself was written. In her edited anthology *Out of Everywhere*, Maggie O'Sullivan writes how the techniques employed by experimental women poets to disorder the text at different levels – the 'lexical tactics of disarray' on display in her anthology – are hardly new, as they have been 'used by poets from the beginnings of written culture'.[1] However, their significance is considered anew in light of the context in which the work is being produced so that 'arguably the spatiotemporal difference now incurred is one precipitated by our imminence to "cybertextual technologies" of the future'.[2] O'Sullivan's assessment, written in 1996, features the emerging vocabulary of the information age and of digital/new media poetics, but her analysis of this dimension of visual poetry in a gendered context still has relevance to the contemporary discussion. This transitional materialities element of visual and experimental poetry by women is therefore also ripe for analysis using the methodology of the present study, especially for their contribution to problematising poetry's medium – and what it means for meaning, another ongoing concern of visual poetry and the dissertation as a whole. In their 'historically reclamative' monograph**,** David Kennedy and Christine Kennedy paraphrase Peter Middleton: 'the meaning of poems is also determined by the fields of power in which they exist or are allowed to exist',[3] a sentiment that informs this chapter's exploration of the discursive contexts within which its poets operate and assert their themes

[1] Maggie O'Sullivan, *Out of Everywhere: Linguistically Innovative Poetry by Women in North America and the UK.* London: Reality Street, 1996. 239.
[2] Ibid.
[3] David Kennedy and Christine Kennedy, *Women's Experimental Poetry in Britain 1970-2010: Body, Time and Locale.* Liverpool: Liverpool U.P., 2013. 4.

of subjectivity: history, patriarchy, and a frequently hostile critical reception. As Elisabeth Frost writes, 'visual poetics is being continually reinvented by women artists who explore both form and the limits of identity'[4] and this chapter explores this aspect in an innovative way.

Visual Poetry by Women: 'Voicing and Unvoicing' Through Anthologies

This chapter steps into the contemporary landscape of visual poetry where the place of women in the history of concrete, visual and experimental poetries is continually being renegotiated. Much of the historic and standard reasons for the occlusion of women from literary and artistic anthologies and critical discourses also apply here. Writing about women's experimental poetry in Britain from the 1970s to 2010, Kennedy and Kennedy note the extent to which the context of literary criticism allows a platform itself for the visibility of such work: 'cultural and critical visibility is a matter of who is allowed to be big and who is allowed to be little'.[5] In his illuminating recent overview of the place of women in English and Scottish concrete poetry, Greg Thomas examines the various factors leading to the occlusion of women in both the participation in, and the historical overviews of, concrete poetry. Sifting through the myriad reasons for this produces some interesting aspects – Thomas posits that the 'creative divisions just alluded to reflect relative conditions of social empowerment and disempowerment and the different ways in which men and women have, therefore, engaged with linguistic modes expressive of such power'.[6] Kennedy and Kennedy also allude to this when they write: 'it is no coincidence that work constructed as little is often that which addresses things that are too big to be assimilated within the dominant orders of representation'.[7] Writing in a British context but with an analysis that certainly applies across the Atlantic and to most of the poetry considered here, they frame their account of experimental poetry in terms of 'voicing and unvoicing', an approach characterised by redefinition: achieved through forcing 'reconsideration of what can be considered voice'.[8] There is an inherent tension here, between the mode of voice discussed and the emphasis on the visual evident in the poetry focused on in the present chapter. I

[4] Elisabeth S. Frost, 'Visual Poetics', in *A History of Twentieth-Century American Women's Poetry*. Linda A. Kinnahan, Ed. Cambridge: Cambridge University Press, 2016. 357.
[5] Ibid, 5.
[6] Greg Thomas, 'Concrete Poetry and Scottish Women's Writing: The Case of Veronica Forrest-Thomson' *Contemporary Women's Writing* 14:2-3 (2020) 200.
[7] Kennedy & Kennedy, *Women's Experimental Poetry in Britain*, 5.
[8] Ibid, 14.

read this as part of its most interesting elements – the tension between the 'voices' of women being amplified through visual poetry, as evinced through the recent proliferation of anthologies of women's visual work that informs the present project, and the notion that visual poetry (ostensibly) removes the voice from the poetic equation, eschewing the traditional conception of poetry as an aural medium. However, to say visual poetry does not facilitate any engagement with the voice at all would be too hasty: the qualitative responses about the 'sound' of Beaulieu's poems recorded in the previous chapter demonstrates this especially well. However, visual poetry by women presents an especially interesting case, as the amplification of these 'voices' comes from the specific deployment of visuality within the poetic medium. While the poets selected for the present chapter all engage with this aspect of 'voicing and unvoicing' in different ways, Kennedy and Kennedy pose a pertinent wider question:

> have experimental women poets historically risked continual erasure precisely because their work has often registered the fact that, in the words of Helen Kidd, "[t]he notion of a single identity with which to face the world, of the self as a constant, and likewise the notion of a single poetic voice, have left me feeling profoundly uncomfortable"?[9]

This exploration of voice, authorship, and subjectivity is especially evident in the works of Bentivoglio, Copithorne and Howe. Greg Thomas links the different facets of concrete poetry that contributed to the exclusion of women to this very issue of subjectivity and voice. He analyses the tension between on the one hand, concrete poetry's status as a 'literary modernism based to an unprecedented extent within and between institutions of higher education', and on the other, its involving of a poetics which 'proposed the idea of *transcending authorship* [italics original]: discarding the contingencies of the subjective poetic voice for a transsubjective, transnational, transcultural voice of absolute objectivity'.[10] The female visual poets referenced in the Case Study and in the chapter overall all interrogate the notion of poetic voice and authority in different yet overlapping ways; some place an undeniable pressure on the role of the reader-viewer in configuring this kind of meaning. While male poets, particularly those of the previous chapter, engage with the idea of voice and authority in a range of ways, from playfulness (Nichol) to anticapitalist

[9] Kennedy & Kennedy, *Women's Experimental Poetry in Britain,* 5.
[10] Greg Thomas, 'Concrete Poetry and Scottish Women's Writing: The Case of Veronica Forrest-Thomson' *Contemporary Women's Writing* 14:2-3 (2020) 201.

experimentation with language (McCaffery), this engagement from a female perspective is more politically charged. In *Out of Everywhere,* there is a lot of emphasis placed upon the lack of 'final authority' that exists in relation to the innovative texts by women included in the anthology: when it comes to the 'modes of operation' required to be accessed in order to gain interpretation of the poems included, the reader will need 'actively to enter into the procedures, and become a participant in discovering the new meaning being generated' – but it follows that there cannot truly be 'any authoritative text in the sense of a stable, closed structure'.[11]

Pioneering female concrete and visual poets exist within the history, of course, but it is often firmly within the constraints of the times. Even Mary Ellen Solt, 'the most exemplary early female concrete poet',[12] who was one of the only women publishing and anthologising concrete poetry during its most prolific years, relied heavily on her institutional connections to Indiana University via her husband, Leo Solt.[13] Her anthology included only four other women, whose poetry mostly concerned itself with subjects such as 'flowers, spousal dedication and child-rearing' – topics which Beaulieu notes 'seem to reify sexist gender roles' in his essay on contemporary concrete poetry by women.[14] Solt, however, produced innovative poetry both for and of the time she was working in. Her 'Moon Shot Sonnet' (Fig. 50), the symbols of which she copied from scientists' markings on the first photos of the Moon Published in the *New York Times*, reveals an engagement with the world reaching beyond the atmosphere towards outer space, as well as concerning herself with the scientific and technological advancements of the time.[15] Nancy Perloff notes how Solt 'calls her poem "both a spoof of old forms and a statement about the necessity for new"'.[16]

[11] Wendy Mulford. 'After. Word' *Out of Everywhere,* Ed. Maggie O'Sullivan. 240.
[12] Beaulieu, 'transcend transcribe transfigure transform transgress: contemporary concrete poetry by women', *The Unbearable Contact with Poets.* Manchester: if p then q, 2015. 14.
[13] Thomas, 'Concrete Poetry and Scottish Women's Writing', 203.
[14] Beaulieu, 'transcend transcribe transfigure transform transgress', 15.
[15] Excerpts from Solt's famous collection *Flowers in Concrete* are on display in the Central Pavilion at the 2022 Venice Art Biennale from 27th September – 27th November 2022.
[16] Mary Ellen Solt quoted in Nancy Perloff, 'United States and Canada', *Concrete Poetry: A 21st Century Anthology*, Ed, Nancy Perloff. London: Reaktion Books, 2021. 183.

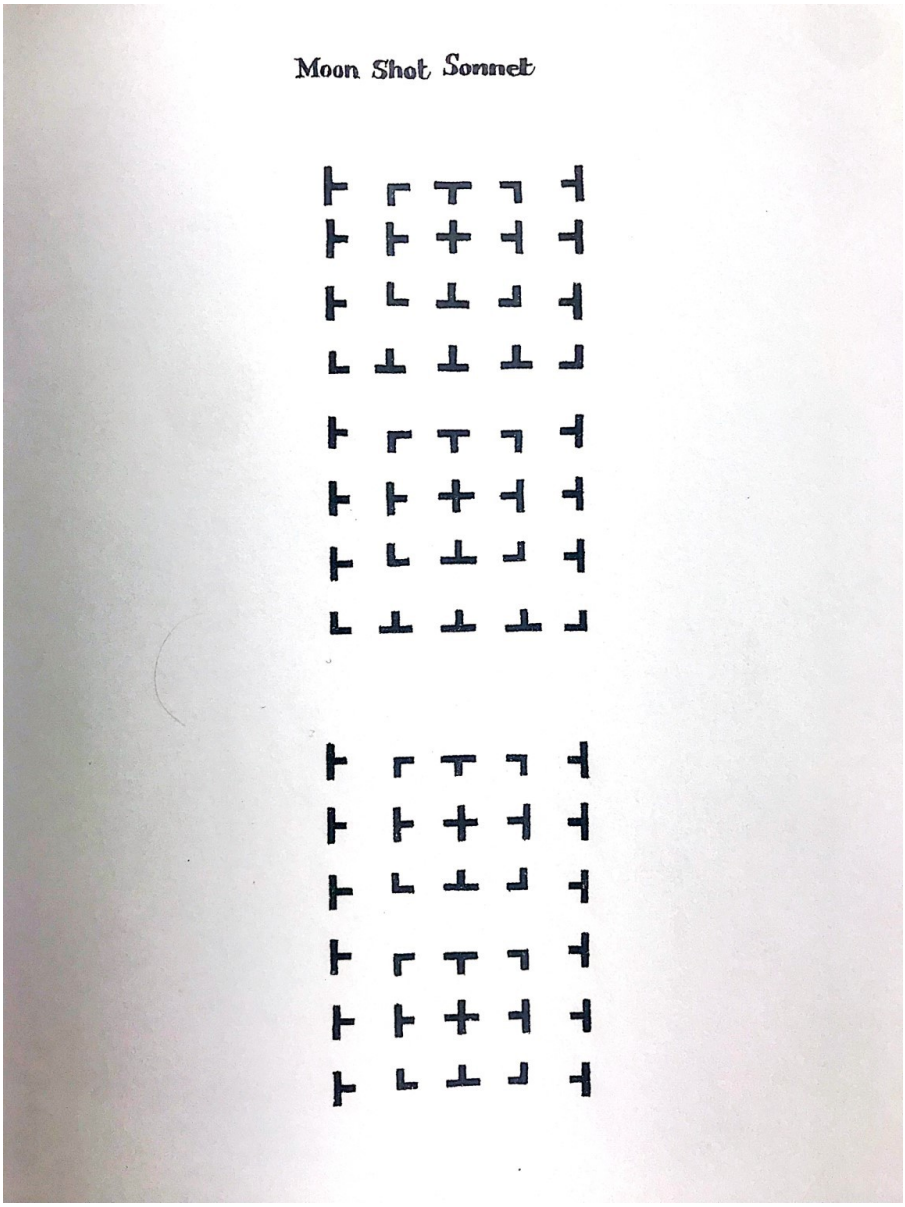


Fig. 50. Mary Ellen Solt's 'Moon Shot Sonnet'.

Solt's contribution also involved the inclusion of many different manifestos of the time, including some of the first English translations of these manifestos – in fact, her curatorial contributions 'set the stage' for concrete and visual poetry: as Nancy Perloff asserts, 'without her anthology, we would not know the genre'.[17] She also critiqued the inability of poetry to keep up with 'the rest of culture' – which she saw 'racing by'[18] – and is quoted by Goldsmith as commenting how:

[17] Nancy Perloff, 'Introduction', *Concrete Poetry: A 21st Century Anthology*, Ed. Nancy Perloff. London: Reaktion Books, 2021. 33-34.
[18] Kenneth Goldsmith, *Uncreative Writing: Managing Language in the Digital Age.* New York: Columbia University Press, 58-59.

> Uses of language in poetry of the traditional type are not keeping pace with live processes of language and rapid methods of communication at work in our contemporary world. Contemporary languages exhibit the following tendencies: . . . abbreviated statement on all levels of communication from the headline, the advertising slogan, to the scientific formula—the quick, concentrated visual message.[19]

Solt's original commentary on the materiality of the poem as an 'object' in the introduction to her own anthology also provides a valuable conceptual understanding of materiality: she writes how the reader must now 'perceive the poem as an object and participate in the poet's act of the creating it, for the concrete poem communicates first and foremost its structure'.[20]

Another aspect to bear in mind when discussing the anthologising of experimental poetry by women is to caution against the risk of 'revalidating an economy of recognition where women, yet again, earn their place through performing difference and otherness'.[21] Gregory Betts cautions against this when he writes: 'Critics who limit their representation of women's writing to complaints against the inarticulate, inadmissible void that is women's subjectivity in patriarchal capitalism do little but maintain that silence'.[22] His historical analysis of women's concrete poetry thus argues that there was good reason for this kind of writing to 'recoil from the universalizing gambit of internationalist concrete poetry, resisting the machinic fantasies of type that McLuhan argued triggered the emergence of Western individualism in the sixteenth century'.[23] It is important to note the recurring difficulties of women's experimental writing being classed as 'Other' on the basis of its relationship with the body: whereby the female body becomes almost exclusively the site of difference, defined in opposition to patriarchal norms. This is why considerations of voice and authority are more politicised for female poets than male: Betts also attests to this when considering the context of Canadian concrete poetry, writing how 'looking at the published visual work is important precisely because these works survived the value-laden filter of the period just enough to become part of the public record'.[23] Writing about female poets in relation to the

[19] Mary Ellen Solt quoted in Goldsmith, *Uncreative Writing*, 59.
[20] Mary Ellen Solt, *Concrete Poetry: A World View.* S.l.: Indiana University Press, 1969. 4.
[21] Kennedy & Kennedy, *Women's Experimental Poetry in Britain*, 24.
[22] Gregory Betts, *Finding Nothing: The VanGardes, 1959-1975.* Toronto: University of Toronto Press, 2021. 203.
[23] Ibid, 203.
[23] Ibid.

materiality of their poetry, Michael Davidson queries, 'what does it mean to "know ourselves" when "she" is the object known, the materiality formed (or observed) by the male author'?[24] In the Case Studies of the present chapter, particularly evidenced by the works of Mirella Bentivoglio, who utilises the form of her own body within her works to extend her own subjectivity, poetry's relationship to its visual medium is often deliberately placed in conversation with the body's own physicality. This can be seen in the renegotiation of the meaning of alphabetic forms of Bentivoglio, the multiple different voices of history vying for attention beyond the reaches of language and space that are present in Susan Howe's poetry, and the winding, experimental visualism that characterises Judith Copithorne's works, which all point to their consistent interrogations of identity, subjectivity, and gender.

Nancy Perloff introduces *Concrete Poetry: A 21st Century Anthology*, 'It is all too easy to see literary criticism, like history, as a great forgetting'.[25] In fact, many of the opening introductions to these recent anthologies featured in the present dissertation all acknowledge the importance of reappraising the contribution of female visual poets. Perloff even references Balgiu and de la Torre's *Women in Concrete* anthology in this introduction, acknowledging the importance of the shifting nature of the term 'concrete poetry'. If form no longer necessarily equals meaning, what is important for Perloff and the editors is a concept of the 'activation of language in public space', where social and political concerns supersede notions of meaning based solely upon the shape and sound of words.[26] Although not necessarily definitive or chronological, certain recurrent senses emerge from the sequences of poems in all of the anthologies consulted. In fact, engagement with materiality can also be said to characterise the motivating principles of many of these recent anthologies, often manifesting as a direct engagement with history – such as Kimberley Campanello's 'monumental conceptual poetry-object', *MOTHERBABYHOME*, which worked with archival material and contemporary new sources to produce a deliberately material text work.[27] Introducing the earlier anthology *Out of Everywhere*, Maggie O'Sullivan comments how the pioneering women writers are, to a degree, 'attempting to open up

[24] Michael Davidson, *Ghostly Demarcations: Modern Poetry and the Material World*. Berkeley: University of California Press, 1997. 79.
[25] Thomas, 'Concrete Poetry and Scottish Women's Writing', 200.
[26] Nancy Perloff, 'Introduction', *Concrete Poetry: A 21st Century Anthology*, Ed. Nancy Perloff. London: Reaktion Books, 2021. 34.
[27] Kimberley Campanello, *Judith: Women Making Visual Poetry*, Amanda Earl, Ed. Malmö: Timglaset Editions, 2021. 44-51.

closed systems of signification'.[28] She articulates the 'problem' for the reader-viewer when presented with these kind of works: how best to find a 'meaningful' way to read texts which have been 'generated on different principles, which are multi- and non-linear, and which may be generated according to aleatory (chance) procedures'.[29] O'Sullivan also comments how each poet 'does not *represent* a familiar world and therefore cannot be read in familiar ways': this results in their 'brave insistence and engagement in explorative, formally progressive language practices' being excluded from 'conventional' anthologies of women's poetry.[30] Through all the anthologies, this idea is recurrent throughout many of the manifestations of visual and concrete poetics: that their practitioners are actively eschewing the writing of poems that are explicitly 'about' something; instead, that the focus is on 'excavating *language* in all its multiple voices and tongues, known and unknown'.[31] And, as Jessica Smith reminds us in her introduction to her 2013 online exhibition of women's visual poetry: 'By highlighting and problematizing (making decorative, illegible or difficult) the optic elements of poetry, visual poetry reminds us that the eye and ear are inseparable when we parse written language'.[32] In this sense, the voices of women are platformed through the visual circumstances of their exhibition, their voices are made visible.[33]

O'Sullivan's notes on how many of the works included are excerpts from longer works are important to mention here, as this commentary also relates to the concerns of the Neurohumanities elements of the present project, as referenced in the previous chapter – the double uprooting of poems sourced from anthologies or individual collections but then presented technically in isolation within the context of the experimental survey design. Many pieces selected for anthologies are involved in 'long poetic sequences or in project-oriented work', the 'textual, aesthetic, and political perspectives of which can only be glimpsed here.'[34] And as Marjorie Perloff comments: 'Anthologies always favour those who

[28] O'Sullivan, *Out of Everywhere,* 239.

[29] Ibid.

[30] O'Sullivan, 'To the Reader', *Out of Everywhere,* 9.

[31] Ibid, 10.

[32] Jessica Smith, 'Women of Visual Poetry: An Introduction'. Webpage. https://thevolta.org/ewc33-jsmithintro-p1.html [Date accessed: 11/10/2021].

[33] Overviews such as Karl Kempton's anthology of visual poetry, *A History of Visual Text Art* (2018) are important (Amanda Earl references this when introducing *Judith: Women Make Visual Poetry*) for contributing to definitions, and certainly adding a more global and globalised perspective on the evolution of visualism in poetry. Especially considering the extent to which an analysis of concrete and visual poetics usurps the conventions of a Western-centric, left to right habitual mode of reading. This element is especially evident in the concrete and visual poetry produced and constructed by the women of the field.

[34] O'Sullivan, 'To the Reader', 10.

write short poems, and they give a skewed view of the state of the art'.[35] This caveat in relation to the anthologising of challenging and radical poetry also directly applies to the empirical context here: the moment when participants within Survey 2 actually apprehend these poems is a risk, as the works are presented in isolation of their context, and without extensive introduction. O'Sullivan talks of the engagement with 'larger poetic discourses and practices' which 'embraces inter- and multi-media work and performative directions and celebrates poetry as event'[36] – but does the clinical nature of a scientific experimental context rob poetry of this way of being read? Does interrogating poetry in the clinical setting of a laboratory, or even through the 'softer' setting of a psychological questionnaire, rob the experimental poem of its often radical, confrontational interaction with its artistic or environmental context? Can the theoretically complex poetry of Susan Howe, for example, be understood in isolation from the larger works that her visual poetics contribute to? This will be reflected on throughout the present chapter and returned to in Chapter Six.

Women, History, Visual Poetry, and Science

While the present study does not have the space for a specific historical overview of all the influential women throughout the history of visual poetics, there are certain key figures that warrant mentioning, especially those whose work has influenced the poets of the present chapter. One such figure is May Swenson, a poet who 'inspects the intimate mechanics of matter' with a 'tinkerer's curiosity'.[37] Best known for her 'ingeniously shaped visual texts she called "iconographs"', her poems 'both anatomize and illustrate dynamic forms from the oceanic to the planetary to the cosmic,' as Roger Gilbert notes in his overview of science in twentieth century American poetry.[39] Swenson's iconographs showcase a radical awareness of form, but also an engagement with science and scientific discovery, especially the ways in which poetry and poetic form can be utilised to explore this further. Perhaps her 'most remarkable exercise in verbal visualisation is "the DNA molecule", whose elaborately shaped format is meant to evoke the spiralling contours of its subject'[38] (Fig. 51).

[35] Marjorie Perloff and David Jonathan Bayot. *Poetics in a New Key: Interviews and Essays*. Chicago: University of Chicago Press, 2013. 46.
[36] O'Sullivan, 'To the Reader', 10.
[37] Roger Gilbert, 'Science in Contemporary American Poetry: Ammons and Others' in *The Cambridge History of American Poetry*, Eds, Alfred Bendixen and Stephen Burt. Cambridge: Cambridge University Press, 2021. 928. [39] Ibid, 928.
[38] Ibid.

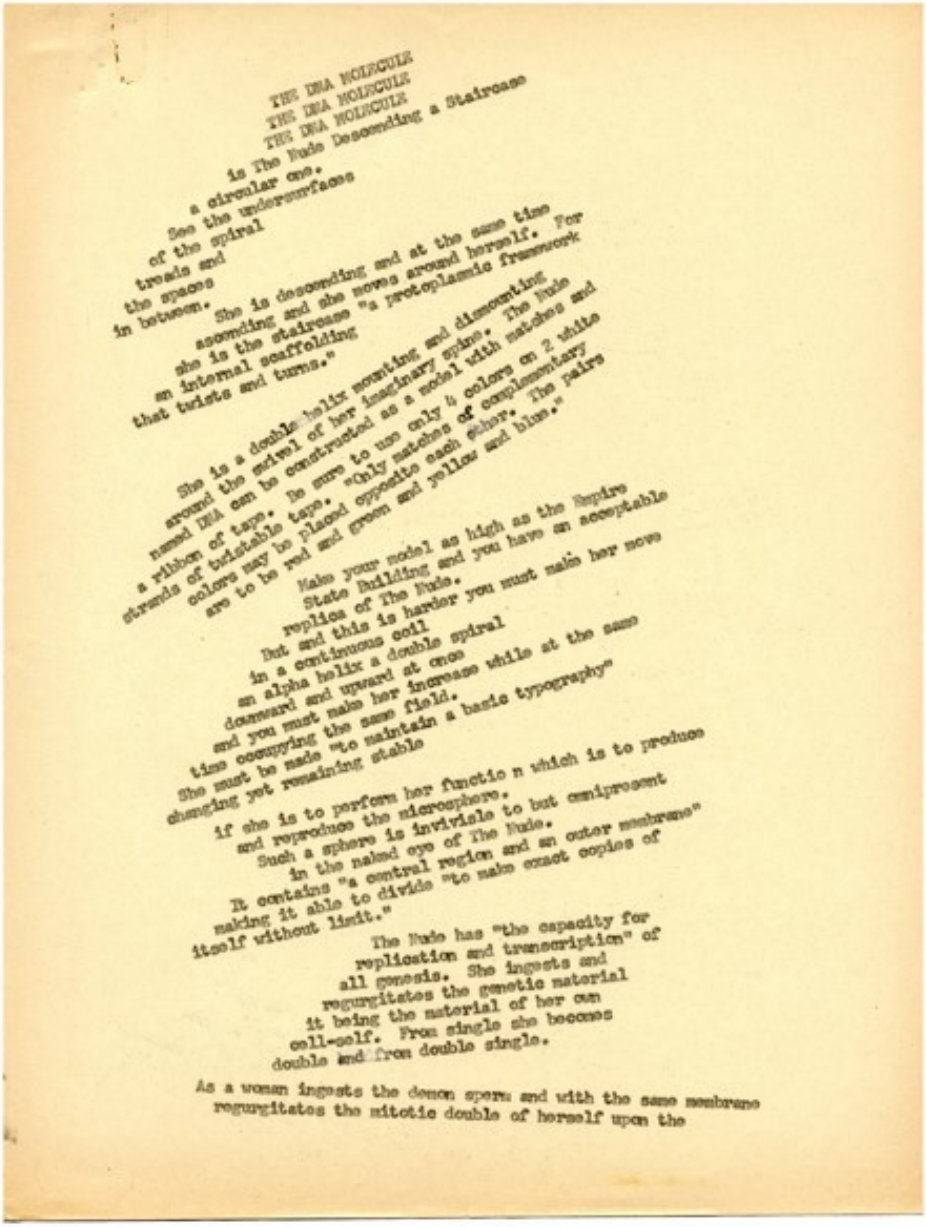
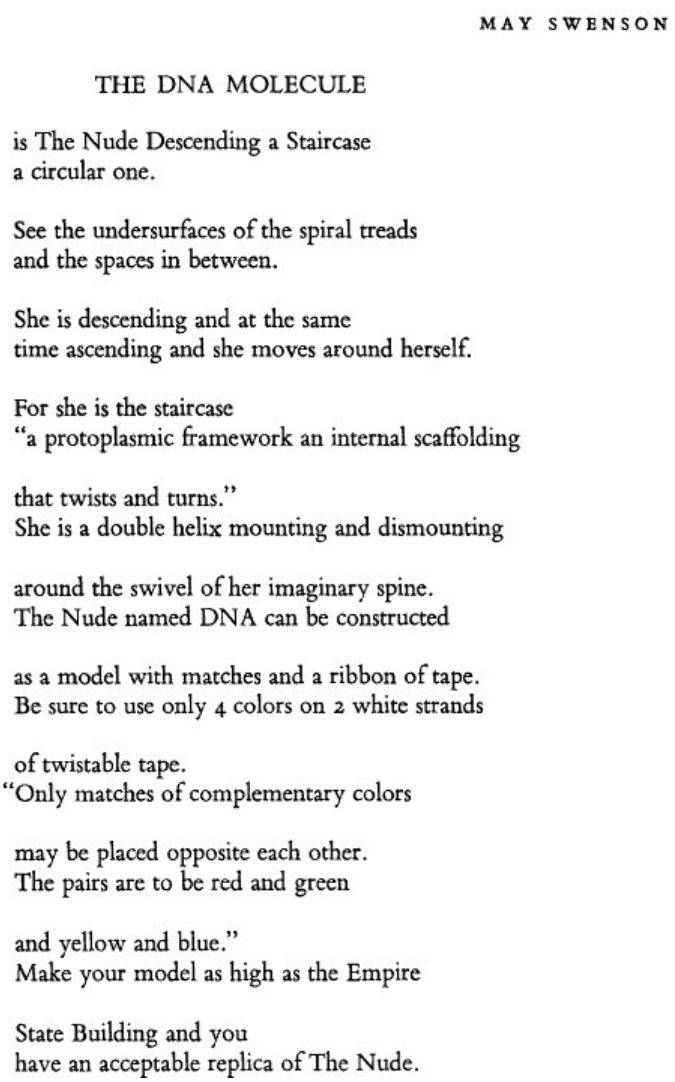

THE DNA MOLECULE
THE DNA MOLECULE
THE DNA MOLECULE
is The Nude Descending a Staircase
a circular one.
See the undersurfaces
of the spiral
treads and
the spaces
in between.
She is descending and at the same time
ascending and she moves around herself. For
she is the staircase "a protoplasmic framework
an internal scaffolding
that twists and turns."
She is a double helix mounting and dismounting
around the swivel of her imaginary spine. The Nude
named DNA can be constructed as a model with matches and
a ribbon of tape. Be sure to use only 4 colors on 2 white
strands of buristable tape. "Only matches of complementary
colors may be placed opposite each other. The pairs
are to be red and green and yellow and blue."
Make your model as high as the Empire
State Building and you have an acceptable
replica of The Nude.
But and this is harder you must make her move
in a continuous coil
an alpha helix a double spiral
downward and upward at once
and you must make her increase while at the same
time occupying the same field.
She must be made "to maintain a basic typography"
changing yet remaining stable
if she is to perform her functio n which is to produce
and reproduce the microsphere.
Such a sphere is invivisle to but omipresent
in the naked eye of The Nude.
It contains "a central region and an outer membrane"
making it able to divide "to make exact copies of
itself without limit."
The Nude has "the capacity for
replication and transcription" of
all genesis. She ingests and
regurgitates the genetic material
it being the material of her own
cell-self. From single she becomes
double and from double single.
As a woman ingests the demon sperm and with the same membrane
regurgitates the mitotic double of herself upon the

Fig. 51. May Swenson's 'The DNA Molecule' in its original layout.

Gilbert close reads the poem as such: it 'opens with a bold conflation of science and art, asserting that "THE DNA MOLECULE / is The Nude Descending a Staircase," and then draws out the analogy with reference both to Marcel Duchamp's famous Futurist painting and to the female body itself, which is, like the DNA molecule, a miraculous mechanism for selfreproduction…'. [39] Tellingly, a version of the poem that appeared in *Poetry* in December 1968, without its iconographic format (Fig. 52) removed the visual layout that gave Swenson's poem its resonance – and tracing the various iterations of this poem thus speaks

[39] Ibid, 928.

volumes on how visual poetics, especially visual poetics by women, were received and facilitated at this time.



MAY SWENSON

THE DNA MOLECULE

is The Nude Descending a Staircase
a circular one.

See the undersurfaces of the spiral treads
and the spaces in between.

She is descending and at the same
time ascending and she moves around herself.

For she is the staircase
"a protoplasmic framework an internal scaffolding

that twists and turns."
She is a double helix mounting and dismounting

around the swivel of her imaginary spine.
The Nude named DNA can be constructed

as a model with matches and a ribbon of tape.
Be sure to use only 4 colors on 2 white strands

of twistable tape.
"Only matches of complementary colors

may be placed opposite each other.
The pairs are to be red and green

and yellow and blue."
Make your model as high as the Empire

State Building and you
have an acceptable replica of The Nude.

Fig. 52. 'The DNA Molecule' as presented in *Poetry* in 1968.

The visual impact of Swenson's poetics here are crucial to its meaning and reception – her 'preoccupation with the visual appearance of words on the page' places her 'squarely alongside experimentally-minded modernist poets of the preceding generation such as William Carlos Williams or e.e. cummings'.[40] Swenson's utilising of a poetics of science in this poem sees her respecting the 'intricate topology that governs its workings', while

[40] Judith P. Saunders. '"The DNA Molecule": May Swenson confronts modern paradigms'. Online article. *The Free Library*. https://www.thefreelibrary.com/%22The+DNA+Molecule%22%3A+May+Swenson+confronts+modern+paradigms.-a0212939103 (2009) [Date accessed: 26/4/2022].

superimposing 'human lineaments on the DNA molecule, granting it a kind of primordial sexuality that precedes all bodily sex', while her graphic and syntactic evocation of the molecule's twinning movements reflects a deeply aesthetic response, one by no means alien to scientists themselves'.[43]

Another practitioner and scholar whose work influences the scope of the present project is Joan Retallack. Both her poetic practice and her specific commentary on experimental poetics, lends itself especially well to the concerns of the present chapter. Her ambitious work *AFTERRIMAGES* (Fig. 53), referenced for its radical blend of genres and styles designed to be seen with its title evoking the 'after images' remaining what remains in the mind after the original apprehension of something, sections of which are described by Perloff as 'not quite concrete poems', due to the fact that 'not every word or phrase participates in the process of visualisation and materialisation' but nevertheless represent 'the turn visual poetics is taking in the age of hypertext'.[41]

[41] Marjorie Perloff, 'Afterimages: Revolution of the (Visible) Word', *Experimental, Visual, Concrete: AvantGarde Poetry since the 1960s*, ed. K. David Jackson, Eric Vos, & Johanna Drucker. Amsterdam: Rodopi, 1996. 343-344.
[43] Gilbert, 'Science in Contemporary American Poetry', 928.

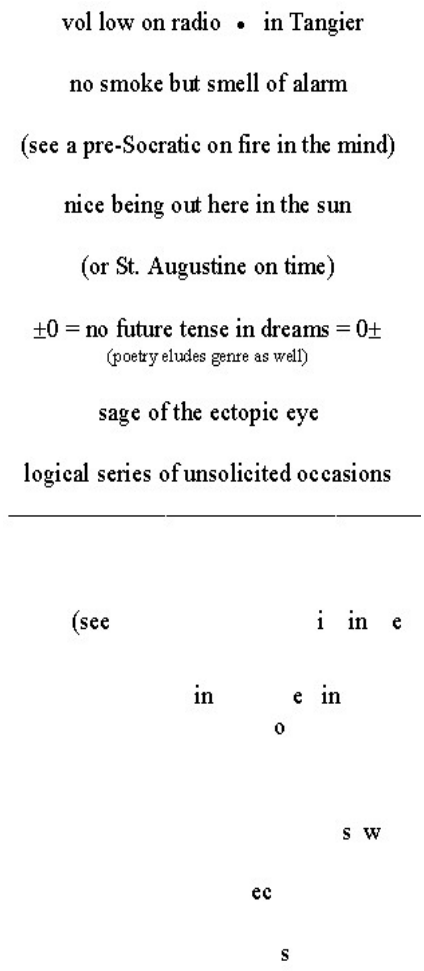


Fig. 53. An excerpt from Retallack's *AFTERRIMAGES.*

Perloff's analysis of Retallack's use of the 'ectopic eye' of this sequence in *AFTERRIMAGES*, in which the lines are written 'to yield phonemic and morphemic after-echoes', is useful for the present chapter's discussion. Retallack's displacement of vowels and her disassembling of the word 'ectopic' are strategies to present 'a spatial layout that makes seeing difficult'.[42] Implied within the language and approach to this art form is a deliberate rerouting of the tradition linear progression of the eye. Retallack's critical commentary also merits a mention for its appeal to the motivations governing scientific inquiry and discovery. In her defence of experimental poetics, she writes of the necessary conditions for such a poetics, invoking science and a reappraisal of what constitutes an experiment – 'where "experimental" means something more interesting than the latest stylistic oddities' – which include the 'shock' and 'pleasure' of alterity, facilitated by 'conversation with an interrogative

[42] Ibid, 341.

dynamic'.[43] Her discussion of experimental poetics references scientific discoveries – such as Niels Bohr and Max Planck – to discuss the disruptive effect of such discoveries. Retallack queries whether this disruptive effect of rearranging our understanding of individual processes can also be found in the pressures on our uses of poetic language. Her commentary extends to include a description of Gertrude Stein's work, supported by references to Eadweard Muybridge's motion studies to describe Stein's experiments in rendering 'character onto the page'. Stein's explorations of the concept of repetition – her resulting patterns with 'subtle successive permutations', according to Retallack, 'leads the reading eye to move from one word to the unit to the next… as one might follow a dancer's movements frame by frame…'.[44] This assessment of Stein's experimental poetics lends itself especially to the ongoing discussions of visual poetics within the present dissertation. Both Bentivoglio's 'Void in the Centre (*Un vuoto al centro)*', and Copithorne's 'i' bear traces of this impulse towards repetition. Retallack writes of how 'page becomes stage transfigured into time-bracketed instances of a continuous present; written language becomes a surprising performance of its charged materiality'.[45] Commenting on Stein's welldocumented engagement with science – and her progression from laboratory to page – Retallack notes how Stein 'brings into the foreground important differences in methodologies as well as in what can be known scientifically and what can be known poetically'.[46]

From all these female practitioners, both creative and critical, the present Case Study can trace different strands of influence. Out of the selection of poems curated and presented for ranking in Survey 1, those that ended up ranking the highest demonstrated a tendency towards exploring subjectivity already highlighted as a connecting thread between the chosen poets. In the subsequent discussion, I identify the assertion of subjectivity and selfhood evident in the poems selected for the present chapter, which can be considered especially in the light of the gendered dimension of these visual poems by women. This trait is evident in the selection of poems considered for inclusion in the empirical study, Survey 2: the repeating, densely layered, propulsive 'i' of Copithorne's poem, and the exploration of self-presentation introduced in Bentivoglio's '*Io*', which as a visual poem arguably makes the most overtures towards configuring the self within the poem through the representation of

[43] Joan Retallack, 'What is Experimental Poetry & Why Do We Need It?'. Online article. http://jacketmagazine.com/32/p-retallack.shtml [Date accessed: 12/1/22].
[44] Ibid.
[45] Ibid.
[46] Ibid.

the human figure. If concrete and visual poetry is often characterised by the 'eschewal of the lyric I', then the poems selected by participants in Survey 1 for the present study pose a fascinating account of this element, especially for the way in which Mirella Bentivoglio interrogates 'the "I" problematized in feminist discourse'.[47] Although he stops his analysis at the 'frontiers of the digitized world',[51] Michael Davidson's aforementioned account of materiality in modern poetry also especially influences the present chapter, especially when engaging with Susan Howe. He writes how the 'modernist typographic renaissance began as an attempt to stave off such ephemerality as it was manifest in commercial publishing and advertising'.[48] He continues: 'The poet who treats the poem as a "score for the voice" (as Charles Olson does) simultaneously marks the historical moment at which the "voice" becomes problematic, at which it can no longer be regarded as a sign of self-presence'.[49] How each of the poets of the Case Study interrogate this idea, and how the reader-viewers of their poetry who were surveyed respond to this aspect of their poetry, constitutes the remainder of this chapter.

Mirella Bentivoglio: Embodying Subjectivity

Mirella Bentivoglio is somewhat of a geographical outlier, in that she is an Italian poet and practitioner and does not hail from North American traditions of visual poetry. Yet, her specific engagement with themes of subjectivity and gender showcase many intriguing parallels with the works of the other poets selected for the present project. Her prolific 'hybrid oeuvre' ranges from concrete poems, performance, to site-specific installations and artists books,[50] although when asked about the relationship between her various bodies of work in 2013, she summed up her oeuvre in one word: 'poetry'.[51] Like Beaulieu after her, Bentivoglio's insistence on her work's categorisation as poetry foregrounds her interest in language as a 'malleable, material substance'.[52] Through her life's work, she refuted the arbitrariness of signs, instead suggesting an alternative manner of approaching the alphabet

[47] Leslie Cozzi, 'Curatorial Practice and the Language of Italian Feminism in the work of Mirella Bentivoglio' in *PAGES: Mirella Bentivoglio Selected Works 1966-2012*. California: Pomona College Museum of Art, 2016. 85. [51] Davidson, *Ghostly Demarcations*, 28.
[48] Ibid.
[49] Ibid, 9.
[50] Alex Balgiu & Monica de la Torre, Eds. *Women in Concrete Poetry: 1959-1979*. New York: Primary Education, 2020. 464.
[51] Mirella Bentivoglio quoted in Benjamin Kersten, 'Interview with Mirella Bentivoglio'. *PAGES: Mirella Bentivoglio Selected Works 1966-2012*. California: Pomona College Museum of Art, 2016. 58.
[52] Cozzi, 'Curatorial Practice and the Language of Italian Feminism', 78.

and its relationship to meaning and materiality: when queried about the medium best suited to conveying the relationship between images and word, Bentivoglio has posited that 'stone' is best suited to her 'poetic world'[53] which in turn evokes the physical poetry carved and blended into the landscape of Ian Hamilton Finlay's Little Sparta in Edinburgh. Bentivoglio's innovative relationship to letters and letterforms is the concern of the present chapter – her 'logoiconic works' demonstrate a system she devised that explores 'simple forms and materials with specific symbolic connotations'.[58] As will be discussed in more detail, she reimagines the symbolism of the alphabet, extending it into her own sphere of meaning. For example, the letter 'O', as Balgiu and de la Torre note is 'also the word for "or" in Italian'[54] – stands for 'origin' and takes the form of an egg or a womb. In her work 'Io', or 'Me', the artist's own figure is inserted into the O – origin and figure suggests a birth of sorts, the figure stepping through the origin point of the O to assume its position within the earth. The visual impact of this poem is also interesting when considering the gendered dimension of a poem like this, as it evokes her own body and figure, as well as utilising the 'io' of her own surname, wedding her physical embodiment with the materiality of the letterforms that also explores her own subjectivity.

Bentivoglio's recurring fascination with the term "io" was prescient. As subsequent Italian critics would explain, that familiar word "io" not only functions as the first person pronoun regardless of the gender of the speaker, but also corresponds to the masculine noun meaning ego or self. Thus a simple, twoletter word contained an example of the mechanisms by which the masculine gender assumes a position of neutrality.[55] Her work therefore lends itself to different theoretical interpretations that are concerned with the ramifications of subjectivity, as can be seen directly in her 1972 work 'Objectified Subjectivism (*Soggettivismo oggettivato*) (*grovigl/io*)' (Fig. 54) in which she plays with the materiality of her own name and its inclusion of 'io' in its letters.

[53] Bentivoglio quoted in Kersten, 'Interview with Mirella Bentivoglio', 58.
[58] Balgiu & de la Torre, *Women in Concrete Poetry*, 464.
[54] Ibid.
[55] Cozzi, 'Curatorial Practice and the Language of Italian Feminism', 85.

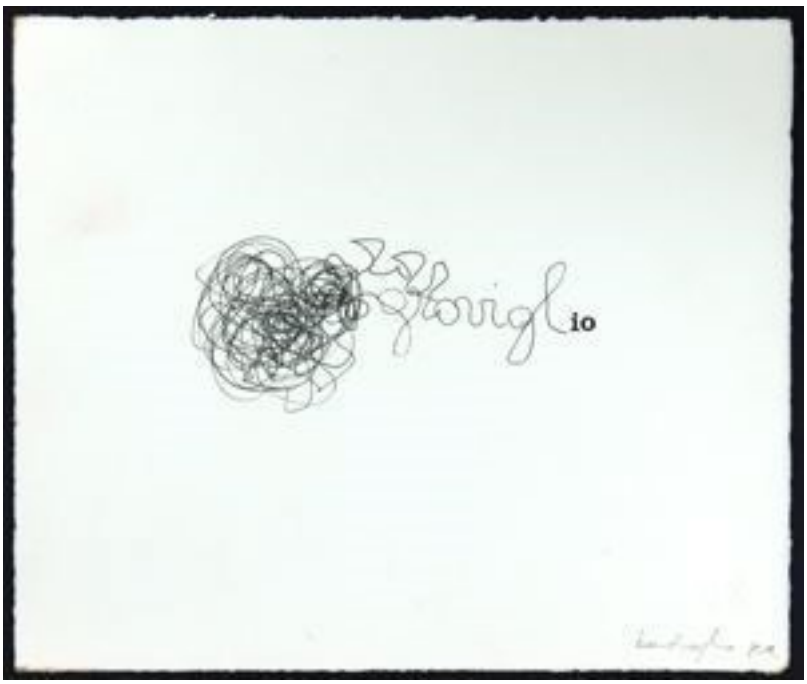


Fig. 54. 'Objectified Subjectivism (*Soggettivismo oggettivato*) (*grovigl/io*)'

Leslie Cozzi reads Bentivoglio's work using a framework provided by Rosalind Krauss' seminal scholarship from the 1970s, employing the concepts of 'indexicality' and the structuralist conception of the 'shifter' in language – a 'term for a linguistic sign whose meaning is dependent on the context in which it is used' – the example here being terms like 'I' and 'you' in conversation.[56] Krauss' conception of an indexical sign is employed by Cozzi to read Bentivoglio's work. Briefly explained as deriving its meaning 'from a physical relationship between itself and its referent' – her examples are footprints, tire tracks, and cast shadows – she considers the self in relation to its context. Bentivoglio, like Howe, engages readily with history and the historic, revels in the idea that 'a written word, besides being a container of meaning and sound, has a shape, and therefore constitutes an image, has a long history, dating back to the Middle Ages'.[57] She comments: 'all art and poetry is an answer to the fleeting nature of time'.[63]

Influenced by the Futurist concept of 'words-in-freedom', Bentivoglio admired the ability to capture 'the visual value of letters in part by overcoming all mechanisms of syntax

[56] Leslie Cozzi, 'Notes on the Index, Continued: Italian Feminism and the Art of Mirella Bentivoglio and Ketty La Rocca' *Cahiers d'études italiennes* [Online] 16 (2013) http://journals.openedition.org/cei/1238 [Date accessed 20/1/22].
[57] Franca Zoccoli, 'Back to the Pictogram: An Inquiry into the Nature of Communication'. *PAGES: Mirella Bentivoglio Selected Works 1966-2012*. California: Pomona College Museum of Art, 2016. 68.
[63] Bentivoglio quoted in Kersten, 'Interview with Mirella Bentivoglio', 60.

and grammar'.[58] She was especially concerned with the Futurist women artists and poets of the movement who ventured into the areas between words and images, and has, in her work as a critic, also platformed these kinds of theoretical debates and concerns, especially through her *Poesia Visiva* network of women artists and creatives, curating many exhibitions of their art between 1971 and 2009.[59] The impetus behind Bentivoglio's work to 'get to the root of things', saw her go from 'words to letters and then back to the pictogram' a move that Franca Zoccoli draws parallels with the 'appearance of contemporary icons within our computerized world'.[60] In this way, the Stone Age and the digital era combine in her work: the heaviness of materials— marble, bronze—and the ethereal substance of the web'.[61] Despite stone being her preferred medium, the parallels being made here do anticipate the transitional materialities associated with McCaffery's *Carnival* and the anticipatory power of concrete poetry, as discussed in previous chapters.

Amanda Earl writes of how 'Io (Me)' in particular (Fig. 55) is 'an affirmation not only of the self, but also an assertion of her visibility and prominence at a time when the work of so many women creators was ignored'.[62] Bentivoglio deftly negotiates between the general (and sometimes somewhat reductive) definitions of visual and concrete poetry at the time, where visual poetry is a combining of words and images, and concrete poetry, which treated words as images.[63] Utilising the 'io' in her later works, it functions as an artist's monogram, an 'early form of establishing artistic copyright'.[70] Subtly suggesting a feminine form, although the loose black clothes of the figure – Bentivoglio's own – in the version included here it is not definitively female, and its face is obscured by what appears to be a shiny dark mask, actually an egg, one of her preferred symbols – also serving as the subscript dot or tittle of the 'i' in the 'Io' of the poem.

[58] Ibid, 62.
[59] Amanda Earl, 'Introduction: This Book Is An Action', *Judith: Women Making Visual Poetry*, Ed. Amanda Earl. Malmö: Timglaset Editions, 2021. 18.
[60] Zoccoli, 'Back to the Pictogram', 67.
[61] Ibid.
[62] Earl, 'Introduction: This Book Is An Action', 18.
[63] Cozzi, 'Curatorial Practice and the Language of Italian Feminism', 83.
[70] Ibid.

Fig. 55. ‘Io (Me)’

Letterforms in this work are thus embodied by the literal figure of Bentivoglio included as part of the configuration of the word – the boundary between word and world breached by the inclusion of the physical body as part of the overall presentation of self. That this figure is somewhat diminished as being recognisably female is also significant within the overall configuration of this poem, as it repudiates the default masculine neutral of ‘io’ in Italian. The poet herself modelled for this work (Fig. 56) and the picture featuring the author is often circulated too, although as Leslie Cozzi notes, it is ‘more than a witty pun on the tautological nature of self-portraiture’: it is also a ‘demonstration of the centrality of language to her practice and a confident declaration of her prominence and visibility as an

artist'.[64] Her engagement with materiality and embodiment through this work specifically is multi-faceted: 'the word 'io' is not just a reference to her name, but also an empty signifier whose meaning depends on its use'.[65]

Fig. 56. One of the original photographs that contributed to Bentivoglio's 'Io'.

Rather than using the photograph as 'a vehicle for expressing psychological interiority', in this work her inclusion of herself forces the word 'io' to 'signify a female subject'.[66] Her selfrecognition was part of her overall career-long practice of curating and critiquing the work of other women artists at the time as they negotiated the changing status throughout the decades, and her own work 'challenged both gender norms and disciplinary

[64] Cozzi, 'Curatorial Practice and the Language of Italian Feminism', 78.
[65] Cozzi, 'Notes on the Index, Continued', 217.
[66] Cozzi, 'Curatorial Practice and the Language of Italian Feminism', 85.
[74] Ibid, 78.

boundaries'.[74] This photograph preceded her work 'Io' of 1979, but was used as the basis of this work. As Cozzi observes, this is a photograph of 'the artist performing the self, literally composing herself as an "I"' and is therefore 'doubly indexical—Bentivoglio both occupies the previously 'empty' pronoun "I" and photographs this position to leave a record of it. It is also a strong declaration of artistic presence'.[67] Through this work, she is reinforcing 'the connection with her own *oeuvre* by physically stepping into it'.[68] Cozzi here invokes Italian gender theorist Adriana Caverro, who comments on the conundrum of the 'io' within the Italian language, in that the 'I' of discourse is 'unconcerned with its being of the male or female sex', and for Bentivoglio

> Language functions as both a form of alienation (because the female gender is repeatedly subsumed under the fictive objectivity of the male universal) and as a tool for self-expression (since literature allows women a means to represent their alienation from these existing codes).[69]

The shiny, black egg manipulated into 'Io' reflects her ongoing symbolic and aesthetic concern with eggs, which stretches far back to antiquity: it also evokes the famous egg-shaped poem by Simmias of Rhodes referenced as part of the history of visual poetics in Chapter Two. Bentivoglio identifies the egg as a symbol of 'the feminine, the corporeal roots of language and with origins', thus, 'io' also signifies a broader concept of artistic agency, of new beginnings in a world transformed by feminist theory and the work of women artists. The signifying potential of individual letters and their capacity to be used as symbols was another artistic concern of Bentivoglio's. Much like Nichol and his beloved 'H', Bentivoglio was concerned with the symbolic power of 'E' as well as the 'O' of her eggs, a letter she returned to through her sculpture work. In Italian, both individual letters can be words, 'e' means 'and' and 'o' means 'or': she excavates these letters for their meaning not just as words, but beyond words. Commenting on her own 'semiologic [sic] analysis of language' in relation to the giant 'E's that she designed for the town of Gubbio, which also houses her work *The Egg of Gubbio*, she posits that while the egg is 'life as individual destiny, solitude, birth, and death' the 'E' is 'relationship, plurality, community'.[70] Bentivoglio's concern with the power and resonance of individual letters as both intensely important symbols but also

[67] Cozzi, 'Notes on the Index, Continued', 216.
[68] Ibid, 217.
[69] Cozzi, 'Curatorial Practice and the Language of Italian Feminism ', 85.
[70] Frances K. Pohl. 'Language / Image / Object: The Work of Mirella Bentivoglio' in *Woman's Art Journal* 6:1 (1985) 20.

material objects than can imbued with resonance, no matter what dimension they are presented in, recalls Drucker's overview of evolving attitudes to the alphabet across history – she invokes Luther Marsh's 1885 assessment of the alphabet's democratic character and inexhaustible power, making it 'the repository of history, not only its instrument or means'.[71] In Bentivoglio's multi-disciplinary, multi-dimensional relationship to the symbolic order of her own chosen alphabet, this extension of meaning beyond the word, beyond the letter itself, is exemplified.

Bentivoglio's experimentation with 'Io' also has some (perhaps coincidental, but nonetheless interesting) precedents and parallels that are worth noting. Ronald Johnson's book-length experimental poetic work *ARK* was known for its 'postmodern cosmonogy' incorporating 'vocabularies from disciplines ranging from physics and optics to cell biology'[72] and concrete poetry scattered throughout which serve to 'diagram the deep structures, at once verbal and metaphysical, he wishes to evoke'.[81] However, it is in Emmett Williams' *Anthology of Concrete Poetry* that he also explores these two letters in his work selected for this anthology, 'Io and the Ox-Eye Daisy' (Fig. 57), which also was the subject of Ian Hamilton Finlay's journal *Poor.Old.Tired.Horse* in 1966.

[71] Johanna Drucker, *The Alphabetic Labyrinth: The Letters in History and Imagination*. London: Thames & Hudson, 1995. 248.
[72] Roger Gilbert, 'Science in Contemporary American Poetry: Ammons and Others', *Cambridge History of American Poetry*, Alfred Bendixen and Stephen Burt, Eds. Cambridge: Cambridge University, 2021. 930. [81] Ibid, 930.

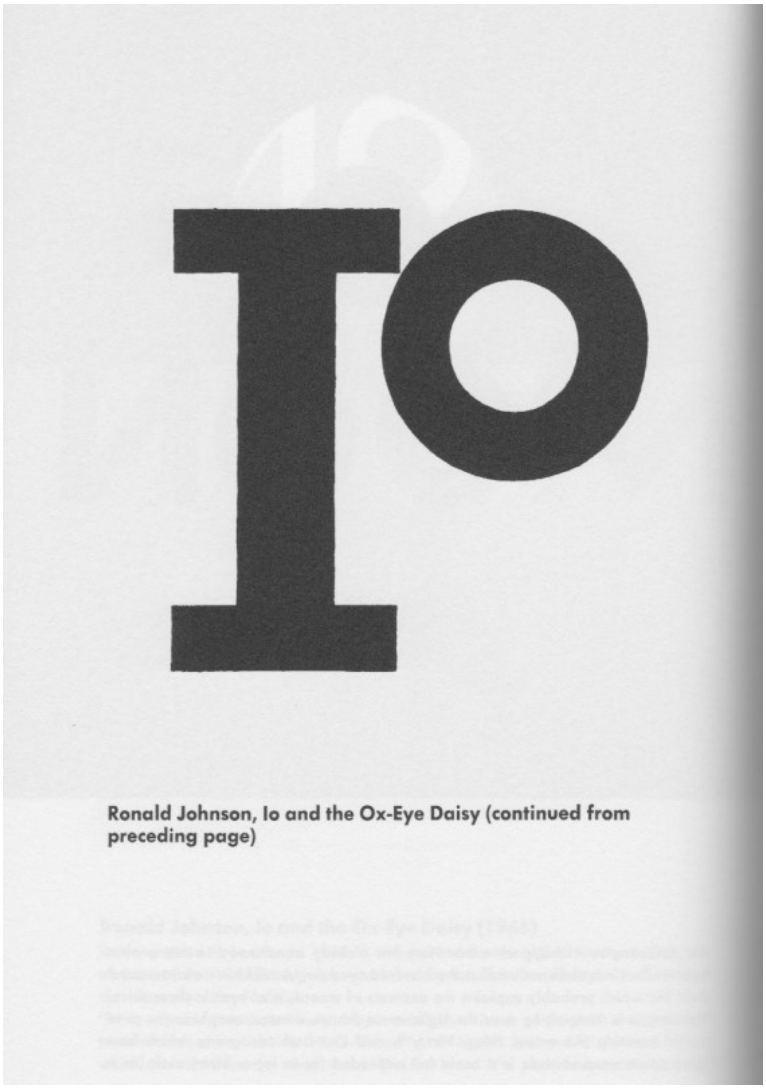


Fig. 57. Ronald Johnson's 'Io and the Ox-Eye Daisy'.

The ideogram of this portion of Johnson's poem – most likely coincidentally – evokes the resonance of Bentivoglio's chosen letters for 'Io'. Similarly, the typographer, publisher and poet Hansjörg Mayer's preoccupation with the circle and line as represented by the Futura typeface, which can 'express everything', and his assertion that 'zero and one is everything – the whole universe', [73] is explored in his work 'oil' (Fig. 58). Bronać Ferran situates Mayer in the historical context of post-WWII, where poets 'at the leading edges of avant-garde practices in post-war Europe combined new techniques of composition with destabilisation of poetic form'.[74]

[73] Hansjörg Mayer, quoted in Bronać Ferran 'The movement of the poem in the 1960s: from circle and line to zero and one, from concretion to computation' *Interdisciplinary Science Reviews* 42:1-2 (2017) 127.

[74] Ferran, 'The movement of the poem in the 1960s', 129.

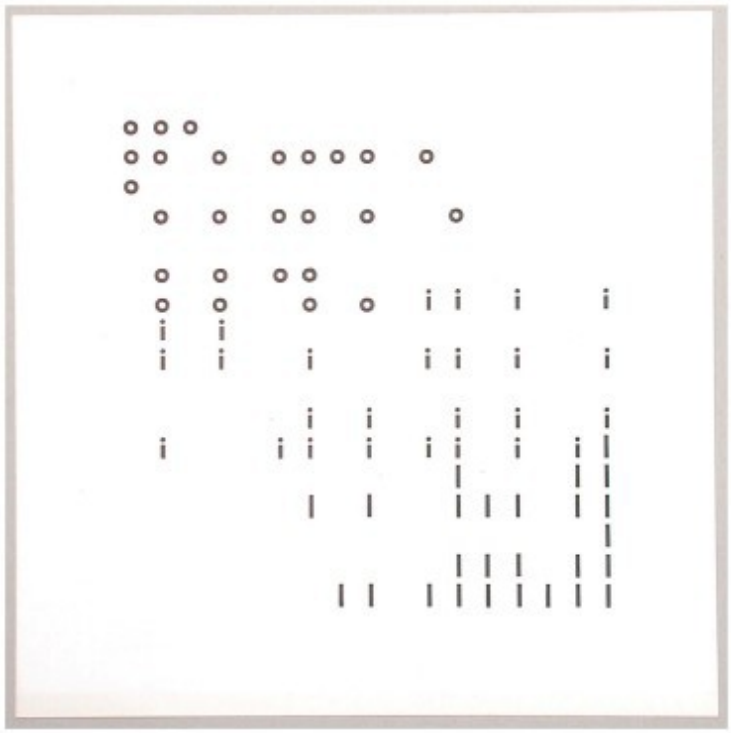


Fig. 58. Hansjörg Mayer explores the viscosity of letters in his work ‘oil’.

Mayer’s focus on the Futura typeface and his commentary on how its uniqueness as a typeface ‘pared to a modernist minimum, constructed of only line and circle’,[75] again reinforces the potency of the shapes of letters across languages – in this work he exemplifies the viscosity of language and letters used to spell ‘oil’– and how poetic experimentation could draw influence from, and even directly engage with, the emerging technologies of the time, including computer coding and programming, as seen with bpNichol’s pataphysical poetic experiments in the previous chapter.

Understandably, this specific work of Bentivoglio’s pushes her own assertion that all her work can be described as ‘poetry’ to new limits, especially for the uninitiated. ‘Io’ was, as with all poems presented in Survey 2, shown to participants without any context, and this served to prompt mixed results which were reflected in their comments. Several participants questioned if what they were seeing was poetry, with varying degrees of certainty, ranging from responses such as ‘…if i understood this medium then i’m sure it would be more enjoyable as the poem is striking to look at as an image’ to ‘i’m not sure i would instinctively consider this a work of poetry’ to ‘can this be called a poem if there are no words’. One suggested that it ought be ‘read as a photomontage though not a poem’. Some comments indicated that the context of the experiment for some participants, even given the

[75] Ibid, 136.

contextless presentation of the poetry, was playing a role in influencing their understanding of the flexible parameters of poetic definition, with comments such as 'i enjoyed it but wouldn't understand it as a poem if not in this survey', and 'i'd struggle to call it a poem as such but i was responsive to the multiple possibilities for interpretation'. Assessing the qualitative component of the data gathered on this poem suggests a strong correlation between its readability and the extent to which it can be considered a poem: a 5.96 average was recorded for readability and a 6.41 for enjoyability. However, again the exceptions to the averages and trends told a different story: another participant, wellversed in both poetry and visual poetry (he scored himself as 1 'very familiar' in both categories) identified it immediately as poetic, scoring it a 10 for enjoyability and readability apiece, and wrote

> a beautiful concrete poem built out of a photograph/sculpture. has a mystery to it, but the oh or zero suggests a kind of riddle about the emergence of self. which came first, the woman or the egg. life or the space in which life appears. her face helmet has its own mystery.

Apart from this comment, without context the specifically feminist interpretations of this work did not necessarily come across as strongly, although one participant commented 'the use of a large letter o with a person stepping through it kind of signified the presence of freedom of choice', and another wrote how it evoked 'a birthing image' for them. Four separate participants mentioned how the poem evokes the feel of advertisements for them: this observation recalls, however unintentionally, Beaulieu's introduction to his collection *Kern*, in which he writes 'instead of leaving logos and slogans to the worlds of advertising and graphic design, I think it better suits poets to craft work which is responsive to a new reading milieu'.[76] There were multiple references to the 'striking' nature of the poem: 10 individual participants (7.6% of all comments) used this word to describe it, and the visuoverbal element was also picked up on: 'the letter o or number 0 provides a more visual than verbal viewing experience, while the interaction between visual elements still creates an enjoyable stimulation'. The question of reading versus seeing was also referenced multiple times, in both positive and negative ways: 25% of participants made reference to this element, with many arguing that it was more of an image or work of visual art than a poem, and therefore they were not reading it as much as looking at it: '… the pictoral/photographic part of the poem tends to take up more interpretative spaces of how

[76] Derek Beaulieu, 'Author's Note', *Kern*, Los Angeles: Les Figues Press, 2014. 90.

to understand the poem'. This struggle to determine the poem's readability prompted several interesting interpretations. One participant commented how it was readable as vocative o supportd [sic] by hand gestures yet slightly ambivalent because of masked face yet claiming o by stepping through it. enjoyed the humour of the poem and how the human figure gave an interpretaion [sic] of the letter, though a 'self effacing' one. Only two participants directly identified how Bentivoglio actually inserts herself into the letter 'i', thus expanding the meaning of the poem beyond a mere 'o': 'i liked how the head of the figure could be part of the letter', 'it's clear that the poem reads i and o so in that sense it is readable'. Another commented how it felt like 'a fun subversion of the apostrophe, jaunty faceless figure stepping through the freighted o'. The features that ranked most highly as prominent were, on average, the 'letterform "O"', the 'human figure' and 'the head of the figure': the striking nature of this poem foregrounded its most prominent visual elements for the participants on average.

The other Bentivoglio poem included in Survey 2 here is '*L'(assente), positivo/negativo, segno/figura* (The Absent One, Positive/Negative, Sign/Figure)', which can be read as an inversion of the previous poem.[77] In this highly abstract and minimalist work (Fig. 59), instead of inserting herself into the materiality of the poem, Bentivoglio has 'left the corresponding noun out of the image', referring to '*L'(assente)*' as an 'ideogram of suspicion' as it implies a 'departed human presence'.[87] As Cozzi writes, this work 'epitomizes two persistent and interrelated tendencies in Bentivoglio's work—on the one hand, treating words as compositional elements whose form is central to their meaning and, on the other hand, imbuing language with personal and political significance'.[78] The extent of this personal and political significance, naturally, is difficult to quantify within the constraints of Survey 2, but yet again, this poem is especially notable for its pushing of the limits of what can be perceived as poetry. Taking a single letter, 'L', with the apostrophe signifying both the absence referenced by Cozzi and indicating its readiness to be combined with other words in the Italian language, the overall impact of this poem is one of a poised potential. Responses to it gathered in Survey 2, typically, prompted some skepticism about this specific element. This poem's inclusion here, perhaps more than any other in the selection, investigates the

[77] The results of Survey 1 in relation to this poem were inconclusive as they did not provide a clear preference out of the poems provided (see Appendix B). Therefore, this poem was selected for Survey 2 due to its thematic inversion of the previous poem '*Io*' and its striking, abstract aesthetic form.

[87] Cozzi, 'Curatorial Practice', 81.

[78] Ibid, 81.

extent to which an individual letterform can be investigated as a ‘visual scene’; and thus explore the implications for poetry viewed in this context.

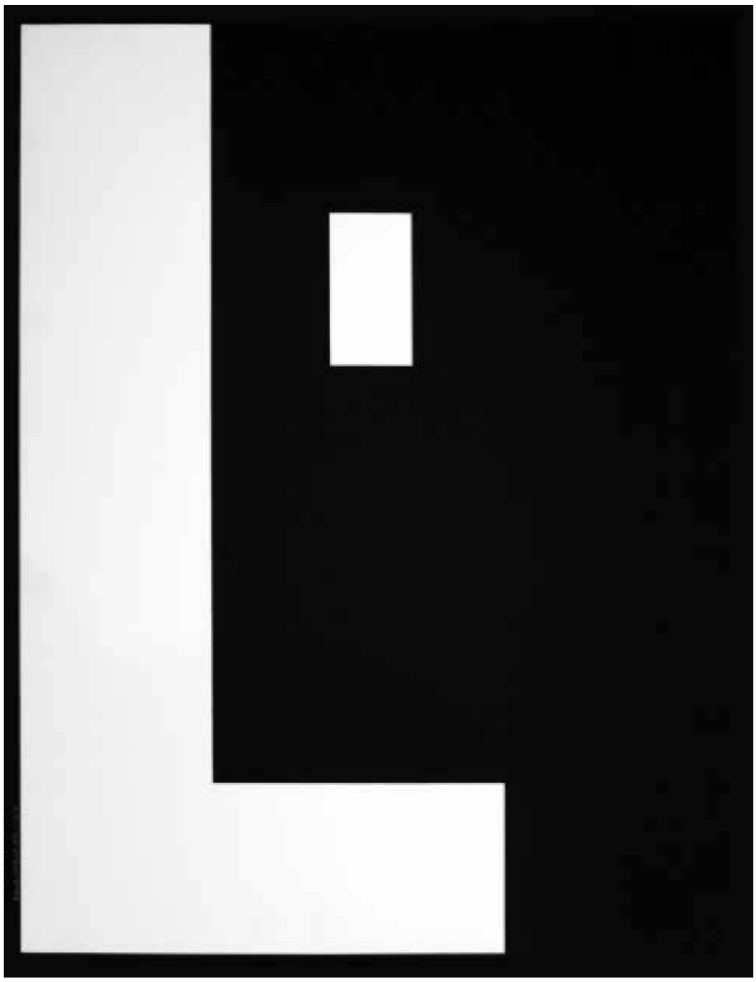


Fig. 59. ‘*L’(assente), positivo/negativo, segno/figura* (The Absent One, Positive/Negative, Sign/Figure)’

Reviewing the qualitative results indicated, as expected, a measure of resistance to this work being construed as a poem, which was reflected in the average readability of 5.6 and an average enjoyability of 5.47. Again, there was a tendency towards dubiousness evident in the comments: ‘…the experience of looking at the poem did not feel like reading’. Some were blunt in their assessments, with short responses such as ‘this is not a poem to me’, and ‘would not describe it as a visual poem’. Despite the poem’s definitively abstract presentation, a distinctive trend towards creative interpretations in the comments suggested that the poem’s minimalism actually invited a new measure of interpretative strategies. Several participants engaged with the black space of the poem as a signifying

dimension, writing comments such as ‘i read the negative space here, i read corridors, doors, hierarchy of light and darkness. all that from the letter l and some laterality and liminality. it was an experience, exciting one for sure’. This kind of projection onto the black space of the poem also facilitated readings like ‘… i also see it as a bit of an illusion because you can kind of see a persons face, looking left, out of the black part of the image. i can’t understand its meaning but i enjoy it visually’. One wrote how they ‘… noticed a light hue change within the black and i saw a boys face’, and ‘…you can also see thea [sic] face in it looking to the left’. This interpretation of the contrast of light and dark facilitating the viewing of a face – also evident in another comment which noted a ‘dark face looking out into learner shaped white letter l’ – is especially interesting for how it invokes the DuckRabbit as discussed in previous chapters. Bentivoglio’s minimalist configuration appears to prompt reader-viewers to interpret the poem as a multistable image in W. J. T. Mitchell’s sense: there were also references to this contrast of light and dark evoking a ‘yin and yang’ effect, with five participants identifying this element at play within the poem’s configuration. This indicates a propensity for reader-viewers to lean towards a kind of interpretation of harmony facilitated by the contrast and interaction of light and dark in response to this poem. Yet, in other comments it is very evident that the overall perception of the poem’s composition was appealing to some:

> forces me [to] ask the difference between a poem and a piece of design work. i am feeling more like that i am seeing an artwork rather than reading something printed on the white page. it works on the idea of space, the black and the white, the printed and the empty, the spatiality of the letter and that of the entire poem as a whole.

This utilising of black and white space as a signifying dimension also resonated with another participant:

> i love that the black space is includes the reverse white shape and is included quite clearly. the sense of space given from the 'distant' rectangle opens the space up well. i enjoyed the depth immensly [sic] and felt it was clearly given.

Similarly, another participant commented how the layout enabled them to read the poem in a different manner: ‘enjoyed the graphic simplicity of this and the weight and balance of the letters allowed me to “read” it in terms of ideas of balance and contrast’. Fascinating approaches to the dimensionality of the poem also could be seen in some responses such as ‘looks like a top down view of a house at night. reminds me of hollywood

movies'; 'it seemed to be a 3d compression of a poetic "line", with a capital "l"'. In general, while the abstract nature of the poem meant that many participants understood it as an 'L', no one overtly or explicitly mentioned the smaller rectangle in the piece as an apostrophe, although this is reasonable considering the lack of title and context provided for the piece. For some, the apostrophe in the poem signified a door, the idea of which recurred in comments such as 'the contrast and the square made the little square look like a far away door down a corridor'; 'it is elusive yet the white rectangle appeared to me like a door i enjoyed seeing the contrast of white and black'; 'at first glance it could be a locked door or a corridor. i'm less clear on the meaning, though the mystery is somewhat enjoyable in and of itself'. These responses themselves demonstrated an unwitting poeticism: the analogy of a punctuation mark in Italian signifying a door to potential meaning is an appropriate one. Thus, this embracing of the mysterious nature of poetic visual abstraction thus showed that a great degree of depth was found by some participants, even when presented with one of the most abstract pieces of the whole selection.

Judith Copithorne: 'Beyond the mind is the body'

A poet whose work might just as well belong in the previous Case Study chapter for the ways in which it unites both North American visual poetry and visual poetry by women, Judith Copithorne 'cultivates a textual disorder and externality with her poetry wherein language and imagery oscillate between sense and nonsense, signal and noise'.[79] Gregory Betts describes her as 'the best example of a female artist-*cum*-author exploring the visual, sensual, and expressive qualities of language simultaneously'[80] and she also lends her name to the title of the recent anthology *Judith: Women Making Visual Poetry*, edited by Amanda Earl. Eric Schmaltz accounts for the displacement of Copithorne from the traditional narratives that govern Canadian and concrete poetry by observing the dual nature of her work's occlusion: 'her poetry circulates within a niche of non-lyrical poetic culture', while also refusing to correspond to the 'dominant, machine-based mode of that particular culture'.[81] Copithorne's earlier work 'anticipates key aspects of feminist thinking in literary studies', as Schmaltz notes, it can be read as incorporating Barbara Godard's theory of transgression and women's writing. Writing about the Canadian context of 1984, Godard

[79] Eric Schmaltz, '"My Body of Bliss" Judith Copithorne's Concrete Poetry in the 1960s and 1970s.' *Canadian Poetry: Studies, Documents, Reviews* 83 (2018) 19.
[80] Betts, *Finding Nothing*, 196.
[81] Schmaltz, '"My Body of Bliss"', 18.

argues that there is a 'causal link' between the situation of women and the 'pioneering role' of women writers in Canada, but most specifically in modernism and postmodernism: 'the more forcefully they have asserted their feminism, the more disruptive their literary productions have been'.[82] Godard's prediction that Canadian women's writing will be located 'on the frontiers, at the margins where the interplay of domination and innovation is most intense' finds a full expression in Copithorne's evolving *oeuvre* – her transition to incorporating the digital format into her poetic works, especially evident in the poems and commentary featured in *Judith* attest to this. Godard's notes on Canadian women poets also apply across the selection of poets included here – she writes how 'women's decentralised position is especially evident with respect to language; their traditional oral culture and language alerts them to the problematics of established literary discourse'.[83] As Betts attests, 'in Copithorne's visual work, gender helps to focalise and personalize the power that needs interruption'.[84]

Her fusing of materialities marks her out as a unique voice within the traditions that she operates in – poetry and dance – and therefore the physicality of the body and its impact upon the materiality of her poetry as she explored intermedial artistic experimentation is especially interesting. Like Bentivoglio, hers is an engagement with the nature of embodiment, especially the embodied nature of poetry. Her engagement with dance – 'a fully embodied art, founded on principles of kinesis and proprioception'[85] – undeniably merges with the configuration of her visual works (Fig. 60).

[82] Barbara Godard, 'Ex-centriques, Eccentric, Avant-Garde: Women and Modernism in the Literatures of Canada', *Room of One's Own* 8:4 (1984) 58.

[83] Ibid, 71.

[84] Betts, *Finding Nothing*, 200.

[85] Schmaltz, '"My Body of Bliss"', 21.

Fig. 60. A poem from Copithorne's collection *Release.*

Her interrogation of the supposedly emancipatory role of the typewriter in women's lives finds its expression through her active eschewal of the tool for her hand-drawn concrete poems during the heyday of this period in the 1960s: she 'seeks to write her body upon the page, to allow her body and its movements to take up space among a network of discursively dominating male practitioners'.[86] Betts reads this as a repudiation of Olson's championing of the page as a 'latent grid for typewriter scores': instead, the hand-drawn elements of Copithorne's visual poems 'refute the machinic choreography of the typewriter'

[86] Schmaltz, '"My Body of Bliss"', 22.

in order to showcase an 'intrinsic interest in the body and its organic extensions within the world'.[87] This trait can be seen in the uncompromising opening lines of Copithorne's above poem – her capitalising of 'Order' and her gently insistent tone. Betts reads a 'mystical illuminated influence of William Blake'[88] in these lines, but there is also an evocation of the singular poetry of Emily Dickinson, as discussed by Glyn Maxwell in his analysis of Dickinson's poetry and its visual relationship to silence: 'There's a certain Slant of light / Winter Afternoons –'.[89] When considering canonical women's poetry in relation to Copithorne's insistence on the hand-drawn element of these poems, along with their relationship to materiality, the connection with Dickinson extends further: her own handwritten poems and its signifying function upon the meaning of her singular poetry is called to mind. Scholars including Susan Howe have also noted this propensity for an embodied reading of Dickinson's work, proposing 'a radical Dickinson whose visual-material practices stand at the core of her poetics'.[90] After all, as Ellen Moers notes of Dickinson's handwriting: she 'wrote in a large and swirling hand, and her elaborate capitals and broad dashes make each poem fill the manuscript page with a sense of confident power that is drained away in print'.[91] Along with T.S. Eliot as outlined in Perloff's *Infrathin* and John Milton in Bradford's *Graphic Poetics*, Dickinson's relationship with the visual presentation of her poetry is another candidate for inclusion in the historical 'standard line' of visual poetics, especially when considering how her 'innovative' punctuation 'cannot automatically be transferred from the handwritten style to customary printing standards'.[92] Lars Elleström writes specifically of the iconicity of Dickinson's poetry, wielding an interpretation of some of 'Charles Sanders Peirce's most well-known semiotic notions' to present an analysis of the visual in Dickinson's well known poem 'Because I could not stop for Death'.[93] Elleström's reading notes that 'the poem, as a material artifact, is a spatial and nontemporal object' and its 'sequentiality is created when it is symbolically decoded'.[94] He suggests that the

[87] Betts, *Finding Nothing*, 197.
[88] Ibid, 198.
[89] Emily Dickinson quoted in Glyn Maxwell, *On Poetry*. London: Oberon Books Ltd, 2012. 10
[90] Chelsea Jennings, 'Susan Howe's facsimile aesthetics', *Contemporary Literature: University of Wisconsin Press* 56:4 (2015) 666.
[91] Ellen Moers, *Literary Women.* Garden City, NY: Doubleday, 1976. 87.
[92] Lars Elleström, 'Visual, auditory, and cognitive iconicity in written literature' in *Iconicity: East Meets West*. Masako K. Hiraga, William J. Herlofsky, Kazuko Shinohara, and Kimi Akita, eds. Amsterdam: John Benjamins Publishing Company, 2015. 209.
[93] Ibid, 207. Susan Howe has also published on Peirce and retained an active interest in his combining of the visual and verbal modes in his philosophy.
[94] Elleström, 'Visual, auditory, and cognitive iconicity in written literature', 211.

dashes/hyphens that are so characteristic of Dickinson can be understood as denoting pause for 'thought, hesitation, omission of words, silence' – these hyphens 'bridge the gap between the visual and the cognitive'.[95] The emphasis on Copithorne's hand-drawn poems is therefore important: their non-syntactical inclusion evokes this sense of movement, of expression that moves beyond language while remaining firmly wedded to the printed page of their initial presentation.

Gary Barwin analyses this element in a 2013 interview with Copithorne, noting that her work has 'always closely engaged with materials and the opportunities those materials inspire', acknowledging her bridging of materialities as seen in her engagement with the digital realm, and widening of her poetic scope with the utilising of technology to create her previously hand-drawn creations.[96] In this interview with Barwin, Copithorne references her interest in relationship between the brain and perception in relation to visual work, commenting on the effects of localising brain activity in the different regions associated with language and the visual – she comments how 'we haven't yet identified the actual nature of the physiological events which occur through the medium of the mind, brain, hand and finger movements of a draftsperson or collagist or through the lips of a sound poet…'.[107] Copithorne is keen to expand her definition of draftsperson as 'also referring to those people who may be drawing on a computer', in order to incorporate 'some of the multiple bases of "textual-hybridity", mixed media,'[97] etc, thus acknowledging the transitional materiality of her own engagement – her newer pieces have been described by Erin Wunker as 'crisp mandalas of oversaturated texts – digital stained glass windows which are beautifully dependent on the saturated colours of the computer screen while still echoing the handmade'.[98] Fusing the body with the medium with the materiality of the poetic space is her concern and therefore correlates especially well with the interdisciplinary approach of the current project. In fact, Schmaltz's embodied reading of Copithorne also accords with the discourses around embodiment as a feature of a specifically cognitive humanities inquiry. In his reading of her work, this conception of body and mind is explored: 'beyond

[95] Ibid, 212.

[96] Gary Barwin, 'Squaring the vowels: On the visual poetry of Judith Copithorne.' Online article. *Jacket2* (2013) https://jacket2.org/commentary/squaring-vowels [Date Accessed: 16/06/2022].

[107] Barwin, 'Squaring the vowels', n.p.

[97] Ibid.

[98] Erin Wunker, 'Abstract / Concrete #1: Judith Copithorne (By derek beaulieu)'. Blog post. Date published 12/12/12. http://lemonhound.com/2012/12/12/abstract-concrete-1-judith-copithorne-by-derek-beaulieu/ [Date accessed 16/06/2022].

the mind is the body; this is where Copithorne locates her poetry and from where a new order may be attained'.[99] Copithorne is concerned with the potency of the individual letters that make up her poems. While this is to a lesser extent than Bentivoglio, she nevertheless devotes extensive care towards the letters of her poetry. In the selection of her work focused on for the present study, her engagement with subjectivity can also be seen. The repeated lowercase 'i', moves across the page, its propulsive forward motion leaving the marks of itself in its wake (Fig. 61).

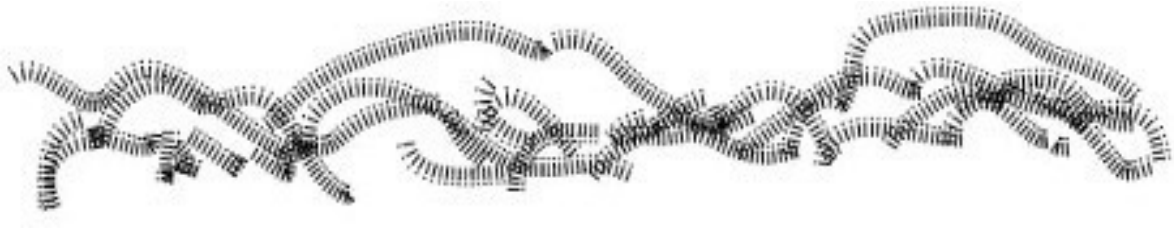


Fig. 61. 'The Letter I'

The repetition of the 'i' across the space of this poem introduces several interesting dimensions to this close reading. Although the letter 'i' does intimate a traditional linear movement, it also introduces a complicating of dimensionality to its overall presentation, inviting consideration of a right to left linearity. Similarly, extending the dimensionality angle, Copithorne also shows us the versatility of the line and circle that forms the repeated 'i' in the poem – recalling Mayer's jubilant praise of Helvetica font reducing the composition of each letter to only circles and lines – could also be read as an exclamation point if the poem was to be inverted. This poem suggests that the 'i' of the poem, the repeated letter, gives us some insight into the subjectivity of the piece, as it suggests a temporality that is both playful and intriguing. The lowercase, repeating 'i' also evokes a timeless subjectivity: the constancy of the 'i' extending backwards and forwards within the parameters of the poem, reflecting what Betts writes of as the tendency in her more recent work to 'explore and expose the moral quagmire of the new millennium'.[100] The qualitative responses to the survey generated some engagement with this notion, one participant commented how it was 'an interesting evocation of the egocentric nature of uncertainty' while another wrote that 'the shapes were interesting and made me wonder about subjectivity and the word "i"',

[99] Schmaltz, '"My Body of Bliss"', 24.
[100] Gregory Betts, 'Postmodern Decadence in Canadian Sound and Visual Poetry'. *Visual Writing UBU Editions* 9 (2011) 20.

and another found that '…it seems to say a lot even with only one letter, which also made it even more enjoyable in trying to find its meaning'. Many of the qualitative comments overall were negative, however: the average enjoyability for this poem was 5.45, with an average readability of 5.27. Interestingly, one participant commented how it 'strikes me as the kind of work that probably has a long and convoluted title but is rendered completely meaningless when divorced from it. which is fine, but where is the title. michael craig martin's oak tree transformed into a glass of water': while this point astutely touches on the issue of title as an important interpretive tool[101] for understanding visual poetry, it also reinforces the deliberate strategy of removing the title as context for these poems within the empirical setting: they are presented here in a kind of neutral ground state, or as close to neutral as poems of this kind can be. Also, the poems of Howe and Bentivoglio were both taken from anthologies where neither the title nor much information about any of the poems is provided. As mentioned, the aim of this section of the experiment was to construe a poem as a visual scene in Navon's sense, therefore even for the poems that have high verbal content, the title can cause distraction, as was seen with Nichol's 'Mind Trap' in the previous chapter.

In her poem from the 1970 'hand-drawn' collection *Runes*, selected for the present study (Fig. 62) Copithorne's characteristic fusion of calligraphic flourishes and handwritten content is densely layered in a mix of finer line and thicker pen.[102] She is quoted as observing how 'hand work being ignored in favour of type could be seen in part perhaps as a privileging of the mechanical or ore male dominated forms over the hand made [sic] forms more often used by women'.[114]

[101] This participant's comment pertains to the artist Michael Craig Martin's famous 1973 conceptual work, 'An Oak Tree', which comprised of a glass of water upon a shelf, exhibited under the title 'An Oak Tree', thus inviting consideration from its audiences about the nature of artistic authority and belief. René Magritte's famous painting, *Ceci n'est pas une pipe* is an intertextual reference here to this kind of conceptual approach.

[102] Judith Copithorne, *Runes.* Toronto: Coach House Press, 1970. https://ubu.com/media/text/vp/JC002_Copithorne_Runes_1970.pdf [Date accessed 21/6/2022]. [114] Betts, *Finding Nothing*, 199.

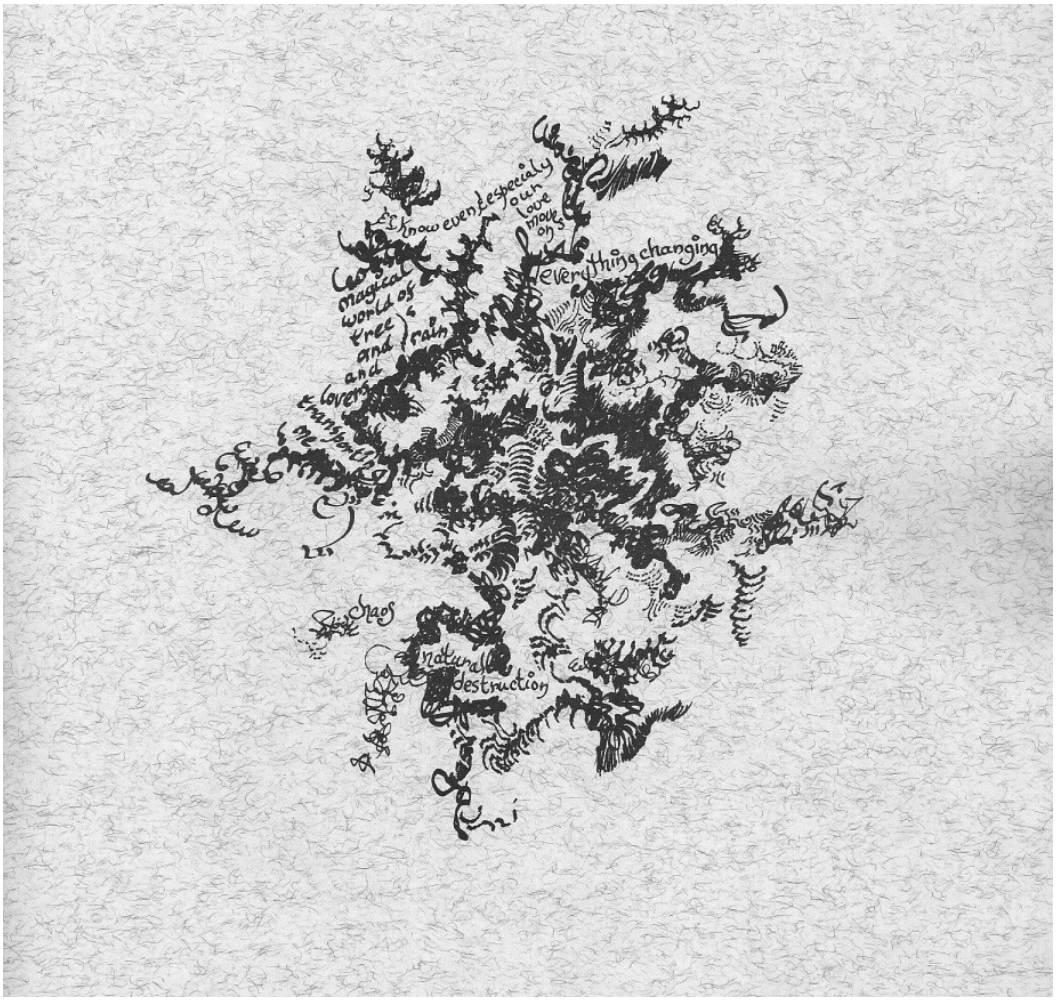


Fig. 62. Copithorne's 'hand-drawn' poem.

This poem verges on the asemic in parts, its cursive script dominating the centre of the poem, layering lines over one another in thicker and thicker sections, but extends the motion of its language beyond the bounds of the letters and words, evoking an almost Arabic script in its lettering and flourishes. In fact, one participant in Survey 2 commented how 'on a first glance it looked like arabic'. Copithorne's script emphasises the overdrawn, comic-book inspired tittles on the letter 'i', which reinforces the handwritten nature of the poems within the collection, her writing almost childish at times. The repeated letter 'i' in the previous poem clashes somewhat with this selected poem from *Runes*: one of the few discernible sentence fragments from this poem is 'everything changing'. The words and visible sentences in this work are only visible as local detail: if glanced at, they could easily be lost in the overall apprehension of the global shape of this poem, which spreads map-like outwards out onto the page. As Betts writes of these hand-drawn aspects of her work, these works 'speak in whispers, find quiet safe nooks for voice, and always seem cognizant of the

possibility of misrecognition, silence, and disappearance'.[103] Regarding the meaning of this poem, several participants noted what qualified as somewhat of an ecological theme present in the work as they grappled with the visual and verbal elements present here: 'this is really beautiful. the combination of drawing and lettering is lovely. it has the tangled air of a forest, which i saw representing the tangled thoughts of a person consumed with various concerns and emotions'.

The qualitative component of the survey demonstrated that several of the theoretical points raised in the literary critical reading of Copithorne's poem were also picked up on by participants. It ranked high for enjoyability, with many participants clarifying that they enjoyed its shape and/or found it 'beautiful' or 'elegant' while its shape most drastically affected their understanding of its meaning: 'i enjoyed the shape of the poem, more than the poem outright. it wasn't entirely readable, though the shape suggested syntax', 'i enjoyed this poem… i think the words, shape and color of the poem all worked very well together to express an art form'. This positive commentary was reflected in the average enjoyability score of 7.39, despite the comparatively lower average score of readability which was 6.38. The qualitative comments reflected Betts analysis of Copithorne's style as 'an authorial presence and authenticity through her cursive hand'[104] and in fact, the most common trend evident in the comments here comprised of references to these very 'handwritten' or 'hand drawn' elements of the poem: 15.9% of the responses referenced this element, the majority of which framed it in a positive light, with comments such as some words were readable thus giving the tone of the poem, then the shape took over to give an idea of evanescence, a puff of smoke or cloud, movement yet lack of permanence. i enjoyed the hand written words, my brain welcomed them, and allowed me to 'interpret' the shape and meaning of the poem.

Several others liked how the poem reminded them of a map, with four participants writing that its layout evoked maps or fantasy illustrations, such as those of J. R. R. Tolkien or Ursula K. Le Guin for them: 'the poem gathered elements of fantasy book map design, including a particular kind of cursive writing, and blended it with the textures of the landscape and land it was meant to evoke'; 'this really reminded me of tolkein's [sic] maps. and since there were words and sentences, i gave it a much higher readability score, and i

[103] Ibid, 197.

[104] Betts, 'Postmodern Decadence in Canadian Sound and Visual Poetry', 18.

found that more enjoyable'. One participant, who ranked himself as 1 for his familiarity with both poetry and visual poetry, identified Copithorne's poem directly, commenting how

> this handdrawn poem by judith copithorne is an exquisite example of his play with figure and ground. i love how the shapes claim the foreground with letters tucked into its mottled form, while words hang like decoration, afterthoughts or footnotes articulating the inherent meaning of the work.

Interestingly, this participant invokes the language of psychology in his reading, tracing the points where Copithorne's work appears to explore this element. Some others, however, were not as convinced by the poem's verbal elements in particular:

> the linguistic elements are clear and the general vibe is consistent. it is a kind of zen meditation on life with an almost cheesy eastern flavour. the drawn elements are reminiscent of chinese or japanese drawings. i thought the text was awful. self indulgent beatnik pseudo profound meanderings. this kind of self expression is not fun for me.

Susan Howe: Visible Voices and 'Radical Eisthesis'

Susan Howe's inclusion in the present chapter is chiefly due to the manner in which she utilises visualism to explore the dimension of voice within poetry. As Will Montgomery notes, despite her interest in materiality and her association with the Language poets, Howe never quite fits within the bounds of a certain genre or movement: her works remain interstitial, intermedial, and given her artistic origins in visual arts, interdisciplinary.[105] In fact, Nancy Perloff details Howe's interaction and intersection with concrete poetry as a genre, noting the crucial places in which it dovetails, most prominently in its concern with the 'graphic presence on the page, its break with linearity and legibility, its focus on the materiality of the word or letter, and its semantic density', along with where it differs: crucially in its 'use of found text, especially documentary, and its pursuit of collage'.[106] Perloff focuses on visual dimension of Howe's artistic experimentation: she 'combines Ian Hamilton Finlay's semantic layering and graphic presence of the text with the appropriation of textual passages, which she then cuts, collages and partially erases as part of her production of a new visionary poetics'.[107] Her poetry is characterised by the 'unstable,

[105] Will Montgomery, *The Poetry of Susan Howe: History, Theology, Authority*. New York: Palgrave Macmillan, 2010. *ix*.
[106] Perloff, 'Postlude', *Concrete Poetry: A 21st Century Anthology,* 194.
[107] Perloff, 'Introduction', 42.

proliferating sets of associative connections' that are 'mobilised in the act of reading'.[108] Howe's engagement with history reflects Gregory Betts' assertion that avant-garde poetics can be construed as an 'opportunity to destabilize the logic of settler colonialism that runs rampant' through Canadian literary histories.[109] He writes how concrete and visual writing, while 'certainly a manifest response to modernity', is also more broadly 'an attempt to 'realign us with our past, and correct the mistakes that have been made'.[110] In a similar sense, Howe uses '"master-texts"' in order to 'critique the meaning of authority, the reading of history, to undertake a radical revision of both meaning and history, and of the hegemonic alliances that have excluded certain groups of actors…from those histories, those lawbooks'.[111] This is perhaps where the most explicitly gendered aspect of her poetry shines through. Her repurposing of historical voices, through the often disjointed, fragmented means of collage, finds its expression in the visual dimension of this 'voicing': we see Howe's voices before we hear them, their presentation facilitated by the white space of the page, where she manipulates 'the material features of the page' in order to 'animate voices that speak from the margins of American frontier ideology'.[112] Mandy Bloomfield's close reading of Howe emphasises her ability to propose a readerly engagement with the materiality of the textual surface that functions as a mode of recognising and participating in the manifold nature of stories and histories in whose various threads are embedded contradictions and gaps as well as overlaps and conjoinings.[113]

It is this method of voicing that proves so fascinating: as Andrew Eastman writes of Howe's treatment of the line, which has already been referenced as a repudiation of Olsen's breathbased poetics, the line 'invents multiple voicings inseparable from a grammar' and her work explores 'how bodily energies of reading meaning occupy and move through the visual scape of the page'.[114] Writing of Howe's visual poetics in relation to her work *A Bibliography of The King's Book or, Eikon Basilike*, Tony Lopez discusses Howe's 'radical eisthesis', which forces us 'to experience the lines also as abstract design, prior to the meaning of the words'.[115]

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[108] Montgomery, *The Poetry of Susan Howe' ix*.
[109] Betts, *Finding Nothing*, 206.
[110] Ibid*,* 207.
[111] Mulford. 'After. Word' *Out of Everywhere,* 240.
[112] Davidson, *Ghostlier Demarcations*, 68.
[113] Mandy Bloomfield, '"Aftershock of iconoclasm": ambivalence of the visual page in Susan Howe's *Eikon Basilike*' *Textual Practice* 23:3 (2009) 432.
[114] Andrew Eastman, 'Susan Howe's Caesurae', *Transatlantica* [Online version] 1 (2021) 4.
[115] Tony Lopez, 'Susan Howe's Visual Poetics' (2008) *Etudes Anglaises* 61:2 (2008) 206.

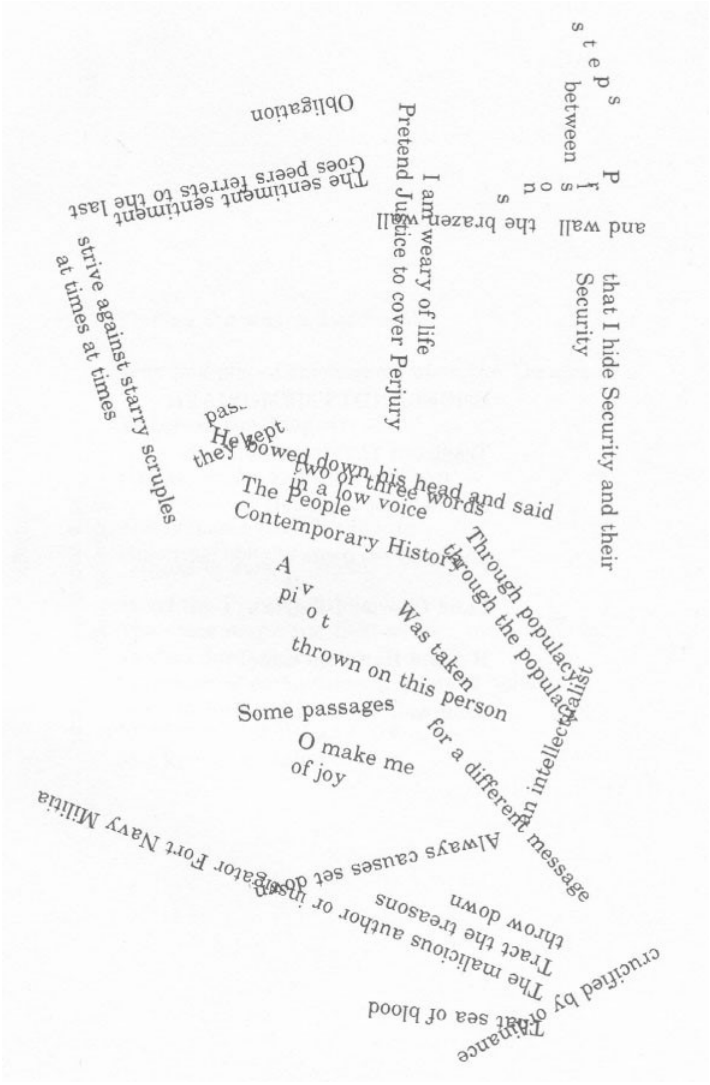

Fig. 63. Excerpt from *A Bibliography of The King's Book or, Eikon Basilike*.

Howe's configuration of the poetic line showcases the breaking of 'normal patterns of continuity, out of syntax and matrix layout' to explore the 'kind of knot in ideology' that accompanies the poem's regicidal subject matter (Fig. 63). The critics referenced all exemplify as what Alan Golding identifies as the 'increasing attention to the material, visual dimension of her poetry' that exemplifies her 'particular brand of feminist poetics'.[116] Howe's use of poetic space, in tandem with her sophisticated theoretical explorations of her chosen subject matter, 'mobilises a visual poetics to create her own intervention in history, in historical argument'.[117] She confidently uses a 'visual focus learned from Olson and taken much further, for a completely different cultural agenda'.[118] How Howe's poetry fares in an

[116] Alan Golding, '"Drawings with Words": Susan Howe's Visual Feminist Poetics' in *Writing into the Future: New American Poetries from "The Dial" to the Digital*. Tuscaloosa: University of Alabama Press, 2022. 133.
[117] Ibid.
[118] 130 Ibid.

empirical context when it is already challenging, ambiguous – and not especially forthright with context, even for regular readers of poetry – will be outlined in the next section.

Why is Howe's dense, visually complex and intensely ambiguous poetry – as exemplified by her 'word squares' – so exciting? Two of these distinctive, ambiguous sections of her poetry are included in *Women in Concrete Poetry: 1959-1979*, and were also the two poems of Howe's selected by participants of Survey 1 as being the most preferable, and were therefore presented in Survey 2 (Figs. 64 and 65):

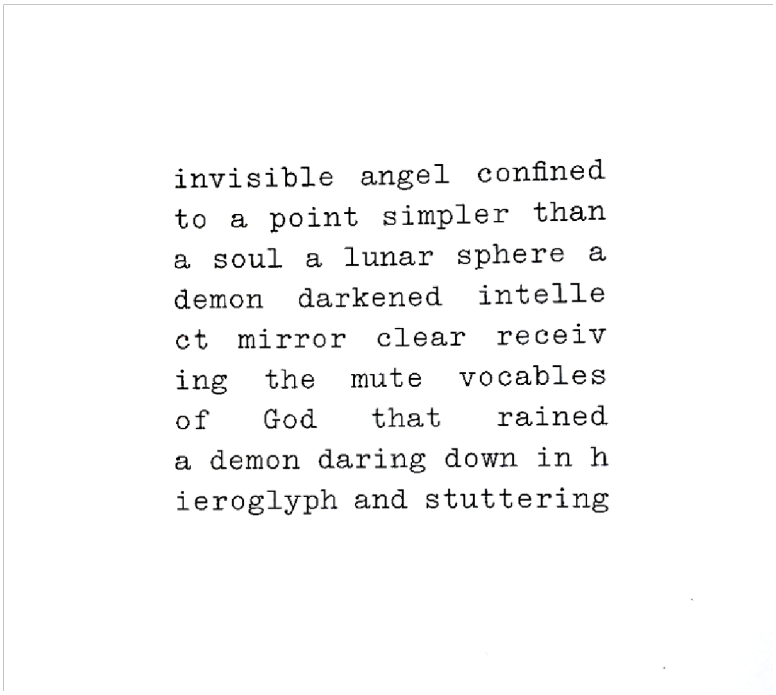

Fig. 64. The first 'word-square' included in *Women in Concrete.*

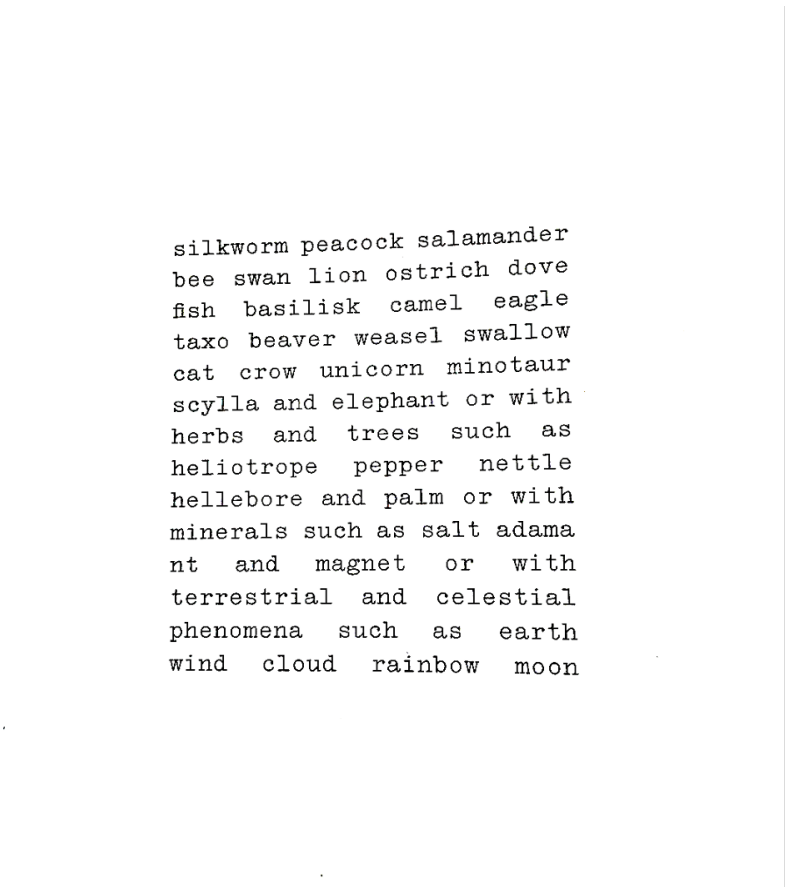

Fig. 65. The second 'word-square' included in *Women in Concrete.*

Brian Reed observes how these squares 'have few or no obvious literary precedents': and one 'cannot rely on intertextuality or allusion to explain their meaning', although there are shades of Bob Cobbing's playful meta-critique of his own poem here (Fig. 66).

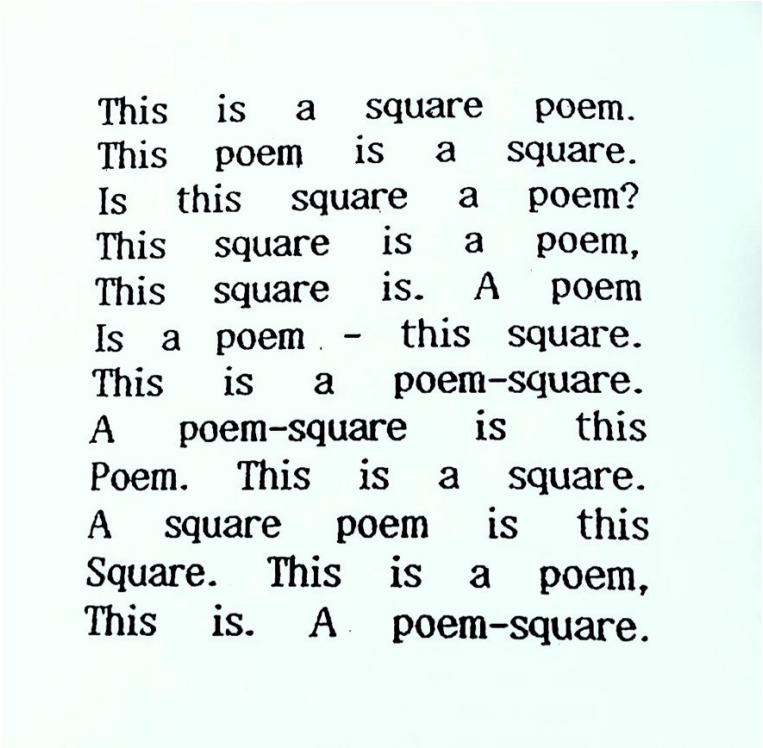

Fig. 66. Bob Cobbing's 'poem square'.

Recurring mysteriously from poem to poem, Howe's word-squares 'always appear at charged junctures, when the writing confronts the limits of cognition and representation'.[119] Analysing *Eikon Basilike*, Reed notes how her infamously ambiguous word-grids 'present a primordial matrix somehow *just prior* to historical narrative, a condition in which, although the "past" is still no more than a heterogeneous collection of words, it is nonetheless poised to emerge from gross quiddity into intelligibility'.[120] She is presenting her work in this way, perhaps to show language 'in a state of decomposition' when considered in the historical context of this poem.[121] Her interrogation of the voices of history that inform much of her poetry are interspersed with an awareness of the power of poetic voice: hers is a 'poetic voice engaged in this lexical drift is felt to be private but knows itself to be public'.[122] Bloomfield's commentary on the spatiotemporal dynamics of Howe's *oeuvre* also provide a valuable analysis when considering the local and global psychological dimensions of her work: Howe's visual page requires that readers follow both a time-bound process of reading, unpicking the text word by word and line by line, and a process of looking in which the

[119] Brian Reed, '"Eden or Ebb of the Sea": Susan Howe's Word Squares and Postlinear Poetics' Online article. (2004) http://pmc.iath.virginia.edu/issue.104/14.2reed.html [Date accessed 14/09/2021]. N.p.
[120] Ibid.
[121] Ibid.
[122] Montgomery, *The Poetry of Susan Howe*, *xvii*.

space-bound, visual dimensions of the carefullyarranged text are taken in instantaneously, 'at a glance'. Her visual text knowingly stages a border skirmish at the long contested dividing line between poetry and visual representation.[123]

Michael Davidson's analysis of the work of Howe seeks to 'expand genre theory' by looking at 'writing that has no name'.[124] He coins the term 'palimtext' to describe the work of Howe and others, a word he uses to emphasize the 'intertextual' and 'interdiscursive' quality of modern writing 'as well as its materiality', which 'retains vestiges of prior inscriptions out of which it emerges'.[125] For Davidson, 'palimtext' is a portmanteau to describe 'modern writing's intertextual and material character, its graphic rendering of multiple layers of signification'.[126] Davidson's is an invitation to 'think of poetry as a palimtext, rather than a verbal icon or objective correlative' and thus be faced with a writing that 'that displays its formations in other writings'.[139] This palimtext 'is not a final, ultimate version but an arrested moment in an ongoing process of signifying, scripting, and typing'.[140] Davidson's shifting conception of how we view poetry points towards the mutable, porous boundaries between poetry and other mediums that so characterises the work focused on in the two Case Studies of the present dissertation. He writes of the inadequacy of both Objectivist principles and theories of Language-writing to adequately account for the 'material character'[127] of this kind of work, which again links to the inadequacy of critical discourses in coping with work like this. This, I argue, prompts a consideration of expanded accounts of literary close reading that are equipped to take alternate dimensions into consideration. Such accounts already exist: on the more specific fusing of Howe's visual poetics with an approach that considers psychology and cognition, Brian Reed's reading appeals to the Necker cube from visual psychology as analogous to the visual effect of Howe's impact (Fig. 67). The Necker cube, often referred to as an optical illusion – a 'multistable' image after Mitchell – is an 'ambiguous figure' like the Duck-Rabbit and is used in visual psychology that resists determining which side of the perceived 'cube' is at the front: our percept of it 'changes while the observed object remains unchanged'.[128]

[123] Bloomfield, '"Aftershock of iconoclasm"', 427.
[124] Davidson, *Ghostlier Demarcations*, 92.
[125] Ibid, 68.
[126] Ibid, 9.
[139] Ibid.
[140] Ibid,
[127] Ibid, 92.
[128] Jürgen Kornmeier and Michael Bach, 'The Necker cube—an ambiguous figure disambiguated in early visual processing', *Vision Research* 45 (2005) 955.

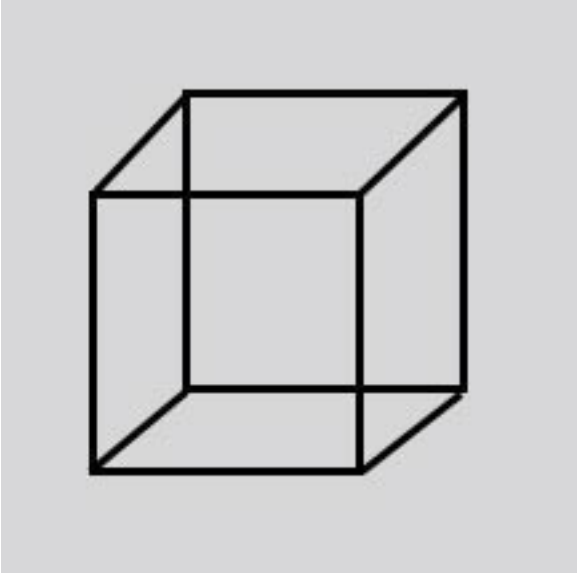

Fig. 67. Necker cube

Reed notes how Howe 'plots an arrangement of nodes in two dimensions that can ambivalently suggest both protension and recession – that is, on the one hand, a process of maturation into rational discourse or, on the other hand, the decay away from it'.[129] This description also evokes the cruder 'hand-drawn' work of Copithorne in *Runes*, whereby the 'edges' of her poetry intimate sentences and fragments of words, while the locus of the poem showcases thicker layered lines that veer into the asemic. Analysing the encounters with 'dual movement' in Howe's poetry as analogous to the Necker cube, Reed also invokes Jastrow's Duck-Rabbit as well as other 'multistable' images as analysed by W. J. T. Mitchell – in each of these popular images from visual psychology, where a viewer can only see one image or the other but cannot see both at the same time: 'the only place where both options coexist harmoniously is in the design of the artwork itself'.[130] Reed traces the foundational aspect of Howe's 'duck-rabbit combination of skepticism and transcendentalism' back to her earliest forays into the New York art world and through analysing this 'understudied' part of her career, obtains insights into her visual poetics and the 'intense, ambivalent spirituality that subtends them'.[131] Here, the 'relentless geometry' of her early installations intersperses the creative and the documentary, poetic and scientific language, influenced by some of the most significant conceptual and minimalist artists of the

[129] Reed, "'Eden or Ebb of the Sea'".
[130] Ibid.
[131] Ibid.

twentieth century such as Robert Smithson, Ad Reinhardt, Agnes Martin, and Robert Ryman. Howe herself makes an analogy between her poetry and their art, seeing in the two kinds of material support – the page and the canvas – an intimation of an 'Absolute, pure and virginal', that precedes human endeavour and activity, where the 'task of the poet and the painter alike is to let that primal "whiteness" shine out'.[132]

Howe's artistic and visual relationship to the white space of the page is also an important aspect of her visual poetics and her 'facsimile aesthetic'[133]: she 'subtly ironizes her poetry by submerging it in an oceanic "swash" of space'.[134] She is quoted in an interview as saying 'I would say that the most beautiful thing of all is a page before the word interrupts it'.[135] Her own invocation of blank space in response to the question of how she might 'paint' her writing is often quoted in criticism: 'Blank. It would be blank. It would be a white canvas. White'.[136] Is the relationship between white space and silence a simple, straightforward, and unequivocal one? Howe problematises this distinction. As Rachel Blau DuPlessis notes, Howe makes works which 'seem to distill the quintessence of traditional lyric poetry, its luminous greeny white sap-filled songs'.[137] She tests and recreates this essence by 'projecting the lyric into the hardly populated vastness and silence of modern page space'.[138] Mandy Bloomfield writes of the way Howe has 'continued to regard her medium as something seen' – although she also invokes Dworkin's assessment that concerning visual poetics there is a distinct lack of 'a sophisticated critical tradition and ready vocabulary'.[139] Bloomfield's analysis of the visual dimensions of Howe's longform work *A Bibliography of the King's Book, or, Eikon Basilike* informs the present discussion – Bloomfield notes the existing tendency to read Howe's 'typographic experimentation in terms of a challenge to hegemonic discourses via a literal unsettling of the page'[140] but expands her own reading to suggest that Howe is also making use of the 'paradoxes and conflicts of a visual use of the page in ways that resonate with the specifics of the poem's

[132] Reed, '"Eden or Ebb of the Sea"'.
[133] Jennings, 'Susan Howe's Facsimile Aesthetic', 661.
[134] Reed, '"Eden or Ebb of the Sea"'.
[135] Susan Howe cited in Reed, '"Eden or Ebb of the Sea"'.
[136] Bloomfield, '"Aftershock of iconoclasm"', 424.
[137] Rachel Blau DuPlessis, '"WH0WE": On Susan Howe' Online article. http://writing.upenn.edu/epc/authors/howe/howe_duplessis.html [Date accessed: 18/9/2021].
[138] Ibid.
[139] Bloomfield, '"Aftershock of iconoclasm"', 417.
[140] Ibid, 418.

particular concerns and areas of historical inquiry'.[141] Among Bloomfield's close reading of *Eikon Basilike* are fascinating insights into the poem's visual poetics: she counters the idea of its description as 'scattered' because it implies a principle of randomness, whereas the material is actually 'very carefully placed'.[142] Also focusing on Howe's 1974 essay on Ad Reinhart and Ian Hamilton Finlay, Bloomfield observes how Howe writes in a 'highly attuned sense of how a poem is not just read, but viewed, and of how that process of viewing might be directed by the active agency of specific shapes and arrangements that "pull" and "tug" readerly attention'.[143] *Eikon Basilike*, along with Howe's poetry as a whole:

> insists on a sensuous, concrete dimension of the poetic image, an iconic power of the printed word, a capacity not only to carry semantic meaning but to materially embody indexical traces which hover on the threshold of signification but cannot be entirely subsumed by language-based meaning.[144]

Eastman takes the concept of the line as utilised by Howe even further: 'Yet if poetry requires organizing language, giving it form, introducing the "decorum of the line," what then is the value or status of a crossed-out line? We tend to think of the line as cutting or scissoring words or speech, but here it is the line which is cut across—by a line'.[145] Eastman goes on to read Howe's interaction with the line as being indicative of how the line is 'not a gesture', but he concludes rather that 'it is a place where something happens to language, a frame for a caesura, a space where a silence can take place'. This kind of caesura is the 'gap where subjects, interacting, are formed'.[146] Howe's word squares also have an interesting similarity with one of Bentivoglio's creations from *Women in Concrete*, the work 'Void in the Centre (Un vuoto al centro)' (Fig. 68), which utilises the effect of repetition and deviation from pattern to convey its meaning – 'A chi' means 'to who' in Italian – evoking both Gomringer's 'silencio' in its structuring, and the trademark squares of Howe's poetry.

[141] Ibid, 419.
[142] Ibid, 422.
[143] Ibid.
[144] Ibid, 425.
[145] Eastman, 'Susan Howe's Caesurae', 6.
[146] Ibid, 12.

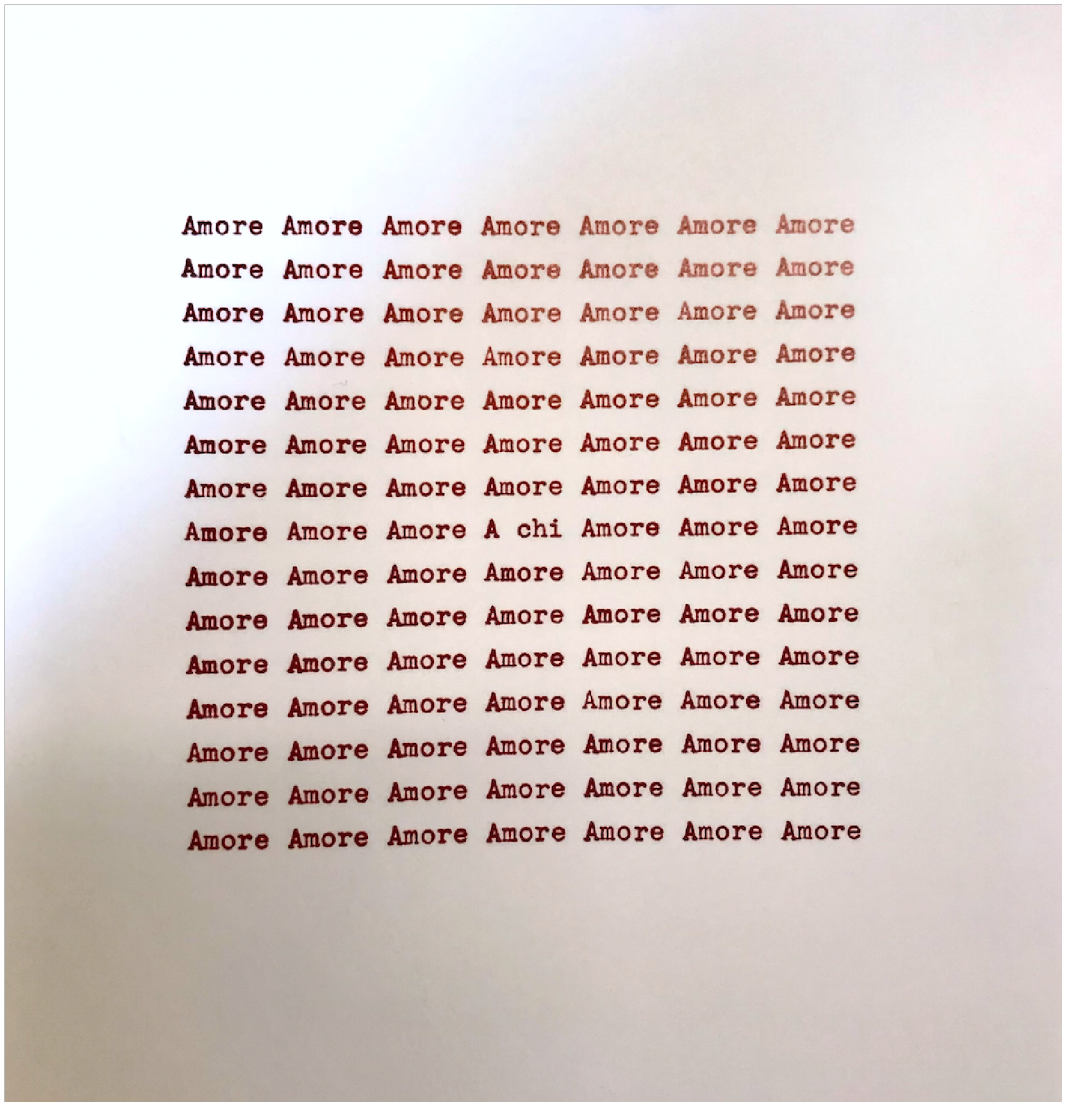

Fig. 68. Bentivoglio's 'Void in the Centre (Un vuoto al centro)' links to the concept of 'caesurae' while also recalling Gomringer's 'Silencio'.

Eastman also raises valuable points about Howe's materiality and aesthetics, which also apply to much of the poetry across the present project's Case Studies: What happens, then, if the linguistic material which makes up a poem is not continuous speech, if there is no 'syntax' in the common sense of the term? What if a poem's lines, without being prose, are still pre-determined, or partly determined, by the mechanical typesetting processes which go into printing prose?[147] It is not just the material of history that influences Howe's aesthetic: her many creative influences and precedents also contribute to the configuration of the word-squares in particular. Her background in visual arts sees her words taken 'off the wall'[148] and put onto the page – and on a superficial level, her word-squares do present as

[147] Eastman, 'Susan Howe's Caesurae', 6.
[148] Balgiu & de la Torre, *Women in Concrete*, 470.

similar to the squares of traditional visual artworks that hang on gallery walls. More accurately, parallels have been made with the recurrence of the grid in the art of the twenty-first century: in Rosalind Kraus' famous essay on the grid, where, as Reed notes, she 'claims for it [the grid] a covert ideological role', its recurrence in a lot of the art of the period evinces its importance.[149] Howe's relationship to the grid, however, evolves such that she breaks the 'grid of the page' and 'overprints' lines of text.[150] In a similar influential vein, Howe's correspondence with Ian Hamilton Finlay remains a fundamentally important aspect of the evolution of her aesthetics – in fact, Reed posits that Hamilton Finlay's work might 'provide the missing link' between the painterly grids of Agnes Martin, and Howe's poetic equivalent, her word squares.[165] While this may be a superficial connection, Reed nevertheless makes the argument that Finlay influenced Howe's poetics first in thematic ways, and then in formal ways. The visual poetics of Dickinson's work also relates to Howe: she is a 'crucial model for Howe's swerve towards reproduction'[151] especially considering her connection with Dickinson's work as exemplified in *My Emily Dickinson*. Dickinson's 'terse and elaborately scored forms' also receive mention in Johanna Drucker's excellent overview of the 'visual performance' of the poetic text and how it manifests itself.[152]

Reed also analyses further the integration of Howe's poetry with Mitchell's concept of the 'image-text', asserting that 'postlinear poets' who 'revel in ambiguity' have begun inquiring into what is known as the 'whole ensemble of relations between the visual and the verbal'.[153] These image-text relations are read as rarely working in perfect harmony – instead, this deliberate ambiguity is revelled in and celebrated – therefore Howe's 'formal diversity' accords with this postlinear tendency towards the composite art of hybridising the 'sensory and cognitive modes'.[154] As has been demonstrated, visual poetics strongly invites a reading that accounts for the cognitive dimension of its effect. Bloomfield also suggests this parallel with Mitchell's work, and reads Howe's work as exemplifying a 'dialectical struggle' between words and images.[155] Reed invokes Mitchell in his assessment of how Howe's work, and the criticism it engenders, demonstrates the lack of 'a "metalanguage" available or

[149] Reed, "'Eden or Ebb of the Sea'".
[150] Jennings, 'Susan Howe's facsimile aesthetic', 662.
[165] Reed, "'Eden or Ebb of the Sea'".
[151] Jennings, 'Susan Howe's facsimile aesthetic', 665.
[152] Johanna Drucker, 'Visual Performance of the Poetic Text', in *Close Listening: Poetry and the Performed Word.* Ed. Charles Bernstein. New York; Oxford: Oxford University Press, 1998. 131.
[153] Reed, "'Eden or Ebb of the Sea'".
[154] Reed "'Eden or Ebb of the Sea'".
[155] Bloomfield, '"Aftershock of iconoclasm"', 427.

possible that could enable critics to speak confidently, synoptically, and transhistorically about the interface between the verbal and the visual'.[156] Beaulieu has also written about the lack of a vocabulary for this specific facet of poetry studies.

While the present project does not claim to provide this metalanguage, it nevertheless engages directly with the discourse of visual psychology in order to incorporate an understanding of this kind of poetry in a new context. With all these thematic elements at play in the poetry of the present chapter – subjectivity, materiality, and gender all coalescing and interacting with one another – integrating a reading that takes local and global dimensions into account is a challenge. Similarly, Howe's fealty to 'paperbased media' reaffirms one of the theoretical quandaries of the project: if her work ultimately points 'away from the digital and toward the visual and material conditions of the archive',[157] what are the implications for measuring participants' responses to her work via a computer? Reed queries whether one can really 'transpose a painterly technique into another medium – language – without losing something essential?'[158] and in a similar way the negotiating the transition of poetry from a literary context into between placing poetry in an empirical context. However, the Neurohumanities approach here is not necessarily used as a corrective to critical approaches thus far, but how close reading in some senses serves to explore the local and global perspectives on poetry: albeit in a very different sense to the psychological concepts utilised when considering a Navon task and how it functions to measure local and global processing.

While it would be impossible for Survey 2 to try to take all these elements into account, it nevertheless tries to consider how an understanding of visual psychology visual relations of local and global within the word-squares. Taking the two word-squares selected by the participants of Survey 1 for deeper analysis in Survey 2, participants were questioned about the poems with the same series of questions as before, with the average rankings of readability for both of them at 7.78, and enjoyability at an overall average of 6.68. The shape of the word-squares, somewhat predictably, received many mentions and references, although the nature of Howe's decontextualised, oblique poetic extracts definitely posed a challenge to many participants. Some, however, read the word-squares intuitively: 'i thought that the disjointed words, like hieroglyph being split up, made sense with the word

[156] W. J. T. Mitchell quoted in Reed, '"Eden or Ebb of the Sea"'.
[157] Jennings, 'Susan Howe's facsimile aesthetic', 665.
[158] Reed, '"Eden or Ebb of the Sea"'.

“stuttering” in the poem. i enjoyed the poem because of the evocative word choice and use of repetition’. This participant, who ranked herself a 2 for familiarity with poetry (high) and a 5 for familiarity with visual poetry (low) appears to have engaged with both the verbal and visual dynamism of the poem, as did the participant who commented how the poem ‘used clear print and tight space to suggest a limited or unusual physical or conceptual space, and the lack of punctuation sped the mind's eye over a number of the concepts drawn up by the poem very quickly’. References to the poems’ shape and this subsequent impact upon meaning were made by many participants, some with a fascinating depth of insight, with comments such as ‘the containment of the words within the shape give the sense of entrapment within the verbal aspect more weight. i found this interesting and enjoyable due to that interplay of meaning between the words and their presentation’, and ‘felt the form matched the meaning better here. claustrophobic, inner turmoil. a window, window shaped, or a snapshot, snapshot shaped’. This aspect however, did not work as well for others: ‘interesting in terms of the constraints on line length and where lines must start and end, even to the extent of fracturing words. because of no other visuals or orientations, more conventionally a “poem” than others but i still felt that the image was trying to compensate for underwhelming lexis’. Approximately 18.56% of participants referenced this pair of poems in negative terms, with comments about the ‘confusing’ nature or their struggle to understand deeper layers of meaning here.

Many participants, interestingly, also referenced the mental imagery evoked by the poems, with comments that again showcased an interesting engagement with the theoretical concerns of Howe’s poems: ‘the description brought up interesting visuals, i felt i was seeing a painting in my mind whilst reading the poem. i loved it’ and ‘this felt more legible as poetry i might be familiar with, but i also got the sense that the language was describing an image, what would have been painted onto this canvas, but instead of showing us, it's given to us through description’. This trend continued with other comments such as ‘very absurdist beckettian vibes, love love love it. made my mind create images and that is enjoyable poetry to me’. The second word-square (Fig. 65) prompted a similar response in that it evoked shape for some participants, especially for one who was highly familiar with both visual poetry and poetry in general, and read this word-square accordingly as ‘a concrete version of imagistic presentation of things in language collections. language speaks on its own. the overall shape of the poem is interesting, functioning as the frame of this verbal painting’.

The rather noun-heavy selection of words in its configuration, however, prompted some other interesting results and mixed responses. The listing element, and how this facilitates a sort of narrative thrust to the poem despite its disjointedness, resonated with several participants. One wrote 'it seemed like a visual/verbal representation of an ecosystem' while another commented how the square shape was 'interesting because it broke down hierarcies [sic] in nature'; a similar comment also engaged with this element: 'enjoyment 10 as i though although the visual shown was quite basic, it was interesting reading something that had a new distinct and striking visual created for nearly every single word'; 'i enjoyed how the string of nouns was interrupted by interjections both of other words and of the nouns conforming to the shape of the poem'; '… enjoyable because of the way the initial listing structure began to break down as it progressed. non nouns were introduced and it became more like a sentence than a list'. The square shape of the poem seemed to complement the natural theme that many participants took from it:

> as i read through the words and took in the shape, this started to remind me of the samples they place in old botany and zoology books, with an image of a plant or animal contained in a neat square. it also had the feeling of a spell. i enjoyed reading this, as these came together to give a sense of magic.

The aural and temporal sense of this visual poem was not lost on some participants: 'this list of words is interesting, they are lovely words and read aloud make a lovely sound. it is interesting linking them together and imagining a context for them, before and after'. Another picked up on the metrical innovations of Howe, and how the assortment of words here evoke a sense of change or pacing:

> the poem starts out as a list of nouns and then becomes a surprising set of comparatives. reminded me of ee cummings. the form and content juxtapose nicely therefore. i like how the development of th [sic] poem bestows content, the metre beoming [sic] less strict as it progresses and salamander tilting upwards. and i liked how the lilsts [sic] change in your perception from just nouns to maybe all the things on earth in their variety that someone might be being compared to, if you wanted to read it as a love poem, say.

Enthusiastic interpretations of this poem aside, many struggled to understand it in any traditional sense however, although two participants looked towards a different kind of interpretation that invited an interesting consideration of the significance of Howe's work to the contemporary moment: 'a little hard to interpret, felt like reading ai generated text'; 'i

just really liked it, even though it looks like it couldv'e [sic] been written by an ai'. Given the challenging, theoretically complex motivations and interpretations of Howe's word-squares, it is no straightforward task to integrate these empirical results with the literary theoretical interpretations that can be applied to her work. Especially evident in this Case Study, more so than in the previous, is the politicisation of meaning in experimental poetry. From a literary critical perspective, these poets have engaged so thoroughly with considerations of gender and authority, yet in the contextless space of the empirical survey, these voices were not as loud. While the previous study facilitated some key expansions of the considerations of materialities through the qualitative data gathered, the same sort of insights were not quite as readily obtainable from the empirical approach in this Case Study. The next chapter will engage with this in a more holistic manner, but to conclude this chapter, I connect the deliberate obscuring of 'readability' or easily determined reading of the poetry of these female poets, especially Howe, is related to the generally low scores of readability that were assigned to the poems of this Case Study by participants in the study. Deliberately obfuscated meaning – both visually and conceptually – further enacts the political struggle that female voices have had to contend with across history and art: perhaps the voices that have had to fight to be heard do not yield their meaning quite so easily.

Chapter Six

Reflections and Refractions

The Brain—is wider than the Sky—
For—put them side by side—
The one the other will contain
With ease—and you—beside—
—Emily Dickinson.

The preceding chapters have shown how scientifically valid, replicable, quantitative and qualitative empirical data has been gathered on visual poems. Traits and features of these poems been isolated as measurable variables, trends and correlations have been recorded. In short, poetry has been subjected to the strictures of psychological science, and analysed in tandem with literary theoretical strategies to provide an interdisciplinary reading. Following the overall shape of this dissertation, the 'global' or holistic view is now be engaged with again, with the finer, local details included, in order to glean as comprehensive an understanding as possible of the global shape of this project. While the global and local analogy does not map perfectly onto the methodological approach of the dissertation, in this chapter the integration of qualitative and quantitative data – how one mode of data informs and influences how we approach the other – demonstrates certain parallels with the lessons learned about visual psychology from Navon's paradigm and categorisations. The range of perspective on the data gathered here, with poetry as the stimulus, facilitates a further engagement with the idea of local and global perception. At certain points in this chapter, quantitative data appears to correspond to the global mode of perception: looking at the forest for the overall shape of the project's findings. The qualitative data – which can only properly be looked at by focusing in on the individual details that constitute the comments made by participants – intimates the mode of local perception: studying the individual trees as important contributions to making up the forest overall. It is only through understanding the 'scene' as constituted by both of these elements that the most harmonious, holistic understanding is achieved.

This cognitively-informed analysis has been tested for its functionality on two separate Case Studies, but from a wider perspective, how did these poems fare? What trends were evident across the participants who completed the survey? How has Navon's paradigm and the global precedence effect related to these poems, and what are the wider implications for poetry, and for language in general? The question of how art and science may be

combined has been refined over six chapters to relate to a highly specific instance of visual psychology and visual poetry. So, in sum, how has the careful, critically informed yet subjective close reading of a selection of highly idiosyncratic visual poems from a range of international contemporary visual poets, been combined with empirical data gathered through a psychological survey that compares individual responses to poetry with the results of testing their perceptual processes pertaining to local versus global precedence measured via a Navon task? The goal of the survey was never to achieve a totalising, universal insight into the poems themselves: this project has been cautious to avoid the pitfalls of neurohype and neuromania. Neither was the goal to repudiate the idea of ever combining poetry and science together: the project also avoids the often debilitating neuroscepticism that can impede the asking of the question in the first place. Instead, conducting, promoting, and reviewing Survey 1 and Survey 2 was part of the project's overall investigation into assessing the use or value of determining quantifiable information from the study could be. Where does this lead us for a) literary criticism, b) experimental psychology and c) the field of Neurohumanities? These three components will be examined in relation to the data gathered here. Any statistically significant trends that warrant further examining will be noted. Throughout this chapter, one of the central research questions of the project is reflected upon: how might this approach to a visual scene be combined with the methods and approaches already in place to 'read' visual poetry? Can this kind of close reading of visual poetry – already a contested methodology – be reconciled with the empirical study of psychological variables? With more focus on the qualitative data and how it interacts with the quantitative data gathered, the overall scope of the project's impact is assessed.

One of the most useful aspects of the psychological angle that emerged as an especially pertinent approach to the results of the data gathered here was how it highlighted and reaffirmed the individual differences between the participants as a group. In these Case Studies, given the demographic information gathered from the anonymised participants, an approach influenced by the study of individual differences lends itself especially well to closer analysis. As will be discussed here, the variations within the general analysis – more specifically, the outliers within the overall trends for each variable measured – end up telling very interesting stories. Noting these individual differences also appears to reaffirm and extend the discussion of the various types of subjectivity this project has engaged with: authorial subjectivity and/or intent, the deliberate engagement with subjectivity within the poems studied and selected, the subjective responses of the 132 participants of Survey 2,

the manner in which this dissertation's own subjectivity has shaped the analysis of the data and the close reading of the poetic material included. Individual differences or variations in this context reaffirm the mutability of subjectivity on the whole: demonstrating its slipperiness from both a literary and Neurohumanities perspective.

Comparing Effects: Averages Versus Outliers

From the strictly quantitative perspective, the variables of enjoyability and readability were analysed for mean trends, as per the standard psychological analysis of all eligible participants.[1] It is important to mention from the outset that from a strictly psychological perspective, the amount of participants' data that was deemed eligible for this analysis was less than what was specified by the power analysis as being necessary for statistical viability.[2] While within the scope of this dissertation, the analysis of results of the experiment proceeded with as many eligible participants as had completed the survey, if more participants complete it, these trends may change. Factoring in the volume of data and how this has the capacity to alter the mean trends and correlations of the quantitative data prompts its own levels of consideration. To return to the project's guiding metaphor: the quantitative analysis here, within the scope of the Neurohumanities analysis of the project, constitutes a moment of global perception: stepping back to look at the broader trends of the overall project by analysing all the data together. Of the twelve poems surveyed, when grouped together the mean readability was 6.03, with a standard deviation of 1.36, while mean enjoyability was 6.39 with a standard deviation of 1.34. Readability and enjoyability were very strongly correlated, $r(106) = .695$, 95% CI [-.58, .78], $p < .001$, which was to be expected: the level of being able to determine meaning was unsurprisingly linked with enjoying the poems overall (Fig. 69).

[1] Of the 132 participants who qualified for analysis, 25 were excluded due to missing data, so the total number of participants whose responses qualified for inclusion in the strictly quantitative analysis here was 107.

[2] A power analysis that was conducted on the survey indicated that the data of 193 participants would need to be gathered in order to track significant trends from the data and thus achieve the specified level of 'power' within the experiment. Achieving this level enables reasonable conclusions to be drawn from the data in the context of the write up of a psychological experiment. This analysis also acknowledges that with the sample of participants provided, factors such as familiarity with visual poetry may skew the trends in one direction, thereby meaning that these statistical results are not necessarily indicative of a general audience.

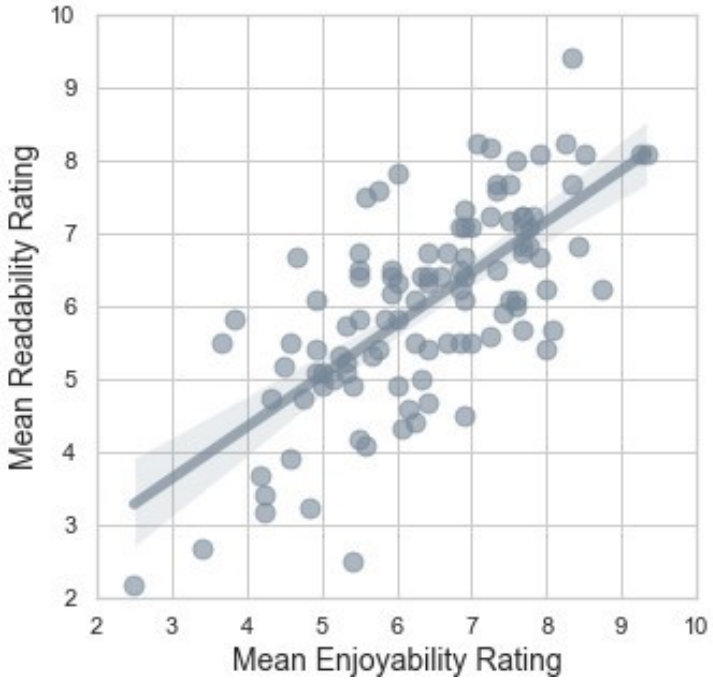

Fig. 69. Strong positive correlation evident here between readability and enjoyability.

I consider this correlation from several perspectives. Firstly, it represents a straightforward relationship between these two correlates, which is to be expected: the harder something is to read or understand, the less enjoyable most people find it. However, somewhat surprising was the fact that when these variables were compared against familiarity with poetry and familiarity with visual poetry, there was a significantly negative overall correlation between familiarity with both poetry and visual poetry and enjoyability (Fig. 70). This means that for participants who were familiar with both poetry and visual poetry, this familiarity did not appear to facilitate greater enjoyment or appreciation of the poems presented. Viewed solely from this statistical point of view, the inferences here are intriguing: this trend seems to imply that despite engaging with visual poems regularly, these participants did not seem to especially enjoy the poems presented.

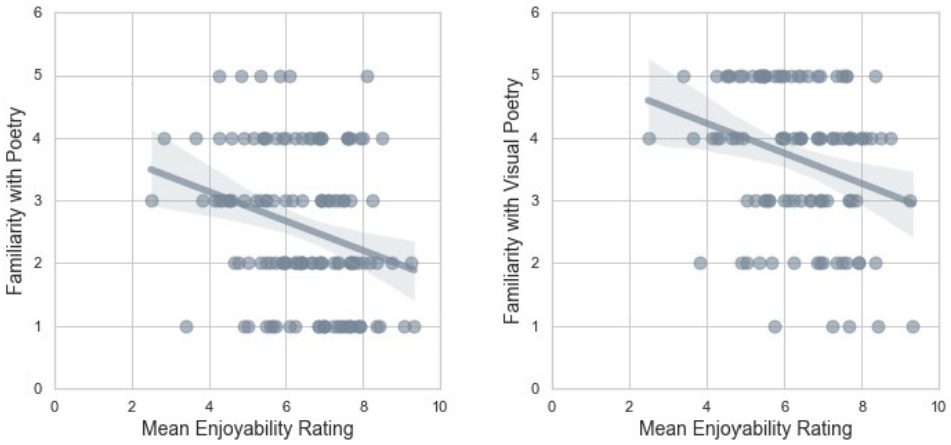

Fig. 70. Familiarity with poetry was – surprisingly – significantly negatively correlated with enjoyability. Similarly, familiarity with visual poetry was also significantly negatively correlated with enjoyability.

This calls into question the nature of the poems presented: whether personal preference or taste in visual poetry in the case of these participants overrides the ability to engage with the poems here, or find them especially meaningful. However, it also reaffirms the value of the mixed methods approach to the experiment: reviewing the qualitative responses from the participants who were very familiar with visual poetry but still gave low rankings for enjoyability facilitates greater understanding on the level of the individual as to why these rankings were given accordingly.

Another important dimension to discuss here is the artificiality of the empirical context of viewing these poems. Recruiting participants from a multiplicity of different backgrounds, avoiding any discernible 'criterion group', classing them as local or global processors, and then analysing the measurable data, despite the practical and theoretical considerations, presents some opportunities to take advantage of this state. In curtailing the viewer of the visual poem and directly prompting their perception through the empirical context, data was gathered during the simulated experience of reading a visual poem. This is a necessary stipulation in order to conduct the kind of experiment available within the resources of this project, but it does, yet again, reinvigorate certain elements of the theoretical debates that have characterised much of the discussion of this project. Speaking at the Dublin Art Book Fair in December 2021, Johanna Drucker discussed the materiality of the book and how the phenomenon of 'words on a page' places a variety of demands upon the reader: be they physical, cognitive, or visual engagement within the disciplinary

structure.[2] If, as Drucker establishes, the body of the reader is 'already inscribed within the shape of the book', then what happens when the materiality of the book, or word, or poem – in this case, visual poem – is disrupted? Books are designed in order to allow the reader to be 'sustained and supported'.[3] If, as Drucker says, 'the world of reading is always assuming a reader and a viewer whose bodily relationship to that text is factored into that design', then viewing poems on a screen disrupts this 'reciprocity of text to reader', of 'body to object and object to body'.[5] Furthermore, viewing poems on a screen with the full knowledge that your responses are being quantified for an experiment usurps this dynamic further, thus disrupting the traditional embodied relationship between reader-viewer and the art object or poem. Craig Dworkin has articulated this bodily element too in his description of the 'phenomenology of the codex' in relation to the margins of a text as a signifying space:

> The margins of the page have always been a fundamental part of the phenomenology of the codex, since they are the primary site of the reader's physical interaction with the book. Readers typically manipulate a book at the margin, holding it open, adjusting its position, keeping a place with the index finger, turning pages, thumbing through. Reserved for the activities of the reader's body, the frame around the text block further encourages the reader's active participation by providing an uninked space ideal for writing entries keyed to particular printed passages. The margin of the page invites a written record of the ongoing dialogue that constitutes all reading.[4]

In the digitally coded space of the poem on the screen, the margin of the page stretches outward to infinity. The poem is no longer situated within the bounds of the page, no longer occurring within a book or pamphlet or chapbook, but presented – in fact, coded, and therefore reconfigured – within this infinite space of a technologically-afforded digital dimension. Many of the poems presented within the study themselves were sourced from printed books: but in order to present them within Survey 2, they were photographed and then uploaded to the Survey. Within the digital dimension, they technically count as images, although in many cases their aesthetic explores the reciprocity between visual and verbal from a literary perspective.

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[2] Johanna Drucker, 'Reading Matters'. Keynote Speech (2021) https://www.templebargallery.com/whatson/watch-listen/talk-johanna-drucker-reading-matters [Date accessed: 8/12/21].

[3] Ibid.

[5] Ibid.

[4] Craig Dworkin, *No Medium*. Cambridge, MA: MIT Press, 2013. 30.

The necessity of the screen is unavoidable in this context, and has unavoidable theoretical implications for the results of this experiment. Nonetheless, despite the ubiquity of the screen, there is an opportunity here to account for this in the overall analysis, and thus productively review the data gathered in this context where the attention of participants has been directed to complex, difficult visual poems in an empirical setting. As John Berger establishes in the opening to his seminal four-part 1972 BBC television series *Ways of Seeing,* 'the process of seeing paintings, or seeing anything else, is less spontaneous and natural than we are led to believe'.[5] The approach of this experiment incorporates the heavily mediated context of viewing any visual art form in the contemporary moment: it is laden both with the previous associations of the viewing subject, and also mediated by the scree, situated in digital space. Again, this way of seeing recalls Bryson's aforementioned treatise on intertextuality: he writes 'the temporality of the glance is, in actual viewing, both retentive and protentive: it brings with it the wake of previous views and even as it occurs is felt as leading on to the next view'.[8] This sense of viewing again references Lessing's conception from *Laocoon* – the image as 'atemporal, or all-at-once'[9] – but this idea of the apprehension of the visual poem in one moment finds its way into the experiment design. This is reflected in the decision to allocate a minimum exposure time of twenty seconds for each poem before participants could proceed to the questions on the next slide, and the amount of time each participant spent looking at the poems was measured. Comparing the amount of time that individual participants spent looking at each poem with their rankings of enjoyability per poem was interesting: while it wasn't the sole reason to gather the empirical data, it nonetheless revealed some interesting correlations – or lack thereof. For all the theoretical discussion of temporality and the importance of time in relation to visual poetry, when analysing the mean trends there was no quantifiable relationship between the time spent on each poem and either readability or enjoyability (Fig. 71). This result was especially surprising, due to the extensive theoretical discussions about the moment of apprehension of the visual poem in previous chapters.

[5] Tw9751 - 'John Berger / Ways of Seeing, Episode 1'. YouTube video, 30:04. 8th October 2012. https://www.youtube.com/watch?v=0pDE4VX_9Kk [Date accessed 12/10/2022].
[8] Norman Bryson, 'Intertextuality and Visual Poetics', *Style* 22:2 (1988) 185.
[9] Ibid, 184.

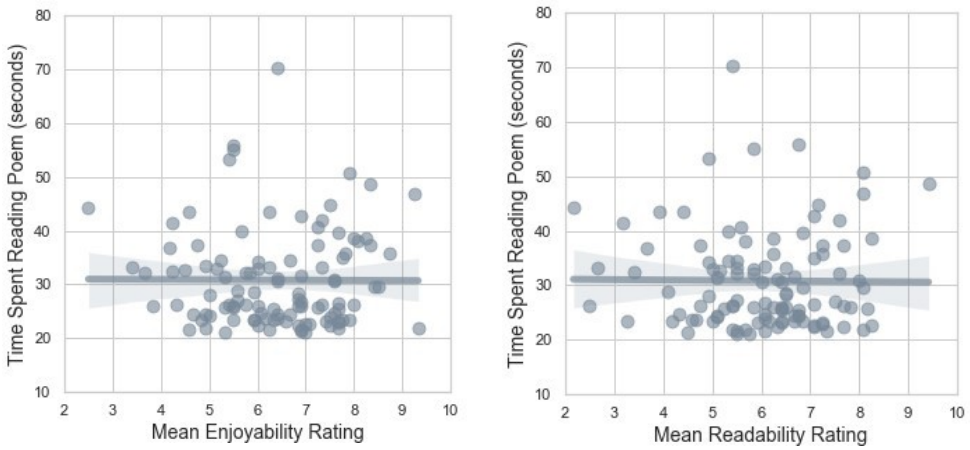

Fig. 71. Graphs showing no relationship between time spent on each poem and either readability or enjoyability.

Of course, these trends are in relation to the trends across all eligible participants: reviewing individual participants' data, especially those whose results differ from these mean results, can tell a different and more subjective story: this For example, for participants looking at bpNichol's 'Blues', the three participants who spent the most time looking at the poem (212 seconds, 94 seconds, and 111 seconds respectively) all ranked the poem a 10 for readability, and a 9 or 10 for enjoyability. These rankings are significantly above the mean enjoyability (8.12) and readability (7.3) for this poem. A similar trend appeared when reviewing Nichol's 'Mind trap' for enjoyability: for the three participants who spent the most time looking at the poem before progressing on to the rankings, they gave ratings of 9, 10, and 10 for enjoyability, with their comments reflecting a high degree of enthusiasm for the poem, which is well above the relatively low average enjoyability of 6.83. This did not hold across all poems – for example, McCaffery's panels from *Carnival* did not reflect the same correlations between the most time taken and individual rankings of enjoyability and readability – but in some cases this mode of approaching the individual specific details of participants responses to the poems reveals a more nuanced picture of how these poems were received. Other notable individual deviations from the supposedly non-existent relationship between the time spent on each poem and rankings of enjoyability or readability could be seen in relation to Judith Copithorne's poems. The participants who spent the most time looking at her poems in both cases gave higher rankings of readability and enjoyability than the average rankings, although this was not as directly as clear as with the poems of Nichol. Bentivoglio's '*Io*' also demonstrated very similar rankings to Nichol's 'Blues': the three participants who took the most time to view the poem before progressing

to the next slide ranked it either a 9 or a 10 for enjoyability despite an average enjoyability of 6.41, although the same did not apply to the more challenging second poem '*L'assente*', where no such correlation was observed. Neither did amount of time taken appear to have any impact on the enjoyability or readability rankings for Howe's word-squares. Originally, it was speculated that the data here might indicate that for poems where there was more semantic coherence and less experimental visualism – such as Howe's word-squares – there may be some notable differences in timing affecting the results. This, for example, could be either less or more time taken to 'read' or 'see' poems with more words or more visualism, etc, which would then suggest some trends that it would be interesting to analyse, but at this point in the experiment, no such trends were noted.

Global precedence – defined in the context of the Navon task as how much faster participants were at identifying the big letters relative to the small letters in the Navon figures – did not have especially significant relationships to readability and enjoyability. However, regarding readability and global precedence, there was a weak negative correlation between these two elements, although it was not statistically significant: r(106) = -.129, , 95% CI [-.31, .06], p = .187. (Fig.72).

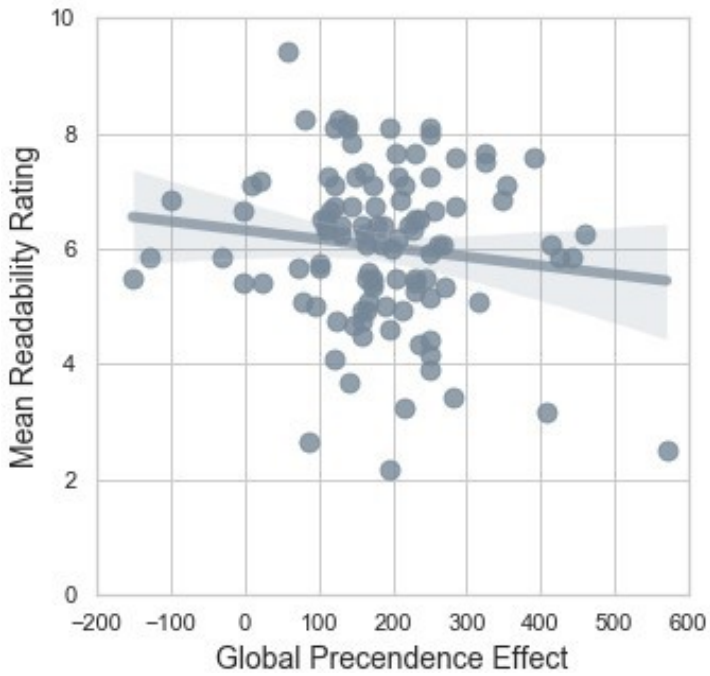

Fig. 72. A weak negative correlation was evident between readability and global precedence, although this was not significant.

This means that for all participants, the general trend was that the higher the global precedence effect, the lower their rankings of readability. Although this correlation was weak and not significant, its existence at all implies that the more able participants were to appraise global features in the Navon task (naming the big letter, even if it was composed of smaller incongruent letters), the less readable they found the visual poems. There was no discernible difference between enjoyability and global precedence – where r(106) = -.017, , 95% CI [-.21, .17], p = .864 – as can be seen in Fig. 73. This implies that no matter how quickly participants were able to discern the larger letter – the global features – this did not facilitate them enjoying the challenging visual poetry any more than any of the other participants.

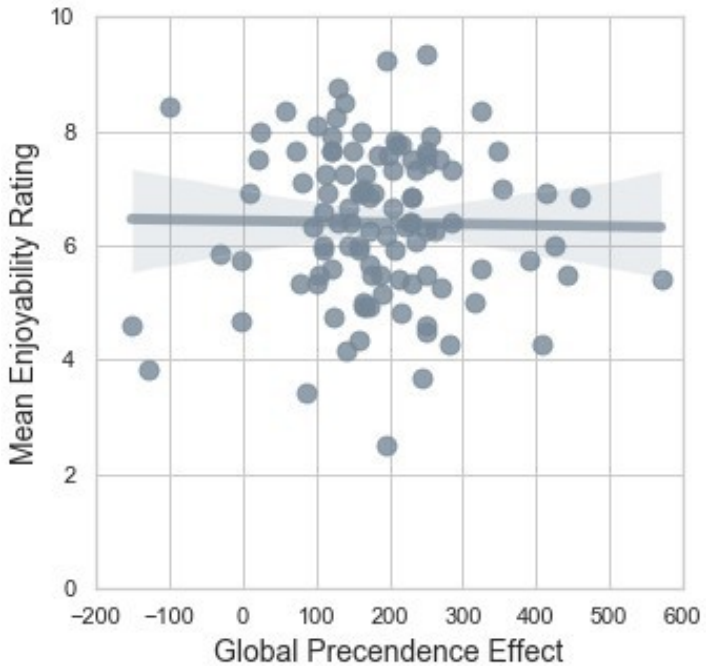

Fig. 73. No correlation between enjoyability and the global precedence effect.

Global interference was defined as the response time differences between congruent and incongruent trials when participants completed the task accordingly (Fig.74).

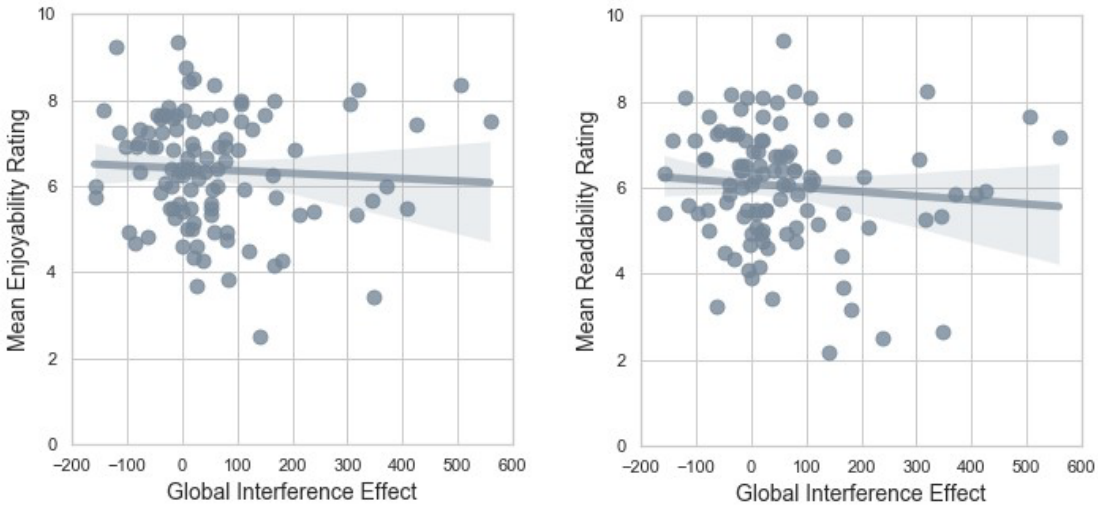

Fig. 74. No discernible relationships between the global interference effect and either enjoyability or readability (p >.3 for both).

Again, there were no significant relationships between the global interference effect (how quickly or slowly participants were able to differentiate between congruent and incongruent trials) and either readability or enjoyability. Positive or negative relationships here would have opened the space to consider whether the density of local and global detail in each respective poem would have interfered with the overall apprehension of them for individuals. At the point of this analysis, that does not appear to be the case, but a later examination of results may indicate a deeper, more meaningful or significant relationship between these variables and rankings. The mutability of this experiment, and how future results may indicate contrary findings in this context, recalls the theoretical discussions from Chapter One that pertained to the differences between scientific truth and poetic truth.

As mentioned in previous chapters, part of this dissertation's approach, in keeping with the assumption that a visual poem can be construed as a visual scene in Navon's sense, prominent attributes of each poem were categorised as either 'local' or 'global' for the purposes of this analysis. For example, as referenced, participants were asked to class attributes of each poem for how prominent they were in their overall apprehension of the poem. The thinking here was that if there were local attributes that were ranked very highly for participants that correlated with their results on the Navon task, then this would introduce a discussion about the capacity for visual poetry to challenge the perceptual systems of participants by usurping their tendency to view visual scenes in a certain way: thus, the empirical results could suggest the latent power of the visual poem to redirect the default mode of perception for participants. One weak positive effect that was evident,

although it was nonsignificant, was the relationship between the global interference effect and ratings on the 'global' items (Fig. 75).

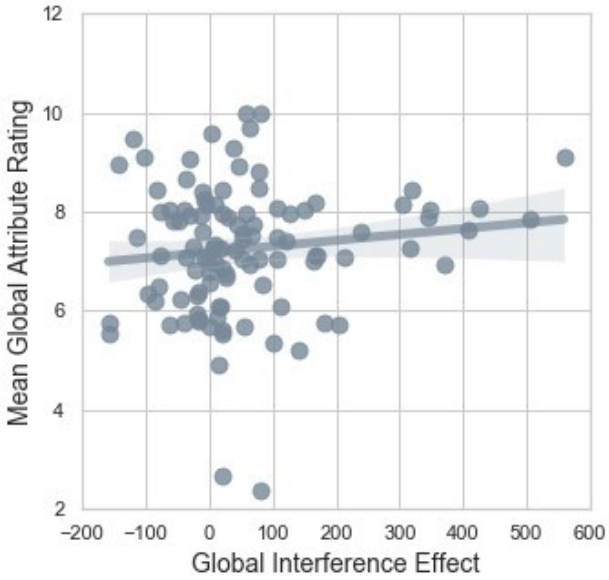

Fig. 75. A weak positive relationship between global interference effect and ratings of global attributes of the poems.

This meant that the more time participants took to identify the specified letters in the Navon task, the higher they ranked the global features of the selected poems, although this relationship was still technically nonsignificant. Subjecting something as specific as the more prominent features of a visual poem to the rigour of this psychological analysis, where concepts such as 'significance' have a distinctly different meaning, and are defined according to numerical values, holds within it its own inherently poetic dimension. Language in this instance, somewhat paradoxically, is stripped of its own associations and allusions: it becomes purely functional, necessarily sterile, in the pursuit of scientific knowledge.

One positive relationship that was notable related to the rankings of both enjoyability and readability and the strength of participants' rankings of local and global attributes. The quantitative analysis demonstrated that participants who strongly endorsed noticing global elements ranked higher levels of both readability and enjoyability, with the same trends evident for those who ranked the local elements as especially prominent: they also recorded high levels of readability and enjoyability. This is interesting from a number of perspectives and can be interpreted in a few ways. One way of reading this is to suppose that of the participants surveyed, those who tended to apprehend either local or global features of the poems gleaned more understanding and enjoyment from them. This can be

seen when re-examining the qualitative results with this mean trend in mind. For example, reviewing the individual data of a few participants who ranked the global features of McCaffery's poems, such as 'overall shape', highly demonstrates this trend of ranking his poems highly for enjoyability, and viewing their comments in the qualitative section reveals this tendency too, but in their own words, since they comment statements like 'i liked the composition of the shapes and colours from an abstract visual point of view' and 'while i could only make out a few words/phrases, the ones i did seemed to add meaning to the visual image, which was interesting and pleasing to my eye'. The quantitative trends invite a consideration of the qualitative data collected in the form of individual comments, thus redirecting the focus towards a different manner of reading and seeing the data. Reviewing the overall quantitative data serves, especially in this case, to illuminate greater understanding of the otherwise rather overwhelming array of responses recorded in the qualitative sections, thus reaffirming how individual differences grant us a deeper dimension of understanding the subjectivity of these responses to the poems.

This reflection on the difference between methods and their mixed methods integrated approach evokes the findings of Jenna Townend, who examines how the 'explication and application' of combined quantitative and qualitative methods can be applied to an appropriate example: that of devotional poet George Herbert and his early modern network of other scholars, theologians, and poets.[6] While Townend's focus is on specifically using the visual and mathematical tools of network analysis to 'offer new ways of understanding the configurations of such groups' that are mostly associated with a digital humanities approach, her focus on Herbert specifically, considering his importance in the history of visual poetics is interesting.[7] She demonstrates how the methods of network analysis can be used as the stimulus for a return to textual analysis, and by mapping statistical and conceptual features like hubs, cliques, and homophily, it is possible to find connections and trends that an expert on George Herbert would have a sense of, but not be able to measure accurately.[8]

Townend's concluding note references how these combined methods enable scholars in the field to move past the idea of the word 'network' functioning as a metaphor, and literalise it so as to more fully appreciate the 'resonances and reverberations' created by

[6] Jenna Townend, 'Quantitative and qualitative approaches to early-modern networks: The case of George Herbert (1593–1633) and his imitators' *Literature Compass* 14 (2017) 1.
[7] Ibid.
[8] Ibid, 11.

canonical author and text.[9] Her point here, although specific to this seventeenth-century example, introduces a defence of these methods and their ability to further insights in this area, that as she demonstrates, prove extremely useful for her field. Regarding the visual poetry of the present project, there are certainly shades of the desire to extend the metaphor of the 'forest from the trees' which has structured Navon's paradigm and the mixed methods analysis outlined here. Townend's contribution to the field constitutes using visualisation tools to represent Herbert's networks, thus enabling scholars to approach these relationships in a new manner. The equivalent value for the field of visual poetry proves somewhat more elusive to quantify. Full statistical analyses – once the number of participants indicated by the power analysis – may demonstrate hitherto undocumented trends of enjoyability and readability in relation to the poems discussed. However, implications for criticism aside, it is difficult to articulate exactly how these insights could benefit the poets themselves, or contemporaneous poets. Breaking poems down as such, into their constituent elements, and essentially piecing them back together again in the mixed methods analysis does not necessarily have especially far-reaching consequences for acts of artistic creation. What it does do, however, is grant a vital new manner of seeing them in a new context. This kind of decontextualization of poems: reorienting them in a new manner in order to place them under an unprecedented kind of pressure, causing them to be reframed, demonstrates how scientific methods can be applied to raw poetic material in order to change how they are perceived by audiences, critics, scientists – and perhaps in future by poets themselves.

Case Studies 1 and 2: Global Insights

The crux of this study's investigation into reading versus seeing, and its structuring of the survey's questions accordingly, was designed with the idea in mind that investigating the visual and verbal simultaneity that occurs in visual poems might be facilitated with reference to local and global features. If, as Dick Higgins claims, reading visual poetry involves an essential 'recognition of the image',[10] then how does this factor into local versus global processing for a stimulus, when examined in tandem with the concept of verbal and visual simultaneity that much visual poetry demands of its readers? In this Case Study, breaking

[9] Ibid.

[10] Dick Higgins, 'Pattern Poems', *The L=A=N=G=U=A=G=E Book*. Eds, Bruce Andrews and Charles Bernstein. Carbondale: Southern Illinois University Press, 1984. 86.

down the elements of entities as complicated as visual poems into quantifiable variables, and measuring aspects such as how much they enjoyed them or understood them is a bold task. It deliberately ignores the importance and influence of context for these poems, creating an artificial setting where, for many participants, it was one of their first times engaging with visual poetry to a significant degree. The issues raised about the digital coding of the alphabet in previous chapters and the questions this raises about letters as information or images was not especially illuminated by the data gathered. However, there were other valuable insights gleaned into how visual poetry is construed in an empirical setting. During the analysis, it became fairly evident that the qualitative data gathered in the experiment related more information of value for the assessment of the poems of Case Study 1 than for Case Study 2. While the theoretical discussion of Case Study 1 mostly engaged with concept of materialities in relation to its three poets, this same aspect was not as especially evident in either the quantitative or qualitative data gathered in response to the poems. While certain comments touched on this element, in general the quantitative trends proved harder to relate to the theoretical concerns. For McCaffery's work specifically, the repeated references to wanting to interact with the poem's materiality did reflect the discussion about how this work exemplifies the concept of transitional materialities. Comparing the rankings of readability to the rankings of enjoyability for McCaffery's work also served to somewhat extend Bruce Andrews' notions of unreadability: the statistical analysis which showed higher enjoyability rankings to readability for McCaffery can be read in accordance with Andrews' maxim that unreadable textual material requires 'new readers' and teaches 'new readings'.[11] In a sense, Survey 2 facilitates these 'new' readers, and measures their 'new' readings accordingly, inviting the further question of whether the emerging discourses of new media can equip us with the tools to read visual and digital poetries through their various iterations. As broached earlier, what does it mean for the materiality of the visual poem to have it restructured through the medium of the computer, and analysed through the lens of experimental psychology? While the results of this study do not weigh in on the intensely literary theoretical component of this kind of criticism, and the approach of the whole project is not to necessarily 'prove' a hypothesis, the trends and correlates identifiable in the data gathered do nonetheless have several implications for both poetry reception and criticism. In its democratising of the sample size of recipients – as

[11] Bruce Andrews, 'Text and Context', *The L=A=N=G=U=A=G=E Book*. Eds, Bruce Andrews and Charles Bernstein. Carbondale: Southern Illinois University Press, 1984. 31.

mentioned, no meaningful restrictions were placed on who could access Survey 2, and every participant was anonymised – the quantitative data gathered thus granted equal weight to every category of information gathered. Each data point on the graphs discussed thus far corresponds to a participant: their individual contributions are not reduced to mere numbers, but equalised within the overall quantitative analysis such that all contributions – be they rankings, preferences, etc – have the same level of importance when analysing the trends. This introduces a rather original way of approaching the hierarchies inherent in the criticism and reception of visual poetry, and happens to accord with the 'democratisation of the written word', which Simon Mager writes of as one of the original motivations behind the production of concrete poetry in the 1950s and 1960s: democratising the word was seen as 'absolutely crucial' by the originators of the different international movements.[12]

The qualitative data tells another story: the amount of consideration, depth of insight, and level of understanding demonstrated by certain participants in their comments showed how not every participant's profile had equal value: the qualitative component did not translate equally across to the quantitative. This observation tends more towards a sociological inference, or a meta-reflective observation on the nature of hierarchies across discourses. The qualitative component of the research in relation to this Case Study did facilitate an understanding of how pronounced the visual versus verbal divide was, especially in relation to some of the comments made about the more complex poems, such as McCaffery's. This visual versus verbal divide, bridged so elegantly by so many of the poets studied here, did not necessarily translate across even in the qualitative section. However, as mentioned, some of the comments in served as mini-literary critical analyses for their depth of insight, highlighting anew Gomringer's idea of 'activated reading': the participants here, as reader-viewers, were truly accounted for as 'active collaborators' rather than 'passive' recipients.[13] Questions of the essence of poetry were not necessarily illuminated with new findings, although the qualitative data did showcase strong feelings amongst its participants about the nature of poetry, with many focusing immediately upon questions of whether or not the poems they were shown could even qualify as poems, even though they were not required by Survey 2 to comment on this aspect of the poetry. One way of interpreting this is to view it as serving as a reaffirmation of the importance of context for

[12] Simon Mager, *Words Form Language: On Concrete Poetry, Typography, and the Work of Eugen Gomringer*. Trieste: Triest Verlag, 2021. 181.
[13] Ibid, 188.

visual and concrete poems. Jamie Hilder advocates for a critical consideration of concrete and visual poetry's 'political force': he writes how discourse has for too long 'neglected to engage the conditions of its production, not just materially in its printing techniques, but culturally within expanded global communication and commerce, as well as the rise of certain theoretical models around language'.[14] He configures concrete poetry specifically as 'an early response' to the conditions that privilege the realm of the visual: as such, despite the deliberate decision to remove the poems of Survey 2 from their contexts, the radicality of visual poems appears to demand a certain contextual element in order for their true impact to be understood by participants. However, the contextless presentation of this data facilitated many insights into the poems presented, demonstrating how the breaking down of the visual elements of each poem into local and global parts, did serve as a new way of close reading.

Considering the more complex theoretical discussion about authorial voice and gender in relation to Case Study 2, it was perhaps unsurprising that there were not more direct insights from the empirical data that could be combined with the close reading of the selected poems. Considering the deliberately contextless approach to presenting these poems, their respective engagements with gender, as discussed in the previous chapter, did not come across in the experiment setting in the manner expected, since unless participants had prior familiarity with the work of these poets they may have remained ignorant of the gendered context of these poems. Not knowing this information could have therefore impeded any understanding of these deliberate strategies of illegibility and obfuscation of meaning characteristic of these poems in particular, especially to those unfamiliar with this facet of visual poems. This did not mean that there was nothing of value in the data gathered or that no inferences could be made: in fact, an interesting finding was observed in the quantitative analysis relating to the final task required of participants. The results showed that Bentivoglio's '*Io*' received the most rankings: meaning that it was the poem that most frequently ended up in the top three positions of participants, ranked either first, second, or third. This presentation of all poems together in one slide (a rudimentary version of this slide can be viewed in Fig. 76) actually facilitated a specific kind of perspectival experiment with the idea of a visual scene, whereby the individual poems constituted local details of the overall scene – each poem a 'tree' in a 'forest' of poetry – although this was

[14] Jamie Hilder, 'Concrete Poetry: from the Procedural to the Performative', *Letters: Michael Morris and Concrete Poetry.* Vancouver: Morris and Helen Belkin Gallery, 2016. 123.

not deliberately a part of the experiment's investigation, and was accounted for more as a serendipitous extension of the project's central metaphor.

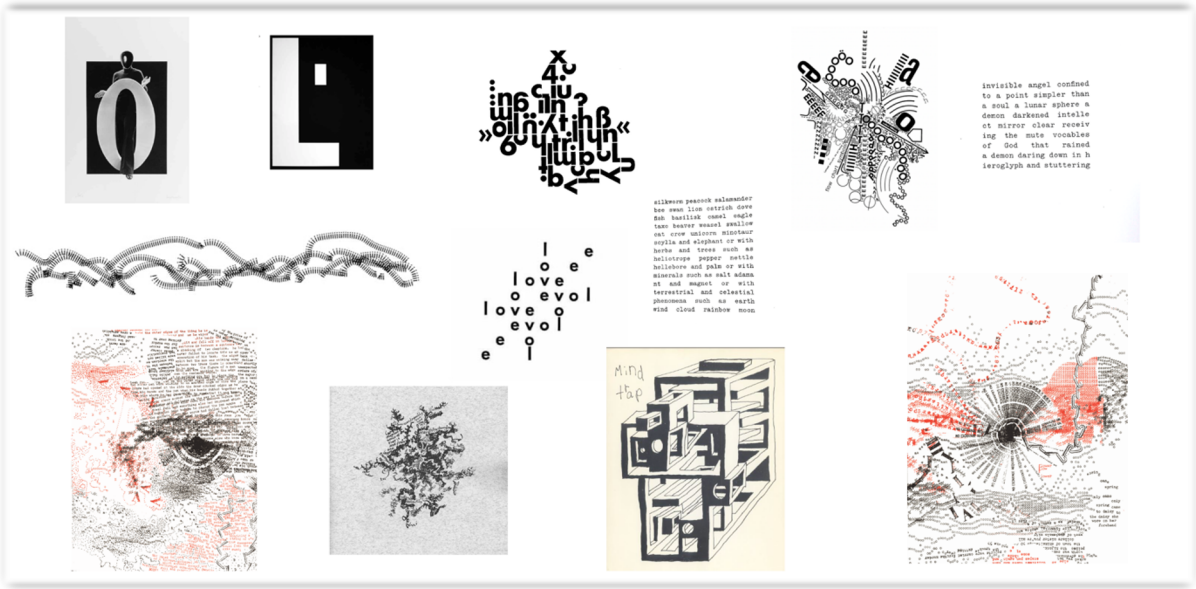

Fig. 76. Participants were shown all poems and asked to rank their favourite three.

Bentivoglio's poem, which 44 participants (33.3% of all eligible participants) listed in their top three after being presented with all twelve poems, thus demonstrated that it had resonated the most with participants overall. Considering that the presentation of poems was randomised for each participant, the final request for them to rank their top three was designed to give them the chance to review the whole selection of the twelve poems together, and identify the three that they liked the most, unencumbered by directives to rank them according to readability or enjoyability. Beaulieu's poem from *Kern* too, ended up being ranked in the top three by 42 participants (31.89% of all eligible participants) despite its relatively lower scores of enjoyability when first presented, where on average it ranked a 6.28 for participants. This slight incongruity between initial ratings of enjoyability and subsequent ranking of favourites when presented with all poems together can be interpreted in a number of ways. While not the most significant of findings, this difference in rankings once presented with the whole spectrum of poems does suggest a change in attitude through exposure: that the context of being shown many visual poems and required to engage with them individually before reappraising them as part of the larger picture of the overall experiment structure causes a certain level of reappraisal of their initial impression. Again, it is hard not to interpret this change in terms of metaphorical forests and

trees; that the local focus has thus impacted the global, holistic impression of the whole experience of being required to rank the poetry of this experiment. Perhaps, in this sense, this analysis suggests a change in perspective amongst participants of the survey on their second impression of the poems. This would be one angle that it would be interesting to pursue further in a future empirical investigation: whether an experiment based on this one could be designed to test and measure participants' changing attitudes to visual poetry over the course of an experiment that exposed them to a series of poems of this kind.

The quantitative and qualitative data gathered in response to the poems of Case Study 2 indicates that for the more specific theoretical elements investigated by the discussion of these poems before the empirical data was gathered, there were no major, generalisable insights into the poetry. The clinical, contextless setting of empirically investigating this kind of work, even through the 'softer' setting of a psychological questionnaire, does not seem to facilitate these experimental poems to their fullest extent. This reaffirms the extent to which the radical, confrontational nature of the poems of these artists depends upon their interaction with their artistic and/or environmental context. Can the theoretically complex poetry of Susan Howe, for example, be understood in isolation from the larger, longer works that her visual poetics contribute to? While there were fascinating insights into individuals' responses to these poems gathered in their own commentary on these works, these findings proved more specifically interesting on the level of individual responses in the qualitative data, rather than providing specific or generalisable trends. This, however, is not a negative finding: rather, it affirms the importance of context – historical, geographical, cultural – for work like this. It also demonstrates how perhaps in case of visual poetry, examining individual differences provides a valuable perspective on subjectivity in both psychological and literary senses.

Further Analyses

One manner in which the data gathered here showcases its potential is the way in which it could be replicated on a much larger and grander scale than the number of participants surveyed for this project. With all desired demographics represented, the methodology here could be applied on a grander scale to gauge interest and understanding of the impact of poetry upon, for example, neurodivergent poetry reader-viewers, on non-native English speakers, or on those who use different alphabetic systems. For example, in this study one of the demographic questions that was asked was whether participants were

native English speakers or not. For the 21 participants of this survey who marked themselves as not being native English speakers, in the case of all poems, the average readability rankings for non-native English speakers were lower than the overall average readability ranking for all participants. On a straightforward level, this appears to make sense: challenging visual poetry is unlikely to be more 'readable' to those who are not reading it in their first language. Interestingly, however, there were two exceptions to this trend: one of McCaffery's panels from *Carnival* and Judith Copithorne's poem from *Runes* scored just slightly higher on average readability for non-native English speakers than was the average for all participants, although this difference was a fraction of a percentage and therefore not statistically significant. If this tiny discrepancy had been higher, it may have suggested other dimensions to consider about how poetry is received by its audiences. While it has been acknowledged that this dissertation only engages with visual poems in English, a future direction of this research would be to study the impact of these poems upon non-native English speakers whose first language has a logographic alphabet – such as Mandarin, Korean, or Japanese – and compare the results specifically with those who use linear alphabets. While there was no significant trend regarding the rankings of enjoyability for non-native English speakers compared to native speakers, but again, as referenced, in a subsequent analysis once the power analysis has been reached, there may be more definitive or discernible trends that indicate the contrary. What this element shows, however, is the capacity for this method to be replicated along different demographic lines, across different languages, and through different perspectives that – rightly – challenge the Western normative approaches to literature. Masako K. Hiraga, William J. Herlofsky, Kazuko Shinohara and Kimi Akita describe the 'ubiquity of iconicity' in their edited volume *Iconicity: East Meets West*, where they examine the phenomenon of iconicity across Eastern and Western cultures.[15] This experiment – or this kind of experiment – could be deployed to investigate these kinds of cross-cultural distinctions and binaries, in the spirit of concrete poetry's transnational origins, and influenced by what Greg Thomas writes of as concrete poetry's alluring promise of a 'kind of totalizing metalinguistic system'.[16]

In light of this reflection, another manner in which the approach of this project could be extended further and reframed involves using a Think-Aloud Protocol to gather further

[15] Masako K. Hiraga, William J. Herlofsky, Kazuko Shinohara and Kimi Akita. *Iconicity: East Meets West.* Amsterdam: John Benjamins Publishing Company, 2015. 1.
[16] Greg Thomas, 'Concrete Poetry and Scottish Women's Writing: The Case of Veronica Forrest-Thomson' *Contemporary Women's Writing* 14:2-3 (2020) 209.

data. This 'verbal protocol' involves getting participants to 'think aloud' – as in, speak aloud whatever thoughts and feelings they are having when completing a certain task.[17] Commonly used in cognitive psychology and in educational studies, this kind of method for gathering data would be an especially suitable technique for generating participant data in response to the visual and verbal elements of the task: the resulting data from this novel protocol could be presented visually as its own form of creative response to the task being completed by the participants. This strategy would serve as an especially fruitful manner of replicating this type of task in a more empirical setting, utilising these further methods of experimental psychology to approach the questions broached. Its novel method of gathering qualitative data directly from participants in the moment of apprehension of the poetic works, the visuality of the poems presented could be assessed in relation to their local and global features, as expressed by participants. This would be particularly intriguing in the cases of participants who were non-Native English speakers, especially those using different alphabetic systems: as such, further comparative matrices could be designed to explore the relationship between visual and verbal, local and global: what is seen and what is read.

What this chapter also invites a consideration of, is another fundamental question pertaining to Neurohumanities research: who is the 'we' of academic discourse here? So much of the project has focused on the ideas in and around the 'we' of both poetry and Neurohumanities research, but to whom does this actually refer? 'We' in an academic sense is often both politicised and presumptive: it intimates the hierarchy entrenched within universities and academic contexts, but also presumes an 'ideal reader' in the sense that has dogged much literary criticism. Peter Dixon and Marisa Bortolussi write how this conception of the ideal or implied reader – 'one who possessed the competence required to properly understand and interpret a literary work'[18] – is part of the critical legacy associated with Jonathan Culler and Wolfgang Iser. This implied reader operates on the premise that 'reading is a form of competent decoding': unlike the actual reader, the ideal reader implicitly 'has no attention or memory limitations, is not constrained by events in the world while reading, and unfailingly makes appropriate inferences as licensed by the text'.[19] Dixon and Bortolussi counter this concept with the understanding that 'a vast array of research on

[17] C. Dominic Guss. 'What is going through your mind? Thinking aloud as a method in cross-cultural psychology' *Frontiers in Psychology* 9 (2018) 1.
[18] Peter Dixon and Marisa Bortolussi, 'Fluctuations in Literary Reading: The Neglected Dimension of Time' in *The Oxford Handbook of Cognitive Literary Studies,* Ed. Lisa Zunshine. Oxford: Oxford University Press, 2015. 542.
[19] Ibid, 542.

cognition' has shown that 'the capacity of the mind is limited in a variety of ways and that these limitations can have dramatic consequences for how people undertake complex mental activities such as reading'.[20] The empirical context of Survey 2 necessitated this kind of understanding of how reader-viewers 'cannot consistently devote their full attention to the text', nor can they 'store all that they do perceive in memory', therefore 'not only does reading vary over time, but the limited mental capacities that can be brought to bear on the text must be rationed in different ways over time'.[21] This kind of conceptualisation of the reader-viewer – one that accounts for them as necessarily constrained by their own mental capacities, requiring a strategic allocation of their attentional, perceptual and intellectual resources – is affirmed by both the qualitative and quantitative data gathered here. This is part of the idea of what a cognitively-aware discourse can bring to interdisciplinary research into poetry. In a similar vein, visual poetry as a stimulus could be used to test what Hayles has written of as the differing cognitive modes of deep attention and hyper attention in relation to humanities research that the default digital paradigm we now operate in has facilitated.[22]

One strong aspect of the project's methodology is its deliberate strategy of repudiating the different hierarchies encoded in both poetry criticism and Neurohumanities research though making the survey freely available, anonymising the results, and treating the quantitative data of each eligible participant equally. When analysing the data of the survey, the 'we' constituted anonymous participants were asked several basic demographic questions so that their responses could be considered in the context of those demographics: for example, one manner of approaching the data if it were being used to assess the reception of experimental poetry for different age groups, perhaps for the purposes of curriculum selection in an educational context, the ages of participants could be filtered accordingly to get a sense of this distribution. Once such demographical analysis in this context, for example – although it would be a rather clumsy one – would be to compare the rankings of readability and enjoyability for participants of different genders, especially in relation to the poetry of female visual poets that constitutes Case Study 2. These metrics can be obtained quite straightforwardly: the data here demonstrates that there is a very small difference between the average rankings for enjoyability and readability of the visual poetry

[20] Ibid.
[21] Ibid, 543.
[22] N. Katherine Hayles, 'Hyper and Deep Attention: The Generational Divide in Cognitive Modes' *Profession* (2007) 187.

by female poets for participants who identified themselves as either female or nonbinary. While the differences here are small, they are nonetheless present, therefore invite the further question of whether a more distinctive trend might emerge if more participants took part in the survey.

A clear split emerges, between the 'natural' way of reading (which carries with it the baggage of the implied reader), and the engaged, participatory headspace required to truly engage with a visual poem. Whether gathering empirical evidence is enough to make a meaningful contribution to the understanding of how this poetry functions and operates on the many different levels it exists on remains to be confirmed. Certainly, a problem that remains is the ability to accurately capture or replicate the 'reading moment': how can an isolated, survey-based moment be enough to capture the moment of instantaneous, often instinctual response in a given moment of time? The artificiality of the context of this experiment however has been noted: hence the providing of definitions of enjoyability and readability. An early slide poses the question to participants – 'do we "read" or "see" visual poetry?' – in order to alert them that this is one of the investigations of the project overall and to invite a measure of self-reflection on the nature of their own perception. It was a deliberate choice to not be overly prescriptive or didactic in directing participants towards viewing the poems in a certain way. This was to account for what Thurston writes of as 'the classic problem of theorizing lived realities: the problematic tension between the specific and the general that every model must resolve for itself, while also accounting for whatever resolution it backs to affirm its own validity as a model'.[23]

While this chapter claims no great insights into the epistemological nuances of what qualifies as poetic knowledge versus scientific knowledge, it was especially interesting to note the extent to which the data gathered from both Survey 1 and Survey 2 can be moulded and manipulated to fit the constraints of the humanities. The very nature of psychology and psychological hypotheses is such that they are in a constant state of revision and amendment: this flux is seen to constitute the essence of scientific theories. As such, any investigation into existing psychological paradigms is useful in the ongoing revision and restructuring of scientific theories or hypotheses. As this study demonstrates, its findings can absolutely be subject to amendment, depending on the numbers of participants that complete it. From the perspective of a metacritical analysis, there was a definite propensity

[23] Nick Thurston, 'Amodern 6: Reading the Illegible'. *Amodern 6: Reading the Illegible.* Online article. http://amodern.net/article/reading-the-illegible/#pdf [Date accessed: 10/10/22].

to understand how the data is mutable: especially within the parameters of the psychological study, as mentioned, once the data is revisited with 193 participants having completed it, as specified by the power analysis, certain trends and correlations may emerge that are not evident now. This though in itself invites a consideration, yet again, of the wider picture of disciplinary power. The poetry of McCaffery, Beaulieu, Bentivoglio, and Copithorne specifically makes a point in its visual configuration, distribution, and very existence that seeks to repudiate or resist the kind of commodification of language and art that is characteristic of late-stage capitalism. That these poems can be broken down into these quantifiable variables – that data can be extracted and generated in response to their highly idiosyncratic aesthetics – speaks of a certain undermining of their inherent resistance to such quantification. The neoliberal paradigm, so recurrent within every stratum of universities, is bound to perforate individual disciplines especially at the interdisciplinary meeting places between disciplines which at their nascent stage, are at their most vulnerable.24 Therefore, the trajectory that this project has followed shows how it has much to say about hierarchies of power, value, and significance, especially if we take liberties with these psychological terms, after Bal, and relate them to the wider interdisciplinary conversation here. This enables us to note, again, how the quantitative data is democratised within the scope of this analysis. Especially in the quantitative analysis, each data point was equalised due to the anonymity of Survey 2, while the value of the qualitative work is characterised by its attention to detail, or the insightful nature of commentary: it was assessed accordingly, not because it had the gravitas associated with a scholar of poetry or a reputable critical journal.

This point can be related to wider discussion of interdisciplinarity that is at the heart of this project. By its definition, interdisciplinary work such as this must necessarily be nonhierarchical and as democratic as possible: Callard and Fitzgerald note the oft-missing account of power – the 'different financial, epistemic, and cultural resources that belong to different disciplines' – when considering reciprocity across interdisciplinary collaborations.[25] The hierarchies inherent within literary criticism, for the purposes of this project, have been necessarily jettisoned in pursuit of the global and local perspectives that characterise the

[24] One negative direction this could go in would be to point to a future where statistically viable works of literature are selected by methodologies such as these because it could gauge them as being more 'marketable' or palatable to a general audience, and therefore more profitable.

[25] Felicity Callard and Des Fitzgerald, *Rethinking Interdisciplinarity across the Social Sciences and Neurosciences.* Basingstoke: Palgrave Macmillan, 2015. 96.

investigation: it thus constitutes an effort towards the kind of 'intervention' that Gander and Garland call for in the 'established hierarchy of verbal and visual value and meaning'.[26] This can be extended to the issue of demographics discussed earlier. What are the implications when lay readers of poetry are subjected to this method of measuring their responses, and their responses in the quantitative sense are deemed just as valuable as those who may very well be literal scholars of visual poetry? In the qualitative section of this analysis, their familiarity with poetry is measured by the self-ranking question, but again, this raises the question of whose voice is deemed the most important when it comes to poetry, and by who?

Future Directions: Mood, Individual Differences, Reciprocity

If the goal of psychological research in general is to 'describe, explain and predict the behaviour of organisms (people)'[27] then the techniques, methodology, and resources of visual psychology lend themselves to expanding this type of research into visual poetry and its impact on the behaviour of people further. One such consideration that incorporates individual differences would be to engage with the measuring and impact of mood in individuals undertaking a similar survey of visual poetry. While, as mentioned, this project did not set out to investigate mood or emotional states in response to visual poetry, several of the qualitative comments that related to the strong emotional reactions felt by participants indicates that this is one future area of interest, that could prove to bring the investigation of Navon's paradigm more to the fore in future research on visual poetry. A study by Karen Gasper and Gerald L. Clore engaged with the impact of mood upon local and global processing: they tested their hypothesis that 'happier moods promote a greater focus on the forest and sadder moods a greater focus on the trees'.[28] This was done through the implementation of two image-based experiments, where, 'as predicted, individuals in sad moods were less likely than those in happier moods to classify figures on the basis of global features'.[32] Determining and quantifying mood in either an academic or scientific sense is a slippery business. The definition of mood from a scientific standpoint, let alone from a literary or poetic one, is a complex endeavour. 'Mood' as defined in this study be compared

[26] Catherine Gander and Sarah Garland, 'Introduction: to fasten words again to visible – and invisible – things'. *Mixed Messages: American Correspondences in Visual and Verbal Practices*. Manchester: Manchester University Press, 2016. 3.
[27] Colin Cooper, *Individual Differences and Personality*. London: Hodder Education, 2010. 1.
[28] Karen Gasper and Gerald L. Clore, 'Attending to the Big Picture: Mood and Global Versus Local Processing of Visual Information' *Psychological Science* 13:1 (2002) 34. [32] Ibid.

or contrasted with the kind of poetic mood associated with the evocation of emotion characteristic of poetry? And how best to quantify the kind of 'mood' evoked by visual poetry – is there one? Gasper and Clore engaged with mood by examining the effect of mood on memory for an abstract drawing that suggested a facial schema. As the researchers predicted, 'those in sadder moods were less likely to rely on the global information suggested by the title and form of the picture'.[29] These results of the first experiment were apparently consistent with the hypothesis that 'affective feelings influence the kind of information to which one attends'.[30] The second, complementary experiment in this study also indicated that 'individuals in negative moods' were less likely than those in neutral or positive moods to use the global form to complete the task set by the experiment. The concluding notes of the discussion section acknowledge that 'positive affect' might elicit attention to the 'larger meaning of poetry, music and art' while 'negative affect might focus attention on the meter of the poetry, the rhythm of the music, and the texture of a brush stroke'.[31] This is an intriguing note to end on, and a rather large inference to make considering the scale of the study: especially the assumption that the 'global' in relation to poetry might constitute its 'larger' overall meaning, while the 'local' relates to its form. The present project has conceived of the local and the global in a very different manner, due to its focus on visual poetry, taking global in a much more technical sense to pertain to shape It is especially interesting to note the quantifying of 'mood' as a variable in this context, and whether the concept of mood translates between disciplines as easily as this research article appears to imply. The findings suggest that 'one's perception of novel stimuli involves an interplay of both local and global attention that is guided by positive and negative affective reactions'.[32]

To expand further on this consideration of mood with reference to another study: Ji *et al* empirically examined 'how global vs. local perceptual processing can affect happiness'.[33] They note how 'positive mood signals a benign situation and results in more global and heuristic processing', while conversely, negative mood signals 'that the situation is problematic and that detailed and systematic processing is necessary'.[34] Their review of

[29] Ibid, 36.
[30] Ibid.
[31] Ibid, 39.
[32] Ibid.
[33] Li-Jun Ji, Suhui Yap, Michael W. Best, and Kayla McGeorge. 'Global Processing Makes People Happier Than Local Processing'. *Frontiers in Psychology* 10 (2019) 1.
[34] Ibid, 2.

prior studies also yields some interesting inferences from the empirical work already conducted in this area – such as correlational research done on global processing and 'depressive symptomology' – put bluntly, this is the documented inability to focus on 'the bigger picture' when suffering from clinical depression.[39] Ji *et al* also note the neurological evidence for this hypothesis, although they acknowledge that while it is possible that 'broadened global cognitive processes can promote positive mood via their overlapping neuropsychological pathways', more experimental evidence is needed to provide evidence for this causal effect of processing levels on mood.[35] Regarding the finer details of their own study, they write that determining whether global processing increases people's positive mood or local processing decreases it is inconclusive, but 'the relative advantage of global processing over local processing in sustaining or elevating positive mood' was consistent across their four studies.[36] Ultimately, their studies suggest support for the hypothesis that 'global processing is more conducive to positive mood': the relationship between positive mood and processing style 'can be causally bidirectional and self-perpetuating'.[42] The implications for psychology are stated as being far-reaching for 'mood regulation in general': but what are they for poetry? One manner in which this could be investigated would be to require participants to note their own mood before measuring their responses to visual poems and then quantifying their responses to local and global features, as was done in Survey 2. Or, another route for investigating this would be to select the poems that elicited strong emotional responses from participants as referenced in the qualitative results, and investigate them further for local or global prominence. Testing mood both before and after exposure to visual poetry that displays high degrees of local or global detail might also indicate how to measure visual poetry's capacity to influence the moods of its reader-viewers.

Callard and Fitzgerald advise in some cases to not force reciprocity or 'mutuality': all too often it can emerge as 'the (imagined) organising logic of interdisciplinary collaboration'.[37] Regarding reciprocity, they also write how 'interdisciplinary asymmetries of power can produce silences and absences'[38] – the phrasing of this actually evokes Howe's use of silence, white space, and absences or 'caesurae' to explore power dynamics from the

[39] Ibid.
[35] Ibid, 3.
[36] Ibid, 7. [42] Ibid, 9.
[37] Callard & Fitzgerald, *Rethinking Interdisciplinarity*, 96.
[38] Ibid, 97.

perspective of her feminist poetics. There are therefore echoes of the two different kinds of absences within each other: both reflect what skewed hierarchies of power can do to poetry and scholarship both inside and outside the academy. Johanna Drucker has recently observed that in our current world, there is 'a reciprocity of surveillance' as so much of our experience is now mediated by screens.[39] She says that 'we look at the screen and it looks back at us': this looking back at us is often directly, through eye tracking technology facilitated by webcams and phone cameras.[40] This recalls the discussion of the unnaturalness of the empirical context through which participants or reading subjects' responses are being measured. The perspective on this can be reoriented: the surveillance of viewing reclaimed so that it facilitates some kind of insight into the movement of the eye across the page and therefore contributes towards the understanding of this kind of poetry, is a positive way of considering how this reciprocity of surveillance may be used to understand art in more meaningful ways. While, as discussed, the empirical data did not show a huge number of significant trends, there are still further opportunities to reassess whether more participants completing the survey would show more distinctive trends especially once the figure of 193 participants – as indicated by the power analysis – is reached. Future data holds the promise of showing greater implications for this investigation of Navon's paradigm in the future. While the success of this project does not rest on achieving these kinds of trends, it is a positive place to leave the data analysis in this moment, and invites a reconfiguration of how ideas of reciprocity are evident in this project. There are certainly ways in which contributions to the psychological component of the study could be construed: From the more global, holistic perspective now afforded to the project, there is an opportunity to reconsider how visual poetry as a stimulus can be combined with Navon's paradigm in new, interesting ways. This also pertains to the reciprocity of the interdisciplinary endeavour which the project seeks, but does not characterise its own success in terms of. This discussion has evinced that the components of visual poems proved hard to quantify: in the sense that from a literary critical perspective it was harder to generate meaningful insights that could hold their own with a literary theoretical analysis. Nevertheless, the approach of this project actually suggests a few new ways of approaching Navon's paradigm and investigating global precedence with visual poetry.

[39] Drucker, 'Reading Matters'.
[40] Ibid.

Navon himself revisited his own paradigm to acknowledge its mutability in his 2003 article, noting the ambiguity of its definition of compound stimuli, and acknowledging that his famous paradigm was 'originally meant to test some simple hypothesis about disposition, not a comprehensive theory of perception'.[41] Navon's revisiting of his paradigm affirms its mutability: it is not proposed as a fundamental theory, but rather a paradigm that is open to revision and extension, making it easier to situate in relation to the Neurohumanities approach of the project, especially when considering future directions of this kind of research. One such area is lateralisation: it is generally accepted that local and global features of visual stimuli are processed in a 'lateralised' fashion. Put briefly, lateralisation refers to the tendency of some neural functions and cognitive functions to occur on one side of the brain or the other. Speaking in very general terms regarding visual stimuli, it is often presumed that the local and global properties are processed in a lateralised way: with a left hemisphere (LH) specialisation for local detail and right hemisphere (RH) specialisation for global detail.[42] LH dominance is usually taken as given for language-related processes, and the RH dominance for visuospatial processes are well documented. However, as Brederoo *et al* note, the evidence for this stems predominantly from the use of linguistic stimuli in experiments, 'the process of which has been shown to be LH lateralised in itself'.[43] Accordingly, there is not definitive clarity on whether global-local lateralisation 'may in fact be stimulus specific'.[44] Their study tested the response of participants to linguistic and non-linguistic stimuli presented in the right and left visual fields, and found that the global lateralisation effect was larger for linguistic stimuli. This is an area that visual poetry and poetics appears especially compatible with, given the theoretical and practical considerations extensively discussed in previous chapters. How might this be combined with the theoretical and practical questions explored through and by visual poetry and poetics?

Brederoo *et al* identify a gap in the current literature regarding the local-global paradigm and hemispheric lateralisation that is established in relation to this paradigm. They interrogate 'whether a content-neutral or stimulus-specific interpretation best explains global-local lateralization cannot be determined based on the available literature' and their study aims to resolve this issue by 'directly comparing global-local lateralization for linguistic

[41] David Navon, 'What does a compound letter tell the psychologist's mind?' *Acta Psychologica* 114 (2003) 288.

[42] Sanne G. Brederoo, Mark R. Nieuwensteina, Monicque M. Lorista, Frans W. Cornelissen. 'Hemispheric specialisation for global and local processing: A direct comparison of linguistic and non-linguistic stimuli'. *Brain and Cognition* 119 (2017) 10.

[43] Ibid.

[44] Ibid.

(i.e. letter) and non-linguistic (i.e. figure) stimuli'.[45] This study also found that the global, but not the local, lateralisation effect was larger for letters than for figures. This disrupts the paradigm somewhat: 'As letters themselves have been shown to induce predominantly LH fusiform gyrus activity… the use of hierarchical letter stimuli to study global-local lateralisation introduced a confounding factor'.[46] The extent to which global-local lateralisation is content-neutral, and therefore not affected by the linguistic nature of the stimuli used, is often presumed. However, the amount that this factor can influence the results of such stimuli remains to be explored further, and as will be discussed, could be viewed in conjunction with visual poetry as the stimulus in order to explore Navon's paradigm further. Given the present project's concern with the visual and the verbal, considering the effect that visual poetry as a stimulus might have when viewed through this lens and in relation to this paradigm, this research suggests a potential future avenue to consider using visual poetry, and a revised experiment design that could focus more on investigating lateralisation in this context.

As noted by Brederoo *et al*, most studies investigating lateralisation use linguistic stimuli modelled after the classical hierarchical Navon letters. However, the aims of their study were to try to specifically develop 'a more conclusive test of content-neutral versus stimulus-specific global-local lateralization, by avoiding inconsistencies in stimulus material'.[47] Examples of their stimulus material are included in Fig. 77.

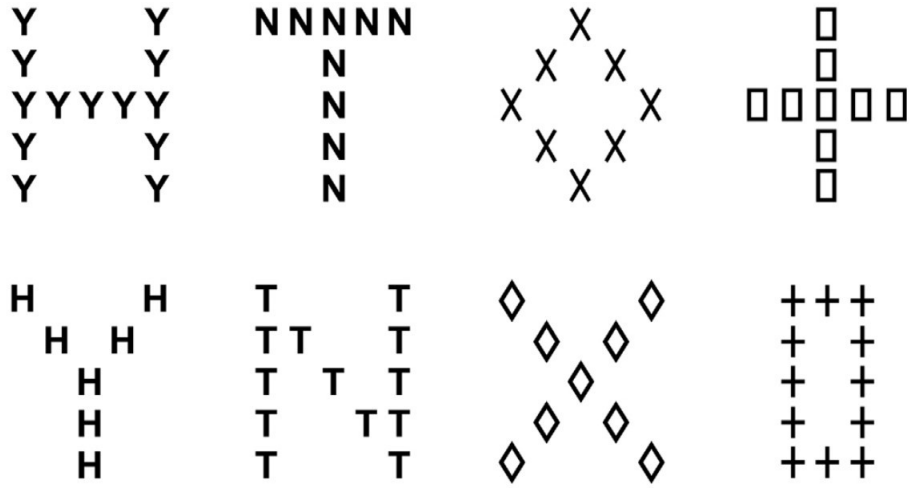

Fig. 1. Examples of four letter stimuli (left) and four figure stimuli (right), showing targets at the global level (upper), and local level (lower).

[45] Ibid.
[46] Ibid.
[47] Ibid, 12.

Fig. 77. Brederoo *et al*'s examples of non-letter compound stimuli.

Their results indicated that the direction of global-local lateralisation 'does not depend on the stimulus being linguistic or non-linguistic in nature'.[48] They conclude that they have shown that while the use of non-linguistic stimuli does not reverse global and local lateralisation, it can lead to diminished global lateralisation, but acknowledge that more research is required to 'further delineate the cause of this difference between linguistic and non-linguistic stimuli' and why this affects global but not local lateralisation.[49] A factor that they take into consideration is how for skilled readers, letters are processed more automatically than figures. Automaticity of letter processing is an important factor to consider here as it accounts for the fluency of letter processing: it could thus be a fruitful area for future examination. If, as the study says, it has been suggested that local features will 'presumably more readily be perceived as texture than local letters will', the implications for the theoretical considerations of the materiality of language in the context of visual poetry can be re-evaluated. They write how it would be interesting to 'consider manipulating the number of local elements, to compare linguistic and non-linguistic stimuli on how this affects global lateralization'[50] and propose that future studies ought investigate this element.[51] This suggests, that perhaps in future research, poetry may have more to teach scientific paradigms than previously thought. This particular re-evaluation could take the form of a more targeted examination of distinctly visual and verbal poems. To bring this opening even more into conversation with the concerns of this project, a potential future investigation would be especially interesting that extends the theoretical points of Case Study 2. The complex and contested relationship between meaning and materiality that is most clearly evident in the experimental poetry covered in Chapter Five could be examined further with this research in mind. This could be especially interesting in relation to digital poetics, considering the discussion of technology's impact and the manner in which it has shifted the nexus of our literacies from the page to the screen. This is aptly anticipated by Brazilian poet André Vallias's 1991 experiments with digital poetry (Fig. 78), which recalls

[48] Ibid, 13.

[49] Ibid, 14.

[50] Ibid.

[51] While the constraints of the present project do not allow for such specific investigations into lateralisation specifically, this study raises some valuable points about the fluency of processing letters and non-letters, especially when considering the relationship between letterforms and non-letterforms in the visual poems of the Case Studies.

the ‘Io’ of Bentivoglio: Vallias plays with dimensionality to set the poems free from ‘the domain of the page’.[52]

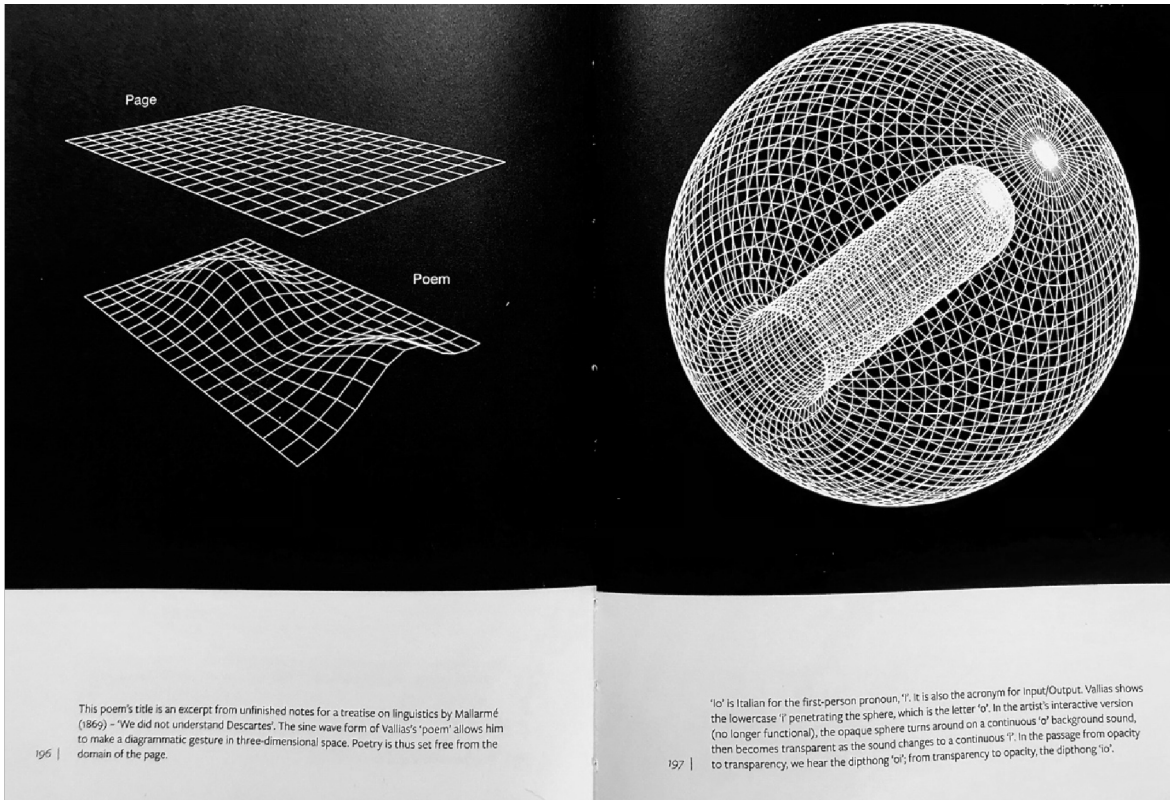

Fig. 78. André Vallias’s poems feature in Nancy Perloff’s anthology, showing how the digital negotiation of page space can be configured.

In both a material, page-bound context and a dematerialised digital context, the asemic practices, deployment of silence, absences and white space that is so purposefully engaged with in visual poetry by women would also be a fascinating future direction for this research: investigating further, as Golding asserts, ‘not in what the space “is”’ but ‘how it is used’.[53] This would invite a consideration of what Nick Thurston writes of as ‘the pressure put on the poetic imagination (for better and worse) by limit-cases of il/legibility’.[54] Interrogating this ‘pressure’ further, utilising the methods and approaches from the study thus far would provide a valuable complementary dimension to the current critical attention that is being directed towards re-evaluating the contributions of women to visual poetry at this moment.

[52] Nancy Perloff, ‘Postlude’, *Concrete Poetry: A 21st Century Anthology,* Ed, Nancy Perloff. London: Reaktion Books, 2021. 196-197.
[53] Alan Golding, ‘”Drawings with Words”: Susan Howe’s Visual Feminist Poetics’ in *Writing into the Future: New American Poetries from “The Dial” to the Digital*. Tuscaloosa: University of Alabama Press, 2022. 136.
[54] Thurston, ‘Amodern 6: Reading the Illegible’. N.p.

This project has generated an in-depth discussion about the merits of including empirical data within the literary paradigm. As is often the nature with interdisciplinary work, it has shown that other disciplines may intersect with visual poetry especially well, such as the study of visual culture and a perspective informed by both art history and new media studies. From the perspective of aesthetics and the philosophy of art, appeals to empirical or experimental work is thought not to substantially increase or change the baseline understanding of concepts. Rather, these topics are – and ought be – concerned with understanding the 'logic, structure, and coherence of our aesthetic and artistic experience, rather than explaining them in terms of psychological mechanisms that subserve them, or evolutionary forces that shape them'. [55] As Currie *et al* assert, 'hence, aesthetic experience, understanding, and the normativity of artistic reasons, principles, and values, are to be accounted for in ways discontinuous with scientific explanation'.[56] Currie *et al* write of one of the many spectrums informing this kind of endeavour: 'At one end of the spectrum is the idea that aesthetic experience and philosophical issues concerning the arts are a matter of refined subjective experience and understanding': on such a view: 'scientific study of the mind's causal processes (and their origins) will yield little by way of interest to the philosopher'. [57] At the other end of the spectrum 'is the presumption that scientific study and analysis is in a position to improve upon and take over from the speculative postulations of philosophical analysis: philosophical aesthetics is supplanted by the advancements of science'.[58] The current project resides at neither end of this spectrum, but occupies the more variegated spaces in between these two poles: this chapter's discussion has demonstrated that occupying this kind of position is possible.

So, where has this project left the different disciplines that it has drawn from, influenced, and investigated? From a literary critical perspective, this discussion has demonstrated the viability of a cognitively-informed approach to visual poetry. It has expanded, in this context, the critical vocabulary and understanding of some of the many cognitive processes occurring during the apprehension of visual poetry that we have no conscious awareness of. It has thus produced a general positive conclusion from this overall

[55] Greg Currie, Matthew Kieran, Aaron Meskin, and Jon Robson. 'Introduction'. *Aesthetics and the Sciences of Mind.* Eds, Greg Currie, Matthew Kieran, Aaron Meskin, and Jon Robson. Oxford, Oxford University Press, 2014. 10.
[56] Ibid, 10.
[57] Ibid, 12.
[58] Ibid.

discussion by introducing, however imperfectly, a critical vocabulary now available to the critic or scholar of poetry. Including empirical evidence is not even necessarily required every time, although when it can genuinely contribute and complement the literary element being investigated or written about, it is especially welcome. For experimental psychology, it has invited new ways of considering Navon's paradigm and the notion of the global precedence effect in relation to visual poetry, and suggested viable future avenues of research with poetry as a stimulus. For Neurohumanities discourse in general, it has contributed to the emerging of the field, and demonstrated how mixed methods approaches can lend themselves especially appropriately to theoretically challenging experimental art such as visual poetry. It has, in short, demonstrated the practicalities of consilience between science and poetry, as articulated by Derek Beaulieu:

> scientific research builds incrementally on the shoulders of previous scholars, it accretes in small sheafs of paper stacked on a pile – our knowledge and understanding grows not from egoic isolation but from community conversation, exchange, and collaboration. These ideas are key to science, and in my opinion, are key to poetry.[59]

The mutability of both poetry and science – and, I suggest, poetic knowledge and scientific knowledge – is affirmed by this project's trajectory. For all its investigation of shape, the project does not alight on one satisfactory description of what shape best suits an interdisciplinary Neurohumanities investigation into visual poems. To recall Rukeyser, one final time: 'a poem is not its words or its images, any more than a symphony is its notes or a river its drops of water. Poetry depends on the moving relations within itself'.[60] If poetry depends on these moving relations within itself, its essence will always prove difficult – and maybe impossible – to be truly quantified or qualified, especially in a 'hard' empirical sense. There is a consistent and pervasive concern with essences that is especially evident when reviewing data here: participants felt compelled to comment on this element, even though they were not required to. Even when participants refused to label the selected poems as poems, this trait overall was an especially rewarding one to witness, as it demonstrated a willingness to approach the mystery of definition at the heart of the discipline of poetry studies. It is likely this very trait that proves too mutable and elusive to be pinned down in a laboratory, or in a truly scientific context. If poetry is to be defined in terms of its shifting

[59] Derek Beaulieu, in conversation with the author. See Appendix A.
[60] Muriel Rukeyser, *Life of Poetry*. Middletown, CT: Paris Press, 1996. xi.

relations to the times that it is written in, or encountered in, surely it is constituted by something beyond articulation: it holds no easily definable shape, demanding of us a definition or strategy that reflects the 'transfer of human energy' that Rukeyser writes of.[61]

As Klein observes, inter- and transdisciplinary research 'evolves through a dialogue of conventional and expanded indicators of quality' and while traditional methodology and statistics have a role to play, 'they are not sufficient'.[62] The new contexts of visual materiality engendered by the internet and digital realm problematise the older, more traditional ways of looking at poetry, even the innovative close reading strategies for dealing with visual poetics. If, after William Carlos Williams, a poem is still a 'machine made out of words'[63] then new technologies afforded to us must be applied to this machine in the ongoing renegotiations of its ever evolving context. By considering the ways in which to combine the study of poetry with psychology/cognitive sciences under the rubric of Neurohumanities, methods in which both disciplines can challenge each other, interact, and work together are illuminated anew. This benefits both disciplines and serves as a fascinating example of how two disparate fields might share a commonality. Visuality and the visual are being continually reinscribed and rematerialized on both the physical and digital surfaces of a changing world. While the meaning of 'meaning' itself may be too subjective to be measured by conventional methods of science – it is, as Katherine Shingler reminds us, 'a matter for literary criticism'[64] – nonetheless, scientific methods can be utilised to explore at the very least the conditions from which meaning, however personal, may arise in relation to poetry. It is in the map of this journey that the most rewarding – albeit enduringly complex – fusion of disciplines can be seen.

[61] Ibid.

[62] Julie T. Klein, 'Evaluation of Interdisciplinary and Transdisciplinary Research: A Literature Review', *American Journal of Preventive Medicine* 35:2 (2008) 122.

[63] William Carlos Williams, *Selected Essays of William Carlos Williams*. New York: New Directions, 1969. 256.

[64] Katherine Shingler, 'Perceiving Text and Images in Apollinaire's Calligrammes' *Paragraph* 34.1 (2011) 82.

Conclusion

What the previous six chapters have attempted to map is a series of terrains that are all fundamentally uneven. These are, to name but a few, the mediatized screen-mediated visual context in which we view visual poems, the instability of the letter itself in a digital world, and the layering together of disciplines under the auspices of a Neurohumanities approach. It has attempted to affix some sort of shape to this unevenness, journeying from art and science to visual poetry and experimental psychology. The steps that the project has taken have not been linear in any traditional sense of the concept: it has constituted its fair share of false starts, diversions, and digressions. In its investigation of shape, this dissertation has served as a repudiation of various different types of linearity: these linearities are by turns conceptual, material, linguistic, and experimental. The approach demonstrated here: the data gathered, the close reading conducted, and the integration of empirical and literary methods has even prompted a reconsideration of the linearity that characterises the advancement of knowledge: it has, serendipitously, come to reflect the contours of the constellation poem. While the project has not claimed to definitively answer the open questions pertaining to scientific truth versus poetic truth, it has demonstrated a number of perspectives – global and local, in every sense of these words – from which to consider these truths anew.

The trajectory over six chapters has engaged with a series of spectrums that demonstrate the sense of instability that has characterised much of the concepts and discourses discussed throughout its preceding chapters. It has engaged with Bradford's concept of the 'sliding scale' of visualism in poetry, and with Drucker's idea that all language has the capacity to be both read and seen. It has extended this idea of treating poetry as a phenomenon that is both read and seen, and explored the implications of these two modes – the verbal and the visual – being active in tandem from both a literary and a cognitively informed perspective. It has utilised visual psychology and the study of individual differences to better understand how visual poetry operates in an experimental context with participants from various demographics, and explored how empirical data can be reviewed and applied to the literary critical analysis of poetry. While this approach has been valuable, it has not necessarily been successful in every sense: for example, the lack of significant

correlations in the statistical analysis when looking at certain variables, and absences of relationships between elements such as timing and rankings of enjoyability. Yet this serves to reaffirm the nature of the experimental as it has been construed in this project. What it also illuminates is the idea that while statistical analysis is useful, it does at some points in the project demonstrate how depending upon the perspective, it can either flatten subjectivity into a graph that evinces no meaningful or significant trends, or reveal how a specific demographic or criterion group responded to a particular aspect of poetry. To return, one final time, to our guiding metaphor: the global perspective here, when viewed solely, actually reveals less of the whole story. The local details alone – focusing on just the responses of individuals – would also not paint as comprehensive a picture. It is ultimately the engagement with the local and the global – seeing the trees and the forest – that provides the clearest insight into the 'cartographic whole' that Midgley writes of, which ought to constitute our worldview.

In this conclusion, we may return to the three positive primary characteristics central to Neurohumanities research, as expressed by Carew and Ramaswami: 'enhanced communication', 'clear connectivity', and 'actionable outcomes'.[1] How does the trajectory of this project fare in relation to these three characteristics? And if so, what quantifies the 'productive' nature of this combination? If a meaningful contribution of disciplines can yield a greater understanding of both, is that an adequate marker of success? This study has contributed to increasing discourse and communication across disciplines: it has attempted to map important terminologies between psychology and visual poetry, incorporating and extending the idea of travelling concepts across disciplines not just confined to the humanities through exploring various parallels, meeting-places and touchpoints. Although it did not necessarily contribute to identifying 'specific neural parameters as objective, quantitative measures of complex, qualitative concepts'[2] as prompted by Carew and Ramaswami, it certainly contributed to the discussion of how complex an endeavour this kind of quantitative and qualitative integration is when dealing with the intensely personal responses to visual poetry: the conflict between the general statistical trends and the individual variations demonstrate this especially clearly. As Bal writes, what counts as

[1] Thomas J. Carew and Mani Ramaswami, 'The Neurohumanities: An Emerging Partnership for Exploring the Human Experience' *Neuron* 108:4 (2020) 591.
[2] Ibid, 592.

'scientific' is often quantified as what scientists do: this project has stretched the bounds of the 'scientific' in its approach, in that it has not been strictly beholden to the rigours of the scientific paradigm, nor has it retained complete fealty to the domain of literary criticism. It has concerned itself with experimentation in a number of senses of the word: the project on the whole has been an experimental foray into experimental poetry with experimental psychology while featuring its own experiment. In this sense, what the word 'experimental' itself means has been revised in this context. The project has not especially engaged with what can termed as 'harder' science, such as neurophysiological measurements using fMRI or EEG with poetry as a stimulus, which fall more specifically under the rubric of the 'conceptual connectivity' invoked as a primary positive characteristic of Neurohumanities research. Yet, in its combination with the psychological paradigm in the context of this experiment, it has nevertheless broken new ground: it has both started and continued a valuable conversation between these disciplines, by connecting an experiment-based study to 'real-life human experiences studied by a broader scholarly community'.[3] At least temporarily, this project has demonstrated the possible shapes that interdisciplinarity can take when concerned with visual poetry with Neurohumanities.

The 'actionable outcomes' generated by this project are many: not least because in its approach to experimentation, it has not 'proved' much, even though the goal was to avoid the 'neuromania' of attempting to prove what is inherently known in the humanities using the methods of science.[4] Rather, it has prompted a series of future possible directions, as referenced in Chapter Six: an exciting array of potential journeys to map further. It is in this manner it would be especially rewarding to investigate further the correlation between sound and silence and the white space of the page more, as the introduction of sound into the experimental paradigm could provide a whole new dimension and direction to take future research in. This would be especially appropriate here, considering how several participants mentioned their experience of sound in relation to the visual poems, particularly that of Derek Beaulieu. This could continue the conversation into a cross-modal dimension that would again grant a different shape to the interdisciplinary approach that is possible here. Similarly, translation in visual poetry has increasingly become more of an issue. Introducing different languages into this visual paradigm would enable future research

[3] Ibid.

[4] Raymond Tallis, *Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity.* Durham: Acumen, 2011. 7.

to travel deeper into the verbal and visual modes that visual poetry demands, as well as exploring further the transnational motivations of concrete poetry in a contemporary context. So, then, what can artists, scientists, and researchers take from the findings of this project? An opening: a conversation that begs to be continued, a roadmap for future research, a series of enticing blank spaces on the map of interdisciplinarity that can be both read and seen: unknown territories still to be charted, explored, experimented with and upon.

The many manifestations of visual poetry reflects and reifies the sentiment expressed by Alexander Skidan in his 2007 essay, 'Poetry in the Age of Total Communication', where he traces a general creative shift towards the visual, engendered and facilitated by a number of factors, including the 'new technogenic environment' that society operates in, the fact that visual art 'mobilizes the cerebral and sensorimotor resources of human beings', as well as corresponding to 'the dominant regime of temporality and synthetic perception established by the mass media'.[5] This occurs under the auspices of the 'capitalist machine', which 'deterritorializes any form of identity based on linguistic competency'.[6] As an aside, Skidan wonders about 'the ontological and neurophysiologic premises of this reconfiguration, in which the audiovisual image is privileged over the written or spoken word?'.[7] The Neurohumanities approach here has, in some capacity at least, demonstrated the very first forays into investigating this wider cultural shift by using visual poetry as a testing ground. Thurston also engages with this point about contemporary reading amongst the 'the pervasive media-scapes of our everyday it can be easy to forget that the tools, formats, and interfaces we use to compose, save, and share textual material – in short, our textual communications – are interactive and inter-acting'.[8] This reflection on the digital materiality of language and the demands it places on the contemporary reader-viewer proves that visual poetry is still poised, ahead of the curve, in relation to its anticipatory power and what it can teach us about how language operates and signifies in the contemporary world. The cognitively-informed discourses that are demonstrated in this project accord with the contemporary context that Gander and

[5] Alexander Skidan, 'Poetry in the Age of Total Communication'. Online article. (2007) https://therussianreader.com/2007/12/12/alexander-skidan-on-poetry-age-of-total-communication/#_edn13 [Date accessed: 1/9/2021].

[6] Ibid.

[7] Ibid.

[8] Nick Thurston, 'Amodern 6: Reading the Illegible'. *Amodern 6: Reading the Illegible.* Online article. http://amodern.net/article/reading-the-illegible/#pdf [Date accessed: 10/10/22].

Garland write of: 'a new world of imagetextuality wherein the potentialities for verbal and visual interfaces to extend tempero-spatial boundaries might both be met and unfold.'[9] Tracing the history of concrete poetry in particular exemplifies its claim for a place for poetry in a 'technologically saturated age': 'an international, rationalized, scientifically and mathematically informed modernity in which received aesthetic values could no longer be taken for granted'.[10] This characterisation of modernity has only served to be extended further in the contemporary moment, for which our literacies do need to be reconfigured: this project suggests a new paradigm of readership. It is neither perfect nor exhaustive, but it nonetheless offers a novel response to the accelerating cultures of reading and seeing we – any 'we' – find ourselves in the twenty-first century. While this project does not advance a 'theory of reading' per se, it does in some sense seeks to practically engage with the new contexts of reading that we negotiate. It has attempted to put some sort of shape on the pervasive instability of everything – of language, of letters, of disciplinary boundaries. Writing on concrete poetry, Hilder notes how its mutability has been an 'impediment' because 'concrete only sounds like it is stable'.[11] However he also concedes how its 'elasticity' is a 'signal of how integrated the poetry is within the culture of communication technologies', operating 'within the visual turn that is rooted in the development of photography and film, and which accelerated with television, advertising, and now the internet and mobile phones, but also within the visual art and literary experiments that address how language appears and operated within everyday life'.[12]

Art and science – and as I have argued, by extension poetry and neuroscience – are connected by their shared goal of interpreting the world. Joan Retallack writes how

> many of the poets of the early twentieth century were following accounts of developments in physics, if only by reading explanations of the strange new concept of relativity in the papers. Einstein was part of the daily news and entered Stein's correspondence. Everyone was experiencing extraordinary technological innovations in their daily lives, new sights and sounds, the

[9] Catherine Gander and Sarah Garland, 'The idea, the machine and the art: word and image in the twenty-first century. Envoi' in *Mixed Messages: American Correspondences in Visual and Verbal Practices*. Manchester: Manchester University Press, 2016. 204.
[10] Kurt Beals, 'Concrete Constructions: Assembling a Postwar Poetics'. *Journal of Lusophone Studies* 5:1 (2020) 95.
[11] Jamie Hilder, 'Concrete Poetry: From the Procedural to the Performative', *Letters: Michael Morris and Concrete Poetry.* Vancouver: Morris and Helen Belkin Gallery, 2016. 111.
[12] Ibid.

> latest political disruptions, the latest war. One way or another these things entered the work of almost all but those entirely bent on transcendence.[13]

It is in Retallack's sense here that the project has specifically mapped the historical relations between poetry and science, tracing them to the present day in order to demonstrate how along this journey, and across history, that Midgley's reflection is very much still the case: 'science is not an isolated, autonomous, omnicompetent castle but an organic part of our total world-view'.[14] While I do not reduce a concept as broad as science to merely technology and the digital paradigms that now govern and mediate so much of our interaction with art in general, not just visual poetry, I suggest that the integrated nature of this study contributes to a future where the boundaries between science, technology, and poetry will continue to be broached, redrawn, and imagined: both read *and* seen anew.

[13] Joan Retallack, 'What is Experimental Poetry & Why Do We Need It?'. Online article. http://jacketmagazine.com/32/p-retallack.shtml [Date accessed: 12/1/22].
[14] Mary Midgley, *Science and Poetry*. London: Routledge, 2001. 107.

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Interview with Derek Beaulieu

(March 2022)

Visual Poetry, Visual Poetics, and Neurohumanities Project

1. Can we 'close read' visual poetry in the traditional/classic sense? How should we close read visual poetry today?

   Visual poetry benefits from close reading just as much as more traditional writing – and in many ways it's the same set of skills: how does the poem inhabit the page, what is the balance between white space (pause or breath) and text (voiced?); are there allusions to other texts?; what typefaces are used and why?; do we see examples of sounded/voice or visual rhyme or rhythm?; what are the methods of composition (handwritten, digitally printed, etc) – how does the author situate this work within a larger conversation of exchange and influence?

2. Do you ever engage with science or any mode of scientific enquiry in your work? Can your work be said to be 'scientific' in any way?

   To be honest, I rarely do engage science directly in my writing – but the scientific method, that's another matter! Hypothesis, experimentation and testing, exploration, results – these are the tenets of scientific thought and of the avant-garde.

3. As both critic and practitioner, do you think there is a relationship between poetry and science?

   While many poets have not seen a historical connection between science and poetry (though that is changing) I think there is a great deal in common – scientific research builds incrementally on the shoulders of previous scholars, it accretes in small sheafs of paper stacked on a pile – our knowledge and understanding grows not from egoic isolation but from community conversation, exchange, and collaboration. These ideas are key to science, and in my opinion, are key to poetry.

4. Can you comment on the 'clean' and 'dirty' distinction within concrete poetry in general, and then in relation to your own evolving practice?

   Historically some scholars theorized two different strands of concrete poetry: "clean" and "dirty." Clean concrete poetry was more directly influenced by modernist typefaces and graphic design (Swiss style, mid-century aesthetics, using Futura and Helvetica and typical typefaces) while Dirty concrete poetry was typified by disintegration, overlap, digital interference, and other more Post-Modernist aesthetics. I tend to wobble back and forth between the two, exploring how our understanding of reading and writing can benefit from exploring both poles, or by seeing no poles at all.

5. You invoke Deleuze & Guattari's notion of the 'rhizome' in your own construal of concrete poetics – can you say more about this? What does this notion mean today?

   The poetry which I endorse, and attempt to create, works against authorial voice and singular meaning, it pushes against monolithic readings or understandings and points across potentialities. Additionally, by releasing most of my writing online as free PDFs and endorsing collaboration, my work has often spread into expected venues, forms, and readings: tattoos, embroidery, paintings, recordings, soundscapes, etc. By implicitly saying "yes, of course" to requests, my poetry has spread outside of genre and spouts through-out the garden, much like an out of control peanut plant.

6. Is there room for subjectivity in your poetry? Where do you place the 'I' of the poet in your work, along with terms like 'lyric' or 'narrative' poetry in relation to your work? Do you place it at all?

   I think that all poetry is subjective – concrete and conceptual poetry as much as lyric and narrative poetry; each reflects a series of individualistic decisions which reflect the author's aesthetic, personal, socio-economic, educational (etc) positions. Why this and not that; why these words, these thoughts, these opinions, these positions – they all reflect a poetic subjectivity and choice.

7. Can you say more about the connection between your poetry and its critique language of under capitalism?

   In a contemporary capitalism, language is always changed with economic value – what can it sell? Sell what, to whom, at what price, in what setting? I think that poetry – and especially concrete poetry – is perfected situated to interfere with that impulse (naively perhaps). Street signs, logos, advertisements, all aesthetically use graphically charged language to guide consumers towards a suite of decisions. Poetry can stand in that space, can present language, which steadfastly refuses to "mean", to "point" or to "sell" – it can revel in an indigestibility.

8. I have placed your work in juxtaposition with bpNichol and Steve McCaffery. How do you construe the conversation your work is in with these two forerunners?

   Both Nichol and McCaffery have contributed key texts and conversations around concrete and experimental poetry. McCaffery's "Carnival" Panel 1 and 2 remains a key visual text, and Nichol's heterogenous practice is of huge influence on my own thinking. Nichol said at one point that he considered himself "an apprentice to language." I like that. An ongoing apprenticeship, learning from the language itself – and allowing that exploration to take the forms it needs; in Nichol's case books, pamphlets, kid's books, comics, sound scores, operas, scripts, shorter texts, life-long long-poems – and a dedicated to making space for, and enabling, work by colleagues and new writers. McCaffery's influence has faded a bit from my day to day work, but Nichol remains in a mentorship role.

9. You have previously produced an animated version of Mallarmé's *Un Coup De Des*, can you talk about the implications of introducing this classic visual text into the digital sphere? What, if anything, is lost? What is gained?

   I don't think anything was necessarily lost in that animation. Mallarmé's *Un Coup De Des* remains readable and accessible in its original French and in numerous translations, nothing has been removed, lost, or tempered. Instead, if my animated re-setting of that poem drives people to the original, or makes folks think about the original poem differently then all the better. I tried to enact the narrative shipwreck of *Un Cup De Des*, letting the words themselves break and swirl into a whirlpool of text much as Mallarmé does in the original, typeset, version.

10. Does your work have a teleological goal, i.e., to move beyond language completely, or will you always use letters and letterforms as your medium?

    I don't have a goal no – except to continue to challenge myself. If I'm surprised, then I hope that the reader will be as well. I don't seek to move beyond language (or Suess's "On Beyond Zebra") just beyond my own perceived limitations.

11. How does your awareness of the wider/global shape within your poetry influence your construction of it? You have said before that you employ Ginsberg's dictum of 'first thought, best thought' in some of your poetry. Is this always the case in your work?

    Just like scientific exploration and research, I think that behoves writers to stay internationally relevant and internationally informed. Art, like science, is not nationalistic – we need to know what's happening around the globe to challenge our understandings, to keep us informed and to build conversation. Ginsberg's dictum remains valuable to me as a reassurance, but it comes with a lot of self-reflection; I think that "first thought, best thought' comes with the expectation of on-going self-appraisal of one's writing and exploring the level of trust and confidence from which you write.

12. Is there an awareness of the wider/global shape for you when creating your dry-transfer lettering works?

    I do my best to read and support writers globally who's work challenges and excites me – who are doing things which I don't recognize and to stay informed as to what is happening in the wider conversation; and I hope that other writers will do the same – its how we learn, how we empathize with each other's positions, and how we become better writers and people.

Survey 1 Results

Further Note on Selected Poems for Survey 1

The selection of poems displayed here make no claims to try to represent or encapsulate the full scope of the individual oeuvres of the chosen poets. As discussed, the brevity and visual presentation of visual poems means that their very form makes them straightforward to measure empirically in the form this survey took: in this sense, any visual poem occurring relatively straightforwardly on the page or screen is suitable for empirical study. However, my own literary perspective influenced the wider poems' selection in a more meaningful and curatorial manner, and is briefly outlined below.

In most cases, the poems were selected to demonstrate a degree of variation in the works of the chosen poets, and chosen from different times in their oeuvres. The selection of poems were also chosen in order to demonstrate, as much as possible, a wide distribution of what were characterised as local and global visual details in the poem. This meant that one of the governing factors in their selection of a mere four poems per poet was that each poem ought be, where possible, somewhat visually distinct from one another, in order to avoid too much visual homogeneity. While this element undoubtedly influenced the selection of poems for Survey 1, as mentioned, Survey 1 was included in order to introduce an extra layer of remove from this direct influence on the final selection of poems. In the case of some of the poets, the selection of poems was relatively straightforward: for McCaffery, considering the seminal influence of his singular text, four panels were selected from *Carnival* for presentation in Survey 1. For some of the other poets, selecting four poems proved more complex. In the case of bpNichol: two classic visual poems often most frequently associated with his output, 'Blues' and his interpretation of Basho's famous frog haiku. His poem 'em ty', available in his collection *The Alphabet Game* (2007) was also presented, as well as his 'Mind Trap', which first appeared in 1967 in the collection *bp* (Coach House Press). 'Mind Trap' in particular was selected for Survey 1 because of its intimation of the cognitive processes at play within the mind when in pursuit of meaning, and the results of Survey 1 indicated that participants ranked it highly enough for inclusion in Survey 2. For Beaulieu, a range of his Letraset works were chosen, considering his

recourse to materiality and the physical process of creating his poems, from his collection *Kern* and from the large selection of his works that has been freely made available online.

Where possible, considering the recent proliferation of anthologies featuring visual poetry by women, poems were sourced from the ones consulted most extensively for the project overall. The wider selection of Copithorne's poetry were mostly sourced from works that she had made available online, as well as a poem from her well-known collection *Runes*. The online poems were chosen because they had a distinct tend towards scientific themes or exploration, and her poem 'the letter "I"', as discussed, reflected the concern with subjectivity on the part of female poets as extensively discussed in Chapter Five. Susan Howe's distinctive word-squares, an enduring theoretical concern of the present project, were also included, and were also ranked highest in Survey 1. Two of her other poems were taken from Nancy Perloff's *Concrete Poetry: A 21st Century Anthology*, appearing originally as excerpts from longer works. Finally, the final group of four poems presented in the last section of Survey 2 all appeared in *Women in Concrete* and were by two Italian visual poets: Mirella Bentivoglio and Giulia Niccolai. Bentivoglio and Niccolai were contemporaneous, and the two poems apiece from their respective oeuvres were included in the selection as part of the theoretical engagement with Italian visual poetry. Once this selection was shortlisted, it was up to the participants of Survey 1 to determine the final selection of twelve poems – two per poet – for Survey 2. The Qualtrics results are represented below.

Qualtrics Report

Poetry Ranking Pilot

June 16th 2022, 3:52 am MDT

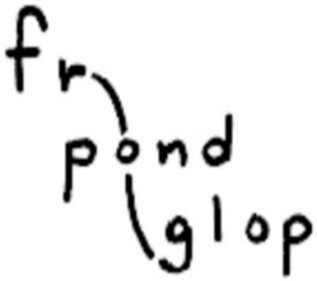
Q1 - Please rank the following four poems by typing numbers 1 through 4 into the corresponding text boxes with 1 indicating least enjoyable and 4 indicating most enjoyable. Poems cannot be ranked as equally enjoyable and all poems must have a ranking.

☐ Poem A

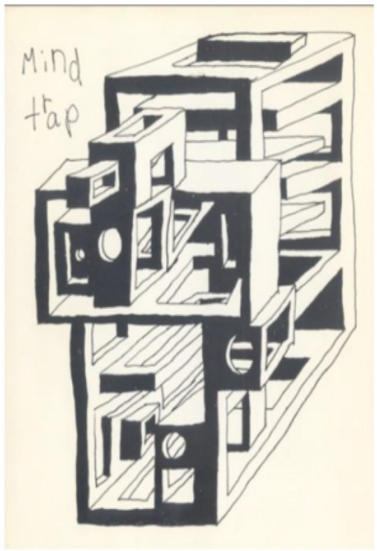
em ty

☐ Poem B

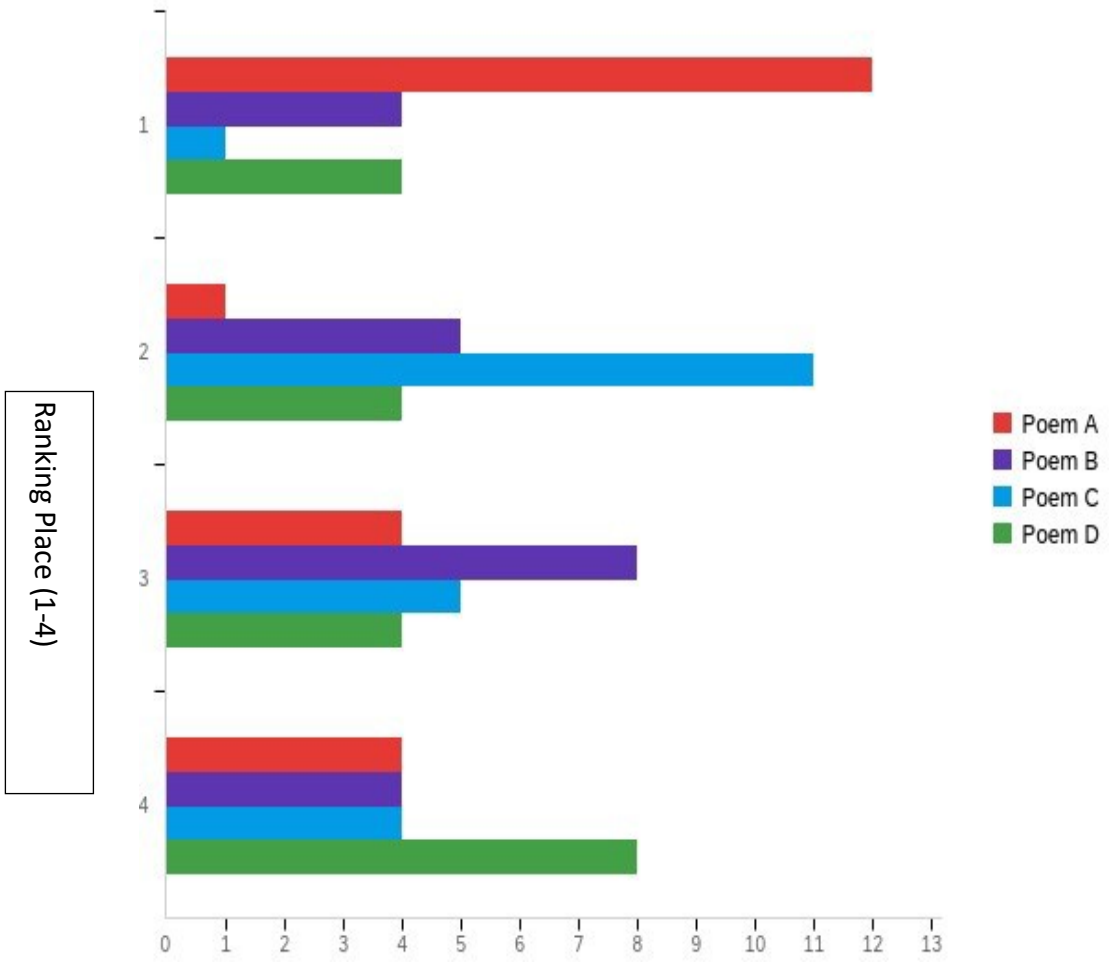
☐ Poem C



☐ Poem D



Q1 – Results.



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Poem A	1.00	4.00	2.00	1.23	1.52	21
2	Poem B	1.00	4.00	2.57	1.00	1.01	21
3	Poem C	1.00	4.00	2.57	0.85	0.72	21
4	Poem D	1.00	4.00	2.80	1.17	1.36	20

#	Question	1		2		3		4		Total
1	Poem A	57.14%	12	4.76%	1	19.05%	4	19.05%	4	21

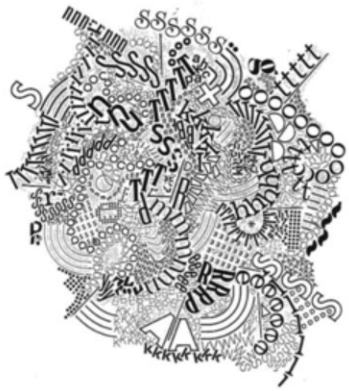
2	Poem B	19.05%	4	23.81%	5	38.10%	8	19.05%	4	21
3	Poem C	4.76%	1	52.38%	11	23.81%	5	19.05%	4	21
4	Poem D	20.00%	4	20.00%	4	20.00%	4	40.00%	8	20

Q2 - Please rank the following four poems by typing numbers 1 through 4 into the corresponding text boxes with 1 indicating least enjoyable and 4 indicating most enjoyable. Poems cannot be ranked as equally enjoyable and all poems must have a ranking.

Poem E

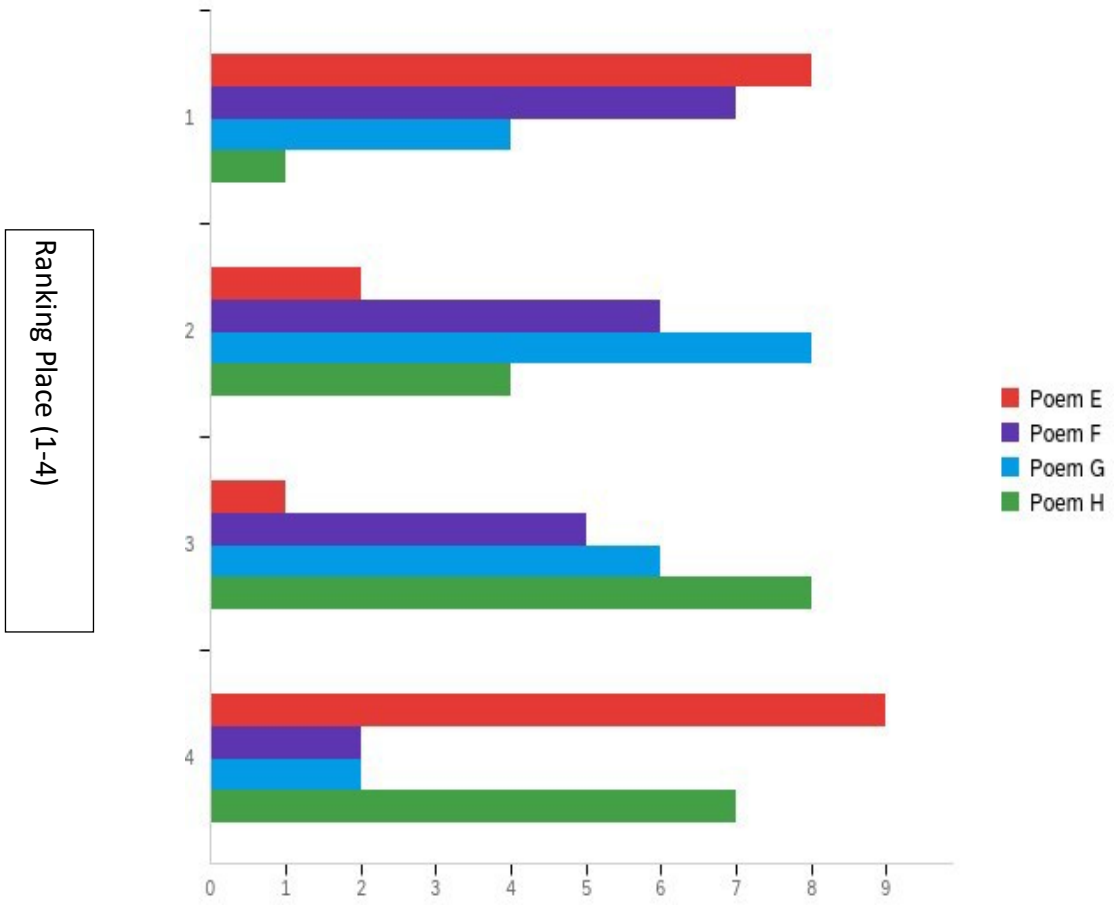
Poem F

Poem G



Poem H

Q2 – Results



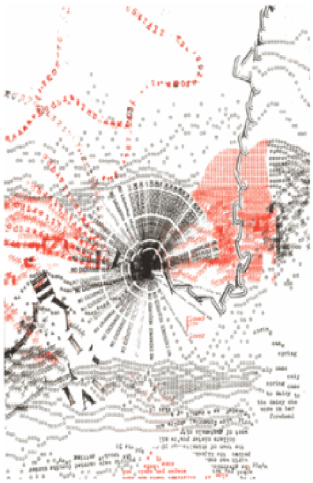
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Poem E	1.00	4.00	2.55	1.40	1.95	20
2	Poem F	1.00	4.00	2.10	0.99	0.99	20
3	Poem G	1.00	4.00	2.30	0.90	0.81	20
4	Poem H	1.00	4.00	3.05	0.86	0.75	20

#	Question	1		2		3		4		Total
1	Poem E	40.00%	8	10.00%	2	5.00%	1	45.00%	9	20
2	Poem F	35.00%	7	30.00%	6	25.00%	5	10.00%	2	20

3	Poem G	20.00%	4	40.00%	8	30.00%	6	10.00%	2	20
4	Poem H	5.00%	1	20.00%	4	40.00%	8	35.00%	7	20

Q3 - Please rank the following four poems by typing numbers 1 through 4 into the corresponding text boxes with 1 indicating least enjoyable and 4 indicating most enjoyable. Poems cannot be ranked as equally enjoyable and all poems must have a ranking.

Poem I

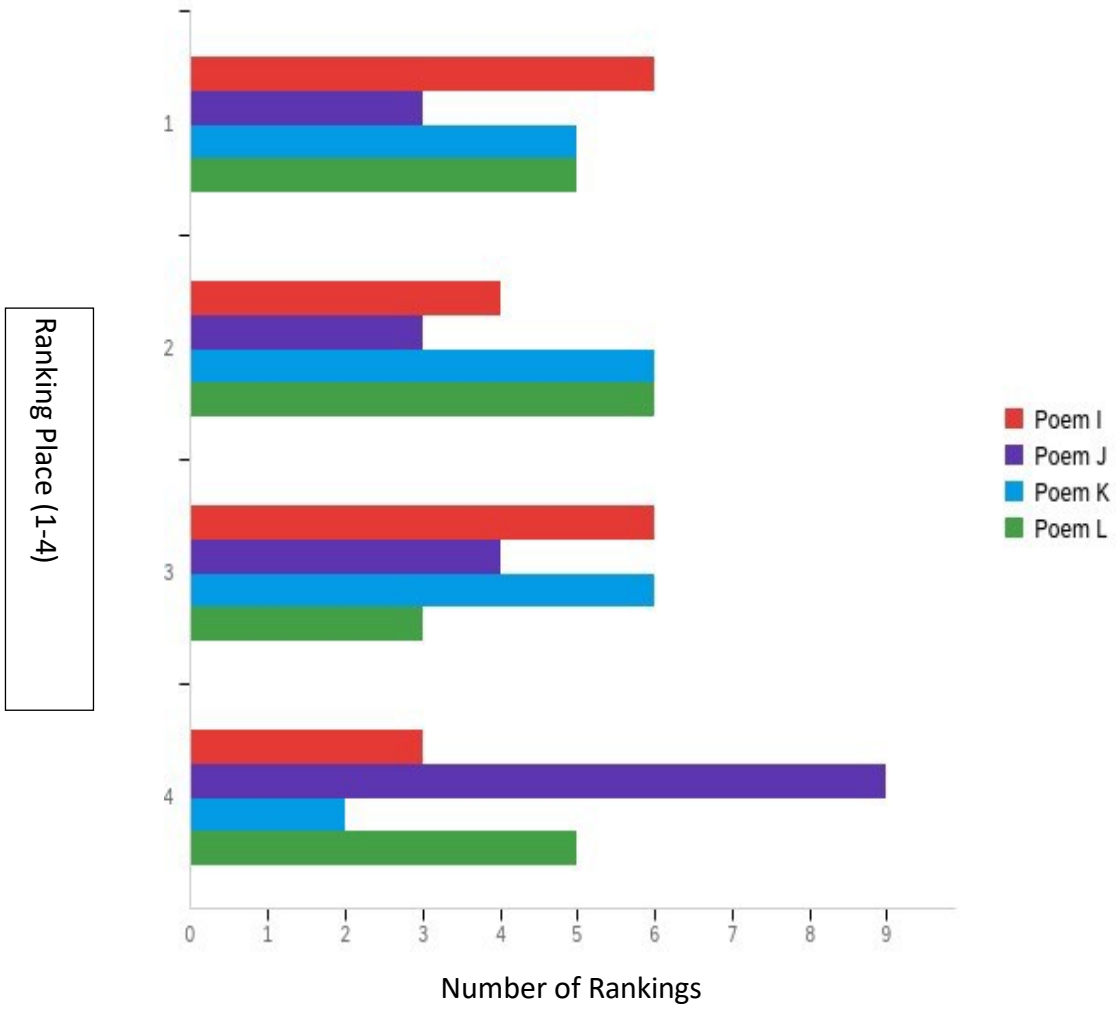


Poem J

Poem K

Poem L

Q3 - Results



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Poem I	1.00	4.00	2.32	1.08	1.16	19
2	Poem J	1.00	4.00	3.00	1.12	1.26	19
3	Poem K	1.00	4.00	2.26	0.96	0.93	19
4	Poem L	1.00	4.00	2.42	1.14	1.30	19

#	Question	1		2		3		4		Total
1	Poem I	31.58%	6	21.05%	4	31.58%	6	15.79%	3	19

2	Poem J	15.79%	3	15.79%	3	21.05%	4	47.37%	9	19
3	Poem K	26.32%	5	31.58%	6	31.58%	6	10.53%	2	19
4	Poem L	26.32%	5	31.58%	6	15.79%	3	26.32%	5	19

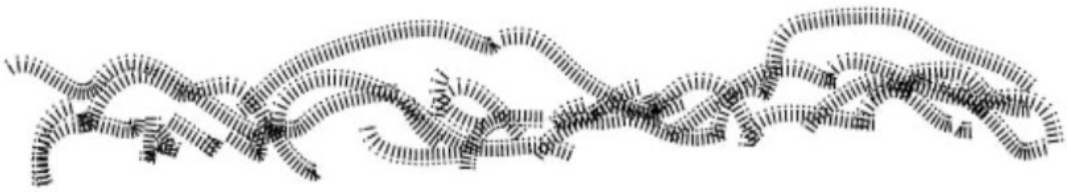
Q4- Please rank the following four poems by typing numbers 1 through 4 into the corresponding text boxes with <u>1 indicating least enjoyable</u> and <u>4 indicating most enjoyable</u>. Poems cannot be ranked as equally enjoyable and all poems must have a ranking.

Poem M

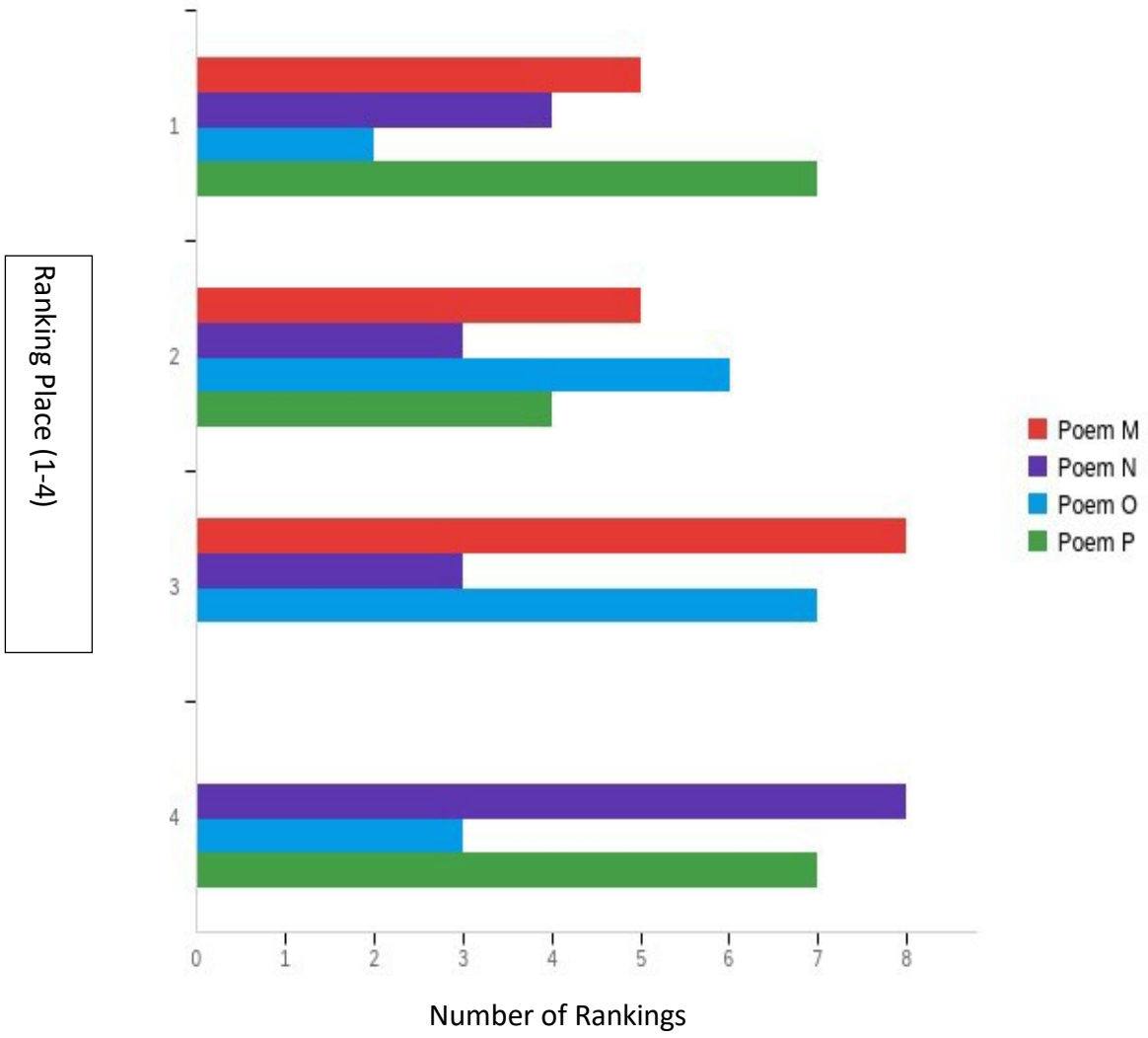
Poem N

Poem O

Poem P



Q4- Results



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Poem M	1.00	3.00	2.17	0.83	0.69	18
2	Poem N	1.00	4.00	2.83	1.21	1.47	18
3	Poem O	1.00	4.00	2.61	0.89	0.79	18
4	Poem P	1.00	4.00	2.39	1.34	1.79	18

#	Question	1		2		3		4		Total
1	Poem M	27.78%	5	27.78%	5	44.44%	8	0.00%	0	18
2	Poem N	22.22%	4	16.67%	3	16.67%	3	44.44%	8	18

3	Poem O	11.11%	2	33.33%	6	38.89%	7	16.67%	3	18
4	Poem P	38.89%	7	22.22%	4	0.00%	0	38.89%	7	18

Q5- Please rank the following four poems by typing numbers 1 through 4 into the corresponding text boxes with 1 indicating least enjoyable and 4 indicating most enjoyable. Poems cannot be ranked as equally enjoyable and all poems must have a ranking.

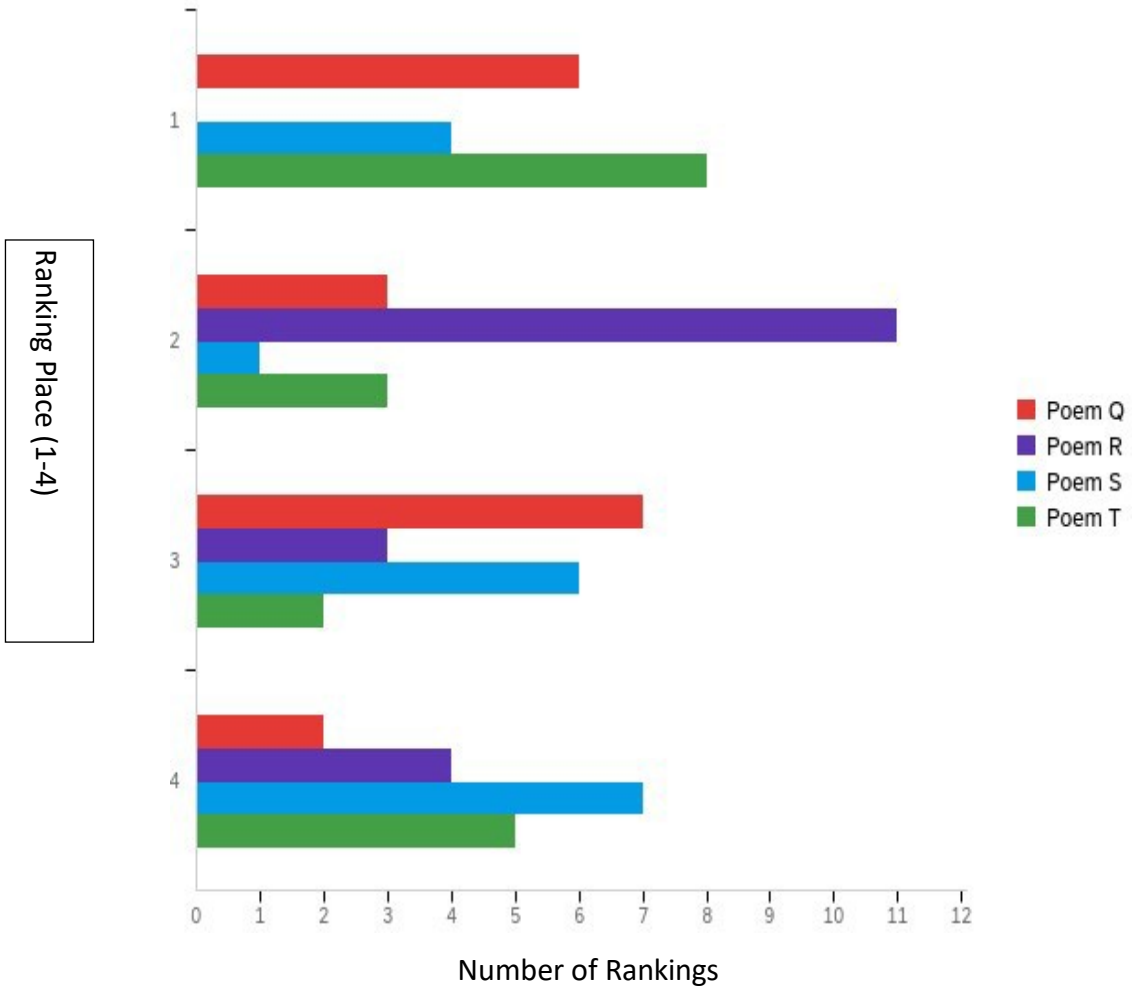
Poem Q

Poem R

Poem S

Poem T

Q5 Results



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Poem Q	1.00	4.00	2.28	1.04	1.09	18
2	Poem R	2.00	4.00	2.61	0.83	0.68	18
3	Poem S	1.00	4.00	2.89	1.15	1.32	18
4	Poem T	1.00	4.00	2.22	1.27	1.62	18

#	Question	1		2		3		4		Total
1	Poem Q	33.33%	6	16.67%	3	38.89%	7	11.11%	2	18
2	Poem R	0.00%	0	61.11%	11	16.67%	3	22.22%	4	18
3	Poem S	22.22%	4	5.56%	1	33.33%	6	38.89%	7	18

4	Poem T	44.44%	8	16.67%	3	11.11%	2	27.78%	5	18

Q6 - Please rank the following four poems by typing numbers 1 through 4 into the corresponding text boxes with 1 indicating least enjoyable and 4 indicating most enjoyable. Poems cannot be ranked as equally enjoyable and all poems must have a ranking.

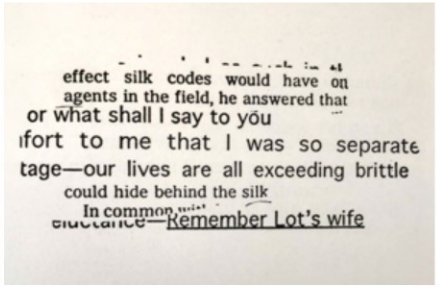
Poem U

silkworm peacock salamander
bee swan lion ostrich dove
fish basilisk camel eagle
taxo beaver weasel swallow
cat crow unicorn minotaur
scylla and elephant or with
herbs and trees such as
heliotrope pepper nettle
hellebore and palm or with
minerals such as salt adama
nt and magnet or with
terrestrial and celestial
phenomena such as earth
wind cloud rainbow moon

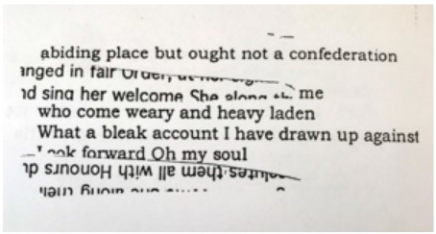
Poem V

invisible angel confined
to a point simpler than
a soul a lunar sphere a
demon darkened intelle
ct mirror clear receiv
ing the mute vocables
of God that rained
a demon daring down in h
ieroglyph and stuttering

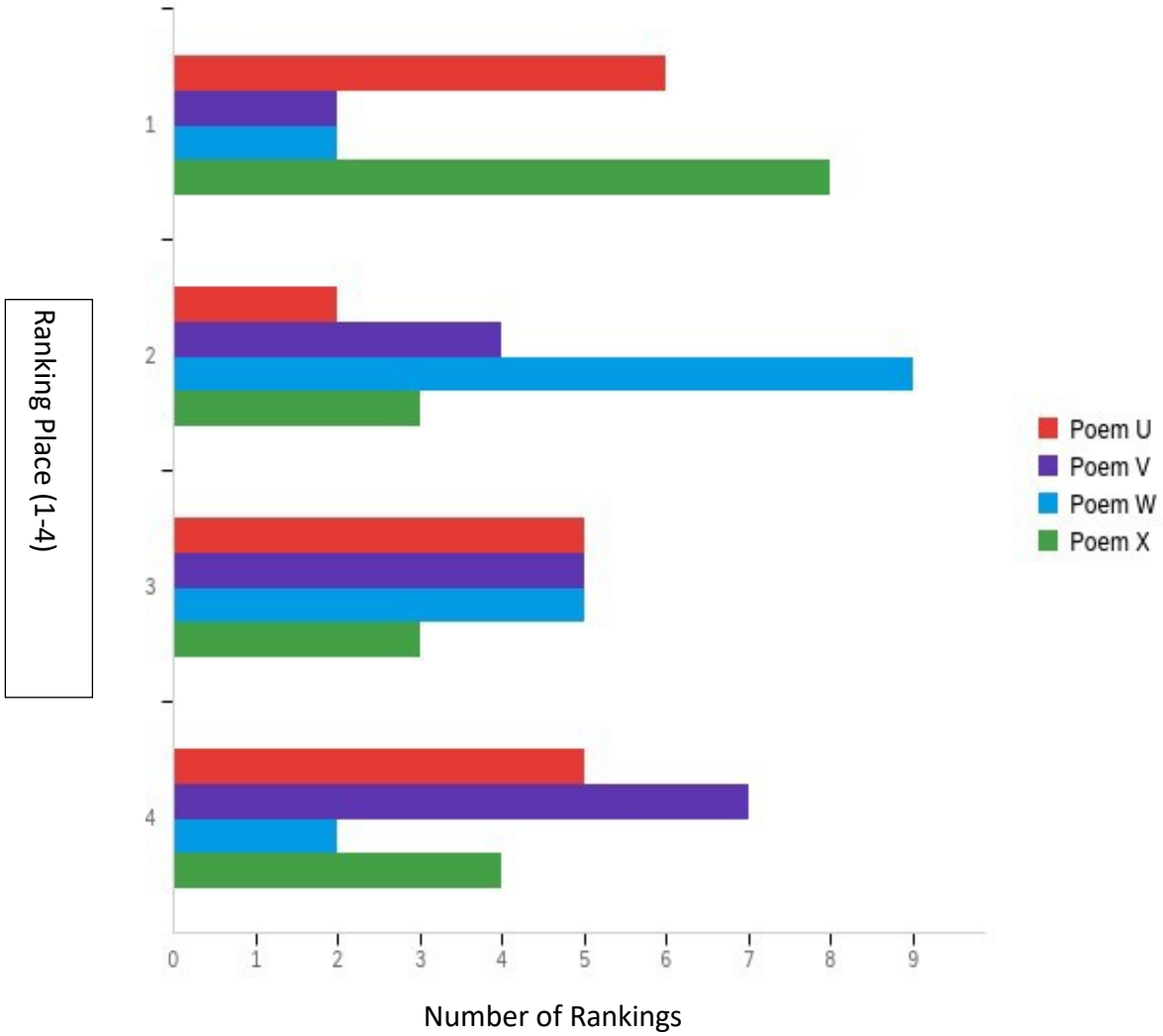
Poem W



Poem X



Q6 - Results



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Poem U	1.00	4.00	2.50	1.21	1.47	18
2	Poem V	1.00	4.00	2.94	1.03	1.05	18
3	Poem W	1.00	4.00	2.39	0.83	0.68	18
4	Poem X	1.00	4.00	2.17	1.21	1.47	18

#	Question	1		2		3		4		Total
1	Poem U	33.33%	6	11.11%	2	27.78%	5	27.78%	5	18
2	Poem V	11.11%	2	22.22%	4	27.78%	5	38.89%	7	18

3	Poem W	11.11%	2	50.00%	9	27.78%	5	11.11%	2	18
4	Poem X	44.44%	8	16.67%	3	16.67%	3	22.22%	4	18