

Reading Cyborgs: Interface Technologies and the Limits of Subjectivity in the Twenty-First Century Novel

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A thesis submitted in partial fulfilment of the
requirements of the University of Brighton
for the degree of Doctor of Philosophy

University of Brighton

July 2019

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Abstract

Reading Cyborgs: Interface Technologies and the Limits of Subjectivity in the Twenty-First Century Novel

Keywords: interfaces, cyborg, fiction, subjectivity, novel, Haraway, technology

This thesis examines how the novel form relates to ways of understanding technology in social life. What my readings aim to show is how different attitudes to the possibility of reading interfaces condition the kinds of subjectivity possible in the textual worlds of contemporary novels. It is comprised of close readings of works of fiction, using Donna Haraway's conception of the cyborg from 'A Cyborg Manifesto' as a guide. It argues that contemporary realist novels can be read as technological interfaces in a media ecology, to reveal how they contest the value of human-machine interactions. This contestation reaches political and ethical limits in the representation of interfaces. Politics and ethics are understood in this thesis as interconnected nodes for thinking about the reproduction of human subjectivity in relation to interface interactions. Ethics describes the grounds from which subjects attempt to act. Politics refers to the way such acts figure in the wider organization of power relations in society.

Chapter one presents a discussion of the concept of reading in a media ecology and the novel as an interface, which is then followed by a chapter of historical contextualising. Four chapters then each address texts published between 2012 and 2014: Ali Smith's *How to be Both* (2014), Zadie Smith's *NW* (2012), Ben Lerner's *10:04* (2014) and Ruth Ozeki's *A Tale for the Time Being* (2013). The close readings analyse the characters, position of the reader and overall textual structure via the critical frame of the cyborg. The cyborg is a feminist figuration, which helps to articulate women's experiences at the interface by addressing the material-semiotic power of fictions. The body of the thesis thus examines how subjectivity is performed, expressed and obstructed in relation to interface technologies, focusing on representations of voice and agency both within the world of the text and at the formal surface of the novel interfaces themselves.

This thesis contributes to extending the cyborg as a critical thinking tool through original readings of contemporary texts. Furthermore, theoretical and philosophical concepts from Bernard Stiegler, Judith Butler and Denise Ferreira da Silva help to augment and resituate the critical position of the cyborg, and emphasize the interdisciplinary focus, crossing between literary studies, philosophy of technology and quantum physics. The

thesis thus locates the twenty-first century novel as an interface process, one which contributes to the reproduction of human-machine relations.

Author's Declaration

I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.

Signed

Sam Cutting

31st July 2019

Acknowledgements

First and last thanks go to my partner, Tracy Wilson. Without her support and guidance this thing wouldn't have happened. Next is our cat Tippy. We adopted him while I was writing this, but he sadly passed away a few months before its completion. He kept me company on many writing days, an ever-present lap critic.

Many thanks are due to my supervisors John Wrighton and Liam Connell, for their reading, questions, critique and support throughout the PhD. Chris Davies and Hannah Doherty were both brilliant in their library support. They put up with me admirably. This thesis took a turn for the better after a reading group with friends in Autumn 2016. We read 'A Cyborg Manifesto' in the top of what was then the Northern Lights pub, just off Brighton seafront. To all those who helped with that work of study, thank you.

If what I've read in the last four years has taught me anything, it's that all writing is a constant and continuing collaboration. The following people have all helped me to work this thing out, through their generous reading and thinking: Emma Harrison, Joel Roberts, James Gatherall, Giovanni Marmont, Megan Archer, Joe Ronan, Nick Seaver, Lucy Kate Newby, Fearghus Roulston, Garikoitz Gómez Alfaro, Lars Cornelissen, Emily Fisher, Jeremiah Ambrose, Tim Huzar, Tracy Wilson, Verity Spot, Dan Cox, Ralph Dorey and Kev Nickells. Matthew Day was a supportive friend and sage advisor. Thanks to Mum and Dad, my brothers Tom and Joe, and sister Amy. You were always so positive and that really, really helped.

An initial version of chapter three was previously published as Sam Cutting, 'Gazing, Naming, Interfacing: A Cyborg Reading of Zadie Smith's *NW*' *Transcripts*, 7, 2018.

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Chapter 1: Reading, Interfaces and the Cyborg

Problematizing Reading in a Media Ecology

This thesis examines how the interface effects of the novel form relate to ways of understanding technology in social life. Twenty-first century novels are produced and read in a media ecology. This is a metaphor for describing the situation of media production within a system of communication networks which link different human-machine interfaces (HMIs) and media platforms. This contemporary environment is characterized by interface interactions, which mediate and shape social life. The central premise which generates the readings in this thesis is that the novel should be read as an interface within this ecology. It is an interface that mediates between the reader and the textual world and that contributes discursively to the presentation of interface interactions via its narrative. This chapter details this premise and provides the social and critical context to support this claim. I show here how the interface, and the related concept of the inface, can contribute to new and technologically-situated readings of contemporary novels.

The interface is theorized variously as an effect, an active relation or a boundary. An initial definition sees ‘interface’ as signifying a surface that mediates between two spaces or systems, commonly understood as the point of contact for a subject at a terminal or handheld screen.¹ Common interfaces in everyday use are mobile devices, laptops or phones running software with a variety of different designs and possibilities. Interfaces are technologies. Technologies are social processes, not only tools but forms of knowledge which comprise subjective boundaries. Examining technologies carefully highlights which subjects are able to use them and in what ways. The theorising of the interface as a formal and cultural phenomenon looks to understand how it shapes social life, how, as Françoise Dagonnet states ‘it both separates and mixes the two worlds that meet together there, that run into it.’² This mixing and separating is what Alexander Galloway refers to as ‘interface effects.’³

¹ These definitions are drawn from the work of Alexander Galloway, and expanded on later in the chapter.

² Alexander R. Galloway, *The Interface Effect* (Cambridge: Polity, 2012), p.31.

³ *Ibid.*, p.vii.

What my readings aim to show is how different attitudes to the possibility of reading interfaces condition the kinds of subjectivity possible in the textual worlds of contemporary novels. I address four twenty-first century novels in which the value or status of interface technologies is contested: Ali Smith's *How to Be Both* (2014); *NW* by Zadie Smith (2012); *10:04* by Ben Lerner (2014) and *A Tale for the Time Being* by Ruth Ozeki (2013). A common pattern in these readings is the positing of anxiety surrounding interface use. This is often connected to a moral concern regarding the production and reproduction of the subject in the contemporary period. In focusing on the interface as a critical entry point, my readings make use of a vocabulary of edges and limits. This language is drawn primarily from work by Zara Dinnen in *The Digital Banal* (2018) and Galloway's *The Interface Effect* (2012). I consider how the edges or limits of the contemporary novel interface signal ethical and political limits in the conceptions of subjectivity presented in these texts. I focus on gender, race and agency, both at the level of the narrative and through close reading the formal structure of the novel interface itself.

My understanding of HMIs and identity is founded on the work of Donna Haraway, specifically the figure of the cyborg. It is also augmented by the philosophy of Bernard Stiegler. The cyborg is a figuration which guides the close readings. I address how a variety of contemporary technologies are presented in the twenty-first century novel, for example, computer-mediated-communication, fertility treatment and mass-audience online platforms such as YouTube. Where texts present interface interactions a reader finds sites of ethical contestation with political consequences for thinking about power and communication. These moments of contestation highlight the co-constitution of ways of thinking about the subject and the forms of interface effects, including the way the literary novel is itself a technology. Dinnen sums up the relationship of technology and literature that I work to maintain in this thesis, in stating that '[i]t is not the job of the scholar of literature to defend the literary from the technological but, rather, to attend with some care to the precise ways in which literature and technology constitute one another.'⁴

Interface effects are as political as they are technological. As Nancy Baym outlines in *Personal Connections in the Digital Age*, different types of media platforms and interfaces are comprised of 'unique affordances, or packages of potentials and constraints, for

⁴ Zara Dinnen, '(The) Digital', in *The Routledge Companion to Twenty-First Century Literary Fiction*, ed. by Daniel O'Gorman and Robert Eaglestone (New York and London: Routledge, 2019), pp. 213-24, p.215.

communication.⁵ This conception is drawn from J.J. Gibson's theory of limitations and affordances. It is these which comprise the boundaries of interfaces, and which partly structure the media ecology. Shaleph O'Neill emphasizes that Gibson's definition of affordance is as both a subjective and objective phenomenon. An affordance is 'an emergent property of the physical relationship between environments and the direct perceptual acts of embodied beings.'⁶ Particular affordances and limitations become more visible, or influential, as technology is spoken and written about. Influential contemporary metonyms for the highly complex processes of communication technology include the communicative affordances of social media platforms and the processes of interaction afforded by smart phone interfaces. This is the result of what O'Neill calls 'the convergence and computerization of various media forms.'⁷ These protocols and devices have become representative of technology as a whole in debates concerning the ways identity is performed and how relationships are established in online discourse. The language in popular non-fiction discourse addressing this is often polemical and generates extreme positions in relation to access and authenticity.⁸ A person staring at a smart phone or posting selfies on social media is said to lack a 'genuine' or 'authentic' connection to a 'real' world. A contrasting perspective sees affordances of communication technology as generally positive, allowing many people access to information and relationships that contribute to and generate forms of supportive and caring social life.⁹ In this argument, the interface is an engine of the social. Thinking about media and communication technologies through the paradigm of limitations and affordances establishes an evaluative approach to the material reality of interface interaction, one which 'cuts across the subjective/objective divide' that appears to shape more polemical reactions.¹⁰ It asks how such forms of communication technology inhere in social worlds, and how and why they are valued or judged in particular ways. Such an

⁵ Nancy K. Baym, *Personal Connections in the Digital Age* (Cambridge: Polity, 2010), p.17.

⁶ Shaleph O'Neill, *Interactive Media: The Semiotics of Embodied Interaction* (London: Springer, 2008), p.50.

⁷ *Ibid.*, p.14

⁸ Examples include Jaron Lanier, *You are not a gadget : a manifesto* (New York: Alfred A. Knopf, 2010), Nicholas G. Carr, 'The shallows : how the Internet is changing the way we think, read and remember', (London: Atlantic, 2010)

⁹ The relationship between moral panics surrounding smart phones is referenced in the parodic title of a hypothetical, spoof episode of the television show *Black Mirror*, called 'what if phones, but too much.' See Daniel Mallory Ortberg, 'Next on "Black Mirror"' 2015) <<http://the-toast.net/2015/01/20/next-black-mirror/>> [Accessed 06/05/19].

¹⁰ O'Neill, *Interactive Media: The Semiotics of Embodied Interaction*, p.52.

approach implicitly recognizes that conceptualisations of technology are always already defined by notions of what constitutes possible or valuable interaction.

Communication technology theorist John Durham Peters grounds these discussions of communication and technology in ethics and politics, suggesting that “communication” is the name for those practices that compensate for the fact that we can never be each other.’¹¹ Questions concerning the value of communication technologies involve judgements about which relations to others are sanctioned in social life. Such questions often articulate problems of subjectivity or authenticity, such as whether the idea of a person manifest in their interface interactions constitutes a valuable or powerful element of their identity. For Durham Peters, these articulations demonstrate that ‘there is a danger in any too-clean contrast between the ethical and the political’ because the reality of political power relies on which subjectivities are made visible or hearable.¹² Furthering this perspective, Dinnen argues in relation to reading notions of subjectivity in the twenty-first century novel that the idea of a subject’s authenticity can be seen as mediated by computational processes such as software interfaces. I suggest that addressing what Dinnen terms the ‘ontology of a social subject in the contemporary digital situation’ requires making the essential mediation of subjectivity central to thinking the limits ethics and politics within contemporary texts.¹³ Reading the novel as an interface is thus a methodological orientation which highlights that interfaces and their representations constitute limits for thinking subjectivity.

Subjectivity in this thesis refers to the agential possibilities for performance that are sanctioned, or able to be imagined, as part of ongoing life.¹⁴ The contestation of the value of human-machine interfaces occurs in contemporary texts because the position of the subject, their ability to act, is comprised of affordances and limitations. As Alison Light explains in her study of gender and sexuality in romance fiction, far from being ‘somehow separate from the realities of the state or the marketplace, subjectivity can be recognized as the place where the operations of power and the possibilities of resistance

¹¹ John Durham Peters, *Speaking into the Air : a History of the Idea of Communication* (Chicago, Ill.: University of Chicago Press, 1999), p.268.

¹² John Durham Peters, *Courting the Abyss : Free Speech and Liberal Tradition* (Chicago, Ill.: University of Chicago Press, 2005), p.292. The Association of Internet Researchers produced an information sheet in 2012 which articulated a number of different questions regarding research ethics and ethical questions in relation to the internet. See Annette Markham, 'AOIR Guidelines: Ethical Decision Making and Internet Research Ethics', Association of Internet Researchers (AOIR), (2012) <https://aoir.org/wp-content/uploads/2017/01/aoir_ethics_graphic_2016.pdf> [Accessed 06/01/19]

¹³ Dinnen, (The) Digital, p.221.

¹⁴ See Judith Butler, *Giving an account of oneself* (Ashland, Ohio: Fordham University Press, 2005), p.17.

are also played out.’¹⁵ The development of communication technologies and the interfaces which shape them is inextricable from the social and the interpersonal, from the performance and reperformance of subjectivity. This concept is clarified in this first chapter with reference to Judith Butler’s notion of public performance, which leads onto an introductory outline of Haraway’s figure of the cyborg.

The ways in which thinking about subjectivity becomes linked to possibilities for action and power relations is specifically addressed by Rosi Braidotti in *The Posthuman* (2013). Braidotti states that subjectivity is ‘a process of auto-poiesis or self-styling’ which ‘involves complex and continuous negotiations with dominant norms and values and hence also multiple forms of accountability.’¹⁶ This negotiation involves ‘forms of community bonding and social belonging as well as questions of political governance.’ These all ‘assume and require a notion of the subject.’¹⁷ Technologies can include and exclude certain subjects in terms of access and use. Baym emphasizes, for instance, that the internet was ‘never envisioned as an interpersonal medium’ but became one as ‘people took advantage of the affordances it did offer.’¹⁸ Most significant was the spread of immediate textual communication across a partially global network, which included those already connected.¹⁹

The terms ‘technology’ and ‘media’ are interrelated, and I regularly turn to the general signifier of ‘technology’ when referring to the myriad representations of interfaces, practices and platforms manifest in twenty-first century fiction, because more specific terms often refer to particular affordances or contexts for use. Lisa Gitelman in *Always Already New: Media, History and the Data of Culture* (2006) articulates the interrelatedness of terms for describing different technologies. She defines media as ‘socially embedded sites for the ongoing negotiation of meaning as such.’²⁰ Gitelman’s

¹⁵ Alison Light, ‘“Returning to Manderly”: Romance Fiction, Female Sexuality and Class’, *Feminist Review*, 1 (1984) 7-25, p.9.

¹⁶ Rosi Braidotti, *The Posthuman* (Cambridge: Polity, 2013), p.35.

¹⁷ *Ibid.*, p.42.

¹⁸ Baym, *Personal Connections in the Digital Age*. The term ‘affordance’ was originally defined by James J. Gibson as ‘a specific combination of the properties of its substance and its surfaces taken with reference to an animal.’ See Gibson’s work in Robert E. Shaw and John Bransford, *Perceiving, acting and knowing: toward an ecological psychology* (Hillsdale: Erlbaum, 1977), pp.67-82.

¹⁹ The World Bank reported global internet usage in 2016 at 45.794%. World Bank Group, ‘Individuals using the Internet (% of population)’ 2017
<<http://data.worldbank.org/indicator/IT.NET.USER.ZS?end=2017&start=2015>> [Accessed 06/05/19].

²⁰ Lisa Gitelman, *Always Already New: Media, History and the Data of Culture* (Cambridge, Mass.: MIT, 2006), p.6.

definition sees ongoingness as central to thinking about technologies. This is in order to avoid ‘naturalizing or essentializing’ technologies ‘as if they were unchanging.’²¹ In her definition, media is comprised of technological forms and protocols:

I define media as socially realized structures of communication, where structures include *both technological forms and their associated protocols*, and where communication is a *cultural practice*, a ritualized collection of different people on the same mental map, sharing or engaged with *popular ontologies of representation*.²²

The concept of technological forms and their associated protocols, like using a greeting to answer the phone, checking emails with regularity, or the presence of sociolect in instant messaging applications, is integral to the way in which media mean in society. The ‘popular ontologies of representation’ refer to the ways in which these media, technological structures of communication and social practices, manifest as recognisable cultural forms. ‘Ontologies’ here specifically refers to modes of representation which also contribute to what is represented, or what is able to exist. Affordances and limitations of media comprise and contribute to popular ontologies of representation. The novel itself cannot be disentangled from other mediums of interaction, as Jay Bolter and Richard Grusin emphasize in their definition of a medium as ‘that which remediates’ and which can ‘never operate in isolation, because it must enter into relationships of respect and rivalry with other media.’²³ Socially realized structures of communication never operate in isolation, and technologies are at the centre of how media are able to generate meaning.

This set of relations has been referred to already as a media ecology, a metaphor from Nancy Katherine Hayles. Hayles’ work is located at the intersection of literary studies, technology and electronic literature. Major works include *How We Became Posthuman* (1999); *Writing Machines* (2002); *My Mother was a Computer* (2005) and *Electronic Literature: New Horizons for the Literary* (2008). Hayles comments on notions of subjectivity, reading and networks. Her sense of the convergence of different inscriptive and writing technologies at the beginning of the twenty-first century is found in *Writing Machines* when she refers to the phrase ‘medial ecology’:

the phrase suggests that the relationships between different media are as diverse and complex as those between different organisms coexisting within the same

²¹ Ibid., p.8. My emphasis.

²² Ibid., p.7.

²³ J. David Bolter and Richard A. Grusin, *Remediation : Understanding New Media* (Cambridge, Mass. ; London: MIT Press, 1999), p.65.

ecotome, including mimicry, deception, cooperation, competition, parasitism, and hyperparasitism.²⁴

The list suggests relations of great complexity between media, in that different media forms overlap and draw on one another. The ways in which the novel relates to other media, that is, other forms of mediation, fits some of the above ecological descriptors: for instance, the sense in which science fiction tropes are worked into texts marketed as literary or ‘serious’ fiction is a form of mimicry and competition. Hayles’ use of the ecological metaphor for describing the structure of relations between different media emphasizes the difficulty in critically pulling apart different mediums from one another. Their influences overlap and feed into reading and thinking practices about technology, interfaces and reading generally. The metaphor recurs in Dinnen’s recent essay on the relationship between digital culture and literature. Dinnen describes ‘literary fiction’ as ‘part of an ecology of cultural practices, instructions and sites.’²⁵ Following Hayles’ observation in ‘The Future of Literature’ (2007), I view novels at the start of the second decade of the twenty-first century as conditioned by a particular ‘historical specificity that comes from their engagement with digitality.’ While I contest later in this chapter how the term ‘digital’ is used in discussions of technology, I agree with Hayles’s conception of an engagement with other contemporary media forms which is ‘enacted in multiple senses.’²⁶ For example, the ubiquitous nature of screen reading means reading itself must develop to see both the interface and the user together, to view the process of the interface and not only its results. Hayles’s examples include the way the surfaces of text replicate and intensify digital affordances, such as the simple reproduction of code in the pages of a novel, or how a novel might attempt to reproduce the structural complexity of a computer program.²⁷

The claim to ‘historical specificity’ is an attempt at periodizing the contemporary. The term ‘contemporary’ in this thesis refers to the period which runs from the mid-1980s to the present day, part of the development of what is termed the information society. The term ‘information society’ describes a social economic and cultural structure

²⁴ N. Katherine Hayles, *Writing machines* (Cambridge, Mass: MIT, 2002), p.5. Hayles uses ‘ecotome’ for ‘ecotone’ here, meaning a region of transition. The spelling shift is suggestive of a textual transition (‘tome’ for ‘tone’.)

²⁵ Dinnen, (The) Digital, p.215.

²⁶ N. Katherine Hayles, ‘The Future of Literature: complex surfaces of electronic texts and print books’, *Collection Management*, 31 (2007) 85-114, p.86.

²⁷ Ibid.p.111

that is based on the creation and transfer of information, as opposed to other forms of economic activity such as industrial production.²⁸ Communications scholar Frederick Williams, writing in 1982, views these processes in relation to textual reproduction. The ‘new electronic environment’ is described as ‘totally artifactual,’ and he suggests that the period of new technologies could be differently labelled ‘the electronic renaissance.’²⁹ The artifactual here means the coexistence of the material and the semiotic or textual in forming the shapes and boundaries of technologies and ways of using them. The definition or label of information society acknowledges this sense, as it refers to the textual and the material simultaneously. For example, Manuel Castells’ influential trilogy *The Information Age: Economy, Society and Culture* (1996) views the information society in terms of cultural politics. In the second edition of *End of Millennium* (2000) Castells emphasizes that the information society is an incarnation of an already existing set of political tensions. Castells calls for ‘a cultural politics that starts from the premise that informational politics’ is ‘predominantly enacted in the space of media, and fights with symbols.’ This ‘fight with symbols’ suggests media, and the technological processes which comprise them, are textually powerful. This politics must also ‘[connect] to values and issues that spring from people’s life experience in the Information Age.’³⁰ The information age is a historically significant period in the production of literary texts, because the context of computational and textual affordances come together in social and political representations.³¹

The emergence around 2005 of ‘Web 2.0’ leads to the saturation of subtly different forms of technology in the later part of the information age, which is characterized by the development of the internet. Web 2.0 refers to ‘the creation of software that could manage the steps necessary for web publishing, reducing significantly the technical competence needed to publish.’³² It is characterized by a ‘range of

²⁸ The term ‘network society’ is similar to ‘information society,’ although in information studies the former (networks) arguably refers to the dominant organization structure found in the latter (societies which reproduce themselves primarily via electronic information processing.) Castells defines ‘the network society’ as ‘made up of networks of production, power and experience, which construct a culture of virtuality in the global flows that transcend time and space; Jan Van Dijk suggests it is ‘a modern type of society with an infrastructure of social and media network that characterizes its mode of organization at every level: individual, group/organizational and societal.’ See: Manuel Castells, *End of Millennium* (Oxford: Blackwell, 2000), p.370. Jan van Dijk, *The Network Society* (London: Sage, 2012), p.24.

²⁹ Frederick Williams, *The Communications Revolution* (Beverly Hills ; London: Sage, 1982), pp.279-280.

³⁰ Castells, *End of Millennium*, p.384.

³¹ See chapter two.

³² *The Oxford Handbook of Internet Studies*, ed. by William H. Dutton, (Oxford: Oxford University Press, 2013), p.78.

applications [which] opened up a new array of ethical challenges for researchers' focused around personal and individual publishing.³³ The availability of affordable personal computers and free-to-use publishing platforms and software led to a rise in blogs, wikis, and social networks.³⁴ By June 2008 'the number of PCs in use [...] reached one billion worldwide,'³⁵ and, as Anouk Lang points out, 'China overtook the United States as the country with the largest number of Internet users,' something rarely reflected in scholarship in English about online reading.³⁶ While greater access does not automatically confer power or agency to individuals or communities, Web 2.0 could be understood as a reaction to the marketability of networked technologies to a larger and more effectively 'connected' global audience. Figure 1 from the Organization for Economic Cooperation and Development (OECD) displays the growth in patent applications for technologies related to networks and communication in the latter part of the early twenty-first century. The 'bursts' in patent application shows the variety of technologies developed throughout the later information age, including information transmission, analysis, and wireless technologies.³⁷ As danah boyd has emphasized, 'not everyone will benefit equally' from such development, 'because networks—both social and technical—are neither evenly distributed nor meritocratic.'³⁸ The National Telecommunications and Information Administration report 'Falling Through The Net: Defining the Digital Divide' (1999) states that 'certain groups were much more likely to be in the "connected" category than others, namely, men, younger people, non-Hispanic white people, urban residents, the higher educated and those with higher income were more likely to use the Internet.'³⁹ The report by the International Telecommunication Union (ITU), 'Measuring the Information Society' (2010) also supports this view, recording low percentages for connectivity in southern hemisphere African households, where conversely 80% of European

³³ Charles Ess, *Digital media ethics* (Cambridge: Polity, 2009), p.22.

³⁴ Alan Smith and Steven Rogers, 'Web 2.0 and Official Statistics: The Case for a Multi-Disciplinary Approach', *Statistical Journal of the LAOS*, 25 (2008) 117-23, p.117.

³⁵ Johnny Ryan, *A History of the Internet and the Digital Future* (London: Reaktion, 2010), p.61.

³⁶ Anouk Lang, 'Introduction: Transforming Reading', in *From Codex to Hypertext: Reading at the Turn of the Twenty-First Century*, ed. by Anouk Lang (Amherst: University of Massachusetts Press, 2012), pp. 1-24, p.20.

³⁷ 'Patent 'bursts' correspond to periods characterized by a sudden and persistent increase in the number of patents filed in ICT-related technologies. Top patent bursts are identified by comparing the filing patterns of all other technologies. The intensity of a patent burst refers to the relative strength of the observed increase in filing patterns.' 'OECD Science, Technology and Industry Scoreboard 2017: The digital transformation', OECD, (2017) p.79.

³⁸ danah boyd, *It's complicated: the social lives of networked teens* (New Haven and London: Yale University Press, 2014), p.173.

³⁹ *The Oxford Handbook of Internet Studies*, p.132.

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Figure 1 — *OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation*, Organization for Economic Cooperation and Development (p.21)

households were recorded as having internet access. Later reports by the ITU (2014, 2015) state that the number of Internet users worldwide has nearly doubled in five years between 2009-2014, but that only an estimated 8% of the population of less economically developed countries were online by the end of 2014.⁴⁰ This data demonstrates that interfaces are material, economic processes developed through hardware advances, but also that they influence many different elements of life referred to as technological.

While the above social conditions suggest a historical specificity, it must be acknowledged that novels have always been vivid textual sites for the contestation of meaning concerning the relation of subjectivity and technology. To read a novel has always been to engage in a particular technological process. D.A. Miller in 1988 emphasizes that the form has become ‘freely scattered across a far greater range of cultural experience’⁴¹ and in his writing on Jane Austen he refers to the novel as a ‘widely diffused representational technology.’⁴² In more recent work, Craig Dworkin in *No Medium* (2013) emphasizes that ‘the act of reading, despite so often being figured as disembodied, also always involves a material interaction.’⁴³ I here turn to Guglielmo Cavallo and Roger

⁴⁰ 'Measuring The Information Society Report', International Telecommunications Union, (2015) <<https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2015/MISR2015-w5.pdf>>, p.9.

⁴¹ 'Measuring The Information Society Report', International Telecommunications Union, (2014) <<https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2015/MISR2015-w5.pdf>>, pp.15-16.

⁴² D. A. Miller, *The novel and the police* (Berkeley: University of California Press, 1988), p.x.

⁴³ D. A. Miller, *Jane Austen, or, The secret of style* (Princeton, N.J. ; Oxford: Princeton University Press, 2003), p.58.

⁴⁴ Craig Dworkin, *No Medium* (Cambridge, Mass. ; London: MIT Press, 2013), p.30.

Chartier's *A History of Reading in the West* (2003), to address the material and technological context of the book interface. The book is comprised of affordances and limitations which have changed throughout history. The use of a codex instead of the scroll, with pages of the same size attached to one another so that they could be turned, fundamentally changed reading practices:

A change in the physical support for writing forces the reader to perform new gestures and learn new intellectual practices. The move from the codex to the screen is just as great a change as the shift from the roll to the codex.⁴⁴

The move to the codex is a technological shift which altered ways of reading. The codex generated new reading behaviours because it generated affordances for cross-referencing, bookmarking and teaching.⁴⁵ These new gestures and practices occur in the context of what Cavallo and Chartier refer to as a 'dialectic of constraint and invention.' Conventions regulating and defining 'the hierarchy of genres' are involved with 'the schemes of perception and judgement inherent in each community of readers.'⁴⁶ These constraints and perceptions, affordances and limitations, are manifest in the technology of the text itself, as well as in the way that it is read. The concrete examples of limitations referred to by Cavallo and Chartier are the law and publishing houses, linking the cultural valuation of genres to communities of readers and social institutions. The reading practices for the codex are produced by a combination of formal limits and social structures. The codex gives rise to the book as teaching tool because of its new affordances: pages can be marked and returned to quickly, meaning that shared references points in texts become possible. Texts can be ordered and split into sections, and are more easily stored and transported. Technological boundaries, the ways that interfaces encourage particular modes of reading, are conceptualized in forms and their limits.

Matthew Kirschenbaum supports this perspective, identifying that attitudes towards the relation of the interface and print culture have shifted in the contemporary period. This is because reading on-screen involves gestures that become relevant to reading the literary codex in the discipline of the humanities:

In the humanities [...] it is increasingly common to encounter the idea that a book or a page is a kind of interface, a response to the understanding that the

⁴⁴ Guglielmo Cavallo and Roger Chartier, *A History of Reading in the West* (Oxford: Polity, 2003), p.28.

⁴⁵ Martyn Lyons, *Books : a living history* (London: Thames & Hudson, 2011), pp.36-7.

⁴⁶ Cavallo and Chartier, *A History of Reading in the West*, p.35.

conventions of manuscript and print culture are no less technologically determined than those of the digital world.⁴⁷

Reading the contemporary novel as an interface is a response to the contemporary technological determination of reading more generally, in the growth of reading at screen interfaces. Increasing e-book sales are suggestive of increased novel reading on screens, but as Anne Mangen explains, ‘many readers say that they still prefer to read on paper.’⁴⁸ Both Mangen and Adriaan van der Weel articulate how it is now a ‘cliché to claim that digital technologies are redefining reader and literacy in education and learning’ and that ‘[r]eading is interaction with a technology/device with specific interface affordances.’⁴⁹ The transition between paper-based reading and screen reading is a period which provides ‘an excellent opportunity to conceptualize reading.’⁵⁰ The twenty-first century does not present a clear epoch shift from one form of writing tablet to another. Rather, the novel is conspicuous as a site of the contestation of the value and status of the interface, as both a print artefact and an on-screen experience.

I focus on four texts which address contemporary life and issues of reality or ‘the real.’ In contemporary literary studies, the label ‘realist’ is somewhat inadequate to describe the purposes and effects of novels produced in the ongoing present. Literary realism can be understood as ‘simply one genre amongst others,’ a position identified by Robert Eaglestone and Daniel O’Gorman in their introduction to *The Routledge Guide to Twenty-First Century Literary Fiction* (2019).⁵¹ Sophie Vlacos acknowledges that questions concerning the representation of reality in the contemporary novel are fluid and draw on varied formal and generic affordances. For Vlacos, there is ‘a commonly acknowledged loss of ground, the loss of ontological ground entailed in the reality of virtuality and simulation’ which ‘renders the aesthetic distinction between reality and its representation otiose.’⁵² Criticism is more concerned with the many realisms to be found in texts which

⁴⁷ Matthew Kirschenbaum, ‘So the Colours Cover the Wires: Interface, Aesthetics and Usability’, in *A Companion to Digital Humanities*, ed. by Ray Siemens Susan Schreibman, John Unsworth (Oxford: Blackwell, 2004), pp. 523-42 p.523.

⁴⁸ Anne Mangen, ‘Textual Reading on Paper and Screens’, in *Information Design: Research and Practice*, ed. by Alison Black, et al. (London and New York: Routledge), p.276.

⁴⁹ Anne Mangen and Adriaan van der Weel, ‘The evolution of reading in the age of digitisation: an integrative framework for reading research’, *Literacy*, 50 (2016) 116-24. p.116, p.119.

⁵⁰ *Ibid.*, p.122.

⁵¹ Daniel O’Gorman and Robert Eaglestone, *The Routledge companion to twenty-first century literary fiction*, 1st edn (New York and London: Routledge, 2019). p.6.

⁵² Sophie Vlacos, ‘Realisms’, in *The Routledge Companion to Twenty-First Century Literary Fiction*, ed. by Daniel O’Gorman and Robert Eaglestone (New York and London: Routledge, 2019), pp.110-11.

attempt to represent contemporary life. In evaluating the notion of reality which contemporary novels attempt to present, ‘the test then would not be whether works are authentically realist in their representations, but whether they acknowledge this question of form and ultimately genre at all.’⁵³

The writer’s whose works I close read acknowledge the question of form and value in their narratives, and are concerned with the question of how their textual worlds might be considered not merely ‘authentically realist’ but instead provide an insight into a particular version of a situated reality. Their modes of narration attempt to communicate something of the realities of living in the late information society, including the experience of interface interaction and the ways it is socially valued. Eaglestone and O’Gorman reference three of the four authors in this study in their list of writers concerned specifically with the shape of contemporary life: ‘Writers like Jonathan Lethem, Ali Smith, and Jennifer Egan [...] or Ben Lerner, George Saunders, Mohsin Hamid and Zadie Smith [...] have made it part of their project to sketch out the contours of our time.’⁵⁴ This latter phrase is also referred to as a ‘twenty-first century authenticity.’ Ruth Ozeki could be comfortably added to the list, given the concern in *A Tale for the Time Being* with processes of quantum mechanics and the text’s autofictive form. The four writers of this study are all concerned with the notions of a valued or ‘authentic’ subjectivity in relation to interface interactions, and display this via the formal, structural and narrative representation of everyday and familiar interfaces in their works.

The claim that such textual production is of political and ethical significance is a familiar idea in literary studies, but the term literary remains an open and contested one in studies of the contemporary. To explain this term, I turn here to Frank Davey’s argument in 1993, which is influenced by ‘Post-Saussurean theories of signification, discourse, and ideology’ represented by thinkers such as Michel Foucault, Jane Gallop and Jacques Derrida.⁵⁵ Davey states that ‘the concept of the textuality of all experience is perhaps the most enabling one for any attempt to theorize the political functioning of literature.’ This is because ‘if all experience is social and textual’ then ‘literary texts are produced as parts of this social text.’⁵⁶ For Davey, literary texts have neither an ‘outside’ nor an ‘inside’ but rather are ‘interweaved’ with the social. This means that ‘attempts to

⁵³ Ibid.

⁵⁴ O’Gorman and Eaglestone, *The Routledge companion to twenty-first century literary fiction*, p.3.

⁵⁵ Frank Davey, *Post-national arguments : the politics of the Anglophone-Canadian novel since 1967* (Toronto: University of Toronto Press, 1993), p.22.

⁵⁶ Ibid., p.19.

discuss how one might read' these texts always 'struggle with and through metaphor,' because the boundary between the social and the text is itself metaphorical.⁵⁷ Reading a literary text involves reading a representation, version or interpretation of reality, via a form which is comparative and metonymic. This admission of a struggle in reading that is suggestive of unclear boundaries between inside and outside, between text and world, is what I use the term 'literary' to refer to in this thesis. I admit the struggle of reading as both a difficulty and an expectation for thinking about political meanings, and as an interface process which is 'interweaved' with that which it purports to represent. Literary texts produce elements of social relations *with* interfaces via their attempted mediation of interfaces.⁵⁸

I thus understand the literary novel as an embodied, material interface interaction, one that mediates between the world of the reader and a textual world. The 'world of the reader' and 'textual world' are terms used by Paul Ricoeur in *Time and Narrative Volume Three* (1985), and I use them here to establish that texts require the reader for the process of mediation to take place. Ricoeur states '[the text's] ontological status remains in suspension—an excess in relation to structure, an anticipation in relation to reading. It is only in reading that the dynamism of configuration completes its course.'⁵⁹ Viewing the novel as an interface means highlighting that it is a process that is activated by a reader, an ontology of representation, a configuration in suspension until interacted with. The representational technology of the novel is itself an ontological suspension, an interface interaction between reader and text, happening in a historical specific moment of unequal but powerful technological expansion.

My approach to reading literature as a struggle with metaphor is also informed by Haraway's figuration of the cyborg. A figuration, to use Sarah Kember's definition, 'is a performative image of the future; performative in as far as it embodies an epistemological and ontological shift which acts, albeit virtually in the present.'⁶⁰ The cyborg is a critical figure for the future, acting 'virtually' in the contemporary, for assessing the ways the novel presents the 'contours' of the real. The cyborg is a 'creature of fiction' and of 'social

⁵⁷ Ibid.

⁵⁸ As Davey states, 'discourses are not compartments which contain or allude to one another, but systems which interact, overlap, and on occasion invoke each other's codes.' *ibid.*, p.22.

⁵⁹ Paul Ricoeur, *Time and Narrative, Volume 3* (London: Chicago University Press, 1990), pp.157-8.

⁶⁰ Sarah Kember, 'Feminist Figuration and the Question of Origin', in *Futurenatural: Science, Nature, Culture*, ed. by George Robertson et al (London: Routledge, 1996), pp. 253-66, p.256.

reality,' existing inside and outside texts.⁶¹ As explored later in this chapter, Haraway's 'Cyborg Manifesto' emphasizes a 'struggle against perfect communication' as a requirement for resistance to patriarchal-technological structures. This resonates with Davey's articulation of reading as a struggle with and through metaphors. Where I discuss literary reading or the literary novel, I am referring to the process of struggle between inside and outside that characterizes disciplinary and scholarly discourses labelled 'literary.'

An essential term in contestations of meaning in relation to the literary is 'print.' Print 'is not a monolithic or universal term' as Bolter and Grusin point out, 'but a word designating many different types of media formats and literary practices.'⁶² This is evidenced by the fact that the novel in the twenty-first century is increasingly at once a paperback and an electronic book yet the term 'print book' remains suggestive of reading that is done by an individual, with a mass-produced paper codex involved in long spells of quiet.⁶³ It is important to note, however, that the boundary between electronic or 'digital-born' texts and print texts has always been permeable. Hayles explains how 'identifying the hyperlink as electronic literature's distinguishing characteristic' is problematic, because of the fact that print texts have long used 'analogous technology in such apparatus as footnotes, endnotes, cross-reference.'⁶⁴ Literary text mobile apps or hypertext novels further demonstrate this permeability in labelling forms, using the affordances of digital interfaces for readerly navigation to compose new texts and reading experiences.

These latter forms are understood as the object of study for the contemporary discipline known as electronic literature. Such works manipulate, play with and reconfigure the boundaries of print texts by using the affordances of digital interfaces,

⁶¹ Donna J. Haraway, 'A Cyborg Manifesto', in *Manifestly Haraway*, (Minneapolis: University of Minnesota Press, 2016), pp. 3-90, p.6. 'A Cyborg Manifesto' was first published as Donna J. Haraway, 'A Manifesto for Cyborgs - Science, Technology, and Socialist Feminism in the 1980s', *Socialist Review*, (1985) 65-107 It also appears as Donna J. Haraway, 'A Cyborg Manifesto: science, technology and socialist-feminism in the late twentieth century', in *Simians, Cyborgs, and Women: the re-invention of nature*, (London: Free Association, 1991), pp.149-182.

⁶² Bolter and Grusin, *Remediation: Understanding New Media* p.xiii. See also Zita Farkas, 'Book Apps and Digital Textuality', *Alluvium*, 6 (2017).

⁶³ Some commentators make a distinction between reading involving contemporary interfaces and reading print texts. As early as 1994, Sven Birkerts claims '[e]very acquiescence to the circuitry is marked by a shrinkage of the sphere of autonomous selfhood' Sven Birkerts, *The Gutenberg elegies: the fate of reading in an electronic age* (Boston ; London: Faber and Faber, 1994), p.28. See also Carr, *The shallows*.

⁶⁴ N. Katherine Hayles, *Electronic literature: new horizons for the literary* (Notre Dame, Ind.: University of Notre Dame, 2008), p.31.

mobile devices and other platforms for reading.⁶⁵ New limitations in reading become apparent through the way different software platforms are required to engage in the initially intended reading experience, meaning that different audiences might encounter the text in different ways, or not at all due to obstructions to access. The umbrella term 'digital media' includes forms such as these, alongside the objects which comprise a media ecology of multiple different forms of digital art and culture, such as 'CGI effects in films, audio CDs and video DVDs, digital projectors, the Internet and the World Wide Web.'⁶⁶ To this list from Hayles in 2007 should be added online platforms for video streaming such as YouTube and Netflix, as well as the increasingly hybrid forms of video games known as interactive narratives and walking simulators. Digital media are an important part of discussions surrounding contemporary technologies and literary forms. The tensions between the subject and technology are critically interesting in all these kinds of texts, but an effective analysis of electronic literature would require expansive methods and experimental forms of reading practice, which lie beyond the scope of this project. As Kirschenbaum states, '[s]cholarly interest in the history of electronic literature has [...] gravitated toward those authors who sought to reimagine our definitions of the literary through branching, multimodal, and interface narratives or poetic compositions.'⁶⁷ Many digital humanities scholars are asking how reading practices change in relation to hypertextual literacy, new forms of more immersive or detailed interactivity and new visual practices. Influential voices include Lori Emerson, Jessica Pressman, Anne Sofia Karhio (convenor of Digital Cultures conference, NUI, Galway) and Johanna Drucker.⁶⁸

⁶⁵ The mobile app version of T.S. Eliot's *The Wasteland* available at 'The Wasteland App', Touch Press, (<www.thewasteland.touchpress.com> [Accessed 24/07/19] integrates the text with digital affordances of hyperlinks. Young-Hae Chang Heavy Industries' works of electronic literature combine music and text to create unusual an arresting pieces, accessible online: Young-Hae Chang Heavy Industries, 'Dakota' <www.yhchang.com/DAKOTA_V.html> [Accessed 06/01/19] Joanna Walsh's *Seed* uses a form of hypertext navigation conveyed in the ecological metaphor of a seed or vine connecting different parts of a narrative. Accessible online, it is intended to be experienced on a mobile device. See Joanna Walsh, 'Seed', Editions at Play with Visual Editions, (2017) <<https://seed-story.com>> [Accessed 06/01/19]

⁶⁶ Hayles, 'The Future of Literature', p.96.

⁶⁷ Matthew G. Kirschenbaum, *Track changes : a Literary History of Word Processing* (Cambridge: Harvard University Press, 2016), p.24.

⁶⁸ The ELO (Electronic Literature Organization) is an institutional hub for information about studies into reading electronic literature. 'Electronic Literature Organization', ELO, (<www.eliterature.org> [Accessed 06/01/19]. See also Johanna Drucker's work on reading and electronic poetics: Drucker Johanna, 'Theory as Praxis: The Poetics of Electronic Textuality', *Modernism/modernity*, 9 (2002) 683-91; Drucker Johanna, 'Graphic Devices: Narration and Navigation', *Narrative*, 16 (2008) 121-39. David Miall addresses the different reading expectations involved in hypertext David S. Miall, 'Confounding the Literary: Temporal Problems in Hypertext', in *From Codex to Hypertext: Reading at the Turn of the Twenty-First Century*, ed. by Anouk Lang (Amherst: University of Massachusetts Press, 2012), pp. 203-16.

The above has worked to define the terms which are central to this thesis. I have established the ground from which to begin thinking further about the relation of interfaces, media, subjectivity and the contemporary. I have also established the rationale for addressing my four texts, situating the novel form within a contemporary context, referred to via the metaphor of the media ecology. The remainder of this chapter outlines the critical context which frames my close reading in this thesis, moving through contemporary literary criticism, the philosophy of technology, and academic writing on the interface and the cyborg.

Critical Context

The ways in which literary fiction addresses technology throughout the 18th and 19th century have already been examined by criticism in the disciplines of media history and media archaeology. These disciplines analyse how media forms which are contemporaneous with literary texts might contribute to the possible ways of reading and understanding them. Two key edited collections include Lisa Gitelman and Geoffrey B. Pingree's *New Media 1740-1915* (2003) and Colette Colligan and Margaret Linley's *Media, Technology and Literature in the Nineteenth Century* (2011).⁶⁹ Richard Menke's (2000) reading of Henry James' short story *In the Cage* (1898) is indicative of how such work addresses notions of subjectivity. Menke uses the concept of 'telegraphic realism,' examining the text for the ways the telegraph office 'highlights problems of subjectivism, discontinuity and mediation.'⁷⁰ The increasing complexity of the media ecology, of the relationship between print texts, narratives and technological affordances is of interest to contemporary literary scholars, due to the ways in which reading at the interface blurs the boundaries between different forms. N. Katherine Hayles and Jessica Pressman state that '[t]he deepening complexities of the media landscape have made mediality, in all its forms, a central concern of the twenty-first century.'⁷¹ Media archaeology provides a contextual foundation from which to analyse 18th, 19th and 20th century literary texts, but texts in the

⁶⁹ Lisa Gitelman and Geoffrey B. Pingree, *New media, 1740-1915* (Cambridge, Mass. ; London: MIT Press, 2003); Colette Colligan and Margaret Linley, *Media, technology, and literature in the nineteenth century: image, sound, touch* (Farnham: Ashgate, 2011).

⁷⁰ Richard Menke, 'Telegraphic Realism: Henry James's *In The Cage*', *PMLA*, 115 (2000) 975-90, p.987.

⁷¹ *Comparative Textual Media: Transforming the Humanities in the Postprint Era*, ed. by N. Katherine Hayles and Jessica Pressman, (Minneapolis: University of Minnesota Press, 2013), p.ix.

contemporary are produced by and within a media ecology which develops and changes month on month, year on year.

There are two trends in contemporary literary criticism found at the intersection of the literary and the technological. Firstly, textual production and technological forms are viewed as being in a continuous, reciprocal relation, concomitant with the metaphor of a media ecology. Secondly, contemporary critics use modernism as a reference point for discussions of textuality and technology. These two ideas are differently manifest in multiple works of literary criticism published in the first two decades of the twenty-first century: Alex Goody's *Technology, Literature, Culture* (2003); Alan Kirby's *Digimodernism* (2009); Jessica Pressman's *Digital Modernism* (2010); Jessica Pressman and N. Katherine Hayles's *Comparative Textual Media* (2013); Lori Emerson's *Reading, Writing, Interfaces* (2014); Zara Dinnen's *The Digital Banal* (2018). They are also reflected in other edited collections, conferences and special journal issues. In 2018, the British Association for Contemporary Literary Studies inaugural conference displayed a variety of work addressing texts within the frame of the technological, whether explicitly engaged in the concept of the digital, using digital humanities methods, or discussing contemporary writers in relation to philosophies of technology. The discussion panel on New Media Literary Studies demonstrated how work on reading video games, contemporary fiction, genre fiction and media archaeology in fiction shared concerns, methods and ways of thinking.⁷² A 2015 symposium hosted by the journal *Novel: A Forum on Fiction* entitled 'Novel Technologies' signals the ways in which the novel has been positioned as a contested form of technology and as a site for contesting the value of theories about technology.⁷³ The Literature Technology Media Research Group at University of Cambridge, formed in 2012, has organized similar events, including the 2017 conferences 'Embodying Media: From Print to the Digital.'⁷⁴ The annual inter-disciplinary conference based in New York, 'Theorizing the Web,' which began in 2011, regularly includes panel sessions on contemporary fiction

⁷² 'New Media Literary Studies', in *What Happens Now?*, (Loughborough University: British Association of Contemporary Literary Studies, 2018)

⁷³ Tavid Mulder and Michelle Roda, 'Novel Technologies' Recap', Duke University Press, (2015) <<https://novel.trinity.duke.edu/news/2016/01/19/novel-technologies-recap>> [Accessed 24/07/19] [Accessed 06/05/19].

⁷⁴ Jessica Lim and Nathaniel Zetter, 'Embodying Media: From Print to the Digital', University of Cambridge, (<<https://www.english.cam.ac.uk/research/lrm/wp-content/uploads/2017/05/Embodying-Media-schedule.pdf>> [Accessed 06/05/19] See also LTM Research Group, 'Literature Technology Media', University of Cambridge, (<<https://www.english.cam.ac.uk/research/lrm/>> [Accessed 06/05/19].

and technology.⁷⁵ A variety of recent surveys of contemporary fiction each contain standalone chapters with a focus on either technology or more specifically the digital in literature. In the collection *Twenty-First Century Fiction: What Happens Now* (2013) Sian Adiseshiah and Rupert Hildyard understand the ‘integuments of meaning’ to have been ‘burst asunder, in the West at least, by the acceleration of technology, communication and globalisation.’⁷⁶ Eaglestone’s *Contemporary Fiction: A Very Short Introduction* (2013) refers to the ‘future’ of the novel in relation to ‘technological thinking.’⁷⁷ Dinnen’s chapter in *The Routledge Companion to Twenty-First Century Fiction* entitled ‘(The) Digital’ addresses the relationship of contemporary reading to digital media and beyond. Roger Luckhurst’s historical account of literature and technology for the British Library articulates what this thesis sees as a problem of contemporary literary criticism and technology, in that the text is constructed as a separate ‘recorder’ of technology: ‘through all these technological revolutions, literary fiction has been itself a sensitive recording device that both records these shifts and generates compelling narratives that make sense of them.’⁷⁸ The argument that the novel contains a ‘sense’ which is outside of the technological is one that this thesis challenges. I view the novel as an interface which doesn’t simply ‘record’ but is interleaved with contemporary technologies. It produces subjective limits related to the very conception of human-machine interfaces.

In ‘The Future of Literature’ (2007) Hayles specifically discusses the relation of the novel to the particular affordances of digital media, stating that textual surfaces ‘created in the new millennium have a historical specificity that comes from their engagement with digitality.’⁷⁹ This moment of historical specificity means that texts and ‘digitality’ are ‘recursively entwined.’ The surfaces of texts are said to be inflected by digital affordances and limitations, such as the ability to reformat a page in complex and chaotic ways through software. These possibilities are continuously remediated by one another.⁸⁰ This entwining is both conceptual and thematic. Novels might write about technology,

⁷⁵ 'Theorizing The Web 2014', 2014) <<https://www.theorizingtheweb.org/2014/ttw14-print-program.pdf>> [Accessed 06/05/19].

⁷⁶ *Twenty-First Century Fiction: What Happens Now*, ed. by Sian Adiseshiah and Rupert Hildyard, (Basingstoke: Palgrave Macmillan, 2013), pp.2-3.

⁷⁷ Robert Eaglestone, *Contemporary fiction: a very short introduction* (Oxford: Oxford University Press, 2013), p.87.

⁷⁸ Roger Luckhurst, 'Modern literature and technology', The British Library, (2016) <<https://www.bl.uk/20th-century-literature/articles/modern-literature-and-technology>> [Accessed 06/05/19]

⁷⁹ Hayles, 'The Future of Literature', p.86.

⁸⁰ Hayles, *Writing machines*, p.6.

but are also technologies themselves. The conceptual entwining means that both print and electronic digital media bring different reading strategies: 'the strategies employed by print and electronic media [...] interact with each other's affordances and traditions.' The way visual mediums arrange surfaces might influence the layout on the page of a print novel, or reading a narrative in a graphical representation of a codex might become part of the narrative strategy of an interactive medium such as a video game.⁸¹ Hayles emphasizes, however, that these texts can be concerned with technology as a theme, in 'the represented worlds' that print and electronic texts give the reader.⁸² The historical specificity Hayles refers to, the mixing of affordances in a media ecology, can be understood as the merging of reading practices between print expectations and electronic speed, a mechanism for which is the co-existence of print texts with interface e-book versions of the same work.

Alex Goody's *Technology, Literature and Culture* (2010) demonstrates a perspective on the relation of the literary and technological which sees the two as mutually informing in modernist texts. Goody reads modernist works of literature from Virginia Woolf's *Mrs Dalloway* (1925) to Samuel Becket's *Krapp's Last Tape* (1958) for the way they represent different technologies. For Goody, literary texts in the twentieth century are 'a prime site for examining these politics' of subjectivity in technology, because they provide ways of thinking about how technology is 'political and substantial.'⁸³ Literature is 'firmly inserted into the machinic interconnections of a technological world of production, destruction, replication, malfunction, communication, transmission and reception.'⁸⁴ Goody also acknowledges that 'the cyborg enters into the terrain of theory and critical discourse' with Haraway and that 'computing technology and the cyborgs created by it are inextricably interwoven into the media that constitute them and emerge from a dynamic interaction between materialities.'⁸⁵ A similar awareness of the complex relation between literary texts and technology is seen in Jessica Pressman's 2014 work, *Digital Modernism: Making it New in New Media*. While Pressman's work maintains a focus on the influence of modernism on literary innovation, she describes novels and works of electronic literature written

⁸¹ *Dear Esther*, part of the genre of walking simulators, is a video-game text read in terms of its narrative structure and interactivity. See Heidi Ann Colthup, 'You Were all the World Like a Beach to me'. The Use of Second Person Address to Create Multiple Worlds in Literary Video Games: 'Dear Esther', a Case Study', *International Journal of Transmedia Literacy*, 4 (2018) 117-36.

⁸² Hayles, 'The Future of Literature', p.86.

⁸³ Alex Goody, *Technology, literature and culture* (Cambridge: Polity, 2011), p.167.

⁸⁴ *Ibid.*, p.2.

⁸⁵ *Ibid.*, p.166.

today as contending with ‘the contemporary, digital moment and environment.’⁸⁶ Texts are produced in the context of digital technologies, because ‘[d]igital technologies have so permeated our culture that all literature, regardless of its output platform, is impacted by digitality.’⁸⁷ Pressman’s reading of Stephen K. Hall’s *The Raw Shark Texts* (2007) emphasizes that there is a complex relationship between the print work and digitality, which the contemporary novel contests at a formal and structural level.⁸⁸

Emerson’s *Reading, Writing, Interfaces* (2014) contributes to the fields of media archaeology and literary criticism in a way which is particularly relevant for this thesis. Emerson emphasizes that interfaces of the information society become politically significant in fiction in the mid-1980s, using a vocabulary of limits and possibilities to describe the relation of writing to technology. She states that ‘the point at which a technology saturates a culture is the point at which writers and artists, draw attention to the way in which it offers certain limits and possibilities to thought and expression.’⁸⁹ For Emerson, older media can be read in tension with new media, as seen when she reads Emily Dickinson as ‘a poet working equally with and against the limits and possibilities of pen/pencil/paper as interfaces.’⁹⁰ The wider significance of fast-developing personal technologies is also analysed for its political resonance. The Apple Macintosh Graphical User Interface [GUI] in 1984 is said to contribute to a shift in the metaphorical framework for the human-computer interaction.⁹¹ The first version of the operating system Microsoft Windows was also released in 1985, which further changed the look and feel of personal computer interfaces, shifting the input towards the metaphorical reference of a window.⁹² Emerson makes clear that this takes on a deeply ideological significance, describing the marketing of the Apple Mac as transforming the ‘philosophy of computer as appliance’ into ‘an ideology.’⁹³ Steven Johnson’s *Interface Culture* (1997), also claims that these textual-metaphorical developments in computer interfaces can be understood

⁸⁶ Jessica Pressman, Jessica Pressman, 'The Aesthetic of Bookishness in Twenty-First Century Literature', *Michigan Quarterly Review*, XLVIII (Fall 2009) <<http://hdl.handle.net/2027/spo.act2080.0048.402> >. [Accessed 06/05/19]

⁸⁷ Jessica Pressman, *Digital modernism : making it new in new media* (2014), p.158.

⁸⁸ Steven Hall, *The Raw Shark Texts* (Edinburgh: Canongate, 2007)

⁸⁹ Lori Emerson, *Reading Writing Interfaces : From the Digital to the Bookbound* (Minneapolis: University of Minnesota Press, 2014), p.50.

⁹⁰ *Ibid.*, p.129.

⁹¹ Xerox produced the Xerox Alto in 1973, but it was too expensive and a commercial failure. See Jeremy Reimer, 'A History of the GUI', *arstechnica*, (2005) <<https://arstechnica.com/features/2005/05/gui/3/>> [Accessed 06/01/19]

⁹² Ryan, *A History of the Internet and the Digital Future*, p.53.

⁹³ Emerson, *Reading Writing Interfaces : From the Digital to the Bookbound*, p.80.

ideologically, that the passage from ‘fixed system of the command-line to the more anarchic possibilities of the windows’ is a movement that is philosophical as much as it is technological.⁹⁴ I examine this ideological development in chapter two, in suggesting that the growth in personal computing coincided with different forms of writing about human-machine relations in striking metaphorical terms.

The most recent contribution to theorising the relationship of the novel to contemporary media is Dinnen’s *The Digital Banal*. Dinnen argues that contemporary American literature and culture can be read in relation to the notion of digital banality. Banality here is a ‘contemporary affect in which novelty cannot disturb the surface of the present.’⁹⁵ Digital technologies are ‘processes of mediation’ which work as ‘forms of effacement.’⁹⁶ Digital technologies hide the affective novelty involved in their use, flattening the experience. Reading with this conceptualisation of digital technologies in mind allows Dinnen ‘to reveal [...] the uneasiness of the present and its digital mediational condition.’ This is in order to ‘recognize and antagonize our new mediational conditions.’⁹⁷ Her readings address the presentation and performance of interactions with everyday technologies in film, television and the novel form. I engage in more detail with Dinnen’s discussion of the novel, the interface and the intraface later in this chapter, but am aligned with her sense that the ‘new mediational conditions’ require careful and politically nuanced forms of reading and analysis.

The above examples emphasize the way contemporary literary criticism takes account of the intersection of different forms of media, comprised of different reading technologies. It also highlights that technology signifies in different ways for different critical projects. I will now establish the philosophical grounding of this thesis and my approach to the contested signifier of technology.

Defining the Technological

What is being referred to in this thesis when talking about technology, *techné* or the technological? The definitions I explore here are located in the intersecting fields of feminism, philosophy and the ethics of communication. The definitions contribute to the

⁹⁴ Steven Johnson, *Interface Culture : How New Technology Transforms the Way we Create and Communicate* (San Francisco: HarperEdge, 1997), p.83.

⁹⁵ Zara Dinnen, *The Digital Banal : new media and American literature and culture* (New York: Columbia University Press, 2018), p.10.

⁹⁶ *Ibid.*, p.4.

⁹⁷ *Ibid.*, p.18.

foundation of my view of technology as a set of practices and processes, already suggested in the reference to interface ‘effects’ and affordances and limitations. I address different ways of defining technology in order to establish the scholars with whom my perspective aligns, and not to claim a certain or total definition of the term. As Eric Schatzberg states, ‘technology is not a stable entity; it has no essence that scholars can uncover through a correct definition.’ It is rather that ways of understanding technology continue to ‘make a difference in our material interactions.’⁹⁸ Often the starting point for a definition of technology is found in the Greek word *techné*, used by Aristotle to label a form of artistic craft, which is termed in *Nicomachean Ethics* ‘a reasoned productive state.’⁹⁹ It is necessary to understand the relation of the words *techné* and technology, even while questioning the value of originary definitions, in order to gain a perspective on the multiple meanings which contribute to the broad signifier of technology.

Ronald Tulley highlights how the term ‘technology’ has drifted from the original sense of *techné*. Referring to Aristotle’s definition of *techné*, he states that ‘in the contemporary vernacular, technology has come to mean a practical or industrial art — not “a reasoned state of capacity to make.”’¹⁰⁰ Tulley sees the contemporary definition as either meaning the ‘instruments’ of technology, or the ‘systemic sense’ of human activity.¹⁰¹ The semantic drift points towards the ways in which contemporary usage of the word seems to emphasize objects of technology, such as personal devices, over conceptualisations of technology as a category for thinking about ways of living and surviving. What *techné* still has in common with technology is the way it refers to objects or tools that are used and the social practices which constitute their use. Using the term ‘technology’ to refer simultaneously to a range of machines or tools as well as social practices is a more recent linguistic phenomenon. As David Nye states, since the first recorded use of the word in 1828, the semantic widening of the term has occurred slowly: ‘[o]nly gradually did “technology” acquire the all-encompassing sense it commonly has today.’¹⁰² Nye emphasizes in *American Technological Sublime* (1994) the ways in which technological progress was linked to moral endeavour, that industrial technology

⁹⁸ Eric Schatzberg, *Technology : critical history of a concept* (Chicago: University of Chicago Press, 2018), pp.14-15.

⁹⁹ J. A. K. Thomson and Hugh Tredennick, *The ethics of Aristotle : the Nicomachean ethics* (Harmondsworth: Penguin, 1976) p.208.

¹⁰⁰ Ronald Jerome Tulley, 'Is There Techne in My Logos? On the Origins and Evolution of the Ideographic Term—Technology', *The International Journal of Technology, Knowledge and Society*, 4 (2008) 93-104, p.94.

¹⁰¹ *Ibid.*, p.103.

¹⁰² David E. Nye, *American Technological Sublime* (Cambridge, Mass. ; London: MIT Press, 1994), p.45.

represented the heights of ‘mankind’s’ achievements, the ability to transcend the mundane or bodily. Rodney Giblett also states that such an approach was characterized by ‘an earthly, masculine poetics and politics,’ which is referred to throughout this thesis as the technological sublime.¹⁰³ Broadly speaking, the contemporary term technology refers either to technological instruments themselves, or to a wider sense of technology as a set of inter-related processes. Schatzberg identifies this ‘tension between instrumental and cultural understanding of technology’ in that the ‘instrumental concept of technology effaces the role of human agency.’¹⁰⁴ In popular discourse concerning technology, the practices involved with technology and objects of technology are often made distinct from the concept of the human or a notion of ‘universal’ humanity.

From the above, I see the defining of technology and the technological as reliant on an understanding of how affordances and limitations shape ways of being through both processes and instruments. Judy Wajcman’s contemporary definition in *Feminism Confronts Technology* (1991) differently acknowledges the way technology signifies a vast set of practices and competencies. Wajcman calls technology a ‘form of knowledge’ which can be systemized and taught and sees social relations as shaped by mediating technologies. Wajcman’s definition suggests the need for a detailed understanding of affordances and limitations, to view technology not as a process of augmentation to a prior human subject, but as integral to processes of subjectivation.¹⁰⁵ I thus take ‘technology’ not only to mean human practices involving tools. I use the noun technology and the adjective technological to refer to a set of practices and objects which appear to work in reciprocal relation. The interface is a technology of representation, and the practices and competencies it affords can be described as technological. The technology of the smart phone affords instantaneous messaging and navigation to subjects, it is a tool, but it also conditions the ways in which social relations are possible, affording new contexts and methods for communicating. I here nuance such definitions with reference to the concept of the ‘digital,’ and by addressing the notions of technology referred to by Martin Heidegger and Bernard Stiegler.

Digital technologies are an important part of the ‘form[s] of knowledge’ which are shaped by affordances and limitations in twenty-first century life. However, while ‘the

¹⁰³ Rodney James Giblett, *Sublime communication technologies* (Basingstoke: Palgrave Macmillan, 2008), p.147. The technological sublime is addressed in further detail in chapter five.

¹⁰⁴ Schatzberg, *Technology : critical history of a concept*, p.4.

¹⁰⁵ Judy Wajcman, *Feminism Confronts Technology* (Cambridge: Polity, 1991), pp.12-15.

digital' is extremely visible and critically important in discussions of reading, digitality is only one part of conceptual discussions of technology. Technologies of biological reproduction in *10:04*, for instance, make use of a digital screen to display the live results of an ultrasound, but the digitization is a mode of presentation which manifests the results of a process. The term digital does not necessarily describe all elements of a technological process. For example, the interfacing of the body with a sonographic probe via lubrication, part of an ultrasound, is not a digital process, but it is a technological one.¹⁰⁶ This interfacing is a context-bound, medical affordance generated by an inter-related set of processes designed to help monitor the progress of pregnancy. In short, the patient is subject to a technological process which is not only digital. An alternative argument is that the technology of writing can be seen as a hybrid relation of digital and analogue affordances. Print assumptions 'linger' in new technological forms of interaction and reading.¹⁰⁷ Writing is a continuous mark on a page, often reproduced by a computer program, but ultimately reliant on physical gestures, whether by hand, or by speech in the case of voice-to-text tools. It is an embodied practice which generates information that is sometimes understood as abstract or disembodied. Florian Cramer emphasizes how the digital has come to work in opposition to the analogue in contemporary critical discourse:

The everyday colloquial definition of "digital" embraces the fiction (or, rather, the abstraction) of the disembodied nature of digital information processing. The colloquial use of "digital" also tends to be metonymical, so that anything connected literally or figuratively to computational electronic devices — even a camera tripod — can nowadays be called "digital".¹⁰⁸

Cramer emphasizes the way in which digital becomes symbolic of the computational or the electronic. The digital, however, does not only refer to the electronic, given it can mean that which is divided into discrete or countable units, such as the language of binary. In a similar sense, analogue 'does not necessarily mean non-computational or pre-computational.' Analogue computers are used for computational tasks in the present day,

¹⁰⁶ For an example of the ways technological processes are always embedded in relations of power, see Helen Hester's discussion of the Del-em menstrual extraction device in Helen Hester, *Xenofeminism* (Cambridge: Polity Press, 2018), pp.82-3.

¹⁰⁷ Anouk Lang details four different focuses for hybrid reading in the contemporary period: the internet and democracy, literary value, textuality and subject formation, and identity work through 'book-related technologies.' See Lang, Introduction: Transforming Reading, pp.6-10.

¹⁰⁸ Florian Cramer, 'What Is 'Post-digital'?', in *Postdigital Aesthetics: Art, Computation and Design*, ed. by David M. Berry and Michael Dieter (London: Palgrave Macmillan, 2015), pp. 12-26, p.23.

such as simulating airflow in product design.¹⁰⁹ While the digital undeniably refers to a very significant set of technologies, behaviours and cultural fictions, it is a term which should not be understood as comfortably synonymous with ‘technology’ per se. It is a powerful metonym of the technological and a descriptor for the forms of media experienced via digital processes. This thesis does not look to engage in the discussions of the post-digital, which responds directly to the conception of the digital as cultural phenomenon.¹¹⁰ I highlight the ambiguity surrounding the term digital in order to emphasize that it is one influential way of conceiving of the technological, to which I will sometimes necessarily refer. In acknowledgement of this approach, Charles Ess suggests in *Digital Media Ethics* (2009) that ‘we as embodied beings still generate and receive information in resolutely analogue form [...] Digital codes begin and end for their human users as analogue information.’¹¹¹ What is demonstrated by this problematizing of the digital is the way that the language of HMI is contestable. Considering how the terms ‘digital’ and ‘technological’ mean differently helps to highlight what other forms of subjectivation, and possible marginalisation, might otherwise be contained in such language.

The language used in philosophy of technology contributes to the delimiting of technology as a category. Lucas Introna (2011) provides an overview of phenomenological perspectives on technology that explains different ways of conceiving the social or conceptual relationship between technology and subjectivity. Introna gives an account of how the meaning of technology can signify in ethical and political ways, stating that ‘when we design new technological systems we are also designing the sort of humans that we are (or will become).’ Introna refers to Langdon Winner’s work on the politics of affordances, which presents a social constructivist position. Affordances and limitations have ethical and political implications embedded, because such processes condition ways of thinking and acting. Introna paraphrases Winner:

as these technological affordances become embedded in larger infrastructures (practices, systems, spaces, organizations, etc.) it becomes increasingly difficult to

¹⁰⁹ Ibid. p.17. Bernd Ulmann states that the most accurate way of thinking the distinction between analog and digital computers is in the differences between fixed (digital) and not fixed (analog) internal structures. See Bernd Ulmann, *Analog Computing* (München: De Gruyter Oldenbourg, 2013), p.2.

¹¹⁰ Caroline Bassett draws a critical comparison between post-digital and post-feminism: ‘if digital is to post-digital as feminism is to post-feminism, then, as a feminist, I seek other alternatives.’ Caroline Bassett, ‘Not Now? Feminism, Technology, Postdigital’, in *Postdigital Aesthetics*, ed. by David Berry (Palgrave Macmillan: London, 2015), pp. 136-50, p.144.

¹¹¹ Ess, *Digital media ethics*, p.11.

use the technology in ways other than in the way it was set up to afford possibilities (or not).¹¹²

Introna provides the example of the implicit ableism found in the design of ATMs. Such interfaces are fully accessible only for people who can see, reach and use a haptic, push-button interface, and remember a personal identification number. Technology is a concept linked with the philosophical category of the 'human,' which 'includes/excludes certain interests.'¹¹³ At this point of understanding technology as related to the inclusion and exclusion of different ways of being, I turn to give a more detailed sense of the relation of Heidegger and Stiegler. This will help further establish the language for describing and analysing the relation of the subject to technology which is integral to the readings in this thesis.

The relevance of Heidegger's thinking on technology is still a subject of contemporary debate.¹¹⁴ For Heidegger, the question concerning technology is not best understood by thinking specifically about the objects, tools or interfaces that humans use. Instead, technology can be better understood by considering the kind of thinking that it encourages, which means finding a way of thinking about technology as a whole system of thought with which humans engage. His position is distinct from technological determinism, a perspective with which Heidegger is sometimes wrongly associated. Technological determinism sees technological forms as determining the shape of society,

¹¹² Lucas Introna, 'Phenomenological Approaches to Ethics and Information Technology' (2011) <<https://plato.stanford.edu/archives/sum2011/entries/ethics-it-phenomenology/>> [Accessed 28/03/19]

¹¹³ Ibid.

¹¹⁴ Andrew Feenberg's article on Heidegger and technological determinism, along with Iain Thomson's direct response, represent recent debate surrounding Heidegger's work on technology. Feenberg's critique of Heidegger can be summarized as concerned with the level of abstraction at which Heidegger conceptualizes the technological. He himself proposes 'a very different conceptualization that includes the integration of technologies to larger technical systems and nature, and to the symbolic orders of ethics and aesthetics' (p.303). Thomson responds to Feenberg by emphasizing that Heidegger is working at the ontological level. He suggests that Heidegger's philosophy is open to the idea that small changes in thinking about technology might result in a more fundamental change: 'a more substantivist Heideggerian view which suggests that while we cannot directly control the historical direction in which technology is taking us, we can nevertheless impact the future in small ways by learning to recognize, encourage, and support technological democratizations when they occur, while hoping that these ontic political interventions might yet indirectly foster an ontological transformation' (p.437). See Andrew Feenberg, 'From Essentialism to Constructivism: Philosophy of Technology at the Crossroads', in *Technology and the Good Life?*, ed. by Eric Higgs, Andrew Light, and David Strong (Chicago: University of Chicago Press, 2000), ; Iain Thompson, 'What's Wrong with Being a Technological Essentialist? A Response to Feenberg', *Inquiry: An Interdisciplinary Journal of Philosophy*, 43 (2000) 429-44. For an account of the distinction between essentialism and determinism in Heidegger, see David Tabachnick, 'Heidegger's Essentialist Responses to the Challenge of Technology', *Canadian Journal of Political Science*, 40 (2007) 487-505.

understanding technology as autonomously developing by its own logic.¹¹⁵ Heidegger's questioning is not a wholesale rejection of technology, but is meant 'to bring to light our relationship to [technology's] essence.' Heidegger argues for thinking about the 'essence' of technology in his lecture 'The Question Concerning Technology' later published in essay form. This essence 'lies in enframing.'¹¹⁶ Enframing is a way of revealing the world that technology generates, one that results in conformity and an ordering of life as though it were a resource. The form of 'revealing' which happens by modern technology, its essence, 'is a challenging' which puts to nature 'the unreasonable demand that it supply energy to be extracted and stored.'¹¹⁷ That modern technology reveals in this way threatens to objectify the world, and human beings, by turning the world into a resource or 'standing reserve.' The essence of technology is thus 'itself nothing technological,' but is the revealing of the world that happens by the system of technology, resulting in calculative thinking.¹¹⁸ Enframing is not to do with the actual parts of technology, but the way such activity conditions the world: 'this work is [...] neither only a human activity nor a mere means within such activity. The merely instrumental, merely anthropological definition of technology is [...] in principle untenable.'¹¹⁹ Technology generates a way of thinking and doing that is itself demanding of the world, and of the human, and involves both simultaneously: 'neither does [enframing] happen exclusively in man, or decisively through man.'¹²⁰ While human beings are subject to enframing, 'truth' struggles and is impeded in its 'revealing.' Thus, society must engage in different thinking in relation to technology. Such thinking is valuable, because it would be able to recognize the ways technology encourages calculative thinking, which forms the basis of an extractive logic.

Stiegler engages directly with Heidegger in the three volume work *Technics and Time* (1998) and provides a perspective on human-machine relations which resonates with Haraway's cyborg. Stiegler breaks up the broader signifier of technology as a system of thought. He refers to technology as a discourse that describes a system. Stiegler looks to 'forge another relationship to technics, one that rethinks the bond originally formed by, and between, humanity, technics, and language.'¹²¹ Stiegler intervenes in Heidegger's

¹¹⁵ Val Dusek, *Philosophy of technology: an introduction* (Oxford: Blackwell, 2006), p.84.

¹¹⁶ Martin Heidegger, 'The Question Concerning Technology', in *Technology Studies*, ed. by Rayvon Fouché (Los Angeles: SAGE, 2008), p.11.

¹¹⁷ Ibid., p.6.

¹¹⁸ Ibid., p.10.

¹¹⁹ Ibid.

¹²⁰ Ibid., p.12.

¹²¹ Bernard Stiegler, *Technics and Time Vol. 1* (Stanford, CA: Stanford University Press, 1998), p.13.

more abstract sense of technology as essence by re-examining the notion of the human as distinct from the technologies, forms, practices and tools used in everyday life. ‘Technics’ is the system of tools described by the discourse called technology.¹²² Technology in Stiegler refers to a social discourse which addresses particular technics — i.e. objects and protocols: [technology is] the discourse describing and explaining the evolution of specialized procedures and techniques, arts and trades.’ This discourse involves the describing of ‘procedures and techniques’ which form systems. Stiegler states that ‘technology is in this case the discourse of the evolution of that system.’ This is a textualized definition of technology which recalls Williams’s artefactual understanding of the information society, and Castell’s conception of a ‘fight with symbols.’ A further term used by Stiegler is the ‘technical.’ The technical is a category which sits in relation to the human, and is conceived of by Stiegler as a binary provocation, i.e. ‘the human/the technical.’¹²³ Here, the technical refers to the abstract category which is described by the discourse of technology. Throughout this thesis, I use the term ‘technical’ synonymously with ‘technological’.

Throughout *Technics and Time*, the main way Stiegler rethinks the bond of humanity and technics is by challenging the conception of origins via a method of reading which examines metaphysical binaries. Stiegler fundamentally questions the distinction between the technical and the human that he posits is generated by Western metaphysics:

the prevailing understandings of contemporary technics, caught up in the workings of oppositions inherited from metaphysics, are by the same token hampered by the false alternative of anthropocentrism and technocentrism—and are reduced to opposing the human and the technical [...] we will have to question the origin of the human, with the risk, once again, of having to call into question the very possibility of an origin.¹²⁴

This questioning of the possibility of the origin takes the form of a re-reading of the myth of Prometheus and the fault of Epimetheus. When tasked with distributing qualities to the beings with which the gods intend to populate the world, Epimetheus forgets to grant

¹²² Sarah Kember and Joanna Zylinska explain the ethical import of Stiegler’s reading of Heidegger by emphasizing how it opens the possibilities of technology to the presence of the other: ‘If, as Stiegler has it, “the being of humankind is to be outside itself,” the always already technical human is a human that is inevitably, prior to and perhaps even against his “will” — productively engaged with an alterity.’ Technology is the very manifestation of the being outside of humanity, the other, the site of ‘alterity’, is always already implicated in the engagement of the subject with technicity. Sarah Kember and Joanna Zylinska, *Life after new media : mediation as a vital process* (Cambridge, Mass.: MIT Press, 2012), p.17.

¹²³ Stiegler, *Technics and Time Vol. 1*, p.100.

¹²⁴ *Ibid.*, pp.94-5.

humans anything, ‘leaving man naked, in a default of being, having yet to begin being.’ Prometheus then must ‘supplement this default of origin by procuring for himself prostheses, instruments.’¹²⁵ Stiegler challenges Jean-Jacques Rousseau’s sense of the ‘natural, originary force of the solitary man’ by arguing that technics, which is conceived of by Rousseau as a fall into being from a ‘natural’ origin, is itself contained within that origin. Rousseau ‘went astray in thinking that technical exteriorization was an exit from the movement of pure nature.’ It is in ‘making tools’ that man ‘pursues a tendential movement of additions and new organizations which is that of pure nature.’¹²⁶ From this position, Stiegler begins to imagine ‘the human as what is invented,’ rather than the technical proceeding from, or being generated by, the interiority of the human.¹²⁷ This is articulated by the question ‘when do(es) the human/the technical begin and end?’ which I address specifically in chapter two, through the figure of Kathy H in *Never Let Me Go*.¹²⁸

Stiegler uses the terms the ‘who’ and the ‘what’ to convey the way that the category of the human is reciprocally invented with the category of the technical. Ross Abbinnett in *The Thought of Bernard Stiegler*, glosses the ‘who’ and the ‘what’ in stating that the ‘central question’ raised by Stiegler’s philosophy is of the ‘relationship between the “who” of embodied human consciousness and the “what” of technological systems.’¹²⁹ This conception is most clearly demonstrated in Stiegler’s reading of anthropologist André Leroi-Gourhan. Such reading recognizes that the evolution of what came to be the dominant species of human relied heavily on the development of tool use in tandem with the conditions of possibility for the use of such tools.¹³⁰ This leads Stiegler to an understanding of human social life which is reliant on the technological as a supplement, as Abbinnett explains: ‘for him, the evolution of the human species has always been driven by a lack of essence that is made good by technological supplements and cultural supports.’¹³¹ This perspective subtly challenges Heidegger’s conception of the essence of

¹²⁵ Ibid., p.114.

¹²⁶ Ibid., p.162.

¹²⁷ Ibid., p.134.

¹²⁸ Ibid., p.100.

¹²⁹ Ross Abbinnett, *The Thought of Bernard Stiegler : Capitalism, Technology and the Politics of Spirit* (London: Routledge, 2018), p.4.

¹³⁰ Andrés Vaccari refers to this as ‘the originary prostheticity of thought’ (p.3.) Vaccari provides a competing reading of Sumarian myth to challenge Stiegler’s reliance on the technology of writing, and, most importantly for this thesis, sees an important resonance for Stiegler’s thinking in Andy Clark’s discussion of contemporary cyborg status and the extended mind. Andrés Vaccari, ‘Unweaving the Program: Stiegler and the Hegemony of Technics’, *Transformations Journal of Media & Culture*, (2009) 1-25; Andy Clark, *Natural-born cyborgs : why minds and technologies are made to merge* (New York: Oxford University Press, 2003).

¹³¹ Abbinnett, *The Thought of Bernard Stiegler*, pp.2-3.

technology and of calculative thinking, by reading the relation of the human and the technological as simultaneous and reciprocal. The reading engaged in by Stiegler of the myth of Epimetheus and Prometheus illustrates the ‘reciprocal relationship between human beings and technology that lies at the origin of history.’¹³² Following from Wacjman’s definition of technology, through Stiegler’s re-reading of Heidegger, I understand the interface as a synecdoche for the relation of human and machine, a concentrated enactment of the relation of ‘who’ and ‘what’.

The Novel Interface

The interface is a concept with its own disciplinary and critical history, connected to the development of the information society. Here I turn to the critical literature surrounding the interface, to support the premise of this first chapter. The novel can be read as an interface, in order to help articulate the relation of subjectivity and technology.

Jerome McGann views the structural shift of the information society in terms of reading and interfaces in *Radiant Textuality* (2001). Books, McGann suggests, serve the function of data storage and transmission, but also work as ‘engine[s] for constructing simulations.’ The structural change which results in greater interactivity and integration, afforded by digital code and hypertext, represents a ‘passing from a bibliographical to an “Interface Culture”.’¹³³ This, he suggests, is both a functional and an aesthetic shift. This supports the argument above that the information society generates a historically specific reading environment. Kirschenbaum supports this idea, in clarifying that while interfaces may be thought of primarily through spatial metaphors, ‘most interfaces embody temporal, haptic, and cognitive elements.’¹³⁴ Brendan Hookway’s monograph *Interfaces* (2014) demonstrates how these observations about the interface have developed in the first decade of the twenty-first century: ‘[T]he interface [...] most actively determines the human relation to technology and delimits the boundaries that define human and machine.’¹³⁵ This perspective is also argued for in Michael Dieter’s statement in *PostDigital Aesthetics* (2015) when he writes that ‘interfaces should be understood through their

¹³² Ibid., p.3.

¹³³ Jerome J. McGann, *Radiant Textuality : literature after the World Wide Web* (New York ; Basingstoke: Palgrave, 2001), p.171. For an understanding of digital code and hypertext as significant elements of the information society, see Dijk, *The Network Society*, p.7.

¹³⁴ Kirschenbaum, *So the Colours Cover the Wires: Interface, Aesthetics and Usability*, p.523.

¹³⁵ Branden Hookway, *Interface* (Cambridge, Massachusetts: MIT Press, 2014), p.1.

provision of *active relations*.¹³⁶ This means that interfaces are not fixed surfaces but are processes that engender relations. Reading a novel is an ‘active relation’ between text and reader, whether via page or screen.

Emerson articulates the notion of the interface as a technology in relation to the process of reading. She sees the term as referring to a process of mediation which is characterized by reading:

The interface is a technology — whether it is a fascicle, a typewriter, a command line, or a GUI — that mediates between reader and the surface-level, human-authored writing, as well as, in the case of digital devices, the machine-based writing taking place below the gloss of the surface.¹³⁷

In Emerson’s definition, the interface technology draws together of different forms of writing which might conventionally be understood as separate or distinct. The novel can be readily inserted into Emerson’s list as an instantiation of ‘human-authored’ writing mediated by a reading process. What this reading process involves depends on the type of interface process. This link between thinking interfaces and thinking about processes of reading is found in other influential scholars of interface studies. Johana Drucker situates the book as a codex in relation to the interface as a social process in ‘Humanities Approaches to Interface Theory’:

What is an interface? If we think of interface as a thing, an entity, a fixed or determined structure that supports certain activities, it tends to reify in the same way a book does in traditional description. But we know that a codex book is not a thing but a structured set of codes that support or provoke an interpretation that is itself performative.¹³⁸

Drucker draws on the description of the codex book as a ‘structured set of codes’ to describe the process of the interface itself. This ‘performativity’ of reading involves assumptions or expectations regarding the form or genre of text that is read. In the context of Drucker’s thinking, the literary novel can be viewed as a structured set of codes that provoke certain ways of reading. It is a suspended ontology, as Ricouer claims, which is itself performative, reliant on the gesture of reading. The structure of the realist literary

¹³⁶ Michael Dieter, 'Dark Patterns: Interface Design, Augmentation and Crisis', in *Postdigital Aesthetics: art, computation and design*, ed. by David M. Berry and Michael Dieter (London: Palgrave Macmillan, 2015), p.165. My emphasis.

¹³⁷ Emerson, *Reading Writing Interfaces: From the Digital to the Bookbound*, p.x.

¹³⁸ Johanna Drucker, 'Humanities Approaches To Interface Theory', *Culture Machine*, 12 (2011) 1-20, p.8.

novel might involve assuming the presentation of subjectivity through identifiable characters. Such characters would act within a textual configuration of a familiar reality which would problematize the boundaries of such reality, the provocation of realist texts being that they claim to address issues of recognisably 'social' life. For literary texts which address the presentation of the real, the reader engages in a performative reaction to the mediation of reality, manifest in the novel's interface effects.¹³⁹ Drucker articulates the way the concept of the interface is thus integral to the performance of reading, stating that '[i]nterface is *what we read* and *how we read* combined through engagement.'¹⁴⁰ To consider the interface is to simultaneously consider the ways in which such an interface is read, and what possible performative gestures reading is able to reproduce, challenge or resist.

Kathleen Fitzpatrick, writing in 2006, suggests that the human-machine interface can be understood primarily as a site of anxiety for novel writers, because the affordances of the novel might be disrupted by other interfaces. It is important to note that Fitzpatrick is referring to postmodern American novelists, such as Thomas Pynchon and Jonathan Franzen. She states, 'machines — theoretical, representational, and technological — interfere, for the novelist of obsolescence, with the processes of communication so vital to human existence.'¹⁴¹ Fitzpatrick defines the interface as 'both boundary and connection, both line of demarcation and shared surface.' It is this dual quality which Fitzpatrick suggests is the catalyst for such anxiety: '[t]he connective aspect of the human/machine interface, and the implication that the two entities must be understood in relationship to one another, is a source of technological anxiety for many writers and critics.'¹⁴² The contemporary novel, in responding to the media ecology in which it is produced, establishes boundaries regarding what or who can be read at particular interfaces, and what the possibilities, affordances and limitations are for reading. Fitzpatrick identifies a gendered component to this questioning of the 'core values of humanism' which machines appear to generate for such novelists, emphasizing that 'this putatively universal "humanity" is in fact bound up with masculinity.' The blurring of clear boundaries between human and machine is related to the blurring of boundaries

¹³⁹ Johanna Drucker, 'Entity to Event: From Literal, Mechanistic Materiality to Probabilistic Materiality', *parallax*, 15 (2009) 4-17, p.13.

¹⁴⁰ Drucker, 'Humanities Approaches To Interface Theory', p.9.

¹⁴¹ Kathleen Fitzpatrick, *The Anxiety of Obsolescence : the American novel in the age of television* (Nashville, Tenn.: Vanderbilt University Press, 2006), p.70.

¹⁴² *Ibid.*, p.93.

between the novel and other forms, which seems to threaten a masculine notion of the subject.

What is also implied in Fitzpatrick's suggestion about anxiety is that such blurring may be manifest at a formal level. Both fiction and interface processes deal in reality effects, representing and reproducing versions of reality. This is articulated by Soren Pøld. Pøld suggests in 'The Interface as Aesthetic Form' (2005) that '[t]he interface is [...] rooted in an active and dialectical relationship between reality and representation, the interface entering in front of — or perhaps more correctly instead of — an increasingly invisible reality.' This entering in front of is 'closer to aesthetic realism — for instance, literary realism, which is not based on a naive mimetic faith in the possibility of reproducing or depicting reality.' The process of the interface, likened to the processes of a realist novel, is based on 'a loss of immediate reality with the rise of urbanity, capitalism, and modern media.'¹⁴³

In summary, the interface produces a mode of interacting with reality without claiming a naïve faith in the ability to represent that reality, while simultaneously generating that reality. As an interface, the realist novel provides a representation of the world, a perspective contained in the mediational language of the text, which also contributes to, or produces, reality. Samuel R. Delany's definition of fiction as concerned with 'the products of production' is instructive here:

Fiction works on the premise that the products of production, reflecting back to the mode of production, also reflect (and reflect on) social, political, and intellectual life—which is what we are doing when we describe people's clothes and furniture and cars and what they eat and what they live in, in a piece of fiction that ostensibly is only concerned with "what happens." This is why it is so important, in the maintenance of fictional reality, to keep clear either by implication or direct statement, where the money comes from, how much, and what the relationship is to the money of other people involved.¹⁴⁴

What is important to add to Delany's explanation is the sense that interfaces, including novels, are products of production and well as processes of production. The novel is an interface because it deals in reality effects, is 'in front of' or 'instead of' reality. When contemporary technologies are 'assimilated' as interfaces in the text of a novel, a form of translation takes place, where the significant differences of, for example, the smartphone

¹⁴³ Soren Pøld, 'Interface Realisms: The Interface as Aesthetic Form', *Postmodern Culture*, 15 (2005)

¹⁴⁴ Samuel R. Delany, *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction*, Rev. ed. edn (Middletown, Conn.: Wesleyan University Press, 2009), p.209.

screen become a part of the significant material of the novel. This results in an overlapping of boundaries which signals multiple edges, or limits, where the novel attempts to translate material but cannot totally succeed. The two modes of production of the novel and those interfaces exterior to the novel differently produce and reflect on ‘social, political and intellectual life.’ To ‘keep clear’ where ‘the money comes from’ with regard to the contemporary novel means considering in what ways the novel is working as an interface, how it is a product of production as well as a process, and how it maintains its fictional reality when confronted by other interfaces.

Alexander Galloway’s description of software in *The Interface Effect* (2012), in tandem with a review of the film *The Social Network* by novelist Zadie Smith, help to further ground the claim for the importance of reading the novel as an interface.¹⁴⁵ Galloway draws on the work of Dagonnet, who refers to the interface as a ‘fertile nexus.’¹⁴⁶ Galloway understands the interface in a similar sense, as a generative process which signals difference but not a static state – it is an *effect*: ‘It is that moment where one significant material is understood as distinct from another significant material [...] an interface is not a thing, an interface is always an effect. It is always a process or a translation.’¹⁴⁷ Galloway refers to the interface as a problematic process of translation, that is both social and technical, using software as an example: ‘software too must be understood not as a given social and technical object, but as a problematic interface — indeed, one that *is continuously in the process of producing its own status as social and technical*.’¹⁴⁸ The novel can also be thought of as a ‘problematic interface,’ to use Galloway’s terms, because it is also in the process of producing ‘its own status as social and technical.’ By the production-of-status here, I mean the way in which the novel is reproduced in literary criticism as socially valuable and insightful, or in some way able to comment on social life whilst seemingly retaining a semblance of non-specific ‘difference’ from the social itself.

The concept of the problematic interface, and whether the novel can be considered as connected to the affordance and limitations of interfaces, is found explored in Zadie Smith’s review of the film *The Social Network* in ‘Generation Why?’ (2010). Smith explains, in discussing the novel and software together, ‘software is not neutral. Different software embeds different philosophies, and these philosophies, as they become

¹⁴⁵ Zadie Smith, ‘Generation Why?’, *New York Review of Books*, (2010) <<https://www.nybooks.com/articles/2010/11/25/generation-why/>> [Accessed 08/01/19]

¹⁴⁶ Galloway, *The Interface Effect*, p.31.

¹⁴⁷ *Ibid.*, p.33

¹⁴⁸ *Ibid.*, p.58. My emphasis.

ubiquitous, become invisible.’¹⁴⁹ Smith suggests that a platform such as Facebook undermines the ‘overinflated liberal-bourgeois sense of self,’ causing it to become ‘denuded’ and ‘owned’ and highlights the way Facebook was ‘designed by a Harvard sophomore with a Harvard sophomore’s preoccupations’ as a signal of the platform’s limits for performing subjectivity. The categories available on a Facebook profile page, whether determining a subject’s favourite television shows or preferred shopping sites, delimit identity in a very specific way. Smith recognizes the parallels between the novel and software, and states that while ‘[s]oftware may reduce humans [...] Fiction reduces humans, too[.]’¹⁵⁰ The distinction made by Smith is that ‘bad fiction does it more than good fiction, and we have the option to read good fiction.’ This statement is revealing of the way in which the technological status of the novel is elided by categories of ethical and political value. Whether a novel is ‘bad’ or ‘good’ fiction is a value judgement predicated on webs of power and knowledge, which are comprised of their own ‘philosophies’ that inform the concept of literary value. These very philosophies have become, like the philosophies of software, ‘ubiquitous’ and ‘invisible.’ Smith’s reference to the ‘liberal-bourgeois’ sense of self implies an understanding of what is invisible about the ideological grounding of the contemporary novel; it has historically been a genre that makes most visible the independent, sovereign self of interior, rational thought.¹⁵¹

The effacing of the novel’s own status as interface becomes more unstable when interfaces are represented as part of the form of narratives. Galloway explains this, stating that ‘any mediating technology is obliged to erase itself to the highest degree possible in the name of unfettered communication, but in so doing it proves its own virtuosic presence as technology thereby undoing the original erasure.’¹⁵² The novels in this thesis draw attention to interface effects, by a change in format on the page, or a shift in textual structure, or by the description of interface interactions by characters. In doing so, they also draw attention to their own ‘virtuosic presence as technology’ to differing degrees. In all the texts, the presence of the interface establishes a discomfort or anxiety, one that Galloway calls ‘an “agitation” or generative friction between different formats.’¹⁵³ It is an agitation because the textual world and the world of the reader become pragmatically

¹⁴⁹ Smith, ‘Generation Why?’

¹⁵⁰ Ibid.

¹⁵¹ Sylvia Wynter, ‘On Disenchanted Discourse: “Minority” Literary Criticism and beyond’, *Cultural Critique*, 3 (1987) 207-44, p.221.

¹⁵² Galloway, *The Interface Effect*, p.62.

¹⁵³ Ibid., p.31.

imbricated. The contemporary novel which attempts to address the active boundary of the interface interaction fails to contain the interface form as solely within the textual world, and the interaction readily overflows into the world of the reader. This kind of overflow, the state of being at the edge, signals a struggle for meaning. Hookway claims that ‘a countervailing reading of interface as a facing between — as an active and contested boundary condition — is needed.’¹⁵⁴ This is certainly the case for the novel, which establishes a facing between the literary container and the technologies it considers separate from it. The reading Hookway describes would recognize, as Galloway articulates, that ‘[t]he edges of the work are the politics of the work.’¹⁵⁵ The edges of all of the novels which I close read are comprised of political limits concerning gender and race. In each of these works, I observe power imbalances between different characters which restrict the ways they can act in these textual worlds. At other points, the relative amplification or silencing of women constitutes the ‘edge’ of the works which I discuss in relation to cyborg politics.

When the language and form of the interface seem most conspicuous, when the text reaches the edges of its mediating process, such political and ethical limits become visible. Galloway names this critical mode, this countervailing, as the ‘intraface’ — ‘an interface internal to the interface.’¹⁵⁶ Dinnen articulates the way that the interface can be seen as an edge, or limit, for the novel in a media ecology. For Dinnen, the novel can work as an intraface:

The operation of the social, instantiated through the interface, indicates an *intraface*, and by extension, this operation in a novel can be seen as, or in relation to, a general condition of contemporary media. If the novel is an intraface, it must be posing its own edges as questions within the text, and in doing so pose itself as a momentary instantiation of a system of “a logic of flows, transformations, movement, process, and lines of flight.”¹⁵⁷

Dinnen understands the novel as a momentary instantiation of a social system that Galloway describes, a description which is resonant with the definition of the information society and the media ecology. Following from the above, the operation of the social in a novel makes the edges of the work into questions, in that the work ‘pose[s] itself?’

¹⁵⁴ Hookway, *Interface*, p.10.

¹⁵⁵ Galloway, *The Interface Effect*, p.42.

¹⁵⁶ *Ibid.*, p.40.

¹⁵⁷ Dinnen, *The Digital Banal*, p.91.

suggesting that the text is aware of the problems at its edges. The text is a temporary version of the social which necessarily runs up against limits in its form: its beginnings and endings, its narrativizing of interface interactions, what the novel is able to make seen and heard. To read the form of the novel as instantiating a form of the social, whether as an interface or an intraface, requires a particular kind of critical attention:

the issue at hand is the quality of attention and the affective resonance of the work. A novel that attempts to represent the contemporary condition is itself conditioned by the dominant logic, but it might also make tangible something of this logic. A novel might make visible, or reveal, some of those codes - mediation, computation - of the contemporary moment that otherwise remain hidden.¹⁵⁸

I use Dinnen's work as the foundation for reading such codes, or subjective limits, with the cyborg. The limitations of a novel are its edges. The instantiation of an intraface mode for reading these limits, both in the form of the novel and in the moments where interfaces agitate the narrative, can be established *outside of the logic of the text itself*. The novel intraface may be able to question itself, but it is also simultaneously still in-tact as an interface, depending upon the processes of reading which activate it. While I agree that the 'novel is an intraface' with regards to the general condition of contemporary media, I suggest that, in order to understand the ways literary texts contest the political and ethical limits of subjectivity in relation to interfaces and technology generally, a position that is at least partly located outside of the text is required. My reading with the cyborg is an attempt to view the questions of these limits from a different situation, one that does not appeal to the novel as an intraface.

Building on Dinnen's work, I read the interface *in* the novel (the characters at interfaces and the narrative events involving the interface effect) and the interface *of* the novel (the reader at the literary interface) through the *intraface* of the cyborg. I view the cyborg as an internal interface to novel, manifest in the very sites that novels engage with representations of technology and subjectivity together. It is an ever-present internal interface, an intraface, because it is a conceptualization of the material-semiotic, a figuration where the human and machine meet socially and textually. To read with this figure means not only viewing the novel as a 'momentary instantiation' of a social system, but as a continuing process of production, an ontological suspension which becomes a popular ontology of representation through continued reading. Reading with the cyborg

¹⁵⁸ Ibid., p.167.

is situated in a politically resistant mode, happening from a subtly different political situation to one which understands the novel as an intraface. It requires acknowledging that while the novel maintains a critical understanding of the social within its interface, such an interface also necessarily excludes notions of the social which must be addressed from spaces simultaneously outside and within the text. This is the very critical space in which the cyborg figuration is situated.

The Frame of the Cyborg

Politics and ethics are understood throughout this project as interconnected nodes, wherein the possibility of traditional ‘political’ action in a public sphere is circumscribed by ethical limits. notions of who counts as a being and what counts as possible action. Butler articulates this concept in the notion of a subjective public in *Notes Towards a Performative Theory of Assembly* (2015). Butler argues that embodiment is an important part of thinking about what has been termed the public sphere. Exploring the delimited political category of ‘the people,’ Butler emphasizes that certain kinds of bodies — black, disabled, ‘feminized’ — are often outside of the limits of such a category. Developing this claim, Butler destabilizes Hannah Arendt’s division between the private and public, in order to highlight what Arendt deems as ‘prepolitical.’ This describes the concept of the private sphere as establishing the conditions of possibility for publicly acting.¹⁵⁹ Butler emphasizes that acting within the public sphere is reliant on the conditions of the prepolitical: ‘None of us acts without the conditions to act.’¹⁶⁰ With this insight from Butler, viewing the utterance of sanctioned, democratic speech as autonomous or unsupported is to ignore the ‘idea of human and creaturely life’ which establishes the conditions for such speech. As such, ethical and political questions begin from a particular ‘organization of life’: ‘The ethical question, how ought I to live? or even the political question, how ought we to live together? depends upon an organization of life *that makes it possible to entertain those questions meaningfully.*’¹⁶¹ Butler addresses technology as a condition for the constitution of what is called meaningful life. The possibility of acting in public, of assembling, is regularly referred to as only possible for some via the supporting infrastructure of networks:

¹⁵⁹ Judith Butler, *Notes toward a performative theory of assembly* (Harvard: Harvard University Press, 2015), p.75.

¹⁶⁰ *Ibid.*, p.16.

¹⁶¹ *Ibid.*, p.44. My emphasis.

Not everyone can appear in a bodily form, and many of those who cannot appear, who are constrained from appearing or who operate through virtual or digital networks are also part of “the people,” defined precisely by being constrained from making a specific bodily appearance in public space, which compels us to reconsider the restrictive ways “the public sphere” has been uncritically posited by those who assume full access and rights of appearance on a designated platform.¹⁶²

The ways in which designated platforms of sanctioned speech are accessed is part of what the novels addressed in this study contest. In *Undoing Gender* (2004), Butler makes direct reference to Haraway’s image of the cyborg as a way of conceiving of the contestation of meaning and production in ‘virtual or digital networks.’ In the struggle for who is allowed to assemble, or to act, ‘technology is a site of power in which the human is produced and reproduced.’¹⁶³ Online discourse via social media platforms is one of the ways such contestation can be tangibly understood. The production of the human which is afforded by such platforms is related to which speech is sanctioned or banned, afforded or limited.¹⁶⁴ This reproduction and the contestation of technology as a condition for meaning is referred to by Butler as ‘thinking within the frame of the cyborg [...] [calling] into question the status of the human and that of liveable life.’¹⁶⁵

What does it mean to think in the frame of the cyborg? It is defined by a consideration of the ‘production and reproduction’ of the human and of ‘liveable life.’ Haraway focuses on the value of careful reading in the face of appeals to universal values, scientific objectivity, and patriarchal conceptions of the family. Her work also challenges the anti-science rhetoric of second wave feminism, and essentializing thinking regarding the necessity of coherent subjectivities, especially surrounding gender politics. Anthropologist Marilyn Strathern explains that Haraway ‘offers an imaginative entry into how we might conceive the conduct of social relationships.’¹⁶⁶ This critical location is articulated by Evelyn Fox Keller and Helen Longino’s introduction to *Feminism and Science* (1996): ‘Feminist critics of science have argued that modern science evolved out of a conceptual structuring of the world — e.g. of mind and nature — that incorporated

¹⁶² Ibid., p.8.

¹⁶³ Judith Butler, *Undoing gender* (New York ; London: Routledge, 2004), p.11.

¹⁶⁴ For detailed discussion on the shape and nature of online abuse, see Bailey Poland, *Haters : harassment, abuse, and violence online* (Nebraska: Potomac Books, 2016).

¹⁶⁵ Butler, *Undoing gender*, pp.11-13.

¹⁶⁶ Marilyn Strathern, *Partial Connections* (Walnut Creek: Altamira Press, 2005), p.38.

particular and historically specific ideologies of gender.’¹⁶⁷ Haraway’s work sits at a complex intersection of feminism, techno-science, biology, sociology-anthropology and Marxism, taking in the political, the ethical and the technological simultaneously. It is this intersection which comprises the ‘frame’ of cyborg thinking.

The process Haraway engages with is utopian thinking, embracing science and technology not uncritically, but with a keen awareness of the ways in which such knowledges are linguistic and social.¹⁶⁸ This is encapsulated by Haraway’s use of the term ‘material-semiotic.’ This term defines the notion that textuality is instrumental to the ways meanings are created and come to be dominant: ‘Like Katie King’s objects called “poems,” sites of literary production where language also is an actor, bodies as objects of knowledge are material-semiotic generative nodes.’¹⁶⁹ The imperative is to pay close attention to the relation of the material (i.e. the actual conditions of liveable life) and the semiotic (i.e. textuality which generates and reproduces meaningful ways of thinking which constitutes liveable life) to consider carefully ‘the common structures of myths and scientific stories and political theories, in such a way as to take all these forms seriously.’¹⁷⁰ To take forms seriously, as a method, is to understand that the textual has a significant bearing on the material. Such a method is described by Joseph Schneider, quoting Haraway, as a making ‘thick’ of concepts: ‘Haraway’s entities are not abstractions. Rather they are — her theory consists of or is a practice of — redescription in which the thing redescribed “becomes thicker than it first seems.”’¹⁷¹ Such redescription is necessary in order to challenge textual and linguistic ways of thinking that are discriminatory and embedded. Sherry Ortner writing in 1974 articulates the central tenet of this form of feminism:

[e]fforts directed solely at changing the social institutions — through setting quotas on hiring, for example, or through passing equal-pay-for-equal-work laws

¹⁶⁷ Evelyn Fox Keller and Helen E. Longino, 'Introduction', in *Feminism and Science*, ed. by Evelyn Fox Keller and Helen E. Longino (London ; New York: Oxford University Press, 1996), p.2.

¹⁶⁸ Donna J. Haraway, *Modest-Witness@Second-Millennium.FemaleMan-Meets-OncoMouse : feminism and technoscience* (New York ; London: Routledge, 1997), p.156.

¹⁶⁹ Donna J. Haraway, 'The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others', in *The Haraway Reader*, ed. by Donna J. Haraway (London: Routledge, 2004), pp. 63-124.

¹⁷⁰ Donna J. Haraway, *Simians, Cyborgs and Women : the reinvention of nature* (London: Free Association, 1991), p.82.

¹⁷¹ Joseph W. Schneider, *Donna Haraway : live theory* (London: Continuum, 2005), p.18.

— cannot have far-reaching effects if cultural language and imagery continue to purvey a relatively devalued view of women.¹⁷²

This focus is found in Haraway's postgraduate dissertation on the metaphors of twentieth century developmental biology and in her major work *Primate Visions: Gender, Race and Nature in the World of Modern Science* (1989).¹⁷³ The latter emphasizes the ways in which primatology as a science developed a discourse of naturalized performances of certain human behaviours, including gendered aggression and subservience. The social structures which are shaped-by and reproduce techno-science form the object of study, and her writing addresses fields such as primatology, genetics and artificial intelligence, anchoring analysis in the experience of doing science. Science and technology are never dismissed by Haraway, and her thinking emphasizes the way the discourses which form these kinds of knowledge are important processes of social reproduction.

In the introduction to her major essay collection *Simians, Cyborgs and Women: The Reinvention of Nature* (1991) Haraway asks readers to see forms of knowing about the world, including the scientific method, as inflected by the grounds from which knowledge is formed and the accessibility of such knowledge in webs of power:

The examination of the debates about 'scientific objectivity' in feminist theory argues for a transformation of the *despised metaphors of organic and technological vision* in order to foreground specific positioning, multiple mediation, partial perspective, and therefore a possible allegory for feminist scientific and political knowledge.¹⁷⁴

Scientific objectivity is challenged on the grounds that all forms of reading come from 'specific positioning' and that notions of a natural truth or of technologically super-powered understanding are metaphors which have become embedded. For example, Keller suggests that the literally unseen and embedded view of the microscope is a form of 'biological gaze' whereby the use of samples, cell cultures, lenses and other apparatus means that 'what we see as we gaze at the secret of life is life already, and necessarily, transformed by the very technology of our gaze.'¹⁷⁵ Another example from Haraway is how 'the descriptive term "cells" is a name for an historical kind of interaction, not a

¹⁷² Sherry Ortner, 'Is Female to Male as Nature is to Culture?', in *Women, Culture and Society*, ed. by Michelle Zimbalist Rosaldo and Louise Lamphere (Stanford: Stanford University Press, 1974), pp. 67-88, p.87.

¹⁷³ Donna J. Haraway, *Primate visions : gender, race and nature in the world of modern science* (London: Verso, 1992).

¹⁷⁴ Haraway, *Simians*, p.3. My emphasis.

¹⁷⁵ Evelyn Fox Keller, 'The Biological Gaze', in *Future Natural*, ed. by Sally Stafford (New York: Routledge, 1995), p.120.

name for a thing in and of itself.’¹⁷⁶ This attention to the problems of embedded metaphors is one of the focuses of the influential ‘A Cyborg Manifesto’ (1985). In it, Haraway emphasizes that the struggle of a cyborg thinking is the ‘struggle against perfect communication,’ in that to claim perfect communication is a claim to total knowledge. Such a claim assumes that what is known can be unproblematically transferred or communicated between subjects.¹⁷⁷ Uncritically claiming the value of ‘objective’ readings of the world involves performing what Haraway calls a ‘god-trick,’ that ignores or silences numerous other situated perspectives which contribute to ways of being in the world.¹⁷⁸ These are the situations of marginalized or ‘inappropriate/d’ others who need to find ways of resisting dominant, hegemonic ways of seeing. Such resistance takes the form of challenging accepted figures and metaphors for thinking about power and politics, especially in the realm of science and technology. This thesis is aligned with Haraway’s perspective that the figures and metaphors which characterize discourses of science and technology are powerfully meaningful: ‘[t]echnologies and scientific discourses can be partially understood as formalizations’ of the ‘fluid social interactions constituting them’ but should also be seen as ‘instruments for enforcing meanings.’¹⁷⁹ Thinking the literary text through this perspective, the novels in this study exist as formalizations of a discourse on the real; they are interfaces which contribute to those scientific and technological discourses.

A number of works of feminist scholarship contemporaneous with Haraway’s work emphasize the need to challenge a doctrine of scientific objectivity, which views technological progress as either a path to the transcendence of the body, or as a method for furthering patriarchal structures of dominance. Wajcman summarizes the position in stating ‘[i]t is impossible to divorce the gender relations which are expressed in, and shape technologies from the wider social structures that create and maintain them.’¹⁸⁰ Sandra Harding’s work on Standpoint Theory is influential to an important facet of Haraway’s thinking, the concept of situated knowledge. Harding states in the collection *Feminism and Science* that ‘[o]ne’s social situation enables and sets limits on what one can know; some social situations — critically unexamined dominant ones — are more limiting than others

¹⁷⁶ Donna Jeanne Haraway and Thyrza Nichols Goodeve, *How like a leaf: an interview with Thyrza Goodeve* (New York: Routledge, 2000), p.25.

¹⁷⁷ Haraway, *A Cyborg Manifesto*, p.57.

¹⁷⁸ Haraway, *Simians*, p.189.

¹⁷⁹ Haraway, *A Cyborg Manifesto*, p.33.

¹⁸⁰ Wajcman, *Feminism Confronts Technology*, p.25.

in this respect.’ She states that such limits mean the ‘inability to generate the most critical questions about received belief.’¹⁸¹ Chela Sandoval’s more radical conception of the ‘methodology of the oppressed’ suggests that resistance to racial violence relies on spaces of reading which constitute organizing. Sandoval (2000) draws a parallel between a methodology of the oppressed which involves reading from a subjugated subject position and Haraway’s conception of situated knowledges. She emphasizes how such reading can be ‘transformative of itself and its own situation while also being acted upon.’¹⁸² Sandoval also refers to metaphors of technology as the very descriptor for the conceptual space for oppositional, resistant praxis. When ‘resistance is organized’ power must be understood as manifest in ‘social narratives.’ Resisting such narratives requires a ‘differential maneuvering [...] a sleight of consciousness,’ one that ‘activates a new space: *a cyberspace*, where the transcultural, transgendered, transsexual, transnational leaps necessary to the play of effective stratagems of oppositional praxis can begin.’¹⁸³ Sandoval’s label of cyberspace as the site where ‘leaps’ can establish the beginnings of oppositional praxis redefines its metaphorical possibilities. Cyberspace becomes an undefined zone for new ontologies of representation, for new social life. She asks:

how does cyberspace alternately come to be understood as the generous and compassionate zone of the zero degree of meaning, prophetic love, or of the form of differential consciousness that is accessed by the methodology of the oppressed?¹⁸⁴

What is contained here is the impulse to read the possibilities of technology outside of the hetero-patriarchal masculine cyberspace, a concept I address in chapter two. The very interventions into stories told about technology can involve the reconstitution of what those technologies can do, and what they are for. It signals how the reappropriation of technological metaphors is in itself a strategy for thinking politics anew. Haraway’s work can thus be viewed as part of a larger body of work in feminist scholarship in the late twentieth and early twenty-first century.

¹⁸¹ Sandra G. Harding, 'Rethinking Standpoint Epistemology: What Is 'Strong Objectivity?', in *Feminism and science*, ed. by Evelyn Fox Keller and Helen E. Longino (London ; New York: Oxford University Press, 1996), p.240.

¹⁸² Chela Sandoval, *Methodology of the oppressed* (Minneapolis ; London: University of Minnesota Press, 2000), p.174.5.

¹⁸³ Ibid., p.62.3. My emphasis.

¹⁸⁴ Ibid., p.175.6.

Haraway describes resistance to such embedded metaphors as a primarily textual process. Doing material-semiotic feminist work means challenging the ‘echoes of significance embedded in the available metaphor.’¹⁸⁵ Contemporary research into the ways that metaphors function in scientific research signals the ‘embeddedness’ of metaphor to ways of seeing the world: Diego Fernandez-Duque and Mark L. Johnson’s 1999 paper ‘Attention Metaphors’ states that ‘theories are irreducibly metaphoric’ and ‘metaphors are central to scientific knowledge, very much in the same way that they are central to ordinary knowledge.’¹⁸⁶ The central metaphor that Fernandez-Duque and Johnson discuss is the notion of attention-as-filter, i.e. what happens when the mind ‘receives’ and ‘organizes’ multiple sensory inputs. In these processes of interfacing, ways of making sense of the world are conceived of as both machine-like and stratified, receiving a signal and organizing information. These conceptions prejudice the possible structures of such information. To ask how the human-technical relation is contested in novels is to ask about what is valued, or as Sara Ahmed suggests, to ask ‘whose speech *gets heard as authorising*’ embedded ways of thinking about technology.¹⁸⁷ This is further articulated by Marita Sturken, Douglas Thomas and Sandra Bell-Rokeach, in that ‘[m]etaphors about computers and the Internet are constitutive; they determine how these technologies are used, how they are understood and imagined, and the impact they have on contemporary society.’¹⁸⁸ This further explains the suitability of the cyborg as a textual intraface, given that it is itself a textual metaphor. It recognizes the way that technology is constituted by metaphors.

Cyborg Reading

The figure of the cyborg, as it is conceived of by Haraway, is the central tool, metaphor and guide for reading in this thesis. I understand cyborg reading as the close reading of texts via the intraface of the cyborg. The aim of such reading is to disturb and examine embedded ways of thinking about technology. It works by suggesting particular focuses on liminal or partial perspectives on characters, narrative events involving interfaces, and

¹⁸⁵ Haraway, *Simians*, p.83.

¹⁸⁶ Diego Fernandez-Duque and Mark L. Johnson, 'Attention Metaphors: How Metaphors Guide the Cognitive Psychology of Attention', *Cognitive Science*, 23 (1999) 83-116, pp.111-112.

¹⁸⁷ Sara Ahmed, *Differences that matter : feminist theory and postmodernism* (Cambridge: Cambridge University Press, 1998), p.18.

¹⁸⁸ Marita Sturken, Douglas Thomas, and Sandra Ball-Rokeach, *Technological visions : the hopes and fears that shape new technologies* (Philadelphia: Temple University Press, 2004), p.7.

also by suggesting that the process of reading the novel as an interface involves a way of seeing which resonates with cyborg thinking. Characters' identities can be seen as fractured, plural, or formed by contemporary technologies when reading with the cyborg. It is itself a figuration which is liminal, a reappropriated image, the very presence of which poses the question of borders or boundaries concerning the point of interaction between human and machine.¹⁸⁹ The cyborg is a figuration which is extremely influential to thinking the posthuman. The posthuman is a term which labels a set of theoretical ideas, or a time period, or a critical inclination towards the category of humanism. The cyborg is a concept which matters in posthumanism, although my thesis does not directly engage with the discipline of the posthuman. The cyborg is intuitively resistant to the threshold status implied in the label of 'post'-human, and my reading of contemporary texts looks to contribute to highlighting the ways such arguments about technology and subjectivity are contested in the contemporary novel. These lines of inquiry do, of course, overlap. Links between the cyborg and conceptions of posthumanism are further addressed in chapter two and in chapter six.¹⁹⁰

The first use of the term cyborg is suggestive of the above liminality. Manfred Clynes and Nathan Kline in 1961 use cyborg to mean a cybernetic organism.¹⁹¹ This definition is influenced by Norbert Wiener's *Cybernetics: Or Control and Communication in the Animal and the Machine* (1948).¹⁹² Haraway's cyborg reappropriates the notion that a cyborg is a logistically fine-tuned combination of the machinic and organic, and turns it to use as a disruptive feminist figure. The cyborg is resistant to conceptual instrumentalization, serving multiple functions in 'A Cyborg Manifesto'. Rhonda Shaw identifies a variety of literature which sees the cyborg as 'metaphor, image, innovation, and event.' Such scholarship is located at the intersection of feminist analysis, social theory and cyborg studies.¹⁹³ Mackenzie Wark's recent reappraisal of Haraway's cyborg also uses a

¹⁸⁹ This approach is similar to that found by Jenny Wolmark in *Aliens and Others* (1993). Wolmark labels a set of feminist science fiction works 'cyborg texts.' Jenny Wolmark, *Aliens and Others: Science Fiction, Feminism and Postmodernism* (New York ; London: Harvester Wheatsheaf, 1993).

¹⁹⁰ For an example of the cyborg as a figure in posthuman thought, see Braidotti, *The Posthuman*, pp.89-90.

¹⁹¹ Nathan S Kline and Manfred Clyne, 'Drugs, Space, and Cybernetics: Evolution to Cyborgs', in *Psychophysiological Aspects of Space Flight*, ed. by Bernard E. Flaherty (New York: Columbia University Press, 1961), pp. 345-71.

¹⁹² Norbert Wiener, *Cybernetics : or control and communication in the animal and the machine* (New York: John Wiley, 1948).

¹⁹³ Rhonda Shaw, 'Our Bodies, Ourselves', Technology, and Questions of Ethics: Cyberfeminism and the Lived Body', *Australian Feminist Studies*, 18 (2003) 44-55, p.47. For an overview of the field and further reading, see: Nina Lykke and Rosi Braidotti, *Between monsters, goddesses, and cyborgs : feminist confrontations with science, medicine, and cyberspace* (London: Zed Books, 1996); Constance Penley and Andrew Ross, *Technoculture*

combination of images and actions, calling Haraway's cyborgs 'affinities rather than identities, hybrids of human and other organics, information systems, ergonomic laboring, producing and desiring.'¹⁹⁴ The multiple descriptions emphasize the ontological hybridity of the cyborg. It signifies an always partial and ongoing process, as the introduction to Haraway *Simians* explains:

Cyborgs are post-Second World War hybrid entities made of, first, ourselves and other organic creatures in our unchosen "high-technological" guise as information systems, texts, and ergonomically controlled labouring, desiring, and reproducing systems. The second essential ingredient in cyborgs is machines their guise, also, as communications systems, texts, and self-acting, ergonomically designed apparatuses [...] These boundary creatures are, literally, monsters, a word that shares more than its root with the word, to demonstrate. Monsters signify.¹⁹⁵

Cyborg imagery does not denote a straightforwardly 'alternative' subject position. Cyborgs live in the relentlessly 'unchosen' networks of contemporary technology, they are made of 'ourselves' but are also made of 'communication machines' and 'texts.' Within the cyborg's boundary existence is located a radical potential to challenge established narratives and binaries which construct dominant mechanism of power. In using the term 'monster,' Haraway's cyborg embraces the idea of messiness and complexity, as well as the role of animality and horror. These images of the extraordinary non-human challenge the reach for logical and logistical purity which characterizes Enlightenment thinking. Instead, to engage in utopian reading is to embrace the sense that monsters and monstrosity, of which the cyborg is one incarnation, can provide powerful ways of imagining the non-normative or that which is beyond a rational imagination. Such meaning 'might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints.'¹⁹⁶ This is articulated in a way which sees the boundary between a single being and an other as permeable in cyborg sociality: '[o]ne is too few but

(Minneapolis: University of Minnesota Press, 1991); Jenny Wolmark, *Cybersexualities: a reader on feminist theory cyborgs and cyberspace* (Edinburgh: Edinburgh University Press, 1999); Allison Muri, *The Enlightenment cyborg: a history of communications and control in the human machine, 1660-1830* (Toronto: University of Toronto Press, 2006). There is also a third year undergraduate module entitled 'Cyborg Studies' at University of Exeter (<http://socialsciences.exeter.ac.uk/sociology/modules/SOC3074/description>) [Accessed 31/3/17]. Similar modules include 'Bodies, Identities and Digital Media' at Kings College London (<https://www.kcl.ac.uk/artshums/depts/ddh/modules/level7/7aavdc09.aspx>) [Accessed 31/3/17]

¹⁹⁴ McKenzie Wark, *Molecular red: theory for the Anthropocene* (London: Verso, 2015), pp.145-6.

¹⁹⁵ Haraway, *Simians*, p.2.

¹⁹⁶ Haraway, A Cyborg Manifesto, p.15.

two are too many.¹⁹⁷ The privileging of partial identities includes privileging otherness. Haraway reappropriates the frightening otherness in monstrous imagery to emphasize how the liminal — in the form of monsters, the human-machine — signifies powerfully, and in deeply political ways. As Haraway states in interview with Schneider, the Cyborg Manifesto was an attempt to recognize ‘the information society or, you know, flexible accumulation mediated by digital technology, or whatever it got called.’¹⁹⁸

What Haraway’s thinking does not fully articulate is the way in which the cyborg can be thought as an ethical figure, a way of thinking that describes the grounds or conditions from which communication practices might be performed in relation to others in social life. Margaret Toye identifies the cyborg as a mediating figure which is able to describe acts of communication in the contemporary moment as intervals. Toye does this by reference to the work of Luce Irigaray:

the cyborg could be considered to be a crucial contemporary ethical figure that occupies what Irigaray describes as the “interval between” in our contemporary information age. As such, the cyborg is the figure that best describes what mediates our relations to each other, to ourselves, and to our world in this context.

Toye sees parallels in ways of thinking between Irigaray and Haraway, given that both thinkers emphasize the issue of mediation as central to thinking about relations with others.¹⁹⁹ It is the ‘interval between’ which characterizes the critical position of the cyborg in terms of subjectivity. Toye’s link to Irigaray reveals the sense in which the cyborg is a way of thinking about communication, a figure to ‘best describe’ the way relations are constantly mediated. The language of the cyborg is what grants it an ethical relevance and power. Toye’s link helps to highlight how, with the progression into Web 2.0 technologies of the twenty-first century information society, there has not been a virtualizing of subjectivity, but rather a repositioning of the ‘intervals between’ which shape the ways different subjectivities exist. Toye’s reading of the cyborg by the vision of Irigaray is a rearticulation which suggests the cyborg is best placed to understand and articulate shifts in the affordances and limitations of mediated communication in a twenty-first century media ecology. A cyborg ontology can be readily augmented to make it a tool for thinking about liminal, partial concepts. The cyborg can do the ethical and political work needed

¹⁹⁷ Ibid., p.60.

¹⁹⁸ Schneider, *Donna Haraway : live theory*, pp.118-9.

¹⁹⁹ See Luce Irigaray, *To speak is never neutral* (London ; New York, NY: Continuum, 2002).

to read the material-semiotic actors called novels, recognising them as technological interfaces in a complex media ecology of different intervals for communication. Inspired by Toyé's reading, and by the Irigarayan augmentation of the cyborg, I add to my definition of cyborg reading. Cyborg reading in this thesis is close reading via the cyborg intraface, with a focus on the reading of intervals and the textual limits which ultimately contribute to imagining them.

Chapter Outlines

The next chapter reads a series of texts from 1984 to 2005 with the intraface of the cyborg. The subsequent chapters will read four different novels of the second decade of the twenty-first century, which all vividly contest the political and ethical value of technological interfaces as material-semiotic nodes. The cyborg is the guide for these readings, and is the intraface which questions the limits of the novel's interface. I aim to critically consider the ways that women, people of colour and other marginalized subjects are seen to relate to technology within the narratives of such texts, and how such figures are mediated by the interfaces of the novels themselves.

Chapter two demonstrates an understanding of the above questions in historical context, by giving an account of the more important moments where the novel has appeared to contribute to discursive patterns surrounding the value of technology. Cyberpunk and feminist science fiction are drawn upon for the starting point of 1984. The mid-1980s are shown to be an important crucible for writing and thinking about the human-machine interface. This leads to a discussion of the way contemporary novels and critics question the value of the human-machine interface in the present. A close reading of Kazuo Ishiguro's *Never Let Me Go* (2005) helps to activate the work of Stiegler in relation to Haraway's cyborg. The paradigm of the 'who' and the 'what' is worked through via the close reading, as an augmentation to the vocabulary of the interface, intraface and cyborg.

Chapter three focuses on the ways in which Zadie Smith's *NW* (2012) problematizes technology and how the novel represents the boundaries of subjectivity at the interface in racialized and gendered terms. Working with Beth Coleman's conception of race-as-technology, as well as notions of cyborg performance as forms of sound or signal, the reading considers how the central characters of *NW* demonstrate cyborg subjectivities which appear limited by the novel's political imaginary. Patriarchal gazing is

manifest in the naming of technology, and the possibility of giving voice to a resistant subjectivity is communicated via technological metaphors of amplification. *NW* problematizes the relation of the subject to a morally suspect ‘technology,’ presenting an anxious relation to the technological.

Chapter four focuses on Ali Smith’s *How to be Both* (2014) and the conception of reading interfaces which is present in the dual narratives of George and Francescho. I argue that the text presents interpenetrated interfaces in order to open or breach the form of the novel. I emphasize how these characters demonstrate a cyborg competency, and how their narratives work in relation to the form of the text to generate an ongoing and ethically nuanced relationship to both the technical as a situated form of knowledge, and to the technological as a contested category of value in the contemporary moment. It is a text which consciously highlights its status as an interface, in order to try and breach the limits which restrict a text such as *NW*.

The above issues are addressed in a different way in chapter five, through my reading of Ben Lerner’s autofictional novel *10:04* (2014). I see the novel as a privileged technology for writing the subjectivity of its narrator, who is a version of the writer Ben Lerner. I highlight the marginalized women of this novel, manifest in its form and structure, whose relation to technology lacks the powerful agency of the writer-protagonist. This takes on an important political resonance in the reading of Christa McAuliffe as a cyborg figure. I view the power of authoritative writing which marginalizes woman as an embedded structure, which my cyborg reading looks to disrupt and undermine.

In chapter six, I focus on Ruth Ozeki’s *A Tale for the Time Being* (2013). My reading emphasizes how the metaphorical frame for thinking the relation of the human and the technological is influenced by quantum physics. This is articulated through reference to Denise Ferreira da Silva’s work on quantum poetics, which sees the language of this scientific knowledge as providing metaphors for rethinking social life. Such thinking resonates with the protagonist of Ozeki’s novel, Nao. The cyborg here works as an intraface to highlight how a novel might attempt to breach the limits of its own interface, to suggest a different or reimagined relation to the everyday interfaces of the human-machine, and of the gendered body to the social world.

Chapter 2: The Novel and the Cyborg in the Contemporary Period

To read—to see, to understand—, is to interpret one's time. To write. There is no reading that is not technological.

—Bernard Stiegler, *Technics and Time*, vol. 2

Conceptualising the Cyborg

In this chapter, I give an account of the ways in which the cyborg and the interface have been presented in the novel in the late twentieth and early twenty-first century. The examples given are not exhaustive, but chosen in order to provide a representative survey. While the examples differ in the genre labels applied to them, what characterizes each is an explicit engagement with the contestation of both subjectivity and technology, and the relation of the two. Through this survey, I engage in three critical movements integral to this thesis. Firstly, I explore the different attitudes to technology in a variety of novels produced within the information society. Secondly, I establish the vocabulary and reading practice of the thesis through these textual examples. Thirdly, I position the cyborg as an apposite intraface, an interface within the interface of the novel, for highlighting the embedded political and ethical assumptions surrounding technology and subjectivity in the novel. In doing so, I draw together the work of Bernard Stiegler with the concept of Donna Haraway's cyborg and activate Stiegler's concepts of the 'who' and the 'what' for use throughout the thesis.¹ This survey begins with science fiction texts before moving onto texts that are concerned with presenting contemporary reality, moving through the information society period defined in chapter one. I do not attempt to claim that there is a clear or defined lineage or thread in the development of the novel and its relationship to the discursive construction of technology. I make the broader claim that there are a variety of important modes of representation that should be acknowledged as influential to any readings of technology and subjectivity in the contemporary period as I have defined it. The very 'historical specificity' suggested by N. Katherine Hayles is comprised of the resonances of these textual responses to the human-machine interface throughout the period of the information society.

I begin in the mid-1980s, where cyberpunk and feminist science fiction explores the contestation of the boundaries of subjectivity. I progress chronologically to take

¹ Stiegler, *Technics and Time Vol. 1*, p.141.

account of the ways that such currents shift and change over the contemporary period. I examine the contrasting gender and body politics of William Gibson's *Neuromancer* (1984), Neil Stephenson's *Snow Crash* (1992), Octavia Butler's *Dawn* (1987) and Ursula Le Guin's *Always Coming Home* (1985). I then consider two works that are situated under the label of postmodern writing, but which present contrasting images of the cyborg, *Infinite Jest* (1994) by David Foster Wallace and *Microserfs* (1995) by Douglas Coupland. I then move to consider the novel *Cosmopolis* (2003) by Don DeLillo to locate the cyborg in relation to categories of the transhuman and posthuman. The survey then finishes in the middle of the first decade of the twenty-first century, with an extended reading of Kazuo Ishiguro's *Never Let Me Go* (2005). This is because this novel is a significant node of discussion for scholars of literature and technology in the contemporary period: it presents the human-technology relation in the context of artificial life, and is of interest to scholars of science fiction, dystopian or speculative fiction, as well as also being labelled literary fiction. My reading of Ishiguro's novel adds to the corpus of critical material by reading the novel's central concerns as conceivable through Stiegler's question '[w]hen do(es) the human/the technical begin and end?' and by focusing on the conclusion of the novel's own interface as a limit for thinking around subjectivity.²

The radical imaginative potential of science fiction is articulated by Sarah Lefanu when she writes that 'science fiction itself is not a literature of authority. It is able to break through the parameters of realism.'³ The ways in which novels in the early part of the contemporary period contest notions of subjectivity and differently breach the 'parameters' of realism can be framed in two ways. One way sees technological processes as escapist and spectacular, generally found in the cyberpunk genre. Such texts present the physical body as a site to be transcended via interfaces. The other, found in feminist science fiction works in the same period, emphasizes the significance of the body via interaction with a variety of technologies, most notably prostheses and writing technologies. In *Aliens and Others* (1993), Jenny Wolmark articulates this distinction:

Cyberpunk explores the interface between human and machine in order to focus on the general question of what it means to be human; feminist science fiction has also explored that interface, but in order to challenge those universal and

² Ibid., p.100.

³ Sarah Lefanu, *In the chinks of the world machine : feminism and science fiction* (London: Women's Press, 1988). p.87.

essentialist metaphors about ‘humanity’ which avoid confronting existing and unequal power relations.⁴

Wolmark emphasizes how science fiction in the late twentieth century often repeated familiar metaphors of difference and exclusion. In these texts, ‘exploring the interface between human and machine’ meant ‘depicting the other as alien.’⁵ Scott Bukatman’s discussion of the relation of technology and science fiction in *Terminal Identity* (1993) also refers to the interface as a focus of two distinct kinds of science fiction novel. Bukatman notes the significance of human-machine interfaces in the concerns of novels produced at this time, suggesting that ‘it is not technology per se that characterizes the operations of science fiction’ but ‘the interface of technology with the human subject.’⁶ This is to say that technology is an inextricable element of the forms of knowledge that such texts address, rather than simply a vivid aesthetic for the textual world. Such interfacing is distinguished by Bukatman along the lines of limitation and struggle:

if cyberpunk is defined by the illusory relation between the disembodied freedoms of electronic reality and the physical [...] feminist science fiction has proved more capable of recognizing the significance of the body as a site of ongoing struggle.⁷

Both Wolmark and Bukatman refer to Frederic Jameson’s work on postmodernism, which helps to explain the seeming convergence of science fiction genres with more ‘mainstream’ fiction. Jameson views science fiction as signalling ‘the estrangement and renewal of our own reading present,’ a process which ‘[transforms] our own present into the determinate past of something yet to come.’⁸ That Jameson implies the possibility of a universal reading present (‘our own reading present’) highlights how reading is a technological and political process. What is possible to be read is itself a technological

⁴ Wolmark, *Aliens and Others*, pp.110-11.

⁵ Ibid., p.1. See also Vincent Mosco, *The Digital Sublime : myth, power, and cyberspace* (Cambridge, Mass. ; London: MIT Press, 2004) p.14.

⁶ Scott Bukatman, *Terminal identity : the virtual subject in postmodern science fiction* (Durham, NC: Duke University Press, 1993), p.8.

⁷ Ibid., p.324. Darko Suvin describes this metaphysical situation: ‘for cyberpunks technology is inside, not outside, the personal body and mind itself.’ Darko Suvin, ‘On Gibson and Cyberpunk SF’, in *Storming the Reality Studio : a casebook of cyberpunk and postmodern science fiction*, ed. by Larry McCaffery (Durham: Duke University Press, 1991), p.352.

⁸ Fredric Jameson, *Postmodernism, or, The cultural logic of late capitalism* (London: Verso, 1991) p.285. Jameson also makes a political distinction between types of science fiction, claiming ‘the freemarket deliria of cyberpunk’ is that which ‘assumes that capitalism is itself a kind of utopia of difference and variety.’ Fredric Jameson, ‘In Soviet Arcadia’, *New Left Review*, 75 (2012) 119-27, p.125.

outcome of the expectations of reading texts. For example, while for Wolmark, in 1993, 'mainstream fiction' increasingly uses 'metaphors and rhetoric of science fiction,' in 2019 such metaphors of interfacing have become commonplace in the textual worlds of novels that attempt present something close to contemporary reality.⁹ For example, Ben Lerner's *10:04*, which is addressed in chapter five of this thesis, has been labelled 'science fiction' although it represents the experiences of an auto-fictional narrator in a recognisable, present-day New York.¹⁰ What is transformed in Jameson's 'estrangement and renewal' of the reading present are the limits of realist texts for addressing what was previously understood as the domain of science fiction.¹¹ The significant question remains as to which technological frame such works might be read within, and what technological framings they appear to reproduce.

The cyborg is a political figuration for reading the above limits. Bruno Latour, in 2002, defines the cyborg in terms that parallel the above textual examples: 'we have one type of cyborg that embodies rationalistic dreams of detachment out of our flesh, and another type that directs our attention to our various attachments, to what could be called the politics of incarnation.'¹² These 'various attachments' signal the bodily and situated position of subjectivity, the identity markers that define power relations and the possibility of agency. The 'politics of incarnation' here describes a way of thinking about the boundaries and limits on those attachments, on their possibility. Such boundaries are shaped by interfaces. Latour asks in the same lecture '[w]hat is it to have a democratic body?,' which resembles the questions asked by Judith Butler (see chapter one) concerning which interfaces are available to bodies for possible actions. Stiegler in *Technics and Time* asks a similar question concerning subjective limits: 'when do(es) the human/the technical begin and end?'¹³ This version of the question contains the sense that the visibility of 'a democratic body' is often circumscribed by access to the relevant technologies of representation, mobility, or speech. Fiona Kumari Campbell emphasizes this in *Contours of Ableism* (2009):

⁹ Wolmark, *Aliens and Others*, p.111.

¹⁰ Jonathan Beckman, '10:04 by Ben Lerner, review: "I doubt I'll read a finer novel all year"', *The Daily Telegraph*, (2015) <<https://www.telegraph.co.uk/books/what-to-read/1004-by-ben-lerner-review/>> [Accessed 09/01/19]

¹¹ John K. Young states that contemporary literary is the result of 'postmodernism's merger between canonicity and commercialism.' See John K. Young, *Black writers, white publishers : marketplace politics in twentieth-century African American literature* (Jackson: University Press of Mississippi, 2006), p.120.

¹² Bruno Latour, 'Body, Cyborgs and the Politics of Incarnation ', in *The Darwin College Lectures: The Body*, ed. by Sean T. Sweeney and Ian Hodder (Cambridge: Cambridge University Press, 2002), pp. 127-41, p.128.

¹³ Stiegler, *Technics and Time Vol. 1*, p.100.

people with disability have complex relations with technologies [...] these relations transmute disability subjectivities. Certainly in terms of ableism, specific technologies have been harnessed to shore up ableist notions of normalcy, whereas other technologies have unpredictably produced subversive and alternative ways of living an affirming disability life.¹⁴

Technology is linked in Campbell's account to ideas of 'normalcy,' establishing boundaries of who or what constitutes 'ways of living' which are normal. As mainstream fiction addresses technological and subjective boundaries which resemble those of 'science fiction,' the question of where the human and the technical begins is restated, in relation to those 'notions of normalcy' with regard to the boundary between subjectivity and associated technologies. Reading texts with the cyborg sees these boundaries as problems to be confronted in texts. This is not to overlook the absence of disabled people in the 'Cyborg Manifesto,' which is a major problem in Haraway's work.¹⁵ Wolmark emphasizes that '[w]here the hyper-reality of cyberspace reifies existing social relations and power structures, the cyborg metaphor, by operating within the dynamic of "permanently partial identities and contradictory standpoints", seeks to confront them."¹⁶ This confrontation must acknowledge that the cyborg metaphor itself has the potential to totalize partial identities into a single figure, and undertheorizes the cyborg as a way of thinking the specific, situated and daily struggles of disabled people.

I now move to the close reading of novels which exemplify the above political framing throughout the information society, in order to address the ways in which particular subjectivities are made visible or textually significant. I read with the cyborg as a political guide for what and who to carefully examine.

Neuromancer and Snow Crash

Neuromancer by William Gibson is a novel which makes living with-and-through personal digital technology integral to its plot, its characters, and its overall aesthetic.¹⁷ The

¹⁴ Fiona Kumari Campbell, *Contours of Ableism: the production of disability and abledness* (Basingstoke: Palgrave Macmillan, 2009), pp.75-6.

¹⁵ Jillian Weise articulates this criticism, which I address in detail in the conclusion to this thesis. See Jillian Weise, "Common Cyborg", *Granta*, (2018) <<https://granta.com/common-cyborg/>> [Accessed 24/07/19]

¹⁶ Wolmark, *Aliens and Others*, p.127.

¹⁷ Gibson is credited with coining the term cyberspace in the short story 'Burning Chrome'. See Christopher Daley, 'Case Studies in Reading 1: Key Primary Literary Texts', in *The Science Fiction Handbook*, ed. by Nick Hubble and Aristeidis Mousoutzanis (London: Bloomsbury Academic, 2013), pp. 75-99, pp.94-99.

protagonist, a hacker named Case, constantly ‘jacks in’ to a digital plain, a pseudo-geographic displacement of transcendental proportions, with his ‘disembodied consciousness’ projected into the ‘consensual hallucination.’¹⁸ The sublime transcendence that cyberspace provides is in constant antagonism with the physical world. Case wants to escape the ‘meat space’ of his body, in order to leave behind both surveillance of the state and his mental illness. The emancipatory potential of cyberspace is limited by the fragility of its masculine (anti)hero. If, as Christopher Daley has suggested, Gibson’s novel ‘draws attention to [...] humanity’s increasingly addictive relationship with hi-tech consumables’¹⁹ this is because the concept of technology found therein is described in a romanticized cycle of addiction and escape. The dominant artificial intelligence named Neuromancer in the text is the sublime figuration of Case’s failed escape, of the possibility of transcendence via technological processes.

Wolmark differently positions the novel as revealing a ‘deep anxiety about the disintegration of the unitary self and definitions of masculinity.’²⁰ Samuel Delany also identifies this anxiety, suggesting that texts like *Neuromancer* display a ‘patriarchal nervousness.’²¹ This is demonstrated by the way that the most prominent female character, Molly Millions, is the embodiment of a problem in the novel. Simultaneously hyper-sexualized and monstrous, Molly waits for Case in the ‘coffin’ of his hotel room and shows him ‘ten double-edged, four-centimeter scalpel blades [...] beneath the burgundy nails.’²² Molly troubles the safe division between the human and the technological, which the anxious patriarch protagonist requires, through her status as extra-human. She is a harbinger of the death for the coherent masculine subject. As Delany highlights, Molly provides both a predatory female threat and a ‘mirror’ to the romantic hero:

Molly Million [...] is a re-writing of-or more accurately an homage to- [Joanna] Russ's Jael, the cruelest character from *The Female Man*: both Jael and Molly dress in black. Both have retractable claws. Both enjoy their sex with men. With both, you see something troubling when you look directly at their eyes — though in Gibson the irony is that those eyes are replaced with mirrors.²³

¹⁸ William Gibson, *Neuromancer* (New York: Berkley, 1984), p.5.

¹⁹ Daley, *Case Studies*, p.99.

²⁰ Wolmark, *Aliens and Others*, p.119.

²¹ Samuel R. Delany, 'Some Real Mothers...: The SF Eye Interview', in *Silent Interviews: On Language, Race, Sex, Science Fiction and Some Comics*, (Hanover: University Press of New England, 1994), pp. 164-85, p.177.

²² Gibson, *Neuromancer*, p.37.

²³ Samuel R. Delany, "Is Cyberpunk a Good Thing or a Bad Thing?", *Mississippi Review* 16 (1988) 16-65, p.32. For a detailed exploration of Molly in the terms Delany suggests, see Stacy Gillis, "The (Post)Feminist

What Case sees when looking at the romantic object is his own troubling reflection. His male gaze succeeds only in objectifying himself.²⁴ Molly is a powerful, death-dealing cyborg, one whose presence disturbs patriarchal desires for disembodied transcendence. Her disappearance from the end of the text seems to confirm her cyborg status, moving into the margins of the text before its final closure. In the novel's conclusion, Case buys a 'new pancreas and liver' and a new console computer. His body is made human again by becoming biologically, internally complete, unlike the uncertain cyborg body of Molly. The liver being reinstated contains a Promethean echo, though Case is not destined to suffer forever because of his use of technology. Rather, he is confirmed as fundamentally sovereign, as though decriminalized by his new organs.²⁵

If *Neuromancer* can be said to pose Stiegler's question from *Technics and Time* 'when do(es) the human/the technical begin and end?', it appears to provide an answer, establishing a boundary between the recognisably complete biological body and the transcendent possibilities of cyberspace. The text reproduces a firm boundary between human and machine: Case finishes the novel as separate from technology, having rejected the possibility of a hybrid technological existence. Haraway critiques this form of techno-sublime narrative as a dangerous myth, a 'single-parent' and 'self-birthing' 'quest story.'²⁶ In this, '[m]an births himself through the realization of his intentions in his objects' which Case appears to attempt through processes of jacking-in. The fact that the end of the text establishes a form of re-birth outside of such processes indicates a certain technophobic anxiety. Man, specifically the male protagonist, is reproduced as subject while technology is object, a boundary as opposed to an interface. This displays what Haraway terms a 'dialectic of technophilic, technophobic apocalypse.'²⁷ In a text such as *Neuromancer* any 'emergent ethics of care' which might arise within the 'hybrid-machine-organism' always

Politics of Cyberpunk', *Gothic Studies*, 9 (2007) 7-19, pp.9-10. See also Joanna Russ, *The female man* (London: Women's Press, 1985, 1975).

²⁴ The concept of the male gaze at the interface, as defined by Laura Mulvey, is explored in chapter four.

²⁵ Timothy Leary names Prometheus as the 'classical Old West-World model for the Cyber-punk.' See Timothy Leary, 'The Cyber-Punk: The Individual as Reality Pilot', *Mississippi Review*, 16 (1988) 252-65, p.252.

²⁶ James Carey and John Quirk refer to this as the 'electronic sublime.' See James W. Carey and John Quirk, 'The Mythos of the Electronic Revolution', in *Communication as Culture : essays on Media and Society*, (Boston: Unwin Hyman, 1989), pp. 113-41.

²⁷ Donna J. Haraway, 'Cyborgs to Companion Species: Reconfiguring Kinship in Technoscience', in *Chasing Technoscience: Matrix for Materiality*, ed. by Don Ihde and Evan Selinger (Indianapolis: Indianapolis University Press, 2003), pp. 58-83, p.61.

‘resolves’ to ‘blissed-out, jacked-in terror’ of the ‘communications-machinic self.’²⁸ The risks of breaching the boundary of the human and the technical are too disturbing for the male protagonist, who has escaped the ‘apocalypse.’

Neil Stephenson’s *Snow Crash* (1992) provides a second influential example of the ways in which cyberpunk is said to display ‘an unwillingness to go beyond the limitations of the existing social and political relations of technology.’²⁹ Stephenson’s text is similar to Gibson’s, in that it presents the ‘metaverse’ as digital space that intersects with the real, and presents a male protagonist — named Hiro Protagonist — with a young woman, Y.T, as sidekick. Hiro has control in the metaverse due to his competency with code. Technology augments performance in Stephenson’s novel, contributing to the counter-cultural, rebellious power of the male hacker, the romantic hero. It simultaneously establishes the human-machine interface as dangerous and alluring, threatening to the rational subject unless its instability is firmly contained. The interface is seen as a site of masculine escape, with the metaverse representing a capitalist paradise, with ‘user interfaces [...] engineered by major corporations inhabited by ‘the hundred-million richest, happiest, best-connected people on earth.’³⁰ When not jacked in, there is ‘nothing but blackness’ beyond the ‘boundaries.’ When not transcending his body in the metaverse, what is beyond for Hiro is an absence, something unseeable, containing overtones of the racist marginalisation of those who cannot escape their bodies, in the ‘blackness.’³¹

The plot revolves around the release of the Snow Crash virus, which destroys the ability of hackers to code the world around them. The interface is constructed as a site of violence and invasion. The human-machine relation is likened to an auto-immune response, and failure to repel the ‘virus’ results in a form of brain-death, the destruction of the rational mind of the specialized hackers, resulting in the paralysed body.³² The novel ends in a ‘fine, sterilizing flame,’³³ which destroys the virus. It is hunted down by an android dog, destroyed in a literal explosion. Y.T is positioned as a challenging and marginal cyborg figure throughout the text, not unlike Molly Millions, but finishes the novel by returning home with her mother. The final line, that ‘home seems about right’ is a home-coming which closes and finalizes the interface of the novel *Snow Crash*. It

²⁸ Ibid., p.62.

²⁹ Wolmark, *Aliens and Others*, p.121.

³⁰ Neal Stephenson, *Snow Crash* (New York: Bantam Books, 1992), p.20.

³¹ Ibid., p.349.

³² Ibid.

³³ Ibid., p.460.

moves the possible cyborg position of the technically and technologically adept resistance fighter Y.T. back into the recognisable safety of the domestic family unit. The notion that Y.T. might have a continuing, politically powerful relationship with technology is outside of the novel's own interface possibilities.

Dawn and Always Coming Home

Feminist science fiction texts present a different way of conceiving of the human-machine interface. This set of texts is represented here by Octavia Butler's *Dawn* (1987) and Ursula Le Guin's *Always Coming Home* (1985). Wolmark suggests that in such texts, '[t]he human-machine interface becomes the site at which the oppositional relations between self and other can be reconfigured' so that 'new kinds of subjects and subject relations' might be explored via the restatement of difference.³⁴ Butler and Le Guin's texts are interested in contesting and challenging patriarchal attachments. Marlene Barr suggests that these kinds of texts 'pave the way for nonsexist versions of reality.'³⁵ As Le Guin herself explains, this fiction aimed to be rid of the 'linear, progressive, Time's-(killing)-arrow mode of the 'Techno-Heroic' and instead understands 'technology and science as primarily cultural carrier bag rather than weapons of domination.'³⁶

Dawn presents a narrative about rebuilding the human race in the wake of nuclear apocalypse. Its protagonist is one of the last humans alive, Lilith. Extraterrestrials, the Oankali, take a number of humans from planet Earth in order to help restore and support the race of human beings, storing them in stasis and waking them hundreds of years later. The Oankali understand trans-species gene-sharing as essential to their existence and propose to rebuild the human race through the sharing of Oankali genetic material. This genetic altering of the human subject is what comprises the central issue of the novel, what Michelle Erica Green has called 'the pan-human acceptance of alien ideas and values.'³⁷ Green's articulation contains the sense that supposedly 'human' values, notions of normalcy, require alteration in order to address the systems of subjugation and violence

³⁴ Wolmark, *Aliens and Others*, p.7.

³⁵ Marleen S. Barr, *Alien to femininity : speculative fiction and feminist theory* (New York: Greenwood ; London, 1987), p.156.

³⁶ Ursula K. Le Guin quoted in Jane Donawerth, *Frankenstein's Daughters : women writing science fiction* (Syracuse, N.Y.: Syracuse University Press, 1997), p.xv.

³⁷ Michelle Erica Green, "'There Goes the Neighborhood": Octavia Butler's Demand for Diversity in Utopias', in *Utopian and Science Fiction by Women : Worlds of Difference*, ed. by Jane Donawerth and Carol A. Kolmerten (Liverpool: Liverpool University Press, 1994), p.169.

which marginalize and oppress particular subjects. 'Alien' ideas and values in *Dawn* include, in the first instance, the absence of a gender binary and social practices which do not sustain physical or biological boundaries between beings. Lilith is tasked with choosing human beings to release from stasis, to help rebuild human society under the influence and guidance of the Oankali. This involves changing the human predisposition to hierarchical structures and binary gender differences. Oankali denotations of gender includes 'ooloi,' which is neither wholly male nor female, but prevents 'the wrong kind of concentrations' of male and female characteristics.³⁸ Part of the ooloi's role in gene-altering is their ability to perceive and change DNA. For instance, they cure and simultaneously instrumentalize the disease of cancer, to aid technological development.

What is striking about the novel's relation to technology is how significant organic material is to the protocols and processes of communication. The very space ship of the Oankali is a form of living organism, in direct contrast to the ultra-digital mechanisms used by Case and Hiro:

The hole in the wall widened as though it were flesh rippling aside, slowly writhing. She was both fascinated and repelled.

"Is it alive?" she asked.

"Yes," he said. She had beaten it, kicked it, clawed it, tried to bite it. It had been smooth, tough, impenetrable, but slightly giving like the bed and table. It had felt like plastic, cool beneath her hands.

"What is it?" she asked.

"Flesh. More like mine than like yours. Different from mine, too, though. It's... the ship."

"You're kidding. Your ship is alive?"

"Yes. Come out." The hole in the wall had grown large enough for them to step through.³⁹

Organic matter forms important interfaces with which Lilith must interact. Bodily chemistry is changed in order to be able to open the walls of the 'ship' — the biochemical is the technological. For Case and Hiro, their hi-tech digital interfaces are sublime experiences of human-in-the-machine. Their 'ships' are conspicuously and imaginatively separate from their embodied lives. In *Dawn*, the ship is flesh. This human-ship interface is described as 'biological — a strong, symbiotic relationship.'⁴⁰ Interfacing in this novel is neither confined to the natural or the technological, the boundary between the two

³⁸ Octavia E. Butler, 'Dawn', in *Lilith's Brood*, (New York: Grand Central Publishing, 1987), p.106.

³⁹ *Ibid.*, pp.29-30.

⁴⁰ *Ibid.*, p.35.

blurs at the very moments when the boundaries of subjectivity are in-play. *Dawn* doesn't present a cyborg character who is pushed to the margins of the text, but follows a cyborg logic, the possibilities of which are forms of care rather than the assertion of boundaries. When Nikanj, Lilith's ooloi kin, tells her that what is preserved of Lilith is a 'gene map,' she soothes her shock by healing the pain in her left arm using 'several head tentacles.' Nikanj's tentacles work as caring, technical prostheses, altering Lilith's biological processes to stop her pain. The ending of the novel does not involve the recuperation of human subjectivity via affirmation of the coherent hero-subject. Instead, Lilith returns to the flesh-machine Oankali ship. She returns in order to once again try to teach a new set of humans how to live without the hierarchical tendencies which fatally flawed their world. She exits the earth-scenario set-up by the Oankali:

Another chance to say, "Learn and run!" She would have more information for them this time [...] Learn and run! If she were lost, others did not have to be. Humanity did not have to be. She let Nikanj lead her into the dark forest and to one of the concealed dry exits.⁴¹

The novel finishes with a movement back into an alien ship, into darkness. A 'concealed dry exit' is the passage for the novel's end. The narrative finishes on an obscured, and obscuring, interface, and the final boundary of the text is alien. It emphasizes that humanity does not 'have to be.' Emancipation via learning and running is possible. It involves recognising how the loss of humanity reveals that the 'natural' and 'inorganic' are influential fictions, myths of destructive hierarchies.⁴²

Ursula Le Guin's novel *Always Coming Home* (1985) similarly considers the relation of the human and technology. The novel is part-narrative, part-folk-tale, part-anthropological textbook. It tells the story of the future Kesh people, who 'might be going to have lived a long, long time from now in Northern California' and is called a 'translation from a literature of the (or a) future.'⁴³ It is not easily navigable as a linear text, made up of a collection of stories, poems, codexes and ancestral charts. It also includes an extract from a Kesh novel. One of the recurring voices, Pandora, addresses the reader of the novel itself 'with agitation' and describes a future world where new technologies exist with the old: 'Have I burned all the libraries of Babel? [...] while I write this they

⁴¹ Ibid., p.248.

⁴² Wolmark, *Aliens and Others*, p.45.

⁴³ Ursula K. Le Guin, *Always Coming Home* (London: Gollancz, 1985), p.1.

aren't burnt; the books are on the shelves and all the electronic brains are full of memories.⁴⁴ This is a vision of technological development as simultaneously bodily and textual. Technologies of writing and culturally valuable communication are present, as opposed to instruments of accelerated domination in the case of the Neuromancer AI or the Snow Crash virus. The 'generative metaphors' of a future people are laid out in their conative elements, including the 'machine' as a metaphorical frame that is part of a wider cultural network. The boundaries of these writing technologies are blurred, as in 'A Note and a Chart Concerning Narratives Modes.' For the Kesh people, 'the distinction [between fact and fiction] is gradual and messy.'⁴⁵

A peculiar semantic parallel between Le Guin's text and Gibson's *Neuromancer* serves to highlight the relevance of cyborg reading, thinking about the margins of texts and their materiality as interfaces. *Always Coming Home* closes with the Pandora voice celebrating not the power to manipulate that which is wrought by the male mind, but the blurring of boundaries between subjects and the protocols that form ways of being: 'And behold the *Geomancer*, whose name measures the Valley, who shaped the hills and helped me sink half California, who went on the Salt Journey, caught the Train, and walked...'⁴⁶ The term 'geomancer' contrasts with Gibson's use of 'neuromancer.' The former describes a close relation to a landscape, understanding the world from a situated subject position, whereas the latter refers to an ultimate 'seeing' associated with processing-power of an artificial intelligence, and which is located not in the world, but in the fantasy of the rational mind. That Gibson's novel is titled *Neuromancer* also draws the protagonist Case into its semantic web. Case's abilities to navigate cyberspace are a form of neuromancy, the ability to alter the processes of the mind to enact a form of total control over the world. In the end of Gibson's novel, the Neuromancer AI leaves human beings to Earth, transcending human civilisation as a perfected technology. Conversely, the civilisation of Kesh in *Always Coming Home* celebrate their relationship with the world at the end of the text; the name of the geomancer 'measures' the Valley, and they traverse that valley via the train. The very edges of these two novels differently condition the relation of subject and technology. In *Neuromancer* the form of knowledge that bounds the novel is ultimately one that transcends Earth; in *Always Coming Home*, the 'geomancer' at the end of the novel posits a knowledge that is bodily situated, not transcendental.

⁴⁴ Ibid., p.147.

⁴⁵ Ibid., p.500.

⁴⁶ Ibid., p.507. My emphasis.

Technology in Postmodern Fiction: Wallace, Coupland and DeLillo

David Foster Wallace's *Infinite Jest* can be thought of as a modulation of the work of writers like Gibson.⁴⁷ The media ecology of a near-future dystopian North America is a key part of the plot and overall atmosphere; detailed descriptions of screen technologies litter the text.⁴⁸ The central plot device, the video-cartridge which incapacitates the viewer, 'The Entertainment', resembles the Snow Crash virus. It is a destructive technology which works through viral circulation.⁴⁹ The effect is that the subject suffers a blackly comic, intellectual 'death', becoming the object of technology. For Wallace, it appears technology obstructs the perpetual struggle to articulate what it means to 'be a fucking human being.'⁵⁰ In *Infinite Jest*, those in society who still use the latest technologies are said to be 'utterly lacking in self-awareness.'⁵¹ The text regularly derides augmentative or prosthetic technologies, via the characters of Mario and Poor Tony. Mario's use of prosthetics is turned into a device for slapstick comedy in his encounter with Millicent Kent, who is 'frustrated by the complex system of snaps and fasteners at the bottom of his police lock's Velcro vest.'⁵² Poor Tony is described as having their 'protheses [...] not quite aligned' and is humiliated, made ridiculous in the text, for their reliance on such technologies.⁵³ Furthermore, face-to-face conversation is referred to as 'interfacing' throughout the novel, ironically repositioning human-machine interaction as a metaphor for human-human conversation. This ironic usage must be read in the context of the Entertainment as a death-dealing interface. The idea of a boundary interaction as damaging is communicated with some finality by Hal's isolation and stasis at the end of the novel, his inability to 'interface' with those people around him. Wallace's text thus retains an ironic distance from the idea of reimagining a relationship with technology. The question of the

⁴⁷ See Jameson, *Postmodernism, or, The cultural logic of late capitalism*. p.37.

⁴⁸ See Paul Giles, 'Sentimental Posthumanism: David Foster Wallace', *Twentieth Century Literature*, 53 (2007) 327-44, pp.335-36.

⁴⁹ Leah Schnelbach, 'Snow Crash and Infinite Jest Both Predicted Our Cyberpunk Present', Macmillan, (2016) <<https://www.tor.com/2016/06/08/cyberpunk-snow-crash-and-infinite-jest/>> [Accessed 14/01/19] Phillip Sayers, 'Representing Entertainment(s) in "Infinite Jest"', *Studies in the Novel*, 44 (2012) 346-63.

⁵⁰ Giles, 'Sentimental Posthumanism: David Foster Wallace', pp.335-36.

⁵¹ David Foster Wallace, *Infinite Jest* (London: Abacus, 1997), p.151.

⁵² *Ibid.*, p.125.

⁵³ *Ibid.*, p.647.

possibility of care or responsibility at the interface does not enter into the world of *Infinite Jest*, but only ever resolves into irony or different forms of stasis.

This fear of the disturbance of the human-technical boundary is similar to the 'patriarchal anxiety' that Delany observes in cyberpunk. This is borne out by the description of the Entertainment by the wraith of James Incandenza. The central image of the film is Joelle, looking down into a crib, to the viewer's perspective as a baby, repeating apologies to the camera:

Make something so bloody compelling it would reverse thrust on a young self's fall into the womb of solipsism, anhedonia, death in life. A magically entertaining toy to dangle [...] The womb could be used both ways. A way to say I AM SO VERY, VERY SORRY and have it heard.⁵⁴

The 'reverse thrust' away from solipsism is, implicitly, a thrust back into the womb of the mother, as '[t]he womb could be used both ways,' to be reminded of the bodily difference which births the male subject. The Entertainment is a form of reverse birth, the ultimate negation of male agency, a movement into a 'mouth open' unconscious, with the loss of the ability to control the exterior world by the power of interior rationality. It is a technology that kills by making explicit the birth of the subject, apologising for it at the same time. Hayles suggest that the film 'offers the seduction of an apology for this recursivity, as if it were recursivity that is the problem rather than the deadly illusion of autonomy.'⁵⁵ The anxiety surrounding technology is representative of an anxiety concerning the reproduction of the rational, thinking subject. Wallace's novel can be said to contest the status of technology in social life by establishing a dichotomy between death and life as a false binary, between technological indulgence and reasoned, autonomous thinking.

The contestation of human and technical boundary at the interface continues in novels through the 1990s. In the period 1995 to 2000, epistolary novels begin to use the form of e-mails instead of letters. This has led some critics to refer to the email novel as a genre in itself.⁵⁶ This form narrativizes the risk of network disconnection, and the relative uncertainty in communication brought about by changes in linguistic and

⁵⁴ Ibid., pp.838-39.

⁵⁵ N. Katherine Hayles, "The Illusion of Autonomy and the Fact of Recursivity: Virtual Ecologies, Entertainment, and "Infinite Jest", *New Literary History*, 30 (1999) 675-97, p.692.

⁵⁶ See Laura Rotunno, 'User IDs: Email Novels and the Search for Identity', *a/b: Auto/Biography Studies*, 21 (2006) 70-82.

grammatical conventions. The e-mail form and its relative brevity, as well as its contextual reliance on being at a computer terminal (before the advent of mobile/smart phones), is stretched by such texts. The form accommodates lengthy prose passages, acting simply as an up-to-date frame to the priorities of literary narrative. Carl Steadman's short story, 'Two Solitudes' is an example of both of these elements, wherein e-mails become pages long and the narrative climax is built around an e-mail address ceasing to receive messages.⁵⁷ Novel-length examples include Sylvia Brownrigg's *The Metaphysical Touch* (1998) and Jeanette Winterson's impressionistic romantic novel *The Powerbook* (2000). The latter uses the relative anonymity of identity possible in using e-mail in the twentieth century to drive an abstract plot where each chapter is a new message. These e-mail novels reproduce the romantic epistolary novel via an up-to-date interface interaction, but ultimately represent email technology as a form limited by the basic binary state of connection or disconnection.

A differently inflected intertextual approach is found in Douglas Coupland's *Microserfs* (1995). The novel includes e-mail communication, code, chat-like text, a word-processed journal and screen-text communication of a disabled cyborg figure. The novel narrates the office life of workers at Microsoft. The abbreviated 'textspk' of mid-1990s is satirized, when a colleague of the narrator creates a program which 'converts whatever you write into a title of a song by Minnesotan Funkmeister, Prince.' The narrator converts part of his journal for the day:

She sed, "I think we hav strAd so far awA from our animal originz th@ we R bent on kreSng a noo, soopra-animal idNti'T."

She sed, "Wh@ R komputrz but the EvryAnimalMashEn?"

I kouldn't B-lEv she wuz talkng like this. She wuz like an episode uv Star Trek made flesh. It wuz az if I wuz falng in2 a dEp, dEp hole az I hrd hr voiss speak 2 me. But then a bumbl-B bumbld abuv us & it stole our alOnshun the wA flyng thngz kan.⁵⁸

The intertextual joke uses Prince as a symbol of an ultra-contemporary language aesthetic. This momentary translation by the Prince emulator leads to a realisation by the narrator that 'after a certain point, real language decomposes into encryption code'⁵⁹ which is followed by a page of nonsense alphanumeric characters and code symbols. There are

⁵⁷ Carl Steadman, 'Two Solitudes' (1995) <<http://intertext.com/magazine/v5n1/solitudes.html>> [Accessed 31/08/18]

⁵⁸ Douglas Coupland, *Microserfs* (London: Flamingo, 1995), p.19.

⁵⁹ Ibid..

echoes of Wallace's 'entertainment' in this reduction of language by technological 'decomposition,' implied in the notion of the human sounding 'like an episode uv Star Trek made flesh.' The anxiety about a woman embodying a blurred boundary between the technical and the human is combined with a concern about the rudimentary genre conventions of popular science fiction. Yet, the novel does not reduce this to a confrontation between frightening machine and fleshy being.

What makes the position of *Microserfs* distinct from *Infinite Jest* is the highlighting of its own interface as a writing technology. The most significant example comes at the end of the novel, when the narrator's mother, having suffered a stroke, communicates via screen technology. She is 'part woman/part machine, emanating blue Macintosh light'⁶⁰ and her capitalized 'textspk' is the catalyst for a familial union. The narrative connects the experience of reading the interface with the labour of domestic care, taken on by the whole family:

On the screen, in 36 point Helvetica on the screen of a Mac Classic were written the words:

i am here

Dad caressed Mom's forehead and said, "We're here, too, honey." He said, "Michael, can she speak . . ." Michael put his arms over Mom's arms, his fingers upon her fingers and assisted her hands above the keyboard. Dad said, "Honey, can you hear us?"

yes

He said to her, "Honey, how are you? How do you feel?"

;=)⁶¹

Coupland's novel provides a cyborg image which repositions the 'decomposed' language of code and the computerized representation of the face in the form of a smiley Unicode emoticon. In the instance where a cyberpunk aesthetic is found as a trace in the text, with the blue glow of the Macintosh graphical user interface characterizing the mother, the novel produces a cyborg figure. The question 'How do you feel?' signals the rich affective space in which the novel finally positions itself, the 'caress' of the mother's forehead signalling an impulse to care. Coupland's novel gestures towards a way of thinking human and machine interaction which moves past concerns and anxieties about 'decomposition,' and towards unforeseen possibilities for unconditional care. 'We're here, too, honey' is a reassurance from the support network of the family, located at a newly uncertain

⁶⁰ Ibid., p.368.

⁶¹ Ibid.

boundary. This partially refigures family kinship through the embracing of the mother cyborg.

Don DeLillo's *Cosmopolis* (2003) addresses the boundary of the human/technical through a conception of the transhuman that is distinct from that of cyberpunk. The transhuman is distinct from the posthuman, in that the former refers to the possibilities for personal augmentation which might alter lived experience, a perspective which ultimately sees the human body as something to be transcended. The posthuman or posthumanism refers instead to a wide variety of theoretical and conceptual thinking regarding the conception of human subjectivity and its movement into the future. The protagonist of *Cosmopolis*, Eric Packer, travels Manhattan in a high-tech, networked car that allows him to trade currency. The technology of the car is 'nearly touchless,' a 'secure' system, 'buffered from attack.'⁶² The invulnerable and magical technology is a metonym for Packer's self, a technological extension of his powers of cognition. Packer's chief of theory, Vija Kinski, articulates the dream of machine-human synthesis as a masculine fantasy around which the novel pivots:

People will not die. Isn't this the creed of the new culture? People will be absorbed in streams of information [...] A box, a screen, a keyboard. They're melting into the texture of everyday life [...] Humans and computers merge. This is well beyond my range. And never-ending life begins.

Kinski's words to Packer articulate the gendered nature of this power; it is 'men' who think about immortality, women are said to be 'too small and real to matter here.'⁶³ Packer's fantasy of owning the future via technological disembodiment also draws on the figure of the hacker from cyberpunk, but via the class-inflected image of the expensive wristwatch. The 'crystal on his wristwatch was also a screen' which allowed him to 'hack into corporate systems, testing their security for a fee.'⁶⁴ Packer has moved past the position of hacker as resistance, to hacking as a process for securely reproducing capital.

At the end of the novel, when Packer is shot and killed, he takes solace in the imagining of his transcendence via those technologies, thinking that he 'always wanted to become quantum dust,' the idea to 'live outside the given limits, in a chip, on a disk, as data, in whirl, in radiant spin, a consciousness saved from void.'⁶⁵ But this 'high sublime,'

⁶² Don DeLillo, *Cosmopolis : a novel* (New York: Scribner, 2003), p.12.

⁶³ Ibid., p.105.

⁶⁴ Ibid., p.123.

⁶⁵ Ibid., p.206.

that is a 'semi-mythical' and 'natural next step' is interfered with by 'pain.' Pain stands for the material body: a 'hard-gotten grip on the world'; 'the pale nights when his identity flattens for lack of sleep'; 'the small wart he feels on his thigh'; 'the hang of his cock.'⁶⁶ It is this materiality which Packer ultimately cannot escape. Packer's death is finally described with reference to his wrist watch: 'dead inside the crystal of his watch but still alive in original space, waiting for the shot to sound.'⁶⁷ The image of the watch, one of his personal interfaces for information and control, makes Packer's death strangely ambiguous, making the boundary between the human and the technical differently permeable. This final image of *Cosmopolis* is a desperate asking of Stiegler's question 'when do(es) the human/the technical begin and end?' inverting the sense that technology might have allowed Packer to live on, and instead emphasizing that the technical here supernaturally accelerates an awareness of death. He is already 'dead' in the tool which has supposedly granted him an extraordinary agency. The reference to the final 'original space' seems to move the reader back to a reflection on technology as a corrupting or determining force. The stasis of the novel's final line seems to accept the lack of resolution in the technosublime myth yet attempts, vainly, to resist the essential materiality linking the human and technical, by separating the moments of death.

Human and Technical Boundaries in Kazuo Ishiguro's *Never Let Me Go*

The above readings are indicative of currents of interest in the contemporary novel throughout the latter part of the information society. I have shown how different conceptions of the relation of the subject to technology produce contrasting possibilities in textual worlds. The political dimensions of such boundaries are highlighted through close reading the novel interface with the intraface of the cyborg. I have highlighted a conceptual boundary between technology as a facilitating set of tools for sublime and disembodied experience and technological interfacing as an ongoing and embodied process. This has relied on a vocabulary addressing the way technological interfacing is gendered, how it relates to the family unit and how margins of novels themselves contribute to possibilities for technological imagining.

I now move to a current example of a novel which is an important node in discussions of both the purpose of contemporary fiction and the status of the relationship

⁶⁶ Ibid., p.207.

⁶⁷ Ibid., p.209.

between technology, Kazuo Ishiguro's *Never Let Me Go*. Ishiguro's text provides an account of technology which moves the concerns of the interface into the context of artificial life. My cyborg reading engages with Stiegler's vocabulary of the 'who' and the 'what', to demonstrate how the novel disturbs the 'human' as an exclusive political category, problematizing distinctions between the human and the technical. More generally, this reading activates the concepts of the cyborg and the interface in relation to recent contemporary fiction. I also contribute an original perspective to a growing field of critical responses to a major novel.

The narrator in *Never Let Me Go* is Kathy H, who was a student at Hailsham, along with Tommy and Ruth. On the surface Hailsham resembles a British boarding school, but it is revealed that the children are 'donors.' The organs of these donors will be used to supplement other people, a system of donation to support the ostensibly 'human' public. While this fact is obscured from the students, they eventually understand that after three or four 'donations' they will die. They do not look to escape these conditions by violent resistance, but instead think they have found a rule concerning their own production of art which means they will be reprieved. The donors produce artworks as children, some of which are taken by a mysterious 'Madame' to a gallery for exhibition. While Tommy thinks this artwork will absolve him and Kathy of their donor status, on confronting the Hailsham staff later in life, it is shown to have a more instrumental, governmental value. The production of art was used to suggest that the donors at Hailsham 'have souls at all,' in order to alleviate the abusive conditions found in other donor homes. The instrumental use of the artwork is what confirms their inevitable status as objects in a dystopian environment.

Contemporary readings of *Never Let Me Go* demonstrate different ways of understanding its technological status. Peter Boxall's reading suggests that the novel's 'testimony' calls for a new way of understanding the human. Robert Eaglestone suggests a different way of conceiving of the testimony of *Never Let Me Go*, as a novel about the 'universal acceptance' of technological thinking, which leads to clones being 'murdered for their body parts.'⁶⁸ The form of Ishiguro's novel, he argues, contributes to the reader's complicity in the murder, in that its gentle nature undermines the ability to 'see' the technological frame. Both Eaglestone and Boxall appear to consider this novel primarily as an ethical document, one that emphasizes the unique power of the novel as a form to

⁶⁸ Eaglestone, *Contemporary fiction : a very short introduction*, p.94.

address the significance of processes of technology. Rosario Arias understands the text in a similar sense as ‘warning us of the danger of creating a posthuman world.’⁶⁹ Anne Whitehead’s reading of the novel in the context of a ‘language of care’ repositions the novel as one which posits the ‘limits and limitations’ of a care ethic in the reading process.⁷⁰ Whitehead’s engagement is representative of a mode of understanding the ethical debate in the novel as one about the power or purpose of the novel itself, focusing on the striking affective impact of Kathy’s narration. Whitehead suggests that the text does not present ethical problems to be addressed as moral issues to be learned from, but more abstractedly suggests political and social limits for care.

Gabriele Griffin’s reading of the novel views it in a similar light, as a combination of literary text and scientific imaginary. Griffin not only situates the novel in the context of the contemporary science of cloning and associated reproductive technologies, but also sets it in relation to a contemporary genre of critical writing that includes Haraway. The novel is ‘part of the same critical tradition as the work of Frederic Jameson and Donna Haraway’ in that it ‘challenges conceptions of difference as absolute categories and contests the ethical imperatives underlying the insistence on such absolute difference.’⁷¹ Rachel Carroll’s reading of the novel also sees it as a productive site for considering absolute categories of difference, viewing the text through the frame of queerness and heteronormativity. The text is set by Carroll in the context of the discursive and material conditions of reproductivity, rather than in terms of a ‘post’ humanism. Carroll writes, ‘it is not the human status of the clone which is in question [...] so much as the normative discourses which conspire to contest it.’⁷² The central discourse of normality for Carroll is heteronormativity, a notion of exclusion which is emphasized by the clones’ inability to sexually reproduce. Carroll’s description of the novel as ‘a deeply disquieting rendering of normality’ gestures towards those categories of naturalness or normativity as problems in the text.⁷³ I am aligned in the following reading with the work

⁶⁹ Rosario Arias, ‘Life After Man? Posthumanity and Genetic Engineering in Margaret Atwood’s *Oryx and Crake* and Kazuo Ishiguro’s *Never Let Me Go*’, in *Restoring the Mystery of the Rainbow: Literature’s Refraction of Science, Vol. 1*, ed. by Valeria Tinkler-Villani and C.C. Barfoot (Amsterdam and New York: Rodopi, 2011), pp. 379-94, p.394.

⁷⁰ Anne Whitehead, ‘Writing with Care: Kasuo Ishiguro’s *Never Let Me Go*’, *Contemporary Literature*, 52 (2011) 54-83, p.81.

⁷¹ Gabriele Griffin, ‘Science and the cultural imaginary: the case of Kazuo Ishiguro’s *Never Let Me Go*’, *Textual Practice*, 23 (2009) 645-63, p.653.

⁷² See Rachel Carroll, ‘Imitations of Life: Cloning, Heterosexuality and the Human in Kazuo Ishiguro’s *Never Let Me Go*’, *Journal of Gender Studies*, 19 (2010) 59-71, p.60.

⁷³ *Ibid.*, p.61.

of Griffin and Carroll. I demonstrate that the representations of the technologies of the cigarette and of writing within the interface process of *Never Let Me Go* trouble the conceptual, 'normative' boundary between human and technology. This is because both of these technologies are differently presented as reinforcing exclusionary boundaries or borders. Writing is entangled in the notion of having a 'soul', and the cigarette is used to problematize the constructed notion of internal and external boundaries.

The artworks produced by the donors provide an entry point for considering the way boundaries of normativity are constructed in the world of the text. Boxall suggests that art is 'the most insistent vehicle in the novel for revealing "what you were like inside"' but here functions to support 'a kind of scientific behaviourism.'⁷⁴ Boxall reads Tommy's later artwork in the novel as suggestive of a 'different kind of organization of being' which the Madame 'cannot read' suggesting that notions of reading are connected to understanding the category of the human, but that the figures of authority in institutions can only read ways of being which are already legible to them.⁷⁵ Ultimately, what the artwork confirms is the ways in which normative notions of humanity are established. 'Kathy's first-person narrative,' Carroll explains, 'culminates with a discovery that her very status as human is contested.'⁷⁶ However, a further notion of reading the significance of artwork in the novel is opened by considering Kathy as a cyborg in Haraway's sense. Kathy is a 'creature of fiction' who is the narrator of the textual world, one who resonates powerfully in the 'social reality' of the reader. Her voice is noted by critics for its strange or naïve style and is undeniably affecting as an attempt to make legible the process of extreme societal violence. Such voicing can be seen as a cyborg writing. Haraway's notion of cyborg writing is grounded in a statement from the cyborg manifesto: 'Writing is preeminently the technology of cyborgs.'⁷⁷ It is the 'play of writing' which opens the 'ideological space[s]' of technology. Ajnesh Prasad elaborates on the notion of cyborg writing as a political act in the contemporary period. Cyborg writing is a form of resistance to hegemonic narratives which aims to disrupt 'codified knowledge systems that rely on Cartesian philosophical declarations.'⁷⁸ It writes against the 'various forms of unlocatable,

⁷⁴ Peter Boxall, *Twenty-First-Century Fiction : a critical introduction* (Cambridge ; New York: Cambridge University Press, 2013), p.104.

⁷⁵ *Ibid.*, p.106.

⁷⁶ Carroll, 'Imitations of Life: Cloning, Heterosexuality and the Human in Kazuo Ishiguro's *Never Let Me Go*', p.63.

⁷⁷ Haraway, *A Cyborg Manifesto*, p.11, p.57.

⁷⁸ Ajnesh Prasad, 'Cyborg Writing as a Political Act: Reading Donna Haraway in *Organization Studies*', *Gender, Work & Organization*, 23 (2016) 431-46, p.433.

and so irresponsible, knowledge claims.⁷⁹ Part of this resistance to universal or unlocated knowledge is in the way subjects who are ‘rendered invisible’ are able to ‘rewrite their own narratives.’⁸⁰ Kathy writes against the institutional structures which mark out the lives of the donors, although in a way which is not obviously political. The uncertain status of the writing is an implicit discursive resistance to the repeated requirement to ‘know’ voiced by the staff at Hailsham: ‘If you’re going to have decent lives, then you’ve got to know and know properly [...] you have to know who you are and what lies ahead of you, every one of you.’⁸¹ The written account is arguably not easily exterior-to or distinct-from the instrumental artworks produced by the students at Hailsham. Kathy’s writing is a cyborg writing, in that it works as both a formal condition of the novel *Never Let Me Go*, but also represents a work of art in the textual world of the novel itself. It is a liminal writing which defies straightforward categorisation, and which implicitly writes against the notion of artwork as a normative category. Her voice provides a counter-narrative to the violent material conditions of her life. The disruptive impulse of the writing can be seen in the way the narrative voice is not clearly identifiable as either oral history, semi-fictional account or autobiography. It is an artwork which ‘calls to account’ assumptions surrounding normative notions of the organization of being in the world of the text.⁸² What is heard is Kathy’s voice itself, a making visible of the donor narrative.

That Kathy’s writing is itself a work of art is ‘forgotten’ by readers in the face of the more instrumental role of artworks in the novel. To ‘remember’ Kathy’s writing is to emphasize that it is itself a powerful technology that ultimately highlights the boundaries which construct valuable cultural categories and, by extension, the boundaries of what constitutes liveable life. Reading with Stiegler’s conception of Epimetheus and Prometheus in mind, to engage in asking what might be ‘forgotten’ and to attempt to read the text as already technical, reveals Kathy’s narrative voice as a supplement to the category of the human in *Never Let Me Go*. The textual world only exists because of Kathy’s technical ability as a writer, and yet her very presence is one that means she is non-human. Without Kathy, the human would not have an ‘other’ against which to define itself. She engages in a form of art which the world of the text understands as essential to the category of the human, in that the ‘gallery’ myth associates personal expression with the notion of a ‘soul,’ a kind of liberal-humanist recuperation of human worth via the

⁷⁹ Ibid., p.434.

⁸⁰ Ibid., p.433.

⁸¹ Kazuo Ishiguro, *Never Let Me Go* (London: Faber and Faber, 2010), p.80.

⁸² Prasad, ‘Cyborg Writing’, p.434.

constructed category of artistic value. Yet Kathy's participation in such a narrative art form is not something extra; it is the very vehicle for the telling of her non-human status. This supplemental relation is the formal condition of *Never Let Me Go*. Kathy's cyborg writing thus seems constantly to give voice to Stiegler's provocation '[w]hen do(es) the human/ the technical begin and end?' Why does the organization of life rely on the category of the human at all, when the very writer of this world, Kathy, is excluded from such a category? The reader is confronted by a novel which works as an undecideably 'soulful' — artistically valuable — or 'soulless' — non-human — technology. In summary, viewing Kathy as a cyborg writer shows how her writing is essential to the world of *Never Let Me Go*, in a way which disturbs and ultimately collapses the novel's presentation of art as indicative of a valuable humanity. The categories of art and the soul are not only merely reparative, helping to argue for better living conditions for the donors, but are also shown to be part of the violently exclusionary category of normativity. 'Remembering' that Kathy's story is a technological process helps to highlight how notions of the 'human' rely on powerful textual categories of exclusion. To assume a connection between art and the soul is already to accept a notion of liberal individualism which allows the central violence of this novel to occur.

The category of the human is defined in the novel by exclusion, although such processes of exclusion are not obviously conspicuous as high technology. Indeed, as Karl Shaddox has emphasized, *Never Let Me Go* is a novel of dystopian or speculative proportions which is conspicuously low-tech: 'the most technologically advanced item to appear in the novel is the automobile.'⁸³ Also conspicuous as a technological item is the cigarette, which works as a gestural and processual bridge between exterior and the interior. Its process literally involves inhaling from interior to exterior, one with obvious limitations but less straightforwardly articulated social affordances. Stiegler uses these spatial terms of exterior and interior to define the way that 'the human invents himself in the technical by inventing the tool—by becoming exteriorized techno-logically.'⁸⁴ In this process of invention, 'the human is the interior: there is no exteriorization that does not point to a movement from interior to exterior.'⁸⁵ This movement from interior to exterior does not suppose the proceeding of one by the other. The 'interior and exterior' are

⁸³ Karl Shaddox, 'Generic Considerations in Ishiguro's *Never Let Me Go*', *Human Rights Quarterly*, 35 (2013) 448-69, p.449.

⁸⁴ Stiegler, *Technics and Time Vol. 1*, p.141.

⁸⁵ *Ibid.*, pp.141-42.

‘consequently constituted in a movement that invents both one and the other [...] they invent each other respectively, as if there were a technological maieutic of what is called humanity.’⁸⁶ The cigarette in *Never Let Me Go* can be understood as a form of technological maieutic, material-semiotic, a critical tool for addressing the assumption of the origins of the human as a category.⁸⁷ It is used to establish a division between exterior and interior that invents both the human, and the donors, as social categories. It simultaneously emphasizes how such boundaries are collapsible and fluid.

On the cover of the tape of Judy Bridgewater songs to which Kathy H dances, singing along to ‘Never Let Me Go,’ Bridgewater is described ‘elbows up on the bar [...] a cigarette burning in her hand.’⁸⁸ The cigarette means that Kathy is ‘secretive’ about the tape, and her writing about it leads to a story about the teacher Miss Emily revealing she used to smoke. After admitting she smoked for two years, Miss Emily makes clear that ‘keeping yourselves well, keeping yourselves very healthy inside, that’s much more important for each of you than it is for me.’⁸⁹ The ‘me’ here is a reference to her non-donor status, which is the status of a human being, who is allowed to experiment with different ways of being in the world. For the donors, smoking must only be understood as a danger to their health, specifically to their internal organs which they are shown pictures of to warn them of damage from smoking. It is the different semiotic status of their biological ‘insides’ which indicates the students are donors, excluded from the future status of the human that would allow them to smoke. As Boxall articulates, ‘for those of us who own our own bodies, this topsy-turvy logic runs, it is fine to abuse the parts of which we are made.’⁹⁰ The cigarette being conceptually off-limits to the donors represents a boundary between the interior and exterior, between the ‘who’ of ‘embodied consciousness’ and the ‘what’ of ‘technological systems,’ which emphasizes their ‘non-human’ status.⁹¹ Smoking is not only a technological process which produces instrumental, biological results in the novel. The cigarette signifies for Miss Emily in the same way that it does on the cover of the Judy Bridgewater tape for Kathy, semiotically representing an unbridled sociality. Shaddox agrees with this sense, suggesting that the

⁸⁶ Ibid., p.142.

⁸⁷ Fiona Leigh describes the maieutic method as introducing ‘the stimulus [...] for critical thinking.’ See Fiona Leigh, ‘Platonic Dialogue, Maieutic Method and Critical Thinking’, *Journal of Philosophy of Education*, 41 (2007) 309-23, p.319.

⁸⁸ Ishiguro, *Never Let Me Go*, p.67.

⁸⁹ Ibid., p.68.

⁹⁰ Boxall, *Twenty-First-Century Fiction*, p.102.

⁹¹ Abbinnett, *The Thought of Bernard Stiegler*, p.4.

tape represents ‘the accumulation of life’s emotional experiences.’⁹² It presents a more uncertain and in-play semiotics than the ‘biological’ effect of the cigarette: ‘Judy, her cigarette, the coquettish look for the barman, the blurred palms in the background.’⁹³ The cigarette is representative of a larger semiotic, technical border, delineating humans who are able have cigarettes and engage in social experience via the affordances of such a process, and the donors who can see the possibility of this social life but not partake in it.

The semiotic border represented by the cigarette is also manifest textually, in the way ‘classic books’ are crudely censored by the staff at Hailsham:

There was even a rumour that some classic books—like the Sherlock Holmes ones—weren’t in our library because the main characters smoked too much, and when you came across a page torn out of an illustrated book or magazine, this was because there’d been a picture on it of someone smoking.⁹⁴

The tearing out of pages from books that depict smoking is an attempt to re-instate, to re-forget, the fault of Epimetheus. It is both a violent and direct measure of making cigarettes absent from the donor’s lives and also an ironic gesture which makes the desired forgetting a memorable reinscription. In this example, Stiegler’s sense that ‘[t]here is no reading that is not technological’ is tangible. Reading is the process for the continued reproduction of technological boundaries, in that Kathy’s noticing the absence of the cigarettes from the books and magazines communicates how texts are understood to contribute to boundaries of possibility. She reads the absence of smoking, in contrast to the prior censorial ‘reading’ engaged in by the staff at Hailsham to see and remove smoking as a visible technology. This event in *Never Let Me Go* demonstrates the unforeseeable power in interface interactions between reader and text. The authorities at Hailsham have to alter the very interface of the ‘classic books’ in order to control the possibilities for technological interaction, and by extension affirm the ontological distinction between donors and humans. The interface figures in establishing the sociality available to the donors and is manipulated to establish a particular organization of life.

Having asked the question of Miss Emily about smoking, the donors ‘didn’t really know what that meant,’ and Kathy writes that ‘if we were keen to avoid certain topics, it

⁹² Shaddox, ‘Generic Considerations in Ishiguro’s *Never Let Me Go*’, p.456.

⁹³ Ishiguro, *Never Let Me Go*, p.169.

⁹⁴ *Ibid.*, p.67.

was probably more because it *embarrassed* us.’⁹⁵ The notion of embarrassment is recapitulated when Kathy rediscovers the lost Judy Bridgewater tape later in the text, suggesting ‘there was something vaguely embarrassing about the tape, like it was something I should have grown out of.’⁹⁶ Embarrassment is associated with the articulation of the category of the human and is present when the boundaries of the human/technical divide are made conspicuous or put under pressure. The word recurs when another teacher, Miss Lucy, comes close to revealing the ‘very important reason’ that Madame takes the donors’ artworks from them and there is an atmosphere of ‘deep embarrassment.’⁹⁷ When Madame sees Kathy dancing to ‘Never Let Me Go,’ it is ‘all the more embarrassing’ because Kathy had ‘grabbed a pillow to stand in for the baby.’⁹⁸ Later, as Kathy and Tommy plan to try and defer their donation, Kathy states they are ‘vaguely embarrassed, almost like we shared a shameful secret.’⁹⁹ The recurrence of embarrassment communicates a form of societal shame, a looking away from the fact that the human is a category defined by exclusion. That ‘the world didn’t want to be reminded how the donation programme really worked’ can be read as a description of the way that the cloning program highlights the sense that the category of the human is essentially technical.¹⁰⁰ The donors’ lives become a symptom of the banal embarrassment of ethical violence. This is echoed in Tommy’s use of the word ‘shame’ before his fourth donation: ‘It’s a shame, Kath, because we’ve loved each other all our lives. But in the end, we can’t stay together forever.’¹⁰¹ It is ‘a shame’ not simply in a sentimental sense, but in a socio-political one. While ‘normal’ human relationships are limited by death, the lives of the donors are limited by their function to facilitate and sustain the very category of the ‘normal’ human through their ‘shameful’ non-human status. The ‘further question’ which Kathy knows the donors ‘never asked’ is not only the question as to why they, particularly, must look after their internal organs.¹⁰² It is simultaneously Stiegler’s question ‘When do(es) the human / the technical begin and end?’¹⁰³ The contestation of the human is reproduced in the text via the semiotics of the cigarette, a technology which highlights the ways that boundaries of exclusion are established via a crude cultural censorship

⁹⁵ Ibid., p.69.

⁹⁶ Ibid., p.170.

⁹⁷ Ibid., p.40.

⁹⁸ Ibid., p.71.

⁹⁹ Ibid., p.237.

¹⁰⁰ Ibid., p.259.

¹⁰¹ Ibid., p.277.

¹⁰² Ibid., p.69.

¹⁰³ Stiegler, *Technics and Time Vol. 1*, p.100.

which manifests ultimately as shame. Embarrassment seemingly precludes the asking of ‘further questions,’ and the pressure on the human/technical border only serves to highlight a form of political inertia.

The moving end of Kathy’s account, after Tommy’s death, and her references throughout to her own writing and remembering, locate the interface of *Never Let Me Go* as a boundary of human-machine possibility. At the end of the text, Madame explains that Tommy and Kathy’s disappointment in the myth of the deferral is ‘because we haven’t given them everything *possible*.’¹⁰⁴ The ‘possible’ in the Madame’s sense describes the alleviating of poor conditions for clones, the ‘improving’ of the clone’s resource status. Yet, for Kathy and Tommy, what was always ‘possible’ was an organization of life without their imminent, instrumental death. The organization of the human-technical boundary as one that inevitably leads to the donor’s instrumental death is reflected in the images of Tommy and Kathy at fence boundaries, against limits which are representative of technological boundaries. Stiegler’s observation in that ‘every border is technical,’ resonates with the reproduction of physical boundaries in text, as well as simultaneously with the boundary of the interface of the novel *Never Let Me Go* itself, the end of the text.¹⁰⁵ Kathy’s narrative is cyborg writing, a communication which troubles the easy boundaries between the world of the text and the world of the reader, and which confronts the boundaries which establish normative categories. It asks for a reading beyond the border of human/technical, one which does not stop at embarrassment or shame. Instead, the text can be said to push beyond easily comprehended political-ethical questions, where otherwise the human/technical boundary might be understood as a limit of seeing. Like Butler’s *Dawn* and Le Guin’s *Always Coming Home*, the conclusion of the novel, its interface limit, communicates the way that technology is *constitutive* of borders of subjectivity. Kathy’s writing must stop along with the form of the novel itself, a technical border and interface which also contributes to the organization of life. Where Lilith is able to enter into a concealed exit, Kathy cannot, highlighting a technological limitation in the closing of *Never Let Me Go*.

¹⁰⁴ Ishiguro, *Never Let Me Go*, p.260. My emphasis.

¹⁰⁵ Bernard Stiegler, *Technics and Time Vol. 2* (Stanford, CA: Stanford University Press, 1998), p.157.

The What and the Who

Stiegler's thinking, as seen in the above reading, connects the material-semiotic concerns of Haraway's cyborg with a sense of reading as a technology. Stiegler considers the 'who' as reader and the 'what' as text, in describing the interrelation of reading and the technology of the text. It is 'the who in its active experience of the what, and of the what for a who' which describes the reading process.¹⁰⁶ Reading 'textual expression' is what 'catalyzes the reader's inherent textuality.' This is the sense that repeated reading will reproduce differences that are always contextualized, and which thus highlight the essential reciprocal relation of 'who' and 'what.' This relation is described in terms of the uncertainty of identification, the acknowledgement by the reader of an unforeseeable future: 'in losing the sense of a text's identity while reading it and repeating it in different contexts, the reader's actual identity is thrown into crisis.'¹⁰⁷ Thus, the 'who' discovers its textuality as an enigma that is 'indissolubly that of the who and the what.'¹⁰⁸ The two cannot be thought separately, as the 'what' of the text is what constitutes the continued difference of reading as a process. Reading is the process whereby the interface of the 'who' with the 'what' is a constitution of the unforeseeable future, and thus a relation with temporality which is not thinkable simply as a process of discerning meaning. This is demonstrated in the reading of Kathy's narrative, which is a reading of the confluence of 'what' and 'who' that catalyses the reader's own textuality, by emphasizing the textuality of the boundary between human and non-human.

Stiegler's conception of reading resonates with the figure of the cyborg. The cyborg is a textual 'who' which is configured by their self-aware relation to the 'what' of science and technology, as well as other discourses. Reading for Stiegler is constituted as a form of technological seeing, an interface interaction, not a process which is separate from the technical, but which invents and reinvents, continuously reproduces, through reading and writing. It is this focus on the textuality of processes which resonates with Haraway's cyborg, the figure that 'struggles' against 'perfect communication':

To read—to see, to understand—, is to interpret one's time. To write. *There is no reading that is not technological.* Time is ex-static; the who is temporal since it is outside itself, already-there in its what; the who is no more than its past, a past not preserved in the who's memory but in the what, which means that its past is

¹⁰⁶ Ibid., p.58.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

not its own, since it remains to come. This remainder is “transmitted” to the who according to “objective,” techno-logical conditions through which it is recorded, on materials or supports that open onto its indeterminacy and which it passes by and survives. “What is it to read?” thus means: “What is time?” which in turn means: “What does technology promise us?”¹⁰⁹

What Stiegler provides here is an articulation of how reading is an ongoing activity which constitutes the who via the what. What constitutes the subject’s identity is its past as manifest in the technologies that it reads and interacts with; the past ‘remains to come’ because it is contingent on the possibility of reading. What is interpreted is reliant on its preservation in the what, in the promises of technology. It is ‘technological conditions’ which establish what can be passed on, what ‘remains to come.’ *Never Let Me Go* addresses Stiegler’s questions of what it is to read, what is time, and what technology promises us simultaneously, but emphasizes that what ‘remains to come’ is the maintenance of established borders of life. It highlights the technological condition of Kathy’s narrative, her own status outside the borders of liveable life, in its closing. As Stiegler emphasizes, ‘the issue is one of the specificity of life’s temporality when this takes the form of an inscription of the living in the non-living and the non-living in the living [...] This articulation, fold, border, is technics, and every border is technical.’¹¹⁰ It is the border of the technical which governs contemporary literary texts such as *Never Let Me Go*. It is a ‘fold,’ or in the case of Hailsham’s books a ‘tear’, an obscuring gesture, which is manifest as an inscription of the ‘living’ in the ‘non-living.’

My reading of *Never Let Me Go* has argued that the interface limits of the novel itself contribute to the expression of categories of subjectivity as problems in the text. This is demonstrated in the way that the boundary of interior and exterior is established via the limiting of access to different forms of technological processes and the associated social affordances. I have posited that the prominent examples of the confluence of the ‘who’ and the ‘what’ in this novel are the writing of the literary work itself and the cigarette. Every reading of a contemporary novel concerned with representing contemporary reality relies on technological assumptions, a working out of affordances and limitations, which shape an organization of life and the possibilities of ongoing interfacing. Every reading is technological, meaning that reading is an interpretation of a process of knowledge, via an interface, which contributes to a discourse about

¹⁰⁹ Ibid., p.133. My emphasis.

¹¹⁰ Ibid., p.157.

technology. On top of this, every conceptual border encountered in such reading is technical, meaning that each border or limit is part of an articulation of inscriptions that signify which subjects are allowed to live, and ultimately which are to be remembered or forgotten. Kathy's narrative attests to the necessity of cyborg reading, a constantly renewed inscription of her non-human status in the hands of living readers, in order to move into an unforeseeable political location where such categories do not signal the limits of liveable life.

Chapter 3: Cyborg Agency at the Interface in Zadie Smith's *NW*

Gender, Race and Technology

My central argument in this chapter is that the ability to engage interface technologies in *NW*, and the legibility of such interactions within the very interface of the novel itself, is obstructed by marginalisation and the denial of agency on gendered and racialized grounds. Reading and communicating at the interface are acts which are made difficult for the central characters of Keisha and Leah. My reading looks to highlight the possible cyborg positions represented by these characters. The possibilities found in human-machine interface interactions are bounded in *NW* by patriarchal mechanisms, with the most striking boundary being the end of the novel interface itself, which finishes with a phone call to the police. Lourdes López-Ropero highlights that readings of *NW* can be productively located in relation to the boundaries of subjectivity found therein, calling it a novel which 'interrogates the norm of contemporary femininity by pointing to the limitations and exclusions it engenders.'¹ These limitations are intersectional, and include 'the continuing existence of patterns of gender and racial inequality.' Two of the central sites of domination in the novel are the household and the workplace.

Strategies of patriarchal mechanisms of control are highlighted when the novel presents the process of interface interaction, such as Leah's desire to use the computer, the chatlogue between Leah and Keisha/Natalie, or the results of interface interaction in Keisha/Natalie's sexual encounters that are arranged via the listings website. In referring to patriarchal mechanisms I mean social structures and interactions that result in the domination of women by men. Specifically, I focus on instances of interface interaction where the figures of men intervene to name or silence the activities of women. My reading also resonates with past and recent anthropological work at the intersection of feminism and technology. Judy Wacjman (1991) has traced the material structures of domination in the workplace in relation to technology in the late twentieth century, identifying that '[m]en's affinity with technology' has been viewed as 'integral to the constitution of male

¹ Lourdes López-Ropero, 'Searching for a "Different Kind of Freedom": Postcoloniality and Postfeminist Subjecthood in Zadie Smith's *NW*', *Atlantis: Journal of the Spanish Association of Anglo-American Studies*, 38 (2016) 123-39, pp.126-7.

gender identity.² Jesse Daniels highlights in 'Rethinking Cyberfeminism' (2004) that hierarchies of gender and race are integral to discussions about interface technologies. Quoting sociologist Victoria Pitts, Daniels states that '[r]ather than a libertarian utopia of disembodiment, cyberspace must be considered an environment in which "definitions of situation, body, and identity are both contested and are influenced by power relations."³

NW presents part of the lives of four people living in Kilburn, London, who all 'went Brayton' the local school: Leah Hanwell, Felix Cooper, Keisha Blake (later changed to Natalie Blake) and Nathan Bogle.⁴ It follows these characters through a non-linear chronology, mainly focusing on childhood friends Leah and Keisha. The text is in five sections, each of which has a different narrative focus. The opening section, 'Visitation' is split into short chapters, some only a page long.⁵ It is written mainly in free indirect discourse, focalized around Leah, a white woman in her thirties who works for a charity, who is married to Michel. Michel wants children, whereas Leah does not. 'Visitation' tells of Leah's struggle with the decision to have two separate abortions, but the narrative revolves around her encounter with Shar, a marginalized black woman who appears at Leah's door, and cons her out of thirty pounds. 'Visitation' finishes when a set of photos Leah collects mysteriously contain Shar, whose material status as marginalized and liminal is signalled in her presence in the pictures. Shar is ghost-like, a cyborg figure, embodying the social inequality that haunts Leah's reflections on the privileges in her life at the end of the novel.

The longest section, 'Host' is a mini-Bildungsroman, comprising one-hundred and eighty-five numbered passages, each with subtitles.⁶ These subtitles are sometimes straightforward labels, but often are suggestive or cryptic. 'Host' follows Keisha in her movement from working-class upbringing to upper-class barrister, a process during which she changes her name to Natalie. The effect of this is to 'whiten' her textual presence, subordinating her blackness to a name that can comfortably 'pass' as white in upper-class circles. It is an attempt to disguise her racial difference which would further mark her as a subject of otherness in the white male sphere of legal practice. After

² Judy Wajcman, 'Patriarchy, Technology and Conceptions of Skill', *Work and Occupations*, 18 (1991) 29-45, p.38.

³ Jesse Daniels, 'Rethinking Cyberfeminism', *WSQ: Women's Studies Quarterly*, 37 (2004) 101-24, p.112.

⁴ Zadie Smith, *NW* (London: Penguin, 2013), p.9. I will mostly refer to 'Natalie' for clarity, but where discussions of identity involve thinking about what the different names signify and represent, both will be used.

⁵ *Ibid.*, p.1.

⁶ *Ibid.*, p.171.

university, where she meets her future husband Frank, Keisha focuses on her profession, working to help black families (disparagingly referred to as ‘ghetto work’) but is subject to sexual harassment and the marginalising effects of structural racism.⁷ After marriage to Frank, and giving birth to two children, ‘Host’ tells of the crisis of self that Natalie experiences; the narrative states at one point she has ‘no self to be.’⁸ When she gives birth for the first time, this is figured as a problem with feeling ‘real’ or experiencing ‘reality’: ‘the brutal awareness of the real that she had so hoped for [...] failed to arrive.’⁹ Natalie is concerned with feeling sufficiently ‘real,’ suggesting that reading her own body is made difficult by the attempt to shift and combine differently marked identities. As a whole, *NW* is concerned with ways of thinking about and feeling ‘real’ via modes of self-reading or self-knowledge. In addressing how she has ‘no self to be’ Natalie browses a ‘listings’ website, through which she arranges one-off sexual encounters. This is eventually discovered by Frank, when Keisha leaves her laptop open ‘for anyone to read.’¹⁰ The networked technologies of the information society partly provide Natalie and Leah ways to rethink and to sound out the social expectations of women. They also highlight the obstacles to reimagining social possibilities outside of patriarchal structures. Frank asks at the end of the novel, in reference to Natalie’s computer ‘[w]ho *are* you? Is this real?’ and ‘[w]hat the fuck is this? Fiction?’¹¹ Such questions represent the central concerns of my reading, in that they signal the edges of the text, highlighting the politics of its interface. These edges are conceptual borders, denoting which fictions are allowed to be written and read within the world of the text.

NW is a realist novel with elements of modernist experimentation. It includes digital interfaces in its pages, one reading of which sees them as modernist intertexts, such as diary pages or advertisements, part of the presentation of a recognisable reality within the malleable and adaptive form of the novel. Examples of interfaces present on the page in the novel include verbatim directions from Google Maps, a chatlogue between Natalie and Leah, and the text from Natalie’s work website. These details of reality throw up ambiguities when understanding the interface as a process or effect both within the novel and outside of the text. The effect of the interface is to temporarily translate the novel into something that signals another material form, in *NW*’s case the website browser or

⁷ Ibid., p.239.

⁸ Ibid., p.208.

⁹ Ibid., p.270.

¹⁰ Ibid., p.295.

¹¹ Ibid., pp.294-95.

the smartphone screen, which disturbs the novel's textual authority, and suggests an outward movement to the world of the reader. The novel *NW* becomes a text on a boundary, conspicuously comprised of interface effects. The text overflows into the world of the reader, positioning itself as one process among a number of other mediating interface processes. I understand this boundary condition as one which highlights the limit of the novel's political possibilities, or the possibilities it imagines for reordering social life. *NW* is a novel that 'recognizes the work of the social,'¹² to use Zara Dinnen's phrasing, but this recognition becomes a question throughout the text, found at the mediating borders of interface interactions. The novel's interrogation of London as a site of social inequality is manifest mainly in everyday personal interactions. Economic inequality is signalled as shaping the social from the opening pages in Shar's confrontation of Leah. The novel opens and closes with judgements that resonate with the language of the interface: Shar presents 'the wrong collection of pixels' at Leah's door, and Leah and Natalie send an email to the police, enacting a dubious form of justice. The interface limits of *NW* signal that the edges of such representation are exclusionary, and that the overflow into the world of the reader is one that results in questions regarding which subjects are 'wrong' or criminalized in this presentation of social life.

My reading emphasizes the intersections of technology, gender and race, by viewing race as a technology, as conceived of in the work of Beth Coleman.¹³ Coleman uses Bernard Stiegler's conception of the supplemental relation of technology to the human, to position race as a prosthetic element. Race is a constructed tool, a supplement which plays into understanding and controlling webs of power. Coleman states that 'Race as technology' recognizes 'the proper place of race not as a trait but as a tool – for good or for ill.' Thinking race as a technology helps to 'reconceptualize how race fits into larger patterns of meaning and power.'¹⁴ Putting this in terms of my thesis, race is a social technology of domination that generates a set of limitations. These limitations, such as having work opportunities denied or the credibility of one's speech dismissed, are reinforced by a discourse of legibility. Which subjects are able to be seen, or heard, and how, is a condition to which processes of racial discrimination contribute. As I discussed in relation to the representation of the donors in *Never Let Me Go* and the technology of

¹² Dinnen, *The Digital Banal*, p.92.

¹³ The work of Lisa Nakamura is instructive here. See Lisa Nakamura, 'Cyberace', in *Identity Technologies: Constructing The Self Online*, ed. by Anna Poletti and Julie Rak (Wisconsin: University of Wisconsin Press, 2014), pp. 42-53.

¹⁴ Beth Coleman, 'Race as Technology', *Camera Obscura*, (2009) 177-207, pp.184-85.

the cigarette, technologies delimit the interior and exterior of the category called ‘the human’. Following Coleman, this discourse of technology describes these limits, with race becoming a tool for affording and limiting legibility and marginalisation.

The Problem of Technology in *NW*

Smith has addressed issues of race, class and identity throughout her novels. Computer interfaces and other forms of technology figure in her second novel, *The Autograph Man* (2002) and in her most recent novel *Swing Time* (2016).¹⁵ In interviews and articles, Zadie Smith has shown an interest in the relation of subjectivity and technology, initially influenced by her own reading of Jaron Lanier’s *You Are Not a Gadget* (2010). Her review of *The Social Network*, ‘Generation Why?’ draws a parallel between the novel and software through the ways in which these technologies influence imaginative limits, as addressed in chapter one of this thesis. Further to this, in an interview in 2010 concerning her essay collection *Changing My Mind* (2010), Smith endorses a perspective that social media, and the internet more generally, creates a problem for social interaction:

What is lost... it’s something about being relational rather than performative [...] It’s an idea of being human which is one way and real life is relational, you have to deal with other people, you have to have some kind of relationship with them.¹⁶

The regular presence of technological interfaces in her works of fiction, as well as her own interest in speaking to the apparent problems caused by technologies in social life, establishes the grounds for a reading of technology and subjectivity in *NW*.

The above is a thread which is addressed in literary criticism of the text. For instance, Philip Tew suggests that one of the guiding messages of Smith’s work more generally is that reassuring social connection with others ‘may be unachievable.’¹⁷ López-Ropero suggests in her essay on *NW* that the text displays a ‘perennial preoccupation with the ethics of connection,’ which is thematized by the friendship of Leah and Keisha.

¹⁵ Tully Barnett’s reading of *The Autograph Man* addresses the connection between the presence of contemporary technology and literary modernism. See Tully Barnett, ‘Technology, The Human and The Sublime’, in *The Human and The Humanities in Literature, Language and Culture*, ed. by Peter Goodall (University of Sydney: AUMLA, 2009) pp. 219-30.

¹⁶ Paul Holdengräber, ‘Live from the NYPL: Zadie Smith’, New York Public Library, (2010) <<https://www.nypl.org/audiovideo/zadie-smith>> [Accessed 24/07/19]. [45:32]

¹⁷ Philip Tew, *Zadie Smith* (New York: Palgrave Macmillan, 2010), p.115.

Lynn Wells also highlights the problem of social connection as a central theme in *NW*, referring not to technology, but to ‘the difficulty of knowing the Other’s life-story, of seeing beyond the “what” to the “who.”’¹⁸ The concepts of ‘who’ and ‘what’ here are drawn from Adriana Cavarero’s discussion of gender identity and ethics, and refer respectively to the ways in which personal subjectivity, the ‘who’, is marginalized by the broader, often falsely universalized concept of ‘what’ a woman is. Wells’s reference to a conception of the ‘who’ and the ‘what’ is thus differently positioned to Stiegler’s use of those terms as constitutive of the human and the technical. However, the echo of this conception of subjectivity, between a self and that which is outside of it, suggests that such thinking is valuable for critically contesting the meanings of *NW*. Such criticism confirms the ways in which *NW* is concerned with the work of the social.

Current criticism on *NW* sees technology in the novel as related to this perceived social or personal disconnection in Smith’s work. Tammy Amiel Houser (2017) suggests that Natalie’s engagement with ‘strangers over the internet’ is part of the ‘terrifying emptiness at the heart of her story,’ as well as seeing the form of the narrative itself as reflecting the ‘technologized neoliberal free market.’¹⁹ López-Ropero also links technology with the absence or lack of connection, suggesting that the ‘breakdown’ of Natalie and Frank’s relationship is dramatized by Natalie’s ‘self-berating’ and ‘degrading’ sexual encounters, referred to as an ‘online date.’ The interface interaction is referred to as a ‘temptation’ by López-Ropero, one that Natalie fails to resist.²⁰ Wendy Knepper also understands interface interactions in the novel as representative of disconnection and dissatisfaction in contemporary life. In her essay ‘Revisionary Modernism and Postmillennial Experimentation in Zadie Smith’s *NW*’ Knepper suggests the novel demonstrates an engagement with a number of different modernist elements. Some of these are revisions of long-standing modernist attitudes to aesthetics.²¹ Contemporary technology in *NW* is addressed by Knepper, using Alan Kirby’s term ‘digimodernism’ as a guide.²² Digimodernism is an ‘alternative modernism’ for Knepper, transcribing what

¹⁸ Lynn Wells, ‘The Right to a Secret: Zadie Smith’s *NW*’, in *Reading Zadie Smith: The First Decade and Beyond*, ed. by Philip Tew (London: Bloomsbury, 2013), pp. 97-110, p.105.

¹⁹ Tammy Amiel Houser, ‘Zadie Smith’s *NW*: Unsettling the Promise of Empathy’, *Contemporary Literature*, 58 (2017) 116-48, p.139.

²⁰ López-Ropero, ‘“Different Kind of Freedom”’, p.132.

²¹ Wendy Knepper, ‘Revisionary Modernism and Postmillennial Experimentation in Zadie Smith’s *NW*’, in *Reading Zadie Smith: The First Decade and Beyond*, ed. by Philip Tew (London: Bloomsbury, 2013), pp. 111-26, p.111.

²² The term digimodernism is originally used by Alan Kirby. See Alan Kirby, *Digimodernism : how new technologies dismantle the postmodern and reconfigure our culture* (London: Continuum, 2009).

Kirby refers to as the ‘onwardness, haphazardness, [and] evanescence of a radically altered relationship’ between texts and new technologies. Knepper sees ‘Smith’s digimodernism’ as part of her ‘revisionary modernist project.’²³ This is demonstrated by an ‘experimental aesthetics of (dis)connection’ wherein ‘virtual, broken links’ in *NW* ‘lead nowhere’ while other links ‘provide access to rich and varied sources of reflection.’²⁴ This description relies on distinguishing between the ‘virtual’ and ‘real’ as ontologically separate encounters in the text, a position linked to the concept of digital dualism.²⁵ Knepper suggests that the online encounters in the text lead nowhere, or are a ‘substitute’ for ‘erotic encounters between bodies and selves *in the world*.’²⁶ The implication in Knepper’s reading of technology as digimodern in *NW* is that interface interactions in the text are less ‘in the world’ than ‘real’ interactions in the text. My reading, conversely, understands such interface interactions as materially and emotionally influential to the arrangement of subjectivity in *NW*. It is true that, at points in the novel, technology is presented as a problem, something which leads to a generalized and vague social ‘disconnection.’ However, I differently read the ‘emptiness’ and ‘substitution’ that Houser and Knepper identify. At many other points Natalie and Leah’s interface interactions, or the silencing of them, highlight complex performances of social identity, involving agonized attempts to resist dominant fictions in patriarchal spaces.

It is evident that at some points *NW* presents a perspective on technology which is reactionary, close to technological determinism. The dichotomy between human and machine upon which such thinking is predicated seems to be reproduced through the form of the novel. The Google Maps directions for Leah’s journey home from work are juxtaposed with Leah’s free indirect discourse on the opposite page.²⁷ The page structure suggests a contrast between the mediational language of the interface and the description of movement through the material world, seemingly emphasizing the more authentic reality of the latter through the stream of sights and sounds narrated in the description of

²³ Knepper, *Revisionary Modernism*, p.112.

²⁴ *Ibid.*, p.122.

²⁵ Kylan Rice articulates the position of my reading here in that ‘neither can the subject be liberated via so-called digital escapism or digital dualism, nor can the subject be liberated solely through disembodied online interactions or states of being.’ Kylan Rice, ‘Reformatted/Re-fleshed: Gender, the Internet and New Configurations for Embodiment’, *Criterion*, 7 (2014) 85-97, p.88. For a definition of digital dualism, see Nathan Jurgenson, ‘Digital Dualism versus Augmented Reality’, *The Society Pages: Cyborgology*, (2011) <<https://thesocietypages.org/cyborgology/2011/02/24/digital-dualism-versus-augmented-reality/>> [Accessed 31/08/18].

²⁶ Knepper, *Revisionary Modernism*, p.122. My emphasis.

²⁷ Smith, *NW*, p.39.

the journey. The Google interface is posited as diminished and functional in the face of the literary affordance of vivid stream-of-consciousness description. The Google directions themselves are reproduced verbatim, as they would appear in the world of the reader, including the disclaimer warning to users. The reader is simultaneously positioned as a user and as a reader of a realist novel, and the world of the text overlaps with their own. The fictional start and end points, and the second person direct-address, grant an ironic note to the line ‘you must obey all signs and notices regarding your route,’ for the reader cannot follow that route themselves.²⁸ This line moves the reader into the ‘redux’ of the journey, its apparent restoration, which is the detailed description of Leah’s walk. The double sense of ‘route’ here, however, highlights that the reader is moving between multiple interfaces; they follow a ‘route’ through the novel in the process of reading, also ‘obeying’ familiar ‘signs’ and ‘notices,’ affordances and limitations for the expected journey through the text. Any ontological distinction between the two differently mediated forms of Leah’s journey is unsustainable, given that each interface influences the reading of the other. The limit of the language of this ostensibly realist novel is highlighted by this juxtaposition of interfaces, the sense that the attempt to establish a more ‘authentic’ reality is simply to further acknowledge the necessity of mediation, a process which the realist novel knowingly invests in when representing technology. *NW* can be seen to problematize the human/technical boundary via this unsustainable formal binary.

There is also a self-reflexive treatment of technology in the dinner party Natalie hosts, which Leah awkwardly attends. Technology is seen as a determining, autonomous force by the guests, but this view is evidently enabled by their class privileges as ‘barristers and bankers,’ communicated by the juxtaposition of dinner party food and a laptop:

The spinach is farm to table. Everyone comes together for a moment to complain about the evils of technology [...] Pass the buttered carrots [...] Pass the laptop. You’ve got to see this, it’s only two minutes long, it’s hilarious.²⁹

The guests have both the ability to comment in a morally superior fashion on technology and to consume at interfaces uncritically, in a comfortable and privileged space. While the narrative voice suggests an ironic knowing here, this is never extended into the narrative, and the hypocrisy of the guests is not interrogated. This conversation about technology

²⁸ Ibid., p.38.

²⁹ Ibid., p.86.

is communicated in free direct speech, so that the complaints appear to be universal: '[technology,] what a disaster, especially for teenagers.'³⁰ That the guests 'come together' to lament technology as an undifferentiated, total category communicates an uncritical relation to interface interactions: 'most people have their phones laid next to their dinner plates.'³¹ The subjectivity of the guests is not in-play or at-risk. Commenting on the 'evils' of technology serves to maintain the social and political status quo. It is presented as a 'problem' that is discussed in order to give the impression of critical social concern. The hypocrisy of such discussion is implicitly accepted as a necessary condition for the continuation of an economic structure that unquestionably reproduces such privilege. The novel posits discussions concerning the problems of technology as a signal of political disconnection. This point resonates with Nathan Bogle's language towards the end of the novel, when he describes himself as a 'problem' for the families of his school friends.³² The privilege of class which demonizes the technological is the same language which Nathan hears used to define his status in society. Race is a 'problematic' technology for those privileged enough to ignore or manipulate the material conditions of discrimination.

Naming and Silencing

Interface interactions in *NW* are subject to naming, and silencing, by the two husband figures. Reading the positions and relations of women's experience in technology means simultaneously reading mechanisms of patriarchal dominance. Haraway (1991) explains this connection, in that:

feminists [...] know that the power of naming a thing is the power of objectifying, of totalizing. The other is simultaneously produced and located outside the more real in the twin discourses of life and human sciences, of natural science and humanism.³³

This power to name relies on certainty, one manifestation of which relies on binary thinking that categorizes the real and virtual separately, meaning that liminality or leakage

³⁰ Ibid.

³¹ Ibid.

³² Ibid., p.313.

³³ Haraway, *Simians*, p.80.

can be dismissed as ontologically invalid, ‘outside the more real.’³⁴ This naming practice, which others the uncertain space of the virtual, is an example of what Haraway terms ‘the creation of difference that plagues ‘Western’ knowledge.’ This is difference by the logic of subordination or objectification, whereby ‘the patriarchal voice in the production of discourse [...] can name only by subordinating within legitimate lineages.’³⁵ In *NW*, when spaces for interface interaction by or between women are opened, subordination by the naming or silencing power of patriarchal control is never far away.

For example, Michel stops Leah from using the computer in ‘Visitation,’ because he is too busy reproducing capital: ‘currency trading.’³⁶ Michel is an audience at the screen, and his interaction is described as a form of male gaze. Laura Mulvey (2009) defines the male gaze as the viewing of the cinema audience, where ‘[t]he determining male gaze projects its fantasy onto the female figure, which is styled accordingly.’³⁷ Michel’s screen-gazing is indicative of both his economic reproductive agency and his power as a subject for whom technological forms need only be instrumental objects rather than tools of resistance. He exhibits an ‘arrested attention’ which is ‘inattentive to the minutes and hours outside of itself.’ This is likened to an objectifying gaze, when the voice of free indirect discourse, focalized around Leah, states ‘[p]ornography does that too.’³⁸ Connecting Michel’s mode of attention when currency trading to pornography suggests Michel’s interface interaction is a form of hypermasculine self-production: capital and objects of desire are unproblematically available for him at the interface, on ‘the other side of the world’ from Leah who is two feet away. Here, the interface used by the husband is an onanistic instrument, a transparency without a critical intraface mode. The interface is not present on the page in the text, even as formal disturbance, and so appears frictionless. Furthermore, Michel unproblematically accesses the interface, reading it only in relation to his own personal reproduction.

The image of the interface in the control of a man in the domestic setting is emphasized when Michel patronizes Leah, demonstrating a vague ‘technical’ knowledge which looks to name the interface interaction as somehow separate from material experience. He claims sole ownership over technological competency: when Leah tells

³⁴ Ibid.

³⁵ Ibid.

³⁶ Smith, *NW*, p.49.

³⁷ Laura Mulvey, ‘Visual Pleasure and Narrative Cinema (1975)’, in *Visual and Other Pleasures*, (Basingstoke: Palgrave Macmillan, 2009), p.19.

³⁸ Smith, *NW*, p.49.

him 'It's almost seven o'clock. I need [the computer],' and he replies '[i]t's not seven online. Why don't you get on with your own things?'³⁹ That the interface interaction is not one of Leah's 'own things' suggests that the computer is the preserve of the reproduction of capital, and implicitly of male pleasure, a 'thing' that is distinct from the seemingly unimportant activities Leah might engage in. That Leah could need the computer to engage in a sociality which is contingent on local time, on everyday social life, is something which Michel dismisses by reference to a specialized 'online' time. 'It's not seven online' divorces interface interaction from a local proximity, and in doing so establishes a hierarchy of value regarding such interactions. Leah conceives her own possible interface interactions differently, as a type of performance, 'like the middle section of a movie.' This makes her into a filmic reproduction of a character. She becomes a woman who is gazed at, which seems to limit the potential agency for her in the interface, as it becomes associated with the more static dimensions of the cinema screen.⁴⁰ Only at the end of the chapter is the 'computer free,' and thus the possibility of Leah being able to look or gaze online herself is suppressed, not voiced in the text. The chapter finishes and the narrative moves on.⁴¹ In the other extant description of Leah's interface interaction, in the novel, she is at work, and the screen is 'frozen' in front of her.⁴²

While the reader is not granted access to Leah's eventual interface time, she is partly seen at the interface in the chat conversation that she and Natalie have while at work, during the 'Host' section of the novel. The conversation is concerned with Leah's news of her engagement, and the expectation that she will have children. The chat has the potential to be a whisper network, a way for Leah and Natalie to share their concerns about the expectations of their husbands and mothers.⁴³ Leah states she is getting married because it is 'important to him [Michel] and he wants to.'⁴⁴ The conversation affords Natalie the ability to move towards a voice that more closely resembles Keisha, in that her chat idiolect presents inner London slang ('is it') and uses objective case instead of subject ('me no like computerz'). These are features of Black British English, a dialect

³⁹ Ibid., p.49.

⁴⁰ Ibid.

⁴¹ See Mulvey for discussion of the way in which the 'to-be-looked-at-ness' of female-as-object appears to suspend the possibility of agency and narrative progression: 'Her visual presence tends to work against the development of a story-line.' Mulvey, *Visual Pleasure and Narrative Cinema* (1975), pp.19-20.

⁴² Smith, *NW*, p.32.

⁴³ For a recent example of the importance of whisper networks, see Carolyn Erding and Rooper Risam, 'Introduction: A gathering of feminist perspectives on digital labor', *First Monday*, (2018) <<http://www.firstmonday.dk/ojs/index.php/fm/article/view/8278/6646>> [Accessed 01/06/18]

⁴⁴ Smith, *NW*, p.240.

implicitly put in contrast with the ‘prestige’ language of professional advocacy in a legal firm.⁴⁵ The conversation presents a ‘struggle against perfect communication’ in the way it disturbs the style of the novel and the expected speech of Natalie, with the interface of the chatlogue forming the whole section subtitled ‘Bye noe.’⁴⁶ Yet, before the chat can become a place to question the expectations of getting married, the imbalance in gender expectations or the realities of reproductive labour, it is curtailed by a ‘work shit-storm’ in the firm where Natalie is training, a site of sexual harassment in the novel, characterized by white male-privilege.⁴⁷ When Natalie signs off, she has no time to follow the hyperlink ‘adultswatchingadults.com’ that Leah has copy-pasted into the window. The link suggests voyeurism, a possibility for gazing, which might instantiate a feminist awareness, a power to look and name social expectation as that which is embroiled with notions of the adult, adulthood and by extension the category of ‘nature’. It is, however, ‘left hanging’ in the text. The possible networking of Leah and Natalie, the sharing of experience via a subversive interface interaction which would generate a kind of powerful seeing, is not allowed to develop: the whispered signal is silenced by the requirements of the patriarchal workplace. There is difficulty sustaining such a subversive space amongst the necessarily ‘perfect communication’ of the legal system. The women do not have time to gaze together at the interface, to examine themselves and carefully read the limits within which they perform. Instead, they must continue as adults who unhappily know themselves to be vessels of reproduction, hastily signing off from interface interactions which are situated in the patriarchal workplace. As if to emphasize such silencing, the generic, subtitled interface of ‘Host’ is reinstated on the following page and the whisper network does not recur in the novel.

The Woman’s Body as Cyborg Signal

Leah and Natalie can be read in terms of the cyborg figuration, in that their social reality is firmly signalled by their material situation in *NW* and both characters attempt to resist the fictions that contribute to their domination. The idea of these characters as textual configurations of social pressures is manifest in Leah’s attempt to write herself as ‘the sole author’ in the opening of the novel. She writes on magazine pages where ‘pencil

⁴⁵ Ibid., p.240.

⁴⁶ Haraway, *A Cyborg Manifesto*, p.57.

⁴⁷ Smith, *NW*, p.242.

leaves no mark' meaning her attempt to posit 'authorship' over her what 'defines' her is only temporarily legible. This difficulty is made more explicit in the section of 'Host' titled 'Nature becomes culture' where the omniscient narrative voice articulates the thoughts of both women: 'Many things that had seemed, to their own mothers, self-evident elements of a common-sense world now struck Natalie and Leah as either a surprise or an outrage.'⁴⁸ Their reactions against 'common-sense' are an attempted cyborg practice, and resonate with Sara Ahmed's articulations of feminist pedagogy as a collective and pragmatic recognition of patriarchal domination.⁴⁹ Leah and Keisha thus engage in the labour of the cyborg, what Haraway calls 'the skilful task of reconstructing the boundaries of daily life, in partial connection with others,' but are bounded by the difficulty of writing the self, or of making new definitions legible.⁵⁰

Natalie instrumentalizes her middle-to-upper-class status. Money allows her to displace the labours of the homework economy and she bluntly controls those of lower status than her when she sacks her household staff. As such, Natalie is a politically ambiguous figure, who displays solidarity to black families in the face of structural racism, but seemingly only via the professional life which grants her privilege and economic comfort. She is also subject to marginalisation and abuse through the patriarchal structures of work and the family home. She struggles to perform a version of her subjectivity, with what she has gained as 'Natalie' seemingly in conflict with what 'Keisha' represents, what Celia Lury calls the 'mosaic identities' of the cyborg.⁵¹ In response to the above, Natalie tries to reconstruct the boundaries of her daily life in order to have a 'self to be.'⁵² The domination found in the workplace is framed by a technological metaphor, in conversation with Natalie's mentor, QC Theodora Lewis-Lane. Theodora suggests that as a black woman, Natalie is subject to the inescapable prejudices of white male judges; whereas the arguments of 'some floppy-haired chap from Surrey' reads as 'pure advocacy' Natalie's passion is read as aggression: 'with a woman it's worse: "aggressive hysteria."⁵³ This is punctuated by a gesture, described through a metaphor that views Natalie as an electronic signal:

⁴⁸ Ibid., p.262.

⁴⁹ 'rolling eyes = feminist pedagogy. Here the eye rolling signals the collective recognition of the gap between what is said and what is done.' Sara Ahmed, *Living A Feminist Life* (Durham: Duke University Press, 2017), p.207.

⁵⁰ Haraway, *A Cyborg Manifesto*, p.67.

⁵¹ Celia Lury, *Cultural rights : technology, legality and personality* (London ; New York: Routledge, 1993), p.200.

⁵² Smith, *NW*, p.208.

⁵³ Ibid., p.239.

“The first lesson is: turn yourself down. One notch. Two. Because this is not neutral.” She passed a hand over her neat frame from her head to her lap, like a scanner. “This is never neutral.”⁵⁴

The language here makes Natalie’s existence into a sound, resonating as black and as a woman, an electric signal, the accompanying ‘noise’ of which must be controlled in order to be effectively heard. This passage resonates with Coleman’s conception of race as a technology, in that Lewis-Lane views Natalie’s blackness as a limitation to be manipulated, influencing her performance of advocacy, in order that it might fit properly with the given social protocol of the courtroom.⁵⁵ In *NW*, race and gender are together one signal which is also a sound, highlighted in the transformation of ‘arguments’ into ‘hysteria’ in Lewis-Lane’s warning. This opens both the positive possibility of resistance as well as the possible domination by patriarchal sight. As Wendy Hui Kyong Chun (2012) identifies, via Haraway, if ‘like media, [race] is also a heuristic, a way to understand, to reveal, the world around us’ it ‘see[s] double’ visioning both ‘possibilities (reworkings)’ and ‘domination (eugenics) together.’⁵⁶ Natalie is counselled to quieten her combined signal, revealing an everyday domination in the workplace. The process of race as technology is subject to domination (limitation), whereas possibilities (affordances) are shut down, literally in the case of Leah and Keisha’s chat conversation.

Lewis-Lane’s sound metaphor also resonates with Robin James’s critique of the philosophizing of sound and racist domination in her work *The Sonic Episteme* (2019). James communicates how ‘[s]ound, and even resonance’ can be a ‘productive model’ for thinking ‘intellectual and social practices that are designed to avoid and/or oppose the systemic relations of domination.’⁵⁷ Lewis-Lane’s advice to Natalie, however, is to travel a path which does not resist, and which is not able to perform in solidarity with others suffering racist oppression. Lewis-Lane recognizes the threat to power that Natalie might pose. James highlights, in a re-reading of the Fritz Lang film *Metropolis* (1927), that the

⁵⁴ Ibid.

⁵⁵ Thinking race as a technology repositions the cyborg within black studies, highlighting what Jade E. Davis emphasizes in her ‘find and replace edit’ of the Cyborg Manifesto, that the notion of cyborg struggles should not overwrite the struggles of black slaves. Jade E. Davis, ‘From Cyborg to Black Slave: A find and replace edit by Jade’ (2011) <<https://goo.gl/haJKnK>> [Accessed 16/03/2018].

⁵⁶ Wendy Hui Kyong Chun, ‘Race and/as Technology or How to Do Things to Race’, in *Race After The Internet*, ed. by Lisa Nakamura and Peter A. Chow-White (New York: Routledge, 2012), pp. 38-60, p.43, p.49.

⁵⁷ Robin James, ‘Introduction to The Sonic Episteme, v 2.2’, It’s Her Factory, (2017) <<https://www.its-her-factory.com/2017/10/introduction-to-the-sonic-episteme-v-2-2/>> [Accessed 24/07/19].

black woman is a threatening subject for white patriarchy when granted technological agency:

technology and female sexuality when in white bodies (individual and social), ensure the progress and development of civilization; technology and female sexuality, when in black bodies (individual and social), corrupt civilization.⁵⁸

The advice to ‘turn yourself down’ is thus indicative of this threat to white patriarchy of the combination of technology and female sexuality.⁵⁹ Natalie’s experience can thus be thought of as an instance of an interface effect being manipulated. Natalie is a scanned object to be appropriately mediated, in order that the process of white justice is not disrupted by the power of a black subject. Neutrality means limiting Natalie, turning her signal down to a lower volume which a patriarchal discursive power may talk over and thus control.⁶⁰ As Jacques Derrida articulates, ‘juridical discourse itself includes a whole set of rules and of applications of rules, that is to say, a technology.’ The potentially disruptive presence of Natalie’s body to ‘juridical technology’ in *NW* highlights the fact that ‘no justice is neutral or innocent with regard to technics in general.’⁶¹ The system of justice itself is implicated in the domination of the black body by a variety of discursive and mediational technologies. One of these is the reduction of agency to the instrumental, which works to silence the black subject.

Natalie hears herself and attempts to resist ‘[turning] herself down,’ through the possibilities provided in interface interactions outside of work. One of these is the chance to view erotic encounters arranged via the internet as a mechanism for reshaping the boundaries of her subjectivity. She begins ‘secretly checking the website’ when her life with Frank begins to resemble a stale performance, ‘a double act who only speak to each other when they are on stage.’⁶² Her first contribution to the ‘listings’ website comes ‘after

⁵⁸ Robin James, “‘Robo-Diva R&B’: Aesthetics, Politics, and Black Female Robots in Contemporary Popular Music”, *Journal of Popular Music Studies*, 20 (2008) 402-23, p.413.

⁵⁹ Smith, *NW*, p.239.

⁶⁰ This observation is influenced by Robin James’ use of the term ‘phonographies’ in *The Sonic Episteme* (2017): ‘Phonographies study patterns of living that model what Weheliye calls “habeas viscus,” Devonya Havis calls “sounding,” Katherine McKittrick calls “demonic calculus,” Ashon Crawley calls “choreosonics,” and Cristina Sharpe calls “wake” — these all refer to phenomena that behave like acoustic resonance (e.g, they’re rhythmic, oscillatory patterns) and/or the math it models, but they are calibrated to the epistemic, ontological, aesthetic, and political practices black people have used to build alternative realities amid white supremacist patriarchal domination.’ James, ‘Sonic Episteme’.

⁶¹ Jacques Derrida and Bernard Stiegler, *Echographies of television : filmed interviews* (Cambridge: Polity Press, 2002), p.62.

⁶² Smith, *NW*, p.255.

opening an email about a baby' directly after the 'Nature becomes culture' section, as though to emphasize a realisation of Harawayan proportions: that appeals to 'Nature' are dangerous and must be challenged and resisted. In response to the 'scandal' of the 'materiality' of female experience, Natalie Blake 'being strong' decides 'to fight. To go to war against these matters, like a soldier.'⁶³ Within the positioning of nature as a discursive category, the occurrence of the soldier image raises a difficulty. It implies physical and mental strength and endurance, as well as nation-state violence, suggesting Natalie sees the qualities of combat as required for fighting dominant narratives, to challenge 'these matters' with actual matter, the 'fact of the flesh.' Yet the soldier image is unconvincing, given her contributions to the website are more clandestine than combative. Natalie is less a 'soldier' than a fugitive, suggesting that the character lacks the ability to articulate the desired effects of her behaviour.

The interface interaction doesn't lead to combat, but to an attempted writing. The description in the short section 'Listings' is flat, ironically so in contrast to the soldier image. The whole section reads: 'After opening an email about a baby, she went to the website and contributed to the website. She went upstairs to bed.'⁶⁴ This is not a form of combative resistance, but a writing on the network, a 'contribution,' put down with such ease as to feel immaterial or frictionless. This sense is reinforced by the fact this laptop interface is not manifest in any way on the page, where previously in the novel other screens have been. The 'website' is thus conspicuous by its absence. The absence of the interface heightens the clandestine nature of Natalie's 'contribution,' an ambiguous label for what she writes online. It also signals the distinction between the identities of 'Natalie' and 'Keisha', in that while the reader later learns that Natalie goes by Keisha online ('KeishaNW@gmail.com' and '*wildinwembley*') here the username which signifies her textually erased blackness is hidden from the surface of the novel. A typical affordance of the internet as an interface is that it connects users by displaying common contributions on forum-type websites, but this platform is not accessible to the reader. Ultimately, this interface-writing is a disruption to the communication of the novel, something literally unreadable. This is further emphasized in the next section, sub-titled 'Redact', a term which suggests a textual authority controlling the visibility of the contribution. The possibility to see Natalie writing herself is itself written over, redacted. This rewriting of subjectivity is thus temporarily censored in *NW*, communicating an

⁶³ Ibid., p.262.

⁶⁴ Ibid., p.262.

anxiety about broaching the limits of a new way of thinking about Natalie's identity. It also forms a limit in the novel, in that the interface writing does not breach the subjective frame of its central character as formally construed by the novel, for the narrative voice of 'Host' is not interrupted by the textuality of the interfaces here.

This interface anxiety can be viewed alternatively as a form of positive struggle. When Natalie removes the 'contribution,' she is struggling with the idea of becoming part of a shared conversation about possible physical sexual encounters. This might also be read as a struggle with the way the interface begins to matter in her everyday life (Natalie is said to have 'adored her phone' earlier in the text.)⁶⁵ The redaction itself involves typing 'as smoothly as a pianist playing a scale.'⁶⁶ This is in striking contrast to the previous language of 'going to war.' The reference to a 'scale' shifts the metaphorical frame of the interface interaction from the notion of violence to the field of musical sound, recalling the idea of Natalie as a heard signal or sound.⁶⁷ The redaction is a kind of performance, gesturing towards the interface writing as a form of cyborg writing, a 'struggle for language' which results in the sounding of the written voice.⁶⁸ While its specifics are unreadable, the typing/playing sound image means the signal is heard by the reader, in a sounding which is ambiguous. It is suggestive of a competency which is an ongoing struggle for articulation. The novel's erasure of the interface here suggests the illegibility of such cyborg writing within the dominating structures of the hetero-patriarchal home.

The interface is conspicuous by its neutrality here, labelled as simply a 'website' and a 'listing.' These labels are partial, suggesting an under-determined environment which is not named, as though signifying the difficulty of naming the combination of Natalie's identities. When Frank asks '[w]here are you going?' during this writing, Natalie doesn't respond, and her movement to the computer displays a resistant agency. Natalie tries to write a different subjectivity, one that is in a fugitive relation with the structure of domesticity and the hetero-patriarchal home, and which requires moving outside of the set limits of the family.

⁶⁵ Ibid., p.255.

⁶⁶ Ibid., p.262.

⁶⁷ Federica Timeto explains the ways in which the digital interface has shifted in significance, from static to processual. The interface of digital interaction, concretely exemplified by the graphical user interface of the computer, is no longer understood as of the 'order of representation' but 'one of performativity [...] where the social and the technical, the human and the non-human are mutually mediated back and forth.' Federica Timeto, *Diffractional Technospaces: a feminist approach to the mediations of space and representation* (London: Routledge, 2015) p.7, p.37.

⁶⁸ Haraway, *A Cyborg Manifesto*, p.57.

Performing at the Interface

For the character Natalie, the interface becomes a site for potentially performing outside of the roles of the domestic sphere. To engage in resistance via cyborg practices is not straightforward, however, as gender norms are reinforced through repeated performances. Judith Butler explains that '[p]erformativity has to do with repetition, very often with the repetition of oppressive and painful gender norms to force them to resignify.'⁶⁹ Natalie's manipulation of her own signal has to contend with prejudiced listeners and readers, and the textual performance of identity weighs on her as part of 'the trap that [she] is inevitably in.'⁷⁰ For example, she is defined by her race on the listings website as a black female of a particular age, 'BF 18-35.'⁷¹ In writing her profile, and with it being read by potential sexual partners, Natalie is repeatedly performing as part of a sexual fiction. Reading her listings label causes Natalie to ask 'Why? What do they think we can do? What is it we have that they want?'⁷² Such questions highlight the pathologizing of black sexuality in offline and online settings, but Natalie's asking what 'they think we can do' and what 'they want' suggests a desire to challenge the associated meanings of 'BF 18-35.' As James (2008) makes clear, '[b]lack feminists have long noted that black female sexuality is stereotypically represented as inherently "abnormal" and "excessive."' Following the work of Kimberlé Crenshaw, James highlights the dominant stereotype that 'white women are considered asexual, whereas black women are believed to be excessively sexual.'⁷³ The fiction of Natalie's stereotypically excessive sexuality is manifest in the repeatedly signifying interface interaction of the listing on the website.

The work of Patricia Hill Collins (1990) is instructive in further addressing these stereotypes at the interface in *NW*. Natalie's online profile is marked by what Collins terms the 'myths of black hypersexuality' and the gender specific image of 'the Black female jezebel.'⁷⁴ This is highlighted when Natalie is referred to as a 'goddess' in one of

⁶⁹ Judith Butler, 'The Body You Want: Liz Kotz Interviews Judith Butler', Artforum, (<<https://www.artforum.com/print/previews/199209/the-body-you-want-an-interview-with-judith-butler-33505>> [Accessed 29/03/18].

⁷⁰ Ibid.

⁷¹ Smith, *NW*, p.284.

⁷² Ibid., p.284.

⁷³ James, 'Robo-Diva R&B', p.412.

⁷⁴ Patricia Hill Collins, *Black Feminist Thought : knowledge, consciousness, and the politics of empowerment* (Boston [Mass.] ; London: Unwin Hyman, 1990), p.129.

her sexual encounters.⁷⁵ Natalie's subjectivity is figured by narratives of oppression and marginalisation. Race, here, is a technology of discursive domination, a limit condition on the interface and on the performance of subjectivity in general. Natalie's writing of herself in an online profile cannot be disentangled from racially-prejudiced fictions about her sexuality. She attempts to use the listings website to escape social roles of patriarchal household and professional work which have come to define her, but this attempt is obstructed by the way she is interpolated by the violently resilient 'myth' surrounding the black female in white patriarchy. The intersection of the technology of race and the writing of gender at the interface means she is reduced to a racial stereotype, a tool of domination. This objectification of Natalie at the interface can be further understood in the context of the male gaze and a generalized concern over the technologically adept woman. The flat status of Natalie's non-specific interface interactions undermines the possibility for seeing empowerment in her online gazing, as she writes herself into a pre-existing, racialized sexual fantasy. Natalie's own 'gazing' at the computer screen is for the most part absent in the text, as it is for Leah. It is thus questionable what kind of potential for resignification Natalie's online gazing and subsequent sexual encounters might afford. The absence of the details of Leah and Keisha's interface writing seems to formally reflect a patriarchal silencing, one which would have them remain objects of gazing, textual bodies on screens.⁷⁶ With the presence of screen technologies in each of her attempts at meeting strangers for sex, Natalie at least attempts to reperform herself outside of the domestic sphere. This is an attempt to answer her own questions regarding the racist dimensions of dominant sexual fictions.

In the section sub-titled 'Stage Directions' Natalie encounters further difficulty writing at the interface.⁷⁷ Her second attempt to contribute to the listings website appears on the page in the form of a play script, while she is at home. The 'performance' of this writing, previously acknowledged in the piano simile as a sound, is now a significant part of Natalie's home life. The 'redaction' from before is rewritten, signalling the difficulty of representing Natalie's experiments with subjectivity in the world of the novel itself. Whether Natalie agonizes over writing something on her profile, or over replying to a message, is unspecified, and instead the physicality of the interaction is emphasized. The

⁷⁵ Smith, *NW*, p.293.

⁷⁶ Michele White, 'Visual Pleasure in Textual Places: Gazing in multi-user object-orientated worlds', *Information, Communication and Society*, 2 (1999) 496-520, p.496.

⁷⁷ Smith, *NW*, p.274.

previous sense that Natalie is writing a cyborg identity is manifest in her being named ‘Nat’ in the playscript section, which is also a shortening of her name that Leah uses. ‘Nat’ communicates a state of becoming, between identities in a location that requires a different, altered name, an affordance that is readily associated with online profiles:

Nat comes through door. Looks up at window. Stands close to window.
 Opens blind. Closes blind. Leaves. Returns. Leaves.
 A pause.
 Returns with urgency, opens blind. Removes books from chair. Sits. Stands.
 Walks to door. Returns. Sits. Opens laptop. Closes. Opens.
 Types.
 FRANK: [mechanical tone, out of sight] Bed. Coming? [pause] coming?
 NAT: Yes. [types quickly] No. Yes.⁷⁸

The stage directions emphasize the embodied element of the interface interaction, and also the sense that the realist form of the novel is reaching a limit of expression, one which causes a shift in its own interface. These movements are conveyed in staccato directions, becoming like binary signals – sitting and standing, opening and closing, saying yes and no. These signifiers of decision convey the bodily proportions of Natalie’s agonising over interface communication, yet they are also reminiscent of machine code, of the flickering of meanings between a binary one and zero.⁷⁹ Natalie becomes binary in her behaviour, as though an embodiment of her own flickering signal, which she has been told to ‘turn down’ before. Trying to boost her own signal in the patriarchal space of the home is difficult: she ‘[types quickly]’ and ‘returns with urgency,’ and agonizes over the decision to write, walking to the door and almost leaving. When Frank’s ‘[mechanical tone]’ asks her to bed, his voice directs her from the interface to the bedroom. The epithet ‘mechanical’ gestures towards the automatic quality of Frank’s authority, in contrast to the urgency and uncertainty of Natalie’s signal. The male voice signals a very different

⁷⁸ Ibid. pp.274-75. Dinnen makes a relevant observation about the playscript form used in Sheila Heti’s novel *How Should a Person Be?*: ‘Rather than understand this scene as solely a metafictional conceit — where the novel presents itself as a work of art in construction — this scene is an encounter with the intraface. The digital recorder, and its mobilization as embodied agency, temporarily makes the novel itself unworkable. For a moment, Margaux refuses to make or be the novel; subsequently the novel becomes a playscript. The intraface is a mode that resists, or at least makes visible, the digital banal, which demands more or less seamless integration of discrete ways of being than Heti can keep in play here.’ Dinnen, *The Digital Banal*, p.89.

⁷⁹ While it is not a direct influence for this reading, the echo of Sadie Plant here should be acknowledged, given that one important situation for my writing and thinking is cyberfeminism. See Sadie Plant, *Zeros and Ones : digital women and the new technoculture* (London: Fourth Estate, 1998). For flickering as signification, following N Katherine Hayles, see chapter five.

kind of machine possibility, the status quo of the continued double-act. Frank's insistence on her coming to bed is a suggestive one, perhaps wanting to initiate sex, to gaze on her. If Keisha is a digital signal that is flickering, Frank's voice is an older technology, one that does not generate or write, but enacts logistical movement, a domestic instantiation of what Haraway terms 'command and control.'⁸⁰ The passage moves between Natalie's attempt to inhabit an unnamed space of (re)inscription and possibility, to the 'mechanical' space of the domestic bedroom. It is literally a 'serious play,' to use Haraway's phrasing, which emphasizes the material importance of this writing for Natalie's own sense of self.⁸¹

Cyborg Sexuality

I have made reference to the ways in which Natalie's desire for sex with strangers represents a movement outside of a bordered subjectivity. I read this as a movement towards a form of cyborg sexuality, what Haraway refers to in relation to the human/animal boundary as the possibility of 'pleasurably tight coupling' which might 'signal disturbingly.'⁸² Natalie's listings contributions generally result in encounters with strangers that don't lead to sex, but her attempts bear a cyborg resonance, in that she tries to take pleasure outside of the structure of the family. Such encounters highlight the fictions and objectifying mechanisms Natalie attempts to resist. In the meeting where Natalie does have sex, she meets with two younger men, '[n]o older than twenty.' They are surprised Natalie 'ain't no bloke' and after calling her 'fit' revert to a language of knowing which works to label Natalie as real, in an attempt to erase the uncertainty brought about by the mediation of contact through an anonymising interface: 'She knows and we know. She knows and we know.'⁸³ The desire for epistemological certainty extends to maintaining a form of authorial ownership over the interface, enacted as powerful gazing. They encourage Natalie to interact with a website recognisable as Chat Roulette, which positions Natalie at another interface, as though granting her the same level of control and type of gaze as the men: 'The idea appeared to be like roulette. You click and a human being appears, in real time. Click again. Click again. Eighty per cent of the time they got a penis.'⁸⁴ The reference to 'human being' heightens the scepticism with which

⁸⁰ Haraway, *A Cyborg Manifesto*, p.56.

⁸¹ Donna J. Haraway, *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016), p.5.

⁸² Haraway, *A Cyborg Manifesto*, p.11.

⁸³ Smith, *NW*, p.291.

⁸⁴ *Ibid.*, p.292. See 'Chat Roulette', <<http://www.chatroulette.com>> [Accessed 24/07/19].

Natalie views this particular process, emphasizing her anxiety concerning the definition of the real. The men want Natalie to use Chat Roulette, so as to reproduce and validate the effect of their gazing, their own arousal at her body as object. They ask her if she ‘likes being watched’:

You try it, Keisha, you try it, see who you get. Natalie sat at the laptop. She got a lonely boy in Israel who typed YOU NICE and took out his penis. You like being watched, Keisha? Do you like it? We’ll leave it there, on the dresser. How d’you want it Keisha? Just tell us and we’ll do it. Anything. And still Natalie Blake knew she was in no danger. Just do what you want, said Natalie Blake.⁸⁵

With the instance of the interface in the unfamiliar sexual encounter, the novel runs up against another limit. The interface which brought Natalie a way of potentially writing herself out of the domestic sphere is here a signifier of objectifying gazing, reinforcing the limits of her performative and agential possibilities. The text names ‘Natalie Blake’ repeatedly, ironically suggesting a difficulty in escaping the formal identities of legal professional, wife and mother. Natalie asks ‘boys, boys, why are we doing this? You’ve got the real thing right here,’ to try and move their attention from the interface to the immediate sexual act. The claim for the material body as the ‘real thing’ raises the question of Natalie’s identity performance. Natalie is in one sense performing as Keisha in these interactions, but it is more accurate to suggest this is the performance of a mosaic of identities, forming in the process of a sexual encounter. The interface here stands for the objectification of the woman’s body by an information society which reproduces patriarchal structures of knowledge, but it also signals that Natalie’s play of identity cannot be disentangled from her online writing. Natalie’s body is also undeniably Keisha’s. When Natalie thinks that ‘maybe [the boys] couldn’t do anything without the net somewhere in the mix,’ it points to the necessary combination of ‘virtually’ written and embodied ‘real’ identities, for Natalie herself wouldn’t be in this sexual encounter without ‘the net.’⁸⁶

It is undeniable that Natalie appears reticent to relinquish her sense of the ‘real,’ and by extension her sense of the sexual act as solely involving two physically present selves. This is emphasized in the way Natalie is as interested in the narrative of her sexual encounter as she is in sensual experience: she tries to get the men to ‘tell her something,

⁸⁵ Smith, *NW*, p.292.

⁸⁶ *Ibid.*

anything, about the people who lived in this house' but she receives nothing in reply.⁸⁷ In this way, Natalie's commitment to the 'real' can be read as one that considers new narratives as important for thinking sexuality, rather than a desire to reproduce detached, objectifying gazing. She wishes she could sift through the boxes of belongings in the room they have sex in, to 'save whatever needed to be saved.'⁸⁸ If the listings website contribution is Natalie's attempt to move outside of the very fictions of women's experience which have left her feeling trapped, the encounter itself is unable to fulfil her requirement for a new narrative. When her 'strong-mindedness' is described by one of the men as indicative of what 'they say about sistas,' Natalie rejects the implied repeated, textual naming. Her direct speech punctures what until now had been free indirect discourse: 'I really couldn't give a fuck what they say.'⁸⁹ The already-written sexual fantasies of men interrupt the possibility of a 'pleasurably tight coupling' that would 'signal disturbingly,' yet so too does Natalie's anxiety about the further consequences of transgressing her domestic subjectivity.⁹⁰ The young men have to curtail the encounter because they have to go to work in the morning. Directly after this section, Natalie's class privilege is restated as she fires the cleaner of the family home.⁹¹ Faced with the difficulty of performing a mosaic, cyborg identity, Natalie is shown reasserting the 'real thing,' the economic security which accompanies a bourgeois family role. To sound a disturbing signal is something that Natalie cannot fully embrace, as it involves moving her towards experiences of economic precarity, confronting the ways in which she is the beneficiary of class privilege. The feeling of uncertainty or even embarrassment is demonstrated when she tells no story of the encounter to Leah when the two meet to catch-up after the event. The movement towards cyborg sexuality is a disturbance not articulated or named in *NW*, and is ultimately written over by the class hierarchy which the domestic sphere is a metonym for. It is a struggle with, and within, prevalent narratives of domination, that fails to succeed. It is then exposed when Frank confronts Natalie over her use of the interface.

⁸⁷ Ibid., p.293.

⁸⁸ Ibid., p.292.

⁸⁹ Ibid., p.293.

⁹⁰ Haraway, *A Cyborg Manifesto*, p.11.

⁹¹ Smith, *NW*, p.293.

Interface/Fiction

Natalie continues ‘replying to her replies,’ but eventually exposes her performance at the interface to the questionable authority of the heteronormative, domestic sphere.⁹² The event of Natalie’s interface writing being read by her husband Frank draws together a number of elements highlighted in this cyborg reading of *NW*. In this passage, the interface of *NW* signals ‘its own edges’ as fiction, as the nature of the relationship between interfaces and fiction is articulated directly as a question in the text.⁹³

Natalie leaves her screen ‘open for anyone to read’ exposing the signal of ‘where she is and is not.’⁹⁴ The reference to ‘anyone’ seems to emphasize an openness in Natalie’s thinking about her online writing. It is implied that she wants her interactions to be read, to be heard. The screen being left open points the interface towards the reader, blurring the boundaries between diegetic and non-diegetic interfaces, between characters as readers of screens and the readers of the interface of the novel *NW*. There is not a breaching of form on the page but the image of an ‘open’ opportunity to ‘read.’ Reading is positioned as a process which signifies what is important and what has social value. In its open possibility of being read Natalie’s online textuality becomes an almost too-powerful fiction for the novel *NW*. With its details absent, this interface writing is a processual text that now asks for the validation of the reader, a secret that requires a readerly attention to understand, especially when Frank confronts Natalie. It is a revelation that enjoins reader and character, asking the reader to trust in how this secretive but important text ‘matters,’ in the face of the patriarchal confrontation. Where Natalie ‘is’ and where she ‘is not’ is a question without an obvious answer, but the openness of the interface is what forces the reader into a consideration of the possibilities of such writing. It is a temporary opening of interface effects which suggests a transformation in the reader’s relationship with the text.

When he confronts Natalie, Frank’s exclaims “‘what is this? “KeishaNW@gmail.com”. What the fuck is this? Fiction?’”⁹⁵ Natalie’s online identity is named as Keisha, revealing what was ‘redacted’ in the novel earlier: a combined signal. There is a second iteration of Natalie’s interface presence in another username, which Frank speaks out loud: “‘Who are you? Is this real? Who the fuck is *wildinwembley*?’”⁹⁶ This

⁹² Ibid., p.279.

⁹³ Dinnen, *The Digital Banal*, p.91.

⁹⁴ Haraway, *Simians*, p.190.

⁹⁵ Smith, *NW*, p.294.

⁹⁶ Ibid., p.295.

naming of Natalie's subjectivity at the interface by Frank is a sounding that dominates Natalie's protests. Her signal is quietened, as she speaks in 'a small voice, a ludicrous voice.' The interface is 'seen' and named as 'fiction' by the husband, and it is temporarily commensurate with the novel *NW* itself which is, of course, another fiction. Frank's schema of Natalie is disturbed and she becomes temporarily illegible to him. His asking "who *are* you? Is this real?" not only demonstrates a disbelief at her moral betrayal of the boundaries of the family, but is simultaneously an attempt to place her behaviour within a 'legitimate lineage' of male validation of the female object.⁹⁷ Frank has difficulty reading the cyborg writing as 'real': Natalie's digitally-mediated identity is a powerful, 'world-changing fiction,' that the patriarchal figure sees as a challenge to their ability to name what constitutes reality.⁹⁸ In this moment of confrontation, Frank establishes power by naming Natalie's cyborg writing. Frank associates the 'fiction' of the interface with a neglect of hetero-reproductive responsibility: "You have two children downstairs. You're meant to be a fucking adult."⁹⁹ The interface is made childish, and Frank states the role he feels that Natalie should be performing. Furthermore, the concept of race as technology recurs here, in that 'Natalie' is implicitly associated with a form of 'natural' hierarchy, the adult as wife and mother, whereas 'Keisha' is representative of the childish 'play' of the interface. Frank's reading is an 'adult' one, which understands parenthood as a more socially valuable set of fictions than any interface fiction. His notion of parenthood is connected to the reproduction of the bourgeois family which requires the conceptual fortifying of the boundaries between the family and that which might disturb it. The novel itself is left with a permeable boundary between itself and the interfaces it has represented. The sense that the realist novel is a fiction which is meant to represent being 'a fucking adult' hangs as a challenging question at the edge of the text.

NW thus problematizes the fact that it is itself a powerful fiction, an influential interface, and asks what it might mean to be an 'adult' in contemporary life, but does so without significantly challenging the bourgeois subjectivity which it reproduces in its characters. The encounter between Natalie and Frank emphasizes that the technology of

⁹⁷ Ibid., p.269. See Schippers on the concept of pariah femininities: 'as contaminating to the relationship between masculinity and femininity.' These are characterizing which 'contradict or deviate from practices defined as feminine, threaten men's exclusive possession of hegemonic masculine characteristics, and most importantly, constitute a refusal to embody the relationship between masculinity and femininity demanded by gender hegemony.' Mimi Schippers, 'Recovering the Feminine Other: Masculinity, Femininity and Gender Hegemony', *Theory and Society*, 36 (2007) 85-102, p.95.

⁹⁸ Haraway, *Simians*, pp.5-6.

⁹⁹ Smith, *NW*, p.295.

writing is only powerful when accompanied by the privilege of assumed legibility. Frank's inability to read Natalie's cyborg behaviour leads to him attempting to state his 'stronger gift for reality' against which Keisha-Natalie has 'no explanation.'¹⁰⁰ To temporarily escape this, Natalie leaves the house, to the unnamed 'nowhere,' which is the beginning of the final section of the novel, during which Natalie will travel with Nathan Bogle, and consider suicide.¹⁰¹ The revelation of Natalie's interface, to be read by anyone, leads to a questioning of the boundary of fiction and reality, which then results in Natalie being 'nowhere' in the text. This willed confrontation with the limits of legibility does not lead to any coherent movement beyond said limits, whether through self-destruction or the rejection of patriarchal domination. Instead, there is a recuperation of the integrity of the realist novel interface, and the privileged subjectivity of its middle-upper-class characters. The term 'nowhere' suggests a futility, which resonates with the unnameable, yet seemingly resistant, character of Natalie's interface interactions. Ultimately, Natalie moves back from 'nowhere' to the 'stronger reality' of the family home, where the open status of the interface is erased. It is transformed in the text into more readily controllable and sealed form of the written 'letter', addressed only to Frank, which he dismisses without reading.

Conclusion: A Disguised Signal

The text closes by establishing limits for how Natalie and Leah can perform their identities. There is a final recuperation of Natalie's professional and domestic identity, with her engaging in performing as part of the system of justice which constricts her at work and at home, as a lawyer and mother. Leah, who has tried to defy the expectation of heterosexual reproduction, finishes the novel in a static position, reclining in the garden as she is in its opening pages. The stasis suggests she is not able to write her subjectivity; she is no longer sure that she can be the 'sole author' of her life, as the role seems inadequate to her new perspective on social life.¹⁰² She asks why she is in a position of privilege, and Natalie answers 'unconvincingly,' signifying the inadequacy of authoring a total understanding of social structures. Natalie's voice presents a hollow conclusion to the text's political impulse, struggling to provide an answer to Leah but still attempting a

¹⁰⁰ Ibid., p.326.

¹⁰¹ Ibid., p.295.

¹⁰² Ibid., p.3.

claim to knowledge. Further evidence of such limits can be seen in the way Natalie's children are dressed as robots. They play at the human-animal boundary in fancy-dress as a 'robot and robot dog.'¹⁰³ Yet their outfits suggest childish fantasy rather than a contestation of what the future might mean for reimagining the family. They are not interfacing, but are instead in-costume, seeming not to matter in a way which holds weight for the wider world of the text. It represents a temporary re-writing of the self which is fantasy, a fiction which is denigrated by the text because of its status as mere play.

The two women work out that Nathan Bogle is a 'person of interest' in the murder of Felix Cooper.¹⁰⁴ Nathan is seemingly only tangentially involved in the crime, but Natalie and Leah decide to contact the police about their former school peer:

First they sent an email [...] But that was anticlimactic, not very satisfying, and once it was done they stared at the screen and felt disappointed. [...] Leah found the number online. Natalie dialled it. It was Keisha who did the talking. Apart from the fact she drew the phone from her own pocket, the whole process reminded her of nothing so much as those calls the two good friends used to make to boys they liked, back in the day, and always in a slightly hysterical state of mind, two heads pressed together over a handset.¹⁰⁵

The process of contacting the police makes reference to the interface, but the description moves away from the interface process into an account of nostalgia. The past is bordered by echoes of pathologized female sexuality, the 'hysterical' state of mind, which also recalls Lewis-Lane's warning to Natalie about being seen exhibiting 'aggressive hysteria.' The interface interaction is under-determined, made absent, but this does not point towards any kind of readerly care or attention as with Natalie's 'open' laptop. Gazing at the interface is instead reconstructed as 'staring,' and it becomes static, flatly reflective. The language reflects that of an inadequate sexual experience – anticlimactic, non-satisfying. There is an implicit restating of a hetero-patriarchal dynamic of the 'real,' one which connects the workings of justice and sexuality in the text. Both appear to require a form of presence which the novel suggests interface interactions do not reproduce. The heard voice or the 'real thing' is required to ratify the 'flat' or immaterial screen, the 'fiction' of the interface, in order for the process of law, or the process of satiating patriarchal desire, to be truly 'satisfying.' Signals are not allowed to remain ambiguous.

¹⁰³ Ibid., p.326.

¹⁰⁴ Ibid., pp.332.

¹⁰⁵ Ibid., pp.332-33.

Such ‘satisfaction’ is inflected by an uncertainty, or anxiety, when Natalie’s speaking on the phone is described in the final line of the novel as a form of disguise. The names ‘Natalie’ and ‘Keisha’ are contrasted, seemingly becoming here two distinct performances rather than overlapping identities. Natalie speaks colloquially, calling back to her typed conversation with Leah earlier in the text: “I got something to tell you,” said Keisha Blake, disguising her voice with her voice.¹⁰⁶ The disguise makes Keisha into a cipher, race as a technology of domination for enacting a questionable justice over Nathan. ‘Keisha’ is not allowed to be legible as a signal to ‘Natalie,’ and the resistant significance of previous interface interactions is written over or erased. ‘Keisha’s’ voice is a form of temporary manipulation rather than a performance of identity that is attempting to move out of patriarchal ways of thinking, only ‘turned up’ in order to be useful to a system of white patriarchal knowledge, state justice. The manipulation of voice suggests an echo of Natalie’s cyborg competency, but her speech is ultimately not resistant to domination at the end of the novel. What remains with the novel’s conclusion is an anxious and unsettling silence. Such silence rings with an ethico-political anxiety at the final objectification of Keisha’s voice as an instrument, as well as the recuperation of Natalie as a figure of justice at the expense of any solidarity with Nathan. The interface of *NW* conspicuously reaches a political limit, affirming the privileged positions of Natalie and Leah, ending on a note of secrecy which suggests the text itself covers over, disguises, the resistant impulses felt by Leah and Natalie. The disguise of a voice is granted a finality, echoing the earlier advice of Lewis-Lane: Natalie manipulates her signal in favour of the status quo.

In summary, interface interactions in *NW* are politically ambivalent technological processes. When the cyborg signal of Natalie sounds at the interface, it points towards ways of making her subjectivity differently legible. It also highlights the obstructions and barriers that make a resistant reading, writing or acting difficult. Furthermore, interface interactions partially articulate an impulse to reimagine a feminist, cyborg performativity, in such a way that asks for the disturbance of the comfort of privileged, patriarchal domesticity. Yet while such interactions, including the novel itself, are shown to be distilled processes for presenting and re-inscribing powerful fictions, they ultimately run up against a hard limit of political imagination, one which constructs the interface as a clandestine disguising of the subject. The interface is restated as a process for domination,

¹⁰⁶ Ibid.

one that instrumentalizes a marginalized voice for the purposes of a dubious state justice. The novel finishes with a violent enjoining of race and law as juridical technologies for retaining the status quo.

Chapter 4: Technologies of Reading in Ali Smith's *How to be both*

Being Both

Ali Smith's *How to be both* embraces the importance of the interface as a site of vital and embodied reading, while simultaneously articulating anxieties in relation to the consumption of media texts. This is one element of how this novel works at 'being both,' in holding together seemingly contradictory impulses via nuanced descriptions of interface interactions. Where *NW* appears limited by interfaces which are bounded by powerful limits of social expectations, and shows interfaces as intelligible via the passive process of gazing, *How to be both* constantly presents the interpenetration of one interface by another. It explores bothness via representations of different modes and processes of reading, such as ekphrasis. The cultural value of interfaces in a media ecology are contested within the narrative, with the most striking technique being the juxtaposition of contemporary interface interactions with the enacting of a *techné* in the fifteenth century by a painter of the School of Ferrera. I use *techné* here in the Aristotelian sense I discussed in chapter one. It refers to a craft that relies on a particular knowledge of the world for its production. I use both the terms *techné* and *technology* to differentiate between the technological contexts of the two narratives. Furthermore, Jonathan Sterne's definition of *techné* in the context of communication studies suggests it refers 'both to action and the conditions of possibility for action.' This connecting of *techné* to action I see as valuable for considering the ways that technology is related to subjectivity, and not only artistic practice, especially when reading the ways in which the literal artistic craft of del Cossa is related to their continued survival.¹ The term also communicates a sense of 'bothness,' of a practice and the knowledge which constitutes that practice.

This chapter argues that this novel is 'not afraid of permanently partial identities and contradictory standpoints,' to use Donna Haraway's articulation. I claim that this is manifest in the ways *techné* and processes of reading and witnessing technology are presented in the form of the novel.² The novel is comprised of two different but related narratives which the reader receives in either order. One is focused around a fifteenth

¹ Jonathan Sterne, 'Communication as Techné', in *Communication as-- : perspectives on theory*, ed. by Gregory J. Shepherd, Jeffrey St. John, and Theodore G. Striphos (London: SAGE, 2006), pp. 91-98, p.91.

² Haraway, *A Cyborg Manifesto*, p.15.

century painter Francescho del Cossa, the other a present-day, adolescent girl in Cambridge named Georgia, often referred to as George in the novel. The e-book version displays the narrative order as a choice to the reader, whereas print editions of the novel are split, with half starting with the George narrative, and half Francescho's. The opening pages both are labelled 'one', using different 'icons' to identify them.³ Del Cossa's narrative icon is a set of eyes on a long, plant-like stalk, and George's is a picture of a surveillance camera.⁴ The 'eyes' are held by Saint Lucy in del Cossa's actual world altarpiece for the *Griffoni Polyptych* in the basilica of San Petronio and represent her martyrdom.⁵ The security camera is designed by the artist Sarah Wood. These icons will be explored in more detail later in this chapter, but it is important to note here that they signal a text concerned with the mediational conditions and purposes of seeing and reading.

The 'eyes' narrative is written in a first-person mode from the perspective of del Cossa.⁶ The painter is seemingly a disembodied ghost who becomes attached to the 'camera' narrative through George. George is coming to terms with her mother's death whilst trying to help both her father and younger brother in their grief. While attending mandatory therapy and suffering bullying at school, George falls in love with Helena Fisker, a school friend who eventually moves to Denmark with her family. George's mother, Carol, was a political activist and writer, whose enthusiasm for del Cossa's fresco painting led her to take her children to see it up close, in the Palazzo Schifanoia in Ferrera. The juxtaposition of these two narratives can be understood in Galloway's terms, referred to in chapter one of this thesis, as a 'generative friction', one which agitates against a comfortable perspective on the value of the technological. Interfaces in the novel often lead to emotionally-charged communication which has a bodily effect, such as in Helena Fisker's text messages to George after their separation. *How to be both* highlights that the reading process is a situated one, whether at the interface of a tablet or smart phone, or

³ Ali Smith, *How to be both* (London: Penguin (Random House), 2014) 'Acknowledgements and thanks', p.iii. References are to an edition of the text where George's narrative precedes del Cossa's.

⁴ The eyes are a detail from the Saint Lucy section of the Griffoni Polyptych. See *I Maestri Del Colore: Cossa*, ed. by Dino Fabbri, (Milano: Fratelli Fabbri, 1985), fig. XIII.

⁵ 'Saint Lucy (c. 1473/1474): Provenance, Exhibition History, Bibliography', National Gallery of Art, (<<https://www.nga.gov/collection/art-object-page.369.html>> [Accessed 06/05/19].

⁶ I use the spelling from the del Cossa narrative 'Francescho' throughout the chapter, although the epigram to the text spells the name Francesco. Young suggests that the altered spelling of del Cossa's first name and the use of contemporary idiom means the narrative could be written by George herself. See Tory Young, 'Invisibility and power in the digital age: issues for feminist queer narratology', *Textual Practice*, 32 (2018) 991-1006, p.1000.

at the interface of an institutionally valued work of art. The process of reading is central to how the characters exist in the world and the way they understand the world. Reading is explicitly a *techné*, as I will show throughout this chapter. This is partly seen when considering George's mother's aphoristic statement that 'technology' can only ever 'highlight the metaphysical.'⁷ There is a knowing irony in the statement, as the novel itself is conspicuously technological given its unique form. Interfaces figure in the world of the text not as detached metaphysical concepts, but as sites for feeling, witnessing and performing identity in significant ways. Reading is a technological process which means in a 'material-semiotic' way in the novel. The order of the narratives influences the way characters, plot and other structures mean, and the way both characters read the world alters the very organization of life which makes them, and others, visible.

How to be both holds the hallmarks of a typically well-regarded literary novel: it is produced by a well-known publisher of literary texts, is labelled literary fiction by publishers and journalists, and has won a number of literary prizes as well as being shortlisted for the Man Booker Prize in 2014.⁸ It appears on university module reading lists including modules related to understanding narrative fiction and media. Ali Smith has been called a 'literary genius' by the Guardian newspaper.⁹ The novel is thus representative of literary value, a text which also knowingly represents the process of reading similarly valued signifiers. In this way *How to be both* demonstrates a sense of its own status as an institutionally valuable technology. This is seen in the way George and her mother engage with famous works of art. Their readings of works point towards institutions, as when George acknowledges the ways in which Francescho del Cossa's work is not as canonically valuable as other works in a nearby museum. Her mother, Carol asks 'and which comes first? [...] What we see or how we see?'¹⁰ This recognition about the mediation of sight coupled with Carol's explicitly anti-institutional politics, appears as a challenge to the comfortable acceptance of cultural or social value. In this can be heard an echo of Haraway's question concerning situated seeing: 'with whose blood were my

⁷ Smith, *How to be both*, p.26.

⁸ For a discussion of how this value is formed by the discourse of literary prizes, see Rebecca Pohl, 'Ali Smith, Enthusiasm, and the Literary Market', *Modern Fiction Studies*, 63 (2017) 694-713.

⁹ Alison Flood, 'Ali Smith wins Baileys prize with How to Be Both', *The Guardian*, (2015) <<https://www.theguardian.com/books/2015/jun/03/ali-smith-wins-baileys-prize-with-how-to-be-both>> [Accessed 06/05/19]. See also Christina Lupton, 'EN375 - Fiction Now: Narrative, Media and Theory in the 21st Century', University of Warwick, Faculty of Arts, (<<https://warwick.ac.uk/fac/arts/english/currentstudents/undergraduate/modules/fictionnownarrative-mediaandtheoryinthe21stcentury/>> [Accessed 06/05/19].

¹⁰ Smith, *How to be both*, p.104.

eyes crafted?¹¹ This echo resonates with the symbolic eyes of the Francesco narrative, given their vein-like stalk indicating the flow of blood. What is seen and how it is seen are questions which are central to *How to be both*, signalling a form of practice or learning in the 'how' of the title itself, as well as being suggestive of an implicit challenge to established categories of artistic or cultural value. Ways of seeing art, including reading works of literature, are problematized.

Multiple connections are drawn between the two narratives. The 'eyes' narrative describes some of the events of the camera narrative, watched by del Cossa, as well as events that appear to take place after the end of the camera narrative presented in the novel. They are connected by an interface logic, each working at the edges of the other, meaning that the questions posed by the text seem to run recursively through both narratives. The ending of each part is also the beginning of the other depending upon the particular iteration of the reading process. Del Cossa and George are in a loop of interaction for the reader which does not comfortably close, meaning that their characters are, in a sense, constantly resonating with one another, even after the end of the reading experience. The reader is also simultaneously aware of the order of the novel that they are not reading, and this means the reading experience is layered over with this other, impossible reading. The limitations of this interface are simultaneously affordances, in that the difficulties of reading or understanding in one narrative seem to present opportunities for reading in another. This is not a simple binary, an either-or state, but an augmenting of one reading with the possibility of another. The 'real' reading and the 'virtual' reading collapse into one another.

The problematizing of ways of seeing and reading is also explored in relation to reading the body and the performance of gender. In *NW*, modes of reading and being read were seen to be linked primarily to mechanisms of domination or the marginalisation of women who needed to moderate the way their subjective signals were heard. The final limit of this phenomenon is Natalie's 'disguise' of her voice, which allows her to convey knowledge, to tell the police what they need to know. In *How to be both*, while this moderation is still very much present in the story of del Cossa and their passing as a man in order to become a painter, the novel is more concerned with the complexities and difficulties manifest in the process of reading, rather than the value of certain knowing.

¹¹ Donna J. Haraway, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', in *Simians, Cyborgs and Women: The Reinvention of Nature*, (London: Free Association Books, 1991), p.192.

This is demonstrated when George is read as a boy initially by Francescho; when George's mother takes her and her brother to see the artist's frescoes in Ferrara, George asks in the Palazzo Schifanoia whether the figure of Francescho is 'Male or female?' Her mother's reply is 'male, female, both.'¹² The sense that the characters' gender identity is fluid, that they can be 'both,' is connected in the text to the concept of reading more broadly. George's reading of the fresco makes her think that the picture 'makes you look at both – the close-up happenings and the bigger picture.'¹³ Reading gender identity is a concern of the text but one that does not resolve or reach an edge or hard limit.¹⁴

The critical response to *How to be both* shows a focus on this idea of seeing and bothness from which my argument draws. Monica Germanà states that the icons of eyes and the surveillance camera suggest that the 'centrality of 'seeing' [is] at the heart of the narrative' alongside the 'strong sense in which a story cannot be told in one way only.'¹⁵ Rebecca Pohl identifies that 'the question of who is speaking and from where' is characteristic of Smith's writing generally.¹⁶ Renate Brosch is more specific in seeing the process of ekphrasis, the detailed description of the experience of a work of art, as something which 'moves the characters beyond the binary relationship of viewing subject and perceived object, and by extension from their isolation as marginal characters to engagement with others.'¹⁷ I agree that ekphrasis is central to the way the 'bothness' of the novel is manifest, that 'narrative ekphrasis involves the performance of seeing.'¹⁸ Both George and Francescho constantly demonstrate an awareness of what they are reading and where they are reading it from. They are characters who read their contemporary technologies as constitutive of social reality, one in which their way of seeing matters. Indeed, Francescho is a 'creature of fiction' in multiple senses: in their passing as a man to engage in a painter's career, in the way the painter's narrative is a fiction constructed from minimal historical sources, and in their ghost-like status as a haunting reader of George's world.

¹² Smith, *How to be both*, p.8.

¹³ Ibid., p.53.

¹⁴ Ibid., p.59. I use the pronoun 'they; to refer to Francescho, given that one reading of their gender status in the text is that of a non-binary figure, for whom the pronoun he or she does not represent the way in which they exist in the world.

¹⁵ Monica Germanà, 'Strangers and Intrusions', in *The Contemporary British Novel Since 2000*, ed. by James Acheson (Edinburgh: Edinburgh University Press, 2017), p.105.

¹⁶ Pohl, 'Ali Smith, Enthusiasm, and the Literary Market', p.697.

¹⁷ Renate Brosch, 'Ekphrasis in Recent Popular Novels: Reaffirming the Power of Art Images', *Poetics Today*, 39 (2018) 403-23, p.419.

¹⁸ Ibid., p.406.

Daniel Lea's overview of Ali Smith's oeuvre in *The Routledge Guide to Twenty First Century Literary Fiction* explicitly comments on Smith's relationship to technology. While technology is not defined as a concept by Lea, he reduces the human-machine interface to the singular notion of internet connectivity. Lea suggests Smith's works present a 'hyper-technologized contemporary world where intimacy has given way to solipsism.'¹⁹ This dichotomising is indicative of a reactionary perspective. Smith is said to view technology 'as a false god' which 'undersells the human capacity for inquisitiveness, iconoclasm, transformation, and transcendence, qualities that attest to the richness and wonder of lived experience.'²⁰ Here, lived experience is seemingly distinct from technology. Lea's reading makes claims for 'true empathy' and 'real intimacy' as subjects of works like *How to be both*, and distinguishes between 'online extremity mediated by technology' and 'domestic' and 'ordinary settings' in which 'self and other collide.'²¹ In seeming contradiction to this, the value of 'an old *techné* – storytelling' is stated as central to Smith's work, and Lea admires Smith's 'technical attention to the vitality of words.'

Lea fails to take account of the way that Smith's novel is defined not by a divisive binary of lived experience and technology, but by bothness. My reading of *How to be both* works against this reductive sense of how technology means in Smith's work. I demonstrate how the text presents a nuanced sense of what it means to read at the interface as a situated and embodied process. My reading contributes to criticism which situates Smith's texts in relation to feminist, queer and narrative theory. For example, Tory Young's problematising of the concept of visibility in contemporary narrative uses the novel to consider the political potential of being 'unmarked': not represented, made visible, or fully articulated. Young reads the novel's unusual structure as full of 'doubling and simultaneity, of bothness.'²² Her reading of 'bothness' is instructive for my own reading. Young links bothness to the notion of 'whatness' in the elliptical title of the novel: 'Smith's stub of a title, intrigues in its incompleteness: how to be both what and what? [...] there is no sense of what two elements it is standing for.'²³ In my reading, Stiegler's conception of the 'who' and the 'what' are the 'two elements', and this frames my interpretation of George and Francescho, helping to describe the way in which these

¹⁹ Daniel Lea, 'Ali Smith', in *The Routledge Companion to Twenty-First Century Literary Fiction*, ed. by Daniel O'Gorman and Robert Eaglestone (New York and London: Routledge, 2019), pp. pp.396-404, p.397.

²⁰ *Ibid.*, pp.400-01.

²¹ *Ibid.* p.401.

²² Young, 'Invisibility and power in the digital age: issues for feminist queer narratology', p.997.

²³ *Ibid.* p.999-1000.

characters display a cyborg competency. I examine the ‘bothness’ of the text in terms of the human-technical relation, the ‘what and what’ of Young’s question constituted as the ‘who’ and ‘what’ in reciprocal and ongoing invention. I see the phrase ‘how to be both’ as an alternative articulation of the notions of subjectivity explored by both Stiegler and Haraway.

Choice at the Interface

The form of *How to be both* means that the novel is engaged in the constant disassembly and reassembly of the reader’s knowledge.²⁴ The process of reading is made mutable by the way the two narratives are juxtaposed at various points in the text. For instance, the event of George watching a pornographic video becomes differently inflected if the Francesco narrative is read first. Del Cossa, a disembodied presence viewing George’s life, reads her watching of pornography as an individualistic, pleasurable activity:

we are sitting in a garden of shivering flowers. Through the small window she holds in her hands we are viewing frieze after frieze of lifelike scenes of carnal pleasure-house love enacted before our eyes: the love act has not changed: no variation here is new to me. Cold here and she’s shivering too: surmise she is watching the love act repeating like this to keep herself warm.²⁵

The description of the videos as ‘friezes’ signals del Cossa’s historically contingent perspective. The videos become decorative, frieze’s being painted or sculpted, trivial in a sense. The ‘garden of shivering flowers’ is an unusual syntactic construction that is similarly suggestive of del Cossa’s artistic mode of reading. George is in the garden to avoid the eyes of her father and brother, but the eyes of del Cossa are present to generate overtones of orgiastic trembling in the garden itself, resonate of original sin, of a coming to knowledge. This uncovering of knowledge, the relatively new sight of the video which George watches for knowledge, is something del Cossa trivializes. It is called ‘the way the game of love makes the rest of the world disappear.’ The world as material for aesthetic representation, a garden where friezes are looked at for pleasure, ‘disappears’ with the trivialising language of a ‘game’ of love. George’s sinful knowing is a hedonistic game to del Cossa, who claims to ‘remember’ what George is experiencing.

²⁴ Haraway: ‘The cyborg is a kind of disassembled and reassembled, postmodern collective and personal self. This is the self feminists must code.’ Haraway, *A Cyborg Manifesto*, p.163.

²⁵ Smith, *How to be both*, p.253.

Ironically, as will be addressed in more detail later in this chapter, George's watching is not an attempt to make the world 'disappear' or to indulge in 'carnal' pleasure, but an attempt to witness or acknowledge. The garden 'shivering' does not anticipate trembling orgasm, but is rather a necessity for careful reading; George can avoid other eyes. A reader encountering George's narrative first may view del Cossa's reading as a misreading; the reverse order would mean a reader re-encounters del Cossa's reading as a misreading in the camera narrative. Del Cossa's explicit reading of George's watching demonstrates the influence of situatedness on what it means to read, especially when assuming the purposes of an interface interaction from a distance. In reality for George 'this kind of sexual film' is from this moment forward defined by a process of acknowledging the abuse of power relations in sex work: The 'girl was there waiting' under other pornographic videos, a presence beneath other internet activity she engages in.²⁶ The videos then are not straightforwardly friezes, a sequence of discrete panels, but more accurately resemble a fresco like those painted by del Cossa, being made up of multiple layers. The misreading reveals the way interface interactions are subject to reductive judgements from a different time period, from a perspective which is literally disembodied, floating and surmising. Being in closer proximity to George's situated experience, the reader understands the interface interaction as ethically powerful, as a 'variation' on watching which is indeed new to the variations of which Francescho has no knowledge. The variation can be understood as an awareness of the limitations and affordances of interfaces, and of the relations such an interface might encourage or allow. The conceptual shift of the video from like a frieze to like a fresco transforms the novel interface itself, troubling the notion of sequence by the mechanism of misreading.

The spatial and temporal ordering of the two narratives which generates encounters of reading and misreading is altered in the e-book version of the novel. The text asks the reader to choose the order of the narrative (fig. 2) stating 'the choice is yours.'²⁷ Clicking on either icon takes the reader to the beginning of that narrative. An ethical dimension to this choice is manifest, as a choice at the interface between two narratives alters the relation of those narratives irrevocably. This choice is made without knowledge about these narratives, meaning that the ethical element is a momentary reflection on the power of situated reading rather than a particularly 'informed' choice. The text's structure suggests a quantum state, in that it becomes an ordered or fixed

²⁶ Ibid., p.35.

²⁷ 'The choice is yours' from Ali Smith, 'How to be both', (London: Penguin, 2014) Kindle Edition.

narrative only after a choice has been made from a position of limited knowledge. This implies the sense of the reader's choice as the first act of reading, which establishes the position of the different elements of the narrative.²⁸

This choice is also ethical in the sense that it involves a judgement in relation to ways of seeing that has consequences for thinking about the visibility of subjectivities in the novel. The symbols used to distinguish each narrative are presented on-screen at the start of the e-book version, initially suggesting a dichotomous way of thinking about perception: a set of 'eyes' which are partly embodied, connected by a stalk or vein, contrasted with a basic diagram of a 'camera' with the violent overtones of state surveillance. The camera is simplified, described by Christopher Benfey as a 'schematic image,' lacking detail around the lens (see figure 2).²⁹ The lack of detail grants the camera an uncanny quality, with the schematic nature conspicuously juxtaposed with the stylized

Image removed due to copyright restrictions

Figure 2 — 'The choice is yours' from *How to be both* (2014), Kindle Edition.

²⁸ Concepts of quantum poetics are explored in chapter six.

²⁹ Christopher Benfey, 'How to be both,' by Ali Smith', *The New York Times*, (2014) <<https://www.nytimes.com/2015/01/04/books/review/how-to-be-both-by-ali-smith-review.html>> [Accessed 06/05/19].

eyes. Where the stalk or vein of the eyes is suggestive of a network of nerves or veins, the camera's apparent hollowness raises the question of what institutional power it belongs to, and how its technology works. Its networked status is less obvious, with the seeming empty space within the camera suggesting a supernatural ghostliness. If the camera stands implicitly as a universal symbol for surveillance, it is one that is formed by a total nothingness, an uninflected sight. The eyes, in contrast, are served by blood, signalling the living body of the artist, and also the living power of the reader as an interpreter of artworks, a form of ekphrastic life. The contrast in texture between the curved lines of the eyes and the camera's hard edges further reinforces the difference in purpose or power, implying an analogue-digital divide. Whichever mode of questioning these icons can be said to generate, or the kinds of sight they imply, *How to be both's* interface undeniably invites the reading into an intraface mode from the very beginning. The first edge of the work is one that references the edges of artistic interfaces themselves and asks how their notions of vision might be valued by the reader. Such an intraface mode of critical understanding is granted a cyborg dimension in the ways that the two forms of mediation together suggest a combination of the organic and the machinic.

In choosing either 'camera' or 'eyes', the reader chooses to begin the reading experience through a particular form of seeing. While it does not stand as a total judgement on the value of seeing through eyes or camera, the choice conjures a distinction which the reader considers in an intraface mode: in what ways might an eye or a camera represent different narratives, or ways of seeing the world? The juxtaposition also signals the essential mediation that comes with any form of perception, regardless of how conspicuously technological such mediation might be. The 'who' and the 'what' are intermingled in their status as a situated knowledge, sights crafted by someone else's blood, the reader who is engaging in a cyborg competency. The reality of the 'choice' for readers is to start the process of reading, knowing that their way of seeing has already been highlighted as mediated, and culturally situated within a symbolic language concerning the social value and implicit webs of power involved in seeing. *How to be both's* problematizing of mediation in this way signals that the subject and technology must be thought together, and that the process of reading is the mechanism for doing so. The opening of the e-book of *How to be both* makes the reader complicit in defining an interface limit, establishing the paradoxical 'code' of the text and activating a cyborg intraface. It immediately transforms an initial binary choice into bothness, generating a cyborg text

from the blood of the eyes and the sharp-edges of the camera, an interpenetration, a fresco of whoness and whatness.

Gender as *Techné*

The ‘eyes’ narrative links the concept of reading texts to the idea of reading the world, the making intelligible of relations and identities. The sense that a technological process shapes the meaning of the world is communicated in the description of del Cossa ‘capturing’ a boy in a drawing, in order to gain work. Del Cossa has to demonstrate their technical ability, the *techné* which defines them, and the process is described to the reader:

I kept in my head the speed and the shape of the boy, the way he’d held up the silk and caught the air as he went, a breathing thing in itself, that’s what I wanted, cause I’m good at the real and the true and the beautiful and can do with some skill and with or without flattery the place where all 3 meet.³⁰

The process of conceiving and drawing involves the reading of the boy, his ‘speed’ and ‘shape’ as a body which ‘caught the air.’ The drawing is also a ‘breathing thing,’ suggestive of the way in which *techné* is a competency which constructs the world, meaning as material (a drawing on paper) and semiotic (a drawing which represents a form of life, a resonant instance with multiple meanings.) This is reinforced in the way del Cossa is said to ‘[map] his constellation’ on the paper ‘though the boy had vanished.’³¹ The reference to ‘constellation’ links the boy’s appearance with reading heavenly-bodies, signalling a type of material-semiotic reading in the form of astrology. This suggests del Cossa’s *techné* has a resonance with both the objective observation of heavenly bodies as well as their possible fictional meanings. Their drawing a ‘constellation’ figures the boy as both material and semiotic, brought to existence by the process of reading, as though drawing lines between points in the sky. The very sight of the boy is contingent on del Cossa’s understanding that his ‘constellation’ already exists and must be generated by the artist’s technical ability, created in the drawing of what is present but unseen. Del Cossa’s *techné*, their way of seeing the world, allows them to survive by getting them paid, doing so by drawing together the material and the semiotic, figuring their ongoing life as itself reliant on a bringing-forth or revealing of the world via constellations.

³⁰ Smith, *How to be both*, p.199.

³¹ *Ibid.*, p.200.

A technological prowess in painting, and the concomitant ability to read the world, can be understood as a technique of performativity, a concept articulated by Judith Butler.³² The technological process is seen to invent the idea of del Cossa, because it conditions the possibility of their being in the world. It is del Cossa's *techné* which leads to their needing to pass as a cisgender man. Butler emphasizes that this is not a simple 'act' which is the performance of a prior 'I' but rather a process of repetitious practice: 'performativity must be understood not as a singular or deliberate "act," but, rather, as the reiterative and citational practice by which discourse produces the effects that it names.'³³ The artist del Cossa is produced in the text *How to be both* by the reiterative performativity inherent in their *techné*. It is not that there is something somehow reductively 'feminine' or 'woman-like' about their painting ability. Rather, their status as woman-passing-as-male cannot be separated from their *techné*, due to the violently patriarchal boundaries surrounding the vocation of artist.

The fact that the narrator del Cossa was not assigned male at birth is not explicitly stated in the text but is revealed in a conversation with their father after their mother's death, a conversation during which del Cossa is wearing their mother's clothes. The character is resituated, altering the interface limits of the novel. The novel sets up a situation where a reader may misread del Cossa's gender, emphasizing the limitations of this interface. When their father suggests del Cossa could be 'like' their brothers, the gender of the narrator is put into question. Until that point the voice is perhaps assumed to be male, because of received assumption of the 'male' name the epigram of the novel is attributed to. This reductive assumption might also occur because the narrator appears to perform within a gender binary as a heterosexual male throughout the first part of the narrative. The questioning of their gender identity is not raised as a significant part of the events that are described, and they are perhaps assumed heterosexual due to their attraction to a woman.³⁴ As such, the first description of wearing their mother's clothes is assumed by the reader initially to be a boy wearing a woman's clothes. This assumption is then undermined by the father's emphasizing that their daughter must pass as a man in order to gain access to an education in painting.

When the reader learns del Cossa 'had been binding [their] chest with linen for a decade,' it is a confirmation of them having learned the competency of passing as male.

³² See chapter three.

³³ Judith Butler, *Bodies that matter: on the discursive limits of "sex"* (New York ; London: Routledge, 1993), p.2.

³⁴ Smith, *How to be both*, p.218.

The sex workers in the ‘house of pleasure’ had ‘taught me both binding and unbinding and some other useful ways in which to comport myself.’³⁵ This is an inheritance of a *techné*, a technique for a continued, iterative performativity, specialized knowledge and social craft combined. Del Cossa is thus produced as a cyborg in the text, by the multiple instances of *techné* in their presentation in the narrative, as well as through a moment of misreading. This moment of textual uncertainty is reflective of the ‘struggle against perfect communication’ which characterizes the subjective agency of the cyborg. Del Cossa’s gender identity is made indistinguishable from their technological ability, gender becoming a part of the ‘what’ which constitutes Cossa’s ‘who.’ Artistic virtuosity and gender fluidity are reciprocal performative gestures in the text, which serve to make permeable the human/technical distinction.

How to be both thus highlights the way two apparently different forms of reading are reciprocally related: *techné* as a process of revealing artistically, and performativity as a mode of self-reflexively reading social life. This observation supports my over-arching argument that interfaces in and of novels are processes which condition political possibilities. Returning to Butler, such processes of seeing a surface and interacting constitute norms of behaviour ‘which [qualify] a body for life within the domain of cultural intelligibility.’ Interfaces are able to reveal or conceal identities in ways which allow different kinds of acting in the world. A woman attempting to act out technical agency in a patriarchal society herself ‘passes’ as a man through the very interface of the novel *How to be both*, demonstrating as such this political revealing in a privileged cultural form. *How to be both* opens the question asked by Butler concerning the limits of performativity: ‘If performativity is construed as that power of discourse to produce effects through reiteration, how are we to understand the limits of such production, the constraints under which such production occurs?’³⁶ This has implications for the idea of reading in this novel as a whole, as the process of interfacing is constantly linked to a network of feminist knowledge, the sites where del Cossa learns how to be read in a particular way. It is the ability to ‘read’ the sex workers and draw them so effectively which allows del Cossa to learn how to pass, how to make themselves be read, so that they might continue their career, survive as a woman passing as a man. *Techné* creates the conditions for the liveable limits of the human, thus allowing survival for certain subjects, via difficult and situated processes of reading.

³⁵ Ibid., p.237.

³⁶ Butler, *Bodies*, p.20.

Interface Perspectives

Both del Cossa and George are seen explicitly addressing the concept of reading interfaces and their concomitant social status or value. When del Cossa sees a contemporary technological interface for the first time, the artist views it in relation to their own technological abilities and experiences. They see ‘people who have eyes and choose to see nothing’ who ‘all talk into their hands as they peripatate and all carry these votives’ which are ‘dedicated to saints perhaps or holy folk.’ Finally, they are ‘consistently looking away from their world.’³⁷ The theological is a valid frame for describing these objects for a fifteenth century artist, one which also stands to defamiliarize the interface interaction for the contemporary reader. The language of blind worship suggests inadequacy or a lack of communicative value. Del Cossa echoes contemporary reactionary critiques of the social prevalence of interfaces, showing how a solely metaphysical frame of reference can form a conservative limit for thinking the possibilities of mediated relationships and interactions.

In contrast to del Cossa’s reactionary perspective, George is shown to be extremely competent in her ability to read and critically understand multiple interfaces at once. This is demonstrated in a flashback to watching a television documentary about *The Flying Scotsman* train, an activity which is augmented in this instance by the presence of other more interactive forms. George is said to be ‘simultaneously watching it from the start on catchup on her laptop’ as well as mid-way through on television.³⁸ She is also ‘looking up photobombs on her phone.’ George is an effective and competent reader of multiple interfaces. Each of these processes involve different types of reading and temporal organization, an experience of moment-to-moment reading juxtaposed with the overall programme-time by which the documentary is structured. She also demonstrates critical analysis, wondering if some of the photobombs look ‘digitally-enhanced.’³⁹ Her mother’s reaction to this is a combination of actual concern and a performance of the ‘concerned-parent bit.’ The latter refers to the reactionary stance that del Cossa’s judgement suggests, an unspecified moral concern for a ‘loss’ of real experience, presented in tandem with George’s technological acumen. George’s mother’s knowing

³⁷ Smith, *How to be both*, pp.229-30.

³⁸ *Ibid.*, p.40.

³⁹ *Ibid.*, p.41.

tone acknowledges how a form of 'bothness' is required when considering the value of such interactions, one that the novel manifests in its form. The maintenance of a distinct boundary between the 'who' and the 'what', between subject and object, is disturbed by the unusual chronology of *How to be both*.

This sense of holding subject and object together is furthered when George's mother tells her 'you [...] are a migrant of your own existence.' The term 'migrant' suggests a rootlessness that is undeniably political, as though George's own existence were precarious and vulnerable because of her interface reading competency. George, however, demonstrates an ironic detachment from her own reading, chiding her mother that she 'should approve of me being so savvy' because she is 'supposed to be the great online anarchist.'⁴⁰ The conversation pivots around differing notions of reading as valuable. The 'traditional' or familiar act of reading the literary or popular artwork is referred to in a limited sense as book reading by George's mother: 'Don't you ever want to simplify? [...] Read a book?' George replies 'I read all the time' and states she is 'from a versatile generation.' George's mother understands the book as a simplification of attention, because to her it would involve a form of reading that is singular and at least temporarily unconnected from other texts. George conversely demonstrates an ability to adapt to and move between textual perspectives and readerly re-imagining that acknowledges reading as a more complex process of textual care. The watching of the same program about *The Flying Scotsman* from two different chronological points suggests the desire to reflect on the origins of a story in relation to its later context, not simply to experience a narrative as a linear progression. The origin of the program is undermined in its importance by this simultaneous viewing.⁴¹ George is better able to read the construction of *The Flying Scotsman* in narrative terms. The train breaking the 'hundred-mile-an-hour record' is seen simultaneously in the context of the same train being 'superseded by cars.' This means that George reads not a linear history of progress, but understands that the second event might be reproduced by similar social and industrial structures and patterns as the first. George's form of reading is materially and structurally nuanced.

The collapsing chronology of the documentary gestures towards the ways in which technologies are often located in narratives of continued industrial and social

⁴⁰ Ibid.

⁴¹ Monica Germanà describes simultaneity described as 'a different way of seeing, one that, like heteroglossia, facilitates the representation of otherness.' Germana, *Strangers and Intrusions*, p.105.

progress. George disallows the smooth construction of such narratives. Her ‘savviness’ does not merely show that ‘nothing’s not connected,’ as George’s mother states, but rather that the process of making connections can radically refigure how narratives mean. It is also a knowing echo of the reader’s own process, for they have started the novel in one of two different conceptual locations. The ‘book’ they are reading is not one that allows them to ‘simplify’ as George’s mother would wish, and their reading is closer to George’s multiple and simultaneous interface interactions than ‘simple’ or singular ‘literary’ reading. While the novel posits the necessity of a perspective which questions the authenticity or validity of interface experiences, it simultaneously points to the way that interface interactions, whether at television screens or at the pages of a novel, cannot be simply disentangled from the mechanisms of representation for such forms. Stiegler’s sense that ‘there is no reading that is not technological’ encapsulates what the novel conveys in juxtaposing the limited judgements of del Cossa’s past with the embodied, cyborg competency of George’s present. Each of these characters shape and form the ways technologies can mean via their own technological processes of reading.

Watching as Witnessing

At this intersection, I turn to a different notion of reading in *How to be both* which helps to pull together the argument of the thesis so far. In the novel interface, which is a product of production, versions of other contemporary interfaces are constantly found. These constitute the novel interface’s own political and ethical valuation of the relation of the human and the technical. These interfaces work as an inescapable edge or limit in the text, which emphasizes the translational mediating quality of novels that deal primarily in representing reality. Interfaces within interfaces signal the technological status of the novel form while it attempts to confront technology from a privileged cultural position. *NW* and *How to be both* confront the relation of technology to moral outrage when their texts represent sexuality at the interface. Where Natalie’s sexual experience via the interface struggled against the legitimising fictions of authenticity and acceptability, George’s watching of pornography works from a position that is not obviously shaped by a previous sexual life. George, like Natalie, is interested in narratives which surround sexuality at the interface but demonstrates a very different form of reading and its resultant possibilities.

The idea of George as an effective reader is present throughout the novel, but in both narratives she is seen watching pornographic YouTube videos on an iPad. George does this because peers at school are talking about pornography, and she feels 'like doubly being a virgin, not having seen any.' She watches it out of curiosity to 'make her own mind up.' George's decision to read in this way contains a cyborg element. She wishes to know, via the affordance of the interface, how sexuality is being constructed. Referring to this state of unseeing as a kind of virginity links the process of reading to patriarchal narratives of sexual innocence, granting a sinful resonance to the garden setting and to knowledge of sexuality George gains. The text displays a knowingness about this resonance, in that garden is here a word 'which means more than just garden.'⁴² An unfamiliar position is established from which a situated reading takes place.

George's initial readings of the porn films work against the grain of the texts, in that the description does not deal with sexuality or arousal. Rather the films are 'interesting at first' and 'quite eye-opening' but their extant sexual purpose becomes 'boring and repetitive quite fast.' Her reading is interested in the narrative structures of these films, the way in which 'many of the scenarios needed to have or at least to pretend to have stories.'⁴³ George has myriad questions about the different possible ways of reading the stories; in one where a woman is blinded by eye-drops, George thinks 'how long did it take before it wore off and she could see again? Or could she never see again?'⁴⁴ This concern for narrative is altered by one particular video George encounters. George comes across a video where the power relations are disturbing. An older male exerts control over an extremely young girl, 'who must have been sixteen because of legality but looked much younger than George. She looked about twelve.' The video is significant for its lack of narrative detail, the sense in which the potentially abusive nature of the sexual act is seemingly uninflected by an accompanying story or sense of performance:

They were in a yurt-like room for a very long time doing stuff and the uncomplaining smallness of the girl alongside her evident discomfort and the way she looked both there and absent, as if she'd been drugged, given something to make her feel things in slower motion than they were actually happening to her had changed something in the structures of George's brain and heart and certainly her eyes, so that afterwards when George tried to watch any more of this kind of sexual film that girl was there waiting under them all.⁴⁵

⁴²Smith, *How to be both*, p.31.

⁴³ Ibid., p.32.

⁴⁴ Ibid., p.33.

⁴⁵ Ibid., p.35.

The watching of this video is a transformative act. The very limits of reading for George, the structures of her 'brain' and 'heart' and 'eyes' which condition her ways of reading, are irrevocably altered. Where the other videos seemed to display performances which were consenting, while presenting sexually-charged relations of authority and dominance, the girl's state is one of being 'both there and absent' emphasizes both the difficulty George has in reading the video and the sense that the girl is in physical and psychological pain. The girl can be understood as another more horrifying example of the novel's treatment of 'bothness,' one that is a limit for understanding in the text. She is both the specific sex worker in the video, who suffers a coercive sexual act in order to be paid, and also representative of 'the unfair and wrong things that happen to people all the time.'⁴⁶ The girl is 'pale and pained' not only in the video, but 'under the surface'⁴⁷ of all the technological interfaces which George engages with afterwards. Later, George's mother will explain how the 'damage' to frescoes means different drawings are revealed beneath the paintings themselves. The damage of the video is 'underneath' the internet like a line drawing beneath a fresco. The parallel implies the abuse seen in the video is a structural condition of the internet itself. Yet, with the sense of the video being 'beneath' the internet, the interface becomes homogenized: the girl is present 'under the surface of the next TV show she watched on catch-up' and beneath 'advert on Facebook' and a variety of trivial videos and articles described in the narrative. There is a sense that the media ecology more generally facilitates a mode of trivial consumption, beneath which reprehensible crimes occur. A dialectic of mundanity and violence defines the interface here, a sense that the forms of attention which characterize internet browsing are somehow the catalyst for the existence of the video. It is a temporary flattening of the proportions of interface interactions, where the text is unable to name or comprehend the structural conditions which produce such traumatic, abusive results.

When George's father finds her watching the video, the novel presents the confrontation of George's reading by the outraged moral limits of the family home. George tells her father that she watches 'to remind herself not to forget the thing that had happened to this person.' This unforgetting is what constitutes the naming of her reading as a form of witnessing: 'She told him she was doing it in witness, by extension,

⁴⁶ Ibid., p.37.

⁴⁷ Ibid., p.35.

of all the unfair and wrong things that happen to people all the time.⁴⁸ Her father disapproves of the attention that George pays the video, on the basis that it is not reality: ‘sex isn’t like that. Loving sex. Real sex. Sex between people who love each other.’⁴⁹ The claim to a ‘real’ sexual activity erases the sense that sexuality is discursively formed. His reference to ‘sex between people who love each other’ relies on a set of political circumstances that are bound by who is allowed to be a person. An echo of *NW* can be heard here, in the patriarchal voice of Frank, asking Natalie ‘What the fuck is this? Fiction?’⁵⁰ Both novels present interface interactions as subject to appeals to authenticity from fathers, but where *NW* resorts to repairing the confrontation with a letter written from Natalie to Frank, a text which is never revealed to the reader, *How to both* moves beyond such secrecy via an intertextual network. When George’s father rightly claims that the video is conditioned by ‘circumstances’ that she ‘can never know’ she responds with ‘I’ve got eyes.’⁵¹ This resonates with the ‘icon’ or attribute at the start of del Cossa’s narrative, the stalk of eyes held by St Lucy in the *Griffoni Polyptych* altarpiece. One of the meanings of the name Lucy is light, and she is associated with seeing and sight. Her hagiography tells of her giving her dowry to the poor, resulting in her being denounced as a Christian to the ruler of Syracuse. Fifteenth century accounts of Lucy’s punishment include her having her eyes gouged out and being defiled in a brothel. Other versions suggest that she put her eyes out when a suitor said he admired them. The saint is usually presented holding her eyes either on a platter or between her fingers.⁵²

Del Cossa’s representation of Saint Lucy’s eyes on a plant-like stalk is a stylistic choice which is unique in iconographic representations of her. Lucy looks knowingly at her eyes while holding a palm of matrydom (see figure 3).⁵³ Lucy’s gaze in del Cossa’s picture can be read as communicating a knowing position in relation to her martyrdom, an understanding that she was reified as representative of man’s capital. She looks at her eyes which signal her saintly patronage of eye illnesses, but she is also a figure looking at the very embodiment of sight. Del Cossa’s representation of Lucy resonates in George’s

⁴⁸ Ibid., p.37.

⁴⁹ Ibid., p.38.

⁵⁰ Smith, *NW*, p.294.

⁵¹ Smith, *How to be both*, p.39.

⁵² George Ferguson, *Signs & symbols in Christian art* (Oxford: Oxford University Press, 1966), pp.130-31. See also ‘Saint Lucy’ ‘Saint Lucy’, BBC, (2009) <<http://www.bbc.co.uk/religion/religions/christianity/saints/lucy.shtml>> [Accessed 06/05/19].

⁵³ Francesco del Cossa, *Saint Lucy* c. 1473/1474 tempera on poplar panel, 77.2 x 56 cm, Samuel H. Kress Collection, <https://commons.wikimedia.org/wiki/File:Francesco_del_Cossa_-_Saint_Lucy.jpg> [Accessed 03/07/19]

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Figure 3 — Francesco del Cossa, *Saint Lucy* altarpiece, c. 1473/1474 tempera on poplar panel, 77.2 x 56 cm), Samuel H. Kress Collection

statement ‘I’ve got eyes.’ The statement communicates both the power of George’s situated knowing and her awareness of dominant narratives which might attempt to erase the power of her reading. This is not a straightforward analogy of George as saint, but instead presents George’s reading as similarly resistant to Lucy’s. ‘I’ve got eyes’ works as a palimpsestic caption to Lucy’s knowledge of her own violent death, brought about by her need to see and acknowledge the poor and the marginalized. George’s statement

acknowledges that power is instrumentalized through the authentication of forms of sight, ultimately that powerful sight is ‘crafted’ by blood or violence, as in Haraway’s question — ‘with whose blood were my eyes crafted?’ — concerning the provenance of sight. George watching the girl being ‘defiled’ is a version of Saint Lucy looking at her own eyes, knowing her punishment and iconically signalling the abusive powers of men. Three interfaces are networked, George’s YouTube screen, the pages of *How to be both* and the altar piece of del Cossa, linked by a politics of resistance in relation to the powers of sight and the necessity of performing such knowledge via the process of reading.

George’s ability to read and interpret is what signals an awareness of the potency and ongoingness of textual meaning, one which her father does not read in the video. George’s response to his claims about the damaging effect of the text highlights this difference in the structure of their eyes, in the blood which crafts them. While her father states ‘watching stuff like that [...] you’ll do damage to yourself,’ George retorts ‘damage has already happened.’⁵⁴ George is involved in a form of reading and re-reading via the interface which reimagines what the process of reading does, in a way which is seemingly illegible to her father; at one point, he literally covers his eyes with his hand. When George refers to the reality of the video as something many adults watch, her father is unable to acknowledge that possibility. George states that her father watches in just this consumptive manner: ‘you watch stuff like this. I know you do. Everyone watches it.’ This leads to his shutting down a space in which to think interface interactions in critical terms; his statement ‘I can’t believe what you just said’ is the endpoint of a reactionary position towards George’s witnessing and re-imagining of the video. Her reading is literally turned away from by her father. George’s critical position is ‘unbelievable’ to him, and he tries to reject the challenge from this unusual domestic interaction, one literally outside the home.

George’s reading of the video most clearly highlights the way interfaces in *How to be both* generate agitation or bothness. The reader is exposed to the experience of a situated reader of technological networks. It is an ethical seeing, a witnessing, although it is questionable what effective or practical ethical work such reading is able to do. Young’s contrasting reading, for instance, describes George’s watching as a ‘childish gesture’ which is ‘the response to and attempt to resolve trauma.’⁵⁵ I view the exchange with her father as demonstrating George’s ability to challenge narratives of authenticity or moral

⁵⁴ Smith, *How to be both*, p.38.

⁵⁵ Young, ‘Invisibility and power in the digital age: issues for feminist queer narratology’, p.1002.

authority. She brings the facility of slow or careful reading to the popular interface of a video-streaming website, ordinarily associated with a form of consumption which is defined by its variety and versatility of access and speed of viewing. Where Lea describes George's reading of the film as 'automatic, repetitive, and identical' the detail of her reading seen above is almost ekphrastic, with a focus on interpretation and detail which alters the reading subject's very body.⁵⁶ Rather than automation, George's reading is characterized by care and attention. When she forgets to watch for a number of weeks she apologizes 'sotto voce' for 'having been *inattentive*.'⁵⁷ George sees an abusive power dynamic, but also sees a different way of reading it, re-imagining the video of the girl as an event of damage which must be acknowledged. George's reading is a form of cyborg reading, one which treats the video not as a detached technological object but a complex media text in a network of viewers:

This really happened, George said. To *this* girl. And anyone can just watch it just, like, happening, any time he or she likes. [...] So I want to watch it for a completely different reason. Because my completely different watching of it goes some way to acknowledging all of that to this girl.⁵⁸

George's 'different' mode of reading, as she names it, is an attempt to witness the event from an oppositional standpoint. It does not perform empathy, because it is not an attempt to understand the girl's position.⁵⁹ The developing affordances and limitations of interfaces are seen to contribute to ever-changing ways of understanding difficult, marginalized subjectivities, and extend the body in unforeseeable ways. The mediating interface effect is something which highlights limits but does not revoke the power to read technology in terms of complex social relations. George's serious reading is rendered an unwanted possibility by her father's reaction, one that troubles the boundaries of thinking about which texts matter, and how they are allowed to matter. It makes the interface a valid site not just for passive witnessing, but for rethinking the kinds of value which different modes of reading reinforce or reproduce.

In the del Cossa narrative, watching or experiencing sexuality is manifest as material solidarity. Del Cossa's drawing of the sex workers in the 'house of pleasure' in

⁵⁶ Lea, Ali Smith, p.400.

⁵⁷ Smith, *How to be both*, p.36. My emphasis.

⁵⁸ *Ibid.*, p.38.

⁵⁹ Lea's reading misunderstands the purpose of George's watching, claiming a lack of authenticity in her 'merely seeing rather than connecting.' Lea does not clarify the difference between these. See Lea, Ali Smith, p.400.

Bologna transforms the sexual act. Del Cossa's first encounter with one of the women, Ginevra, maintains the idea of a viewing or reading which involves bothness:

Relax, I said. Don't move. Can you do both?
Like I told you, I can do anything, she said. Eyes open or closed?
You choose, I said.⁶⁰

In asking Ginevra to 'do both' del Cossa's *techné* is emphasized as a complex process of reading and drawing. The phrasing 'you choose' resonates with the choice given to reader at the start of the e-book version of the novel ('The choice is yours.'). This choice is the beginning of a form of solidarity between del Cossa and the community of women in the brothel, for they ask Ginevra in the morning to give their friend, Barto, the impression they have had sex. Her lie is both truth and fiction. They did 'have a good time' but as accomplices: del Cossa drew and Ginevra slept.⁶¹ The way that drawing stands in for the sexual act establishes an erotic relation that is resolved when Isotta kisses del Cossa, and teaches them the 'rudiments of the art of love.'⁶² Art and love are drawn into parallel by del Cossa's voice, both 'a matter of mouths open' and 'understanding the colours that benefit from being rubbed softly one into the other.'⁶³ That time becomes 'timelessness' in these processes, hours becoming 'something else,' suggests that both sexual and artistic processes for del Cossa are concerned with a careful attention for the acts of revealing. *Techné* is granted an erotic component here, in direct contrast to the abusive video which George witnesses. Del Cossa's witnessing is one that captures the women in a different light, one which elevates their understanding of their subjectivity, allowing them to push for better working conditions and to challenge the Mistress of the house. They 'get airs and graces' and ask 'for more of a cut.' Ultimately, they 'decide to choose a different life.'⁶⁴ Del Cossa's drawing is a process of gazing which is not male, but cyborg. It is a reading that has more significant material-semiotic consequences than George's but works from a similar political impulse of solidarity and care.

Ginevra and the other women are said to meet tragic and violent ends, for they cannot be saved simply by a different mode of reading, just as the girl in the video cannot have her abuse undone by George's witnessing. Reading can, however, step outside of

⁶⁰ Smith, *How to be both*, p.266.

⁶¹ *Ibid.*, p.268.

⁶² *Ibid.*, p.272.

⁶³ *Ibid.*, p.273.

⁶⁴ *Ibid.*, p.275.

the prescribed interface limits, rather than being restricted by the conditions which create the possibility of reading. There is also the implication that reading carefully, witnessing in the name of care, is a component of a feminist solidarity, one which embraces the material and mental connections technology affords. It is George's private witnessing on a tablet and del Cossa's skilful drawing which lead them to acts of understanding and support, even while such acts of reading occur in the context of structural violence. The alternative is a 'real' experience or an appeal to 'authenticity' which would deny the relationship between the material and the semiotic, and shut down paths to as-yet-unimagined forms of care.

Intimacy and Mediation

This conflict of incompatible positions between father and daughter is not resolved in Smith's text, but there are further examples of reading at the interface which involve intimacy that matters for George's subjectivity. Part of the novel's attempt at 'being both' is in articulating contradictory views on the value of technological mediated interaction, especially in terms of romantic or sexual connection. Young identifies how 'sometimes these interests in visibility and abuse read like straightforward warnings about the dangers of recording and surveillance in the digital age,' referring to the example of Helena saving George from bullies who use smartphones to record George urinating.⁶⁵ Yet the contemporary phone interface arguably becomes a 'fertile nexus'⁶⁶ for the inaugurating of George and Helena's relationship later in the text, when they communicate via text after Helena's family move to Aarhus, Denmark. The simultaneity of text and voice in the text messages they exchange is powerful for George, whose response is a conspicuously felt, bodily reaction. While George's parents laugh at the technologically-mediated pathos in *Tell Laura I Love Her*, a song about the death of Laura's male lover, George's experience of a romantic relationship mediated by the interface is powerfully felt *because* of the form of its mediation, not made tragic through it.⁶⁷

The text conversation involves seemingly contextless information about Leonardo da Vinci before changing when Helena starts sending song titles in Latin. This takes place over the course of a number of days. George's anxiety is conveyed in the

⁶⁵ Young, 'Invisibility and power in the digital age: issues for feminist queer narratology', p.1003.

⁶⁶ Dagonnet in Galloway, *The Interface Effect*, p.32.

⁶⁷ Smith, *How to be both*, p.26.

description of writing at the interface as a physical gesture, typing ‘half a word or a couple of words’ to then ‘stop and delete’ and ‘send nothing.’⁶⁸ It is a struggle to articulate which becomes a catalyst for vulnerability, a sudden confirmation that the messages are about the ‘something real between them.’⁶⁹ Helena’s reply — ‘It’s good to hear your voice’ — is ‘a text that pierced whatever was between the outside world and George’s chest’ meaning that ‘George literally felt something.’⁷⁰ This message creates a felt rupture in George, piercing her physical isolation from Helena, partially enjoining them. Here, the short, elliptical messages are an affordance which generates intimacy that is physically felt. The reference to voice suggests a vivid notion of presence within digital mediation, one which is a process of reading against statements of authenticity or the ‘real’. Where the tragedy of Laura and her lover’s romance in the song is simply heightened by the object of communication emphasizing the distance between them, George and Helena’s romantic relationship is inaugurated by a vulnerability at the interface, becoming electrified by textual signals. Helena’s ‘voice’ becomes a further instantiation of ‘bothness’ in the text, a signal which is both heard and felt, and her stating that she can ‘hear’ George’s voice confirms the anxious composition as an important bodily encounter. A comparison with *NW* opens up in this instance, concerning the amplification or noisiness of personal, subjective signals. The technological interface in *NW* provides a metaphor for the limiting of Natalie’s desires, with the boundaries of her subjectivity described in terms of the quietening of a signal. In *How to be both*, however, Helena’s feeling for George, their shared intimacy, is ‘voiced’ and ‘heard’ through the interface interaction.

The metaphor of piercing from inside to outside which describes George’s reaction to such voicing highlights the entanglement of subjectivity, embodiment and technology in *How to be both*, and its difference from the more limited narrative interface closure of *NW*. Butler describes the piercing of inside to outside in terms of the unexpected and serious consequences of sudden actions which constitute vulnerability: ‘vulnerability implicates us in what is beyond us yet part of us, constituting one central dimension of what might tentatively be called our embodiment.’ The description of the text message sees the contemporary technological interface as making the subject vulnerable via a process of reading which acknowledges that such textuality is an affective force. This mingling of reading with embodiment is signalled in the same passage in the

⁶⁸ Ibid., p.168.

⁶⁹ Ibid.

⁷⁰ Ibid., p.170.

text, when the process of reading is juxtaposed with the process of listening, in the song titles that Helena sends in Latin to George. What is ‘strange and fine’ to George is ‘the fact that someone has wanted her to hear them, and not just someone, but Helena Fisker.’⁷¹ George’s listening to these songs is described in an inscriptive sense, as though ‘H is trying to find a language that will make personal sense to George’s ears.’⁷² The reference to listening as embodied, in George’s ears, and to the ‘language’ that might make ‘personal sense’ is suggestive of listening as a form of reading, involving as it does George’s ability to translate the song titles out of Latin in order to find out what they are. The process of reading is thus ‘pierced’ with the process of listening, the voice of George is also her writing, and the condition of who Helena and George are and what technologies they performatively engage in is interleaved. They are each simultaneously the ‘who’ and the ‘what’ in their romantic interaction, and their relationship is borne out of cyborg literacy, their ability to communicate with technological competency which is able to manifest modes of care over a long distance, to pierce each other’s lives with communications which are valuable for how ‘strange and fine’ they feel. Whereas Natalie finishes *NW* by ‘disguising her voice with her voice,’ Helena’s signal and her hearing of George’s voice are elements of the positively strange and unforeseeably vulnerable relationship the two women will enter. While in *NW* interfaces appears to accommodate the clandestine, contributing to the redrawing of boundaries, in *How to be both* they manifest as sites for various poses of intimacy, for the amplifying of cyborg signals rather than their disguising.

Conclusion: Reading Absences

The ‘bothness’ of Smith’s novel is restated towards the end of each narrative, and the interface of the novel gestures towards absences which open up the political limits of the text. Each of the stories refer to an unsayable or inarticulable moment in relation to reading. In the ‘eyes’ narrative, del Cossa’s apprentice, the pickpocket, details the way in which the *Mese di Marzo* fresco in the Palace of Not Being Bored has been read by visitors. The pickpocket explains how a resistant reading practice occurs in the palace of the Duke, focused on a particular set of eyes in the fresco:

⁷¹ Ibid., p.169.

⁷² Ibid., pp.169-70.

They come especially [...] to see the face you painted in the blackness, the face there's only half of, whose eyes – your eyes, Master Francescho – look straight out at them, as if the eyes can actually see them over the top of Borse's head.⁷³

The face in 'the blackness' is suggestive of a space outside of the interface of the fresco, a limit to its ability to represent. That they are del Cossa's eyes draws a link between the representational art of the painting and the first-person narrative the reader has experienced: del Cossa has been looking out at the reader. The reading of the figure's eyes is politically significant for the fact that the duke, Borse, is 'giving out justice' in the image. The eyes of del Cossa communicate a form of knowing textual resistance to the practice of meting out justice.⁷⁴ As the pickpocket suggests, the eyes seem to gesture towards 'things that can't be said.' Directly after this, the pickpocket recounts how '25 or so' workers came in 'off the fields' and 'refused to be moved on for nearly an hour' while looking up at the worker in del Cossa's painting. While the workers move 'quite peaceably' in the end, this reading practice signifies the influence of del Cossa's work on the world. Del Cossa states they were 'frightened that something I'd done or made might have such wild effect.'⁷⁵ The political limits of the fresco are found in its edges. It is certainly the 'what' of del Cossa's *techné* which has such a 'wild effect' but it is also the 'who' of the workers, the readers, which comprises a challenge to Borse's hierarchical power.

Joseph Manca's reading of the fresco within a biographical context supports the notion that del Cossa's eyes are representative of a political resistance. Manca's analysis refers to a letter the actual del Cossa's sent to Borse, which 'demanded justice' in the form of proper payment for their specialized labour on the fresco.⁷⁶ Del Cossa's presence in the work itself, Manca emphasizes, 'can be interpreted as a call for justice.'⁷⁷ The eyes of del Cossa 'are aimed hauntingly and directly at visitors to the hall.'⁷⁸ At the edges of the work of art, detailed in an ekphrastic account communicated via the pickpocket the novel, is found a political gesture that challenges state justice, a justice which does not recognize the value of del Cossa's particular *techné*. The boundary of this technology is invisible to

⁷³ Ibid., p.354.

⁷⁴ Francesco del Cossa, 'Mese di Marzo', (Palazzo Schifanoia, Ferrara, 1468-70) Image: <[https://commons.wikimedia.org/wiki/File:Palazzo_schifanoia,_salone_dei_mesi,_03_marzo_\(f._del_cossa\),_borso_alla_caccia_e_amministrat._di_giustizia_02.JPG](https://commons.wikimedia.org/wiki/File:Palazzo_schifanoia,_salone_dei_mesi,_03_marzo_(f._del_cossa),_borso_alla_caccia_e_amministrat._di_giustizia_02.JPG)> [Accessed 10/01/19]

⁷⁵ Smith, *How to be both*, pp.356-57.

⁷⁶ Joseph Manca, 'Francesco del Cossa's Call For Justice', *Source: Notes in the History of Art*, 12 (1993) 12-15, p.15.

⁷⁷ Ibid., p.12.

⁷⁸ Ibid.

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Figure 4 — Detail of *Mese di Marzo*, Francesco del Cossa, fresco, Salone dei mesi, Palazzo Schifanoia, Ferrara

the powerful Borse. The *techné* itself serves to highlight a mode of resistance through del Cossa's subjectivity, establishing its own 'demand' upon powerful subjects via the breaching of the limits of the work of art.

This notion of absence transforming into a politically significant reading is also found in George's mother Carol's death. It is arguably the central absence around which the book pivots. Carol describes herself as book-like, merging the notion of identity and material embodiment with the notion of being read: 'she was a book, I'm an open book, she said. Though it was also equally possible that what she'd said was that she was an *unopen* book. I a a u opn ook.'⁷⁹ George's uncertainty about what her mother's description was, whether open or unopen, is doubled in the text by the reader's own uncertainty in reading, with the obscured text on the page becoming a phonetic

⁷⁹ Smith, *How to be both*, p.66.

communication of what was said.⁸⁰ It is another image of bothness, positing an uncertainty in status which remains unresolved in the narrative. Carol is an 'open' book but the notion of being 'unopen' is heard in one of her earlier comments on the possibility of empathy, when she states 'how near-impossible it was to inhabit anyone else's shoes.'⁸¹ This difference is maintained throughout *How to be both*, in that it is always thus both an open and unopen book, as one narrative is constantly gesturing toward the other.

How to be both can thus be said to resist its own closure. In its formal structure it uses the very mechanism of misreading, and emphasizes the need to repeatedly read carefully. It appears as an interface that is keenly away of the political meanings of its edges. Reading this interface through the intraface of the cyborg reveals how both the narrative strands present cyborg competencies which are integral for performing subjectivity. *How to be both* forces the reader to confront the very limits of the novel form, by asking them to become partly complicit in situating the form of the novel interface. The highlighting of limits is not simply a postmodern affectation, but a gesture towards continued reading, towards the ongoingness which the cyborg helps to articulate, and the unsayable but necessary resistance to completing, or finalising, powerful reading. There is no clear lineage between the narratives, no obvious or easy point of birthing or reproduction. As such, *How to be both* is a product of its own production which does not allow patriarchal anxiety to become a dominating force.

⁸⁰ Young also identifies this doubling of Carol's status in the text, observing that Carol 'is both dead and alive' throughout the novel, due to multiple its temporal shifts. Young, 'Invisibility and power in the digital age: issues for feminist queer narratology', p.997.

⁸¹ Smith, *How to be both*, p.77.

Chapter 5: Marginalized Cyborgs and Reproductive Autonomy in Ben Lerner's *10:04*

The Technology of *10:04*

Like the other texts in this study, Ben Lerner's *10:04* (2014) is a novel which itself 'enables us to think about what technology is and how it functions.'¹ It does this through its reflexive engagement with the technology of the novel, via the affordances of autofiction. Autofiction is broadly defined by Alison Gibbons as a genre that blurs the 'fact-fiction ontological boundary' to 'narrativize the self not as a game, but in order to enhance the realism of a text and tackle the sociological and phenomenological dimensions of personal life.'² One element of this blurring in *10:04* is the way the text highlights its status as an interface. It references the fact that it is a site of interaction between reader and author, and between different textual worlds. It also demonstrates a critical awareness of the cultural valuation of those processes and the contexts in which they occur. The text is presented as a situated process of mediation, within a contemporary category of literary value which is presented as explicitly economic and cultural. In this chapter, I claim that the text's ethical appeals are ultimately concerned with reproducing a subject position of the canonical male poet, and that its associated sense of a communal politics expressed via a poetics of shared understanding is inconsistent with the presentation of women in the novel. More specifically, I read *10:04* as a technology of reproduction, focusing on the ways in which women are situated in the margins of this text. I will argue that there are important limitations in the subjectivities of women as represented by the technology of this novel. I close read the material realities of biological and textual reproduction in *10:04* to reveal issues of silencing, passivity and (re)production related to the presentation of women therein.

My reading locates *10:04* in relation to Zoe Soufoulis' claim that 'every technology is a reproductive technology,' to emphasize how the novel's concerns with origins and

¹ Mulder and Roda, "Novel Technologies' Recap'.

² Alison Gibbons, 'Postmodernism is dead. What comes next?', Times Literary Supplement, (2017) <<https://www.the-tls.co.uk/articles/public/postmodernism-dead-come-next/>> [Accessed 06/05/19].

reproduction resonate with questions concerning the limits of interface technologies.³ In chapters three and four, I suggested that *NW* and *How to be both* displayed different attitudes towards the human/technical relation, and that this was manifest in the form of these texts. Yet, where these two novels presented the reader with a firmly textual world, within which concepts of fiction and reading were contested, *10:04* is concerned from the very beginning with showing the reader its origins, narrating the process of its own creation, and repositioning the reader alongside the writer-narrator figure.⁴ At times the narrator interrupts the text with accounts of having googled something, positioning the very writing of the novel as explicitly happening at a computer interface. In this way, it constantly demonstrates its digitally-born status within a wider media ecology, and engages with this context in its presentation of characters and narrative events. In another sense, like *NW*, *10:04* also seems to reach a political and ethical limit in its conclusion, in attempting to convey a very different type of politics through the dissolution of the novel form into poetry, represented by a line from Walt Whitman which closes the novel. What my inquiry into *10:04* considers is how the narrator, his friend Alex, and others, are differently positioned by the reproductive technologies of the text. This is in order to show how the literal bio-technological tools of twenty-first century fertility treatments and the material-semiotic tool of novel writing shape the limits of subjectivity.

The interface of *10:04* mixes a variety of texts written by the author Lerner, moving into prose and poetry at different points, whilst the dominant mode is a first-person version of the author's voice. The novel is split into five parts. Two storms which land in New York bookend the text, constituting an atmosphere of global environmental crisis.⁵ The narrator discovers early in the text that he has a heart condition, which could lead to a fatal aortic dissection. Around the same time, his best friend, Alex, asks him to be part of her having a baby, and his status in the relationship shifts between that of sperm donor, father and eventual sexual partner. Throughout this, the writing of the novel *10:04* is its own narrative thread. The 'strong six-figure' advance paid for the novel

³ Zoe Sofia, 'Exterminating Fetuses, Abortion, Disarmament, and the Sexo-Semiotics of Extraterrestrialism', *Diacritics-a Review of Contemporary Criticism*, 14 (1984) 47-59, p.48.

⁴ Ben Lerner, *10:04* (London: Granta Books, 2014), p.8.

⁵ There is current work that considers *10:04* from the perspective of climate change. Ben De Bruyn argues that Lerner's novel shows how modified forms of realism may play an important role in cultural responses to climate change, in that they show how attention to objects and realisations about everyday life are influenced by extreme weather conditions. See Ben De Bruyn, 'Realism 4°. Objects, weather and infrastructure in Ben Lerner's *10:04*', *Textual Practice*, 31 (2017) 951-71.

is a repeated phrase, consciously highlighting its composition as a literary text.⁶ Sarah Brouillette states of the relation of literary works and the economy that '[t]he literary field's tendencies and capacities are tied to the fate of the real economy,' and the narrator of *10:04* acknowledges this reality, while taking advantage of it for financial gain.⁷ Parts of the novel include a short story published in the *New Yorker* which is reproduced in the text, as well as a poem composed during a writing fellowship which also appears in the text.⁸ Literariness is inextricably linked to economic viability, which in turn signals that the novel is comprised of modes of writing which are themselves shaped by material conditions.

The novel opens with the narrator-protagonist in conversation with his agent, explaining the novel's structure through a comparison to American poet Walt Whitman: 'I'll work my way from irony-to-sincerity in the sinking city, a would-be Whitman of the vulnerable grid.'⁹ The novel presents itself as a literary object in a media ecology, located in the 'vulnerable grid' of New York, which is simultaneously the 'vulnerable grid' of the information society. Its value is knowingly constructed by the dual discourses of contemporary technology and canonical value. The novel is constructed as a map for understanding the 'sincere' meanings to be found in contemporary Western society, and placed within a canonical lineage of poetic investigation into the possibilities of subjectivity. The analogy with Whitman is both genuine and ironic, both knowing and self-effacing. The author figure, Ben, identifies with and admires the poetry of Whitman, but seems also to know that such a direct comparison is overblown and immodest. Whitman arguably remains only a cipher in the novel, a flat signifier of literary prestige. Whitman's worldview and queer status are absent from the novel's exploration of political solidarity and non-heteronormative coupling.¹⁰ The use of Whitman as a flat, literary

⁶ Lerner, *10:04*, p.4.

⁷ Sarah Brouillette, 'Neoliberalism and the Demise of the Literary', in *Neoliberalism and Contemporary Literary Culture*, ed. by Mitchum Huehls and Rachel Greenwald Smith (Baltimore: John Hopkins University Press, 2017), pp. 277-90, p.281.

⁸ Ben Lerner, 'The Golden Vanity', *The New Yorker*, (2012) [Accessed 06/05/19].

⁹ Lerner, *10:04*, p.4.

¹⁰ Stephanie Blalock discusses the 'manly attachment' of the Calamus poems in relation to Whitman's lover Fred Vaughan. See Stephanie M. Blalock, "'Tell what I meant by Calamus': Walt Whitman's Vision of Comradeship from Fred Vaughan to the Fred Gray Association", in *Whitman among the Bohemians*, ed. by Edward Whitney Joanna Levin (Iowa: University of Iowa Press, 2014), pp. 172-88 p.172. See also Robert Martin's discussion of Whitman's homosexuality in Robert K. Martin, *The Homosexual Tradition in American Poetry* (Iowa: University of Iowa Press, 1979) pp.3-89.

frame supports the notion that *10:04*'s political auspices are inconsistent with the reality of its interface effects.

The text's closing line is one of the most significant examples of the above. The narrator nearly-verbatim quotes Whitman's 'Crossing Brooklyn Ferry', making the Whitman analogy into an intertextual reference, a re-voicing of the canonical poet: 'I know it's hard to understand/I am with you, and I know how it is.'¹¹ Gibbons describes the line as 'intertextually appropriating Walt Whitman' and explains how Lerner 'refuses to write a narrative-*I* that is empirically Ben Lerner.'¹² Gibbons highlights that inserted into the line is an extra 'I', which seems to signal Lerner's participation in 'Whitman's words and — by extension — subject position.'¹³ Where Gibbons reads this as indicating the autofictional 'truth' of *10:04*, I view the final claim of the novel as indicative of the limits of interface, one that makes a claim for an author-reader solidarity via a poetics of knowing or sincere knowledge. Speaking Whitman's words does not automatically reproduce a subject position of requisite knowledge. The dissolution of the novel into this line of poetry, it is implied, establishes shared knowledge with the reader. This poetic voicing of a claim to 'know' is the novel's attempt to claim a final bond with the reader that is single-entendre and sincere. The position of sincerity, however, is arguably one that makes a claim to the situated knowledge of others. A novel which ends with a claim to 'know how it is' is one that self-validates its own representations of knowing throughout the text. That the novel ends with this attempted claim for solidarity that is predicated on 'knowing' is a problem, considering the obvious limits of knowledge demonstrated by the protagonist and the ways in which women characters are represented. The forms of knowledge addressed are all related to technologies of life and death. The novel addresses the experience of assistive reproductive technologies (ART), represents memories of the death of Christa McAuliffe in the *Challenger* disaster, and comments on the social, familial relationships within an 'undocumented' migrant family. The closing line primarily reproduces the power of the auto-fictive narrator. He adopts the position of famed canonical poet making a claim to a form of total knowledge which the text's other effects are inconsistent with.

¹¹ Lerner, *10:04*, p.240.

¹² Alison Gibbons, 'Autonarration, I, and Odd Address in Ben Lerner's Autofictional Novel *10:04*', in *Pronouns in Literature: Positions and Perspectives in Language*, ed. by Alison Gibbons and Andrea Macrae (London: Palgrave Macmillan, 2018), pp. 75-96, pp.92-3.

¹³ *Ibid.*, p.93.

The critical response to *10:04* has focused on the novel's self-reflexive, or self-aware, relation to contemporary technologies, as well as its autofictive status. Denise Rose Hansen describes the novel's 'assembled, conceptual, and technological' make-up as something that is purposefully exposed, the effect of this being to capture the 'fragmented nature and unstable temporality of contemporary life.'¹⁴ The text is assembled from parts of experience, and this assembling is presented to the reader, with details from the narrator's experience becoming parts of the novel which he himself labels as 'on the edge of fiction.'¹⁵ Hansen's appraisal of the novel opens up questions as to what specific type of 'fragmented' experience and 'unstable' temporality the text presents. Other work has drawn an analogy between the text and the internet itself. Marta Figlerowicz compares *10:04* to a webpage interface:

Lerner's novels thus create the impression that little separates the limited fictional worlds they represent from an expansive real world that provides seemingly valid and infinite additional contexts for everything we read about in them. They have the air of author home pages that link their visitors to all the other appearances of Lerner's work.¹⁶

This suggests that Lerner's identity as author is 'linked to' by the novel, that there is a hypertext logic at work in the reception of meanings in works like *10:04*. I accept part of this analogy, that the merging of textual world and reader's world makes interfacing, and technology, a central part of the text. I move beyond the comparison, however, to say that the homepage is only one form of interface which the text might resemble. In fact, such a comparison further reveals the way in which the literary novel is a technology of its own, with unique affordances and limitations. Autofiction is perhaps similar to a webpage in the way it positions readers in close proximity to a version of its author, but it is utterly different in that it assumes an audience readied for a struggle with meaning involved in their reading of the novel. As Gibbons identifies, autofiction is seen 'addressing distinctly contemporary concerns in the way it represents and questions selfhood, ontology, truth and memory.'¹⁷ The question remains not only which technologies a novel such as *10:04* resembles, but what ethical assumptions the

¹⁴ Denise Rose Hansen, Denise Rose Hansen, 'Ben Lerner and the Novel in the Age of Digital Media', *The International Journal of the Book*, 15 (2017) 11-21, pp.11-12.

¹⁵ Lerner, *10:04*, p.237.

¹⁶ Marta Figlerowicz, 'The Novel of Infinite Storage', *Poetics Today*, 39 (2018) 201-19, p.206.

¹⁷ Gibbons, 'Autonarration, I, and Odd Address in Ben Lerner's Autofictional Novel *10:04*', p.76.

technology of *10:04* appears to work from and within, and the political conclusions which result.

My reading of *10:04* challenges the authority of Lerner to read his own text — and to write his own reading into the text itself — in favour of a disruptive cyborg reading. It is inclined towards characters who are not the protagonist, reading from the margins, in order to ask what this particular iteration of the novel technology reproduces, or is able to reproduce. The observations of Benjamin Noys on neurosis in Lerner's work also moves in this direction. Noys identifies that *10:04* is 'preoccupied with paternity,' that the 'issue of the future [...] is figured through the capacity for reproduction and raising a child.'¹⁸ Recognising that the text is preoccupied with paternity is a first step towards a careful reading of the marginal mothers found within. Sarah Kember's description of cyborgs and the related figure of nomads readily describes *10:04*, in that 'both are and are not science-fictional.' The difference in outlook between cyborgs and the narrator of *10:04*, however, is that the latter is concerned with the reproduction of his self, while the former '[refuses] the terms of determinism and apocalypse.'¹⁹

It is not hard to find mother figures in *10:04*, although it is harder to hear them. There is the narrator's friend Alex who asks him to help her have a baby; Anita, mother of the narrator's tutee Roberto; and Christa McAuliffe, the teacher-member of the *Challenger* crew who features in the narrator's origin story as a poet, and whose picture is reproduced in the pages of the novel. The focus on the mother figure positions my reading in a way which resonates with Haraway's 'Cyborg Manifesto'. Haraway figures a rejection of heteronormative reproductive processes which necessitate a patriarchal origin, emphasizing how 'illegitimate offspring are often exceedingly unfaithful to their origins. Their fathers, after all, are inessential.'²⁰ Different cyborg images in *10:04*, images of women in difficulties as subjects of technology, in boundary processes or at interfaces of control, can be readily seen. Alex's mother is dying of cancer, which reorientates the narrator's fear of death from his possibly-dissecting aorta. Alex's own future is constrained by the limitations of reproductive biology in the twenty-first century, with her age limiting her options. Two cyborg images are present in the picture of McAuliffe, floating, and Alex's baby, described through ultrasound, at the end of the text. These

¹⁸ Benjamin Noys, 'Happy Like Neurotics: Roland Barthes, Ben Lerner, and the Writing of Neurosis', *College Literature*, 45 (2018) 222-45, p.237.

¹⁹ Kember, *Feminist Figuration and the Question of Origin*, p.258.

²⁰ Haraway, *A Cyborg Manifesto*, p.10.

characters, to quote Haraway, do not have times 'of origin and return' in *10:04*, but are instead ways for the narrator-protagonist to figure his own reproduction, which ultimately does not do justice to the stories of these women.²¹ As Daniel Katz suggests, 'writing and reproducing' are made into the primary modes of 'time-travel' in *10:04*.²² The narrator can 'project' futures, figuratively travel back and forth through his own time, by writing, and re-writing, his experience of the world, as in the short story where he re-writes his own illness. For the women of *10:04*, I suggest, time is running out, or has already run out. They have no recourse to such time-travel technologies.

Representing Reproduction

I begin by considering *10:04* as a technology which both represents reproduction and reproduces a particular subject position. It is a technology which repeatedly shows the narrator as a powerful agent in relation to social and biological reproduction. This can be seen in the multiple moments of attempted 'conception' throughout the text, which are a suggestive mixing of the power of writing, particularly poetry. In the second iteration of the conversation with his agent, the narrator states 'I'm going to write a novel that dissolves into a poem...' suggesting an unequivocal agency over writing, and over the novel *10:04* as a whole.²³ The narrator's 'first experience' of 'poetic measure' is discussed at length in the text, with Peggy Noonan and Ronald Reagan providing a heteronormative cipher to his poetic 'birth.'²⁴ Shortly after this, the narrator tries to have sex with Alex, to prove he can 'get [her] pregnant.'²⁵

This obsession with self-reproduction, and with the telling of origins, is granted an explicit technological resonance in the first pages, when the narrator's imagined description refers to a technology of imaging: 'I'll project myself into several futures simultaneously.' Projecting is a form of self-moving which relies on a production of the same image elsewhere, a throwing of the self forward in time or space. The narrator Ben's vision of himself as 'a would-be Whitman of the vulnerable grid' is suggestive of this desired ability to traverse spaces of time like the spaces of the city, to move through the

²¹ Haraway, *Simians*, p.121.

²² D. Katz, "'I did not walk here all the way from prose": Ben Lerner's virtual poetics', *Textual Practice*, 31 (2017) 315-37, p.325.

²³ Lerner, *10:04*, p.158.

²⁴ *Ibid.*, p.112.

²⁵ *Ibid.*, p.127.

'vulnerable grid' via a technology of writing, which likened to a process for projecting. Like Whitman's 'Specimen Days' (1882), a poem in which Whitman attempts to contextualize his life in relation to the wider arc of geography and history, the narrator Ben imagines 'a textual commons for the future' into which he is 'always projecting himself' as though constantly repositioned in relation to different times and places.²⁶ This language is suggestive of a desire to reproduce the narrator conceptually. *10:04*'s obsession with its own writerly reproduction seems to indicate a political anxiety. This will to project is a form of suspension that positions the text between the commitment to the representative exercise of the 'realist' novel and a constant disavowal of it, and between sincerity and post-modern cynicism or irony. The novel can be read as an attempt to represent the problems of selfhood in late-capitalist America, of struggling to form connections or communities which would help resist violent structures of oppression and marginalisation, while simultaneously disavowing the political efficacy of writing this very experience. It constantly signals a knowledge of the privileged status of the writer of fiction as an artist detached from more instrumental forms of political writing or action. Yet, the writer is projected into the future, the only certainty is their continued existence.

The political stakes of this obsession with reproduction can be expanded upon through Sofoulis's statement that '*every technology is a reproductive technology.*'²⁷ This is to say that every technology 'represents a form of reproductive choice,' even if the manner of its reproduction is textual rather than biological. Sofoulis states that in 'science-fiction culture particularly, technologies are perceived as modes of reproduction in themselves, according to perverse myths of fertility in which man replicates himself without the aid of woman.'²⁸ Sofoulis's reading of Stanley Kubrick's *2001: A Space Odyssey* (1968) is instructive as a model for thinking about *10:04*'s presentation of reproductive technologies. While *10:04* is not firmly science fiction, it uses an iconic science fiction film, *Back to the Future*, as a motif and intertext, and the narrator's claim that the novel is 'on the edge of fiction' means it is located in similar conceptual and imaginative spaces to that genre.²⁹

²⁶ Ibid., p.168.

²⁷ Sofia, 'Exterminating Fetuses', p.48. Emphasis in original.

²⁸ Ibid., p.49.

²⁹ The choice is particularly resonant in the current discussion, given that the film is concerned with the reproduction of male/masculine subjectivities in a peculiarly Oedipal sense. For a detailed discussion of Oedipal resonances in *Back to the Future*, see Andrew Shail and Robin Stoate, *Back to the future* (Basingstoke: Palgrave Macmillan, 2010), p.87.

Sofoulis sees *2001* as filled with ‘embryological imagery’ that ‘illustrates the extent to which high technologies are forms of masculinist reproduction.’³⁰ *Back to the Future* shows many instances of high technology which signify reproduction in time, but which also symbolically suggest biological reproduction. The flux capacitor which is key to time-travel is shaped like ‘a vagina and fallopian tubes.’³¹ The problem of reproduction of the masculine subject in the face of the self-generated dilemmas of time-travel technologies is the main plot of the film. The adolescent protagonist Marty McFly disrupts spacetime and threatens his own existence. Marty’s father has to prove his masculine power, literally fighting other men in order to dance with Marty’s future mother Lorraine, for Marty to be sure of his birth. *10:04* makes explicit reference to this filmic crisis of reproduction, after Alex asks Ben if he would be involved with the ART process, during one of their afternoons at the Metropolitan Museum of Art. Standing in front of Jules Bastien-Lepage’s painting *Joan of Arc*, the narrator is reminded of the ‘crucial movie of [his] youth.’ The narrator describes the photograph Marty carries, within which the bodies of McFly and his siblings fade from view as the threat of their non-existence increases. *10:04* then reproduces a still from the film of Marty himself becoming translucent, fading out, before his father-to-be ‘wins’ Lorraine (see figure 5.) The concept of high technologies as a form of masculine reproduction is thus embedded in the narrative of *10:04*, as the reader is asked to reflect on Marty’s momentary fading out of existence. The notion of paternal, patriarchal anxiety is reinforced by the very surface of *10:04*’s interface.

The narrator sees the moment of Marty’s fading as an inverted version of the way Bastien-Lepage represents Joan’s encounter with ‘translucent angels.’ The narrator states that Alex ‘looks a little like’ this version of Joan, and there is an implicit opposition set-up between the filmic Marty-as-Ben and the painted Joan-as-Alex. The interface of the novel puts the narrator’s ekphrasis and Alex’s reproductive concerns in parallel. The narrator and Alex are two very different cyborgs or ‘creatures of fiction.’ Alex is Joan, summoned by the divine but also figured as an error in reality, and Ben is McFly, anxiously

³⁰ Sofia, ‘Exterminating Fetuses’, p.49.

³¹ Shail and Stoate, *Back to the future*. p.79.

Image removed due to copyright restrictions

Figure 5 — 10:04 (p.10)

fighting against the possibility that he will stop existing. In the detail from the painting reproduced on the following page, Joan is dismembered, with only a hand showing. McFly, however, is shown looking at his own fading hand, demonstrating an ability to read himself. In the picture caption, Joan is described as being ‘pulled into the future,’ yet Marty’s experience is termed ‘the absence of the future,’ as though a future timeline was predicated on the success of the reproduction of the male protagonist. The narrator calls the Joan painting one of his favourites because it is ‘as if the tension between the

metaphysical and physical worlds, between two orders of temporality, produces a glitch.³² Alex's future is thus implicitly figured as a 'glitch', a momentary error which is defined by an unknowable cause. The novel's juxtaposition of this image with the mechanism of ART seems to undermine the embodied and difficult nature of reproduction. The future is viewed as frictionless by the narrator. The narrator's own reference to his 'youth' and the reproduction of the fading Marty McFly is indicative of a desire to think of masculine reproduction within the frame of disembodied technology, rather than the sometimes dangerous embodied processes which Alex will be subject to. The intertextual presence of *Back to the Future* thus works to mystify the problems of reproduction in relation to a woman's positionality. It marginalizes the embodied situation of Alex using a science fiction frame which is defined by important fictions of masculinity: the origin story and the disembodied, mythic woman.

Politics of Flickering and Voicelessness

The reproduction of Marty McFly on the page highlights one of the central motifs on *10:04*, that of 'flickering.' McFly himself 'flickers' in the scene from the film, and the narrator often describes himself as flickering in different ways. While images of reproduction are prevalent throughout the novel, so too are images of flickering. Such images trouble the process of reproduction, suggest uncertain subject positions, or communicate an anxiety about the narrator's continued existence. The concept of flickering in relation to meaning-making is addressed by N Katherine Hayles, and I use her work here to support a discussion of the politics of flickering in *10:04*.

Hayles understands flickering as a defining process of meaning making in contemporary computing technology, which is labelled informatics.³³ Flickering describe the fact that digital media rely on 'a model of signification in which no simple one-to-one correspondence exists between signifier and Signified.'³⁴ This is to say that gestures of inscription are mediated by layers of code. For example, how writing at a computer requires the workings of a number of different codes in order to be visible. This means

³² Lerner, *10:04*, p.9.

³³ 'Following Donna Haraway, I take informatics to mean the technologies of information as well as the biological, social, linguistic, and cultural changes that initiate, accompany, and complicate their development.' N. Katherine Hayles, *How We Became Posthuman : virtual bodies in cybernetics, literature, and informatics* (Chicago: University of Chicago Press, 1999), p.29.

³⁴ *Ibid.*, p.26.

that ‘the interplay between pattern and randomness’ which is a governing process of the movement of information and informatics in general, becomes ‘a feature of everyday life,’ as lines of code and user interfaces signify by the process of flickering.³⁵ Screens themselves could be considered the product of a constant flickering of coded signals. Hayles further describes the process of flickering, of mediation by code, as follows:

In informatics, the signifier can no longer be understood as a single marker, for example an ink mark on a page. Rather it exists as a flexible chain of markers bound together by the arbitrary relations specified by the relevant codes. [...] The longer the chain of codes, the more radical the transformations that can be effected. Acting as linguistic transducers, the coding chains impart astonishing power to even very small changes. Such amplification is possible because the constant reproduced through multiple coding layers is a pattern rather than a presence.³⁶

The ubiquity of multiple coding layers is a pattern for interaction in society, one which must constantly contend with the noise of randomness in making meaning. Significantly for this reading, Hayles suggests that flickering is not bounded to the processes of informatics, but also becomes significant in contemporary literary texts as they attempt to address patterns of everyday life. Flickering describes the category of the human, in that ‘flickering signification brings together language with a psychodynamics based on the symbolic moment when the human confronts the posthuman.’³⁷ This is to say, the posthuman is a concept which flickers with possibility.³⁸ Texts such as William Gibson’s *Neuromancer* or Italo Calvino’s *If On a Winter’s Night a Traveller*, Hayles suggests, extend ‘the implications of informatics beyond the textual surface into the signifying processes that constitute theme and character.’³⁹ Calvino’s work is described by Hayles explicitly in terms of technical-textual reproduction, a novel which sees other texts ‘subject to birth defects, maimed and torn apart, lost and stolen.’⁴⁰ Flickering thus can be understood as a theoretical term, to describe the way novels signify while attempting to convey ‘patterns’ over more straightforward ‘presences’. The metaphorical language of reproduction used by Hayles in describing Calvino’s novel gestures towards the politics of origins and authority in texts, suggesting that writers ‘birth’ a novel. This sense of ‘flickering’ as having

³⁵ Ibid., p.25.

³⁶ Ibid., p.31.

³⁷ Ibid., p.33.

³⁸ See chapter two.

³⁹ Hayles, *How We Became Posthuman : virtual bodies in cybernetics, literature, and informatics*, p.39.

⁴⁰ Ibid., p.41.

political importance is further signalled by Haraway's use of the term 'code' to label a resistant 'cyborg politics.' In the 'struggle for language and the struggle against perfect communication, against the one code that translates all meaning perfectly' the cyborg is described as the disassembled reassembled self which 'feminists must code.'⁴¹ Flickering means in the sense of a struggle both for and within processes of reproduction.

The instances of flickering in *10:04*, on an initial reading inspired by Hayles, point towards the notion of the narrator as a posthuman figure, flickering between time zones and not-yet-imagined reproductive roles. There is a 'proprioceptive flicker in advance of the communal body' after a fellow food co-op member tells him a story of suddenly changed identity.⁴² In Ben's school classroom memory, 'presences are flickering' between past, present and different futures. The narrator also moves between the position of character-narrator Ben Lerner, and the actual author Ben Lerner, as the text itself is later described as 'neither fiction nor nonfiction, but a flickering between them.'⁴³ The narrator feels his 'presence flicker' when Alex's mother struggles to name the couple's plan for having a child. Flickering becomes a motif for communicating a subjective anxiety about future possibility.

A cyborg reading of flickering suggests a different interpretation of the novel. When the narrator argues with Alex, stating that she is 'asking [him] to be a flickering presence,' he is seen to think within a heteronormative limit.⁴⁴ This envisioning of his future role as flickering is arguably reliant on a notion of his absence, which has a linguistic echo in the trope of the absent father. The narrator's concern about being a 'flickering presence' is embedded in normative narratives about parenthood as a heterosexual construct, one that suggests children require a father for support. The notion of flickering as a father troubles the narrator, because it destabilizes the embedded myth and origin story of patronymic power. Where Alex's future is described as a static 'glitch' earlier in the text, the narrator's future instead flickers between poles. He is unaccepting of the possible pattern of meaning which would confirm the role of heteronormative father as 'inessential.'⁴⁵ His being coded as cyborg by his existential flickering is undermined by a reproductive anxiety that does not wish to recognize that the male-identified subject could

⁴¹ Haraway, *A Cyborg Manifesto*, p.33.

⁴² Lerner, *10:04*, p.7, p.15, p.108.

⁴³ *Ibid.*, p.194.

⁴⁴ *Ibid.*, p.136. Heteronormativity as an ethical limit is addressed by Rachel Carroll in relation to *Never Let Me Go*. See chapter two.

⁴⁵ Haraway, *A Cyborg Manifesto*, p.10.

also be objectified via technological processes. The flicker here suggests a ‘patriarchal anxiety’, whereby objectification means to flicker out of existence.⁴⁶

A further reading of flickering might suggest that the narrator’s status must flicker between two points in order to effectively acknowledge the fragmentation of contemporary experience. For Daniel Katz, the explanation for this is that writers such as Lerner are of ‘the post-post-modernist generation, coming of age in the twenty-first century.’ They are ‘weary of a post-structuralism that has become a cliché, but [want] nevertheless to acknowledge the truth in ‘post-structuralist’ positions.’⁴⁷ Yet this ethical suspension is not sustained in *10:04*. The final identification in the text, that ‘I know it’s hard to understand/I am with you, and I know how it is’ closes down the ethical undecideability through the combined vocality of three white poets: Magee, Whitman and Lerner himself. This reinforces the universality of the white male subject as a powerful node for establishing ‘truth’ or sincere knowing. This observation links *10:04* to other works of American literature which appear concerned with their own production, such as David Foster Wallace’s *Infinite Jest* (1994). Joel Nicholson-Roberts and Edward Jackson’s critique of what has been termed Wallace’s ‘new sincerity’ resonates with this reading of Lerner. The assessment Roberts and Jackson make of Wallace’s novel can also be applied to *10:04*, as it also moves ‘towards an ethics that absents power’ and towards ‘a human that remains a white guy.’⁴⁸

The final reference to flickering in the text demonstrates the above absencing of power in *10:04*. The narrator simultaneously quotes Walt Whitman’s ‘Crossing Brooklyn Ferry’ and compares himself to Magee, as he and the now pregnant Alex walk through Brooklyn after the second storm hits:

A steady current of people attired in the usual costumes was entering the walkway onto the bridge and there was a strange energy crackling among us; part parade, part flight, part protest. Each woman I imagined as pregnant, then I imagined all of us were dead, flowing over London Bridge. What I mean is that our faceless presences were flickering, every one disintegrated, yet part of the scheme. I’m quoting now, like John Gillespie Magee.⁴⁹

⁴⁶ Delany, *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction*, p.209.

⁴⁷ Katz, ‘Virtual Poetics’, p.335.

⁴⁸ Joel Nicholson-Roberts and Edward Jackson, ‘White Guys: Questioning Infinite Jest’s New Sincerity’, *Orbit: A Journal of American Literature*, 5 (2017) .

⁴⁹ Lerner, *10:04*, p.238.

The image of a moving public with a 'strange energy' involves the imagination of a total, mythic and abstract reproductivity, which is juxtaposed with a ghostly image of total death. The enjoining of death and reproductivity is emphasized in the reference to the work of another canonical male poet, T.S. Eliot. The line 'flowing over London Bridge' refers to *The Wasteland*: 'Under the brown fog of a winter dawn,/A crowd flowed over London Bridge, so many,/I had not thought death had undone so many.'⁵⁰ Imagining each woman as pregnant, in the context of a 'part parade, part flight, part protest' makes specifically female reproductivity into a condition of the imagined, hybrid commons, framed by a canonical work which traffics in images of infertility, abortion and death. Women being understood as the vessel for reproduction is here a conceptual limit for the reimagining of collectivity. The faceless presences flicker between difference and wholeness, suggesting a movement into a hybrid, otherworldly space, a cyborg image. Yet, this is communicated in the ventriloquizing of Whitman ('disintegrated, yet part of the scheme') and the narrator likens his quoting to another male poet, Magee. The novel 'dissolving' can be read as a recoding, a changing of the particular interface effect of the novel up until this point, one which is signalled with the introduction of a line break: 'I know it's hard to understand/I am with you, and I know how it is.'⁵¹ In this appeal, women remain objects of reproduction, the technological vessels of conception, and men, in the form of Whitman, Eliot, Magee and the narrator, are the legislators and agents of it. The novel is not satisfactorily dissolved, but rewritten, reinscribed in a different voice. The 'P' is the narrator as poet, and the references to understanding and knowing close down the possibility of difference and situatedness, by asking that the collectivity, the 'difference' which the novel moves towards, be figured in the voice of white men and in the language and form of a canonical poem.

This homovocality is representative of the textual world of *10:04*, in spite of the myriad references to the flickering of meaning. The imaginative legislation of the ethical possibilities available to women by men is further found specifically in relation to voice. In a conversation where the narrator is discussing his relationship with Alena with his friend Sharon, a contrast in anxieties or neuroses highlights a limitation in his ability to conceive of difference. The fears of different subjects are articulated: the narrator's is a fear of death, and Alena's, spoken of by Sharon, is a fear of voicelessness:

⁵⁰ T.S. Eliot, *The Wasteland and Other Poems* (London: Harcourt, 2014).

⁵¹ Lerner, *10:04*, p.240.

“The breath-play thing,” I said with the help of my second cocktail, “makes me nervous.”

“What if you stopped worrying about protecting women from their desires?”

Now we were walking down Delancey, a gas I hoped was only steam rising from the street vent. “Maybe it’s how she grapples with and overcomes a fear of death.”

“Maybe it’s how she grapples with the threat of voicelessness.”

A passing ambulance threw red lights against us. “Or takes pleasure in making you confront the pleasure you take in those threats.”⁵²

The protagonist’s fear of death, his self-obsession, is what governs his response to Alena’s sexuality. The death of the self is connected to a general apocalyptic fear surrounding the death of the planet. The ‘gas’ rising from the street vent signifies the destruction of the material of the planet, the breaking of the ground in an apocalyptic event. The narrator conceives of his death in terms of the death of every human being. This reading of the breath-play as ‘grappling with’ a similar fear of death is repositioned when Sharon retorts that the threat of ‘voicelessness’ is a more accurate reading. This reading conflicts with the narrator’s own continuing ability to voice himself and to readily appropriate other powerful voices such as Whitman’s. The juxtaposition emphasizes that conceptually flickering between being and not-being is the preserve of subjects who cannot conceive of the possibility of losing their voice. The red lights of the ambulance work to highlight the sense that this is a warning in the text, that voicelessness is a more genuinely dangerous possibility for women.

The ability of the narrator to technologically reproduce himself, to write a novel about his existence, is thus thrown into relief by the voice and threatened voicelessness of Alena. She herself produces artwork that the narrator finds ‘difficult to face,’ the explanations of which he cannot understand.⁵³ When the narrator attempts to quote a line from *Mrs Dalloway* in response to her voicelessness (‘a match burning in a crocus’) it is ‘lost in the noise of the approaching train.’⁵⁴ The technology of the novel, a robustly canonical work of literary modernism by Virginia Woolf, is ventriloquized in the attempt to establish a form of knowing about Alena’s subjectivity, but it fails. The failed reproduction of the Woolf quote can be read as signalling the limitations of attempting to understand the world through canonical categories of artistic meaning. The narrator’s inability to face Alena’s work seems to indicate a problem with hearing the artistic voices

⁵² Ibid., p.30.

⁵³ Ibid., p.27.

⁵⁴ Ibid., p.31.

of those who are threatened with voicelessness. Alena can thus be understood as a fissure in the homovocality of the text, with the voicelessness of women subverting the existential anxiety of the narrator, challenging the validity of the male-poet voice which governs the text's ethical appeal. Alena grants the process of flickering a material political gravity, by positioning the pattern of meaning as one that does not always yield to the understanding of the male poet or notions of canonicity.

The troubled, partial, and sometimes mythic futures of the women in *10:04* are differently voiceless, while the future time of the novel is articulated by the homosocial togetherness, one which assumes the power to 'know' is both accessible to all subject positions and the most valuable form of connection for solidarity or togetherness. This difference can be initially demonstrated through a short reading of the most marginal mother, Anita. Anita is an absence in *10:04*, a formal flicker in its pages. The narrator tutors her son Roberto and takes him on a study trip to the museum, to complete a book on the false provenance of the brontosaurus, which is also reproduced in full in the novel. The only references to Anita are when Roberto is picked up from or returned to her care. When the narrator collects Roberto for the museum trip, Anita is 'a little nervous' given her daughter was unable to accompany them due to an 'unexpected shift at the Applebee's Flatbush.'⁵⁵ This signals a difficult and precarious work environment for the family, although the narration addresses this only in comic terms. The narrator describes Roberto's family as an 'undocumented family' while neurotically worrying about disciplining Roberto. If Roberto 'reported any form of restraint [...] who knows what would happen [...] an undocumented family wasn't going to call the cops, but his dad might run me over in the truck Roberto was always bragging about.'⁵⁶ This generalisation makes the undocumented migrant the subject of a joke, and minimizes the agency of Anita as migrant mother by temporarily replacing her with an otherwise unmentioned father. The narrator's teaching of Roberto is framed as a moment of sincere connection, but it appears to come at the expense of a badly ironic representation of Anita and her family. She is a caricatured mother, one whose only act is to worry for her son's safety, because she is a voiceless and othered presence in the novel. Anita and the other women in the text are already familiar with the flickering of meaning, as they are obstructed from giving voice, from making meanings that have ethical and political weight in the textual world. They are not flickering in the same sense of the narrator, agonising over points of

⁵⁵ Ibid., p.144.

⁵⁶ Ibid., p.145.

mortal meaning, but rather are floating. They have less purchase on the text itself. This can be seen in more detail, in one of the more obviously technologically-situated cyborg figures, Christa McAuliffe.

Reading Christa McAuliffe as Cyborg

The most visible high-technology of the novel is found in references to the Space Shuttle *Challenger*, and a reading of its situation in the text helps to extend the work of this chapter, in considering the gender politics of technological reproduction in the novel *10:04*. The narrator invokes the memory of the *Challenger* disaster twice in the novel, which opens up the context of the Space Shuttle era of 1980s America.⁵⁷ McAuliffe is a striking textual occurrence, a picture of her in zero gravity training appearing early in the novel (see figure 6.) As a mediated figure, floating in the photograph, McAuliffe's own presence flickers between weightlessness and purchase, between silent image and resistant figure, contrasting with the words of President Reagan's speech-writer, Peggy Noonan. Her photograph is second in the three instances of photography in part one of the novel; the first is Marty McFly and Joan of Arc's disembodied hand a few pages before, and after McAuliffe comes the *Angelus Novus* (1920) by Paul Klee, accompanied by a quotation from Walter Benjamin's 'Theses on the Philosophy of History' which reads the image as the 'the angel of history.' Benjamin famously conceptualizes Klee's image as representative of a mode of looking at the events of history:

His eyes are staring, his mouth is open, his wings are spread [...] his face is turned towards the past. Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage upon wreckage [...] The storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress.⁵⁸

McAuliffe is an inverted angel of history, one who looks into the future rather than back to the past, a floating figure who does not look on death, but forward. She does not look on 'the pile of debris' of which she will become a part, but fatally is forced to look in-tandem with the direction of 'progress.' The mother in space is a cyborg disturbance to

⁵⁷ For a detailed timeline see: Anna Heiney, 'Kennedy Space Center: Historical Timeline', NASA.gov, (2012) <<https://www.nasa.gov/centers/kennedy/about/history/timeline/80s-decade.html>> [Accessed 08/05/09].

⁵⁸ Walter Benjamin, 'Theses on the Philosophy of History', in *Illuminations*, (New York: Schocken, 1969), p.249.

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Figure 6 — Christa McAuliffe, ‘pulling us into the future’ (p.16)

masculine science fiction fantasies, those which figure sublime approaches to the future of technology as myths of ongoing, unbridled acceleration. Such fantasies characterize the political rhetoric adopted by Reagan. The novel *10:04* acknowledges this, but also silences the possibility of McAuliffe as a politically powerful cyborg symbol, as though presenting her simply as historical debris in the continued reproduction of the novel itself. She is an effect in an interface designed to ‘dissolve into poetry,’ present simply to observe the possibility of continuing, future death, a voiceless angel of progress.

Thinking about Christa McAuliffe through the cyborg intraface requires a sense of the ‘social reality’ of her position in the public imagination. Constance Penley writing in *NASA/TREK* (1997) signals how McAuliffe has become an important textual figure, in that her death is ‘densely inscribed in science fictional, mythical, folkloric, and ideological narratives about women, technology, and catastrophe.’⁵⁹ Such inscription is gendered, related to ‘her role as ordinary wife, mother, teacher, and private citizen in space.’⁶⁰ Her presence in the space programme, Penley suggests, lent a liberal-humanist validation to what was a ‘porkbarreled’ political project:

Where the orbiter was the harbinger of a high technology revolution that would bring prosperity and stability to enterprising Americans, Christa McAuliffe was

⁵⁹ Constance Penley, *NASA/TREK: popular science and sex in America* (London: Verso, 1997), p.58.

⁶⁰ *Ibid.*, p.29.

an example of the well-educated middle-class professional whose role would be to introduce the citizens of the future to the vistas of space age opportunity facilitated by science, mathematics, and individual excellence.⁶¹

McAuliffe thus provides an important focal point for thinking gender and technology in *10:04*, not least because the *Challenger* disaster is contemporaneous with Haraway's Cyborg Manifesto, happening in January of 1986. She is also a voiceless woman, whose origins and returns are not addressed in the novel, despite her pictorial presence. Rather, she remains in a form of stasis, as an object which helps the narrator to project into the past, and into the future. This sense of McAuliffe as an object of the technology of the novel, along with her identity and the wider context of the *Challenger* disaster, speaks to the political issues Haraway articulates in her early work. McAuliffe was in the 'belly of the monster' of the NASA space programme.⁶² She was a working part of the tenth *Challenger* Space Shuttle mission, what the Cyborg Manifesto terms Reagan's 'Star Wars apocalypse waged in the name of defence.'⁶³ Included primarily for the positive publicity opportunities for NASA and the American state, she is a prime example of the 'appropriation of women's bodies in a masculinist orgy of war.'⁶⁴ McAuliffe can thus be understood as a cyborg figure, a 'creature' of the fiction of *10:04* and of the 'social reality' of the *Challenger* disaster, one whose access to codes of telling, unlike Lerner's narrator, is curtailed by the interface of the novel, the static photographic representation juxtaposed with the words of Reagan. McAuliffe's status in the text can be read using Patricia Mellencamp's sense that she become a 'leftover' or 'aftereffect' in colloquial discourse surrounding this disaster. She is furthermore an aftereffect in the telling of the narrator's own origin story in *10:04*.⁶⁵

This mythic status of McAuliffe as a kind of universal subject is referred to in *10:04* in two different instances. These are the narrator's first-person recollection of a childhood memory of the *Challenger* disaster itself, and the verbatim-quoted speech about becoming a writer he gives at Columbia School of the Arts. In the first invoking of the memory of the disaster, in the elementary school classroom, the narrator describes having 'reentered' the building, the verb echoing the moving of spacecraft back into Earth's atmosphere. The fate of the shuttle, which exploded seventy-three seconds after lift-off

⁶¹ Ibid., pp.30-31.

⁶² Haraway, *Promises of Monsters*, p.68.

⁶³ Haraway, *A Cyborg Manifesto*, p.15.

⁶⁴ Ibid.

⁶⁵ Patricia Mellencamp in Penley, *NASA/TREK*, pp.28-29.

due to an avoidable malfunction is juxtaposed with the death of the narrator's schoolmate, Daniel, who committed suicide at nineteen.⁶⁶ These deaths are inevitable in the passage, presented in an affectless way, part of the movement into the future: Daniel, 'will hang himself for whatever complex of reasons in his parents' basement at nineteen' and McAuliffe's picture on the following page, which marks the end of the episode of memory, is accompanied by an extract from Reagan's address to the nation after the disaster. The caption reads 'pulling us into the future.'⁶⁷ The two deaths are connected by the diorama the boys 'co-construct' with the spacecraft described as dangling 'like a modifier from a string, perpetually disintegrating.'⁶⁸ This suggests both Daniel and McAuliffe's deaths are abstract and endless events, communicating a pessimistic sense that the future will always involve tragic death. Yet the introduction of a political context granted by the direct quotation of Reagan communicates an awareness of the social reality involved in such tragedy, without acknowledging the political resonance of such deaths. The description of Daniel implicitly refers to untreated mental health, and McAuliffe's death is granted no further material context. Instead, McAuliffe 'dangles' as a catalyst for a memory that later reinforces the narrator's origin story, the birth of themselves as a poet, and Daniel is never mentioned again in the text.

The voiceless McAuliffe is subordinate to the language of President Reagan in the text, which is quoted at length. Reagan's language in the novel is that of the masculine techno-sublime: the address speaks of 'exploration and discovery,' and claims the 'future' belongs to the 'brave' who the American public must 'continue to follow.'⁶⁹ The very last words of the novel, the caption to the reproduction of Vija Celmins' *Concentric Bearings B* on its final page, are from Reagan's State of the Union address, which claim that 'never has there been a more exciting time to be alive, a time of rousing wonder and heroic achievement.'⁷⁰ As Leo Marx's states, the rhetoric of the technological sublime 'rises like froth on a tide of exuberant self-regard sweeping over all *misgivings, problems and*

⁶⁶ 'The Rogers Commission determined that the shuttle exploded because of the hot gas breach of a seal, essentially comprised of putty and rubber washers (O-rings) [...] The Rogers Commission verified suspicions that the poorly designed seal of the right solid rocket booster was the technical cause of the accident. But it also accused the managers of NASA and its contractor for the solid rocket boosters, Morton Thiokol, of not heeding early warnings from engineers about the faulty seals.' Ann Larabee, 'Remembering the Shuttle, Forgetting the Loom: Interpreting the Challenger Disaster', *Postmodern Culture*, 4 (1994) .

⁶⁷ Lerner, *10:04*, p.16.

⁶⁸ *Ibid.*, p.15.

⁶⁹ *Ibid.*, p.16.

⁷⁰ *Ibid.*, p.241.

contradictions.⁷¹ It is this totalizing rhetoric which can be linked to a ‘masculine’ endeavour, the desire to know and control, as Giblett articulates: ‘the technological sublime itself is imprisoned in an earthly, masculine poetics and politics.’⁷² McAuliffe represents, then, a misgiving, a problem and a contradiction for Reagan’s speech, and is seemingly imprisoned by a masculine poetics: she is the ‘painful thing’ that has happened in order to ‘[expand] man’s horizons.’ She is the object for technological progress and a woman whose motherhood is erased in favour of the narrator’s self-reproduction by an ‘ironically’ universal poetry. Reagan’s language attempts to transform *Challenger* into a pioneering technology of the nation state. The space shuttle project is made a necessary part of the progress of universal human civilisation, when in reality it privileged the accumulation of political capital over the safety of its crew.⁷³

Reading the caption to McAuliffe’s image through the intraface of the cyborg opens up a further ambiguity in the politics of *10:04*. Reagan’s ‘pulling us into the future’ is a line which transforms McAuliffe’s death into a political instrument. *10:04* gestures towards a critique of Reagan’s language, in that there is an ironic sense to the caption, the macabre knowledge of McAuliffe’s death blackly undermining its rhetorical effect. The ‘us’ becomes a universal American second-person plural, a ‘bad form of collectivity’ which forms under the photographic reproduction of a dead teacher. The image can be read as disturbing the recuperation of the disaster by Reagan, McAuliffe’s cyborg presence an unignorable element in the otherwise abstract naming and narrativizing of the *Challenger* crew as ‘part of the process of exploration and discovery’ of ‘expanding man’s horizons.’⁷⁴ However, what accompanies this irony is a movement into the rest of the text, which seems to instrumentalize McAuliffe as an interface effect, a process for the continuation of the novel. Her gaze in the image looks across the environment of the zero-gravity training, the reality of her death made present with the visible technology of the shuttle. She simultaneously looks across to the next page of the text, to the ongoing novel. The ‘future’ of the fiction is another future that the photo caption pulls ‘us’ into, and the reproduction of McAuliffe moves the reader towards the reproduction of the narrator, an interface effect which serves to support the ongoing reproduction of the

⁷¹ Leo Marx quoted in Mosco, *The Digital Sublime : myth, power, and cyberspace*, pp.22-23. My emphasis.

⁷² Giblett, *Sublime communication technologies*, p.147.

⁷³ ‘The Rogers Commission Report made it clear that NASA’s organizational decisions were to blame in the decision to launch the space shuttle, despite icy weather and faulty booster seals.’ Larabee, ‘Remembering the Shuttle’.

⁷⁴ Lerner, *10:04*, pp.15-16.

work. McAuliffe's gaze seems to move the reader quickly on from the moment of friction, where the national-political and the personal intersect in the cyborg-figure. It is simultaneously a confrontation with McAuliffe as an avoidable, violent death and an abstraction of her death as an impulse for moving into the future of the narrative.

This reading is reinforced by the next instance of McAuliffe in the text. The narrator is speaking on a writer's panel at Columbia School of the Arts, and his memory of Reagan's speech forms the substance of the 'fiction' of the 'origins' which he acknowledges: 'I can tell you how, from my current vantage, I have constructed the fiction about the origins of my writing, such as it is.'⁷⁵ The narrator acknowledges the 'preposterousness' of saying that he became a poet because of Ronald Reagan and Peggy Noonan, but the explanation of the effect of the prosody in the speech assumes a universal experience, of pride and grief simultaneously:

The way they used poetic language to integrate a terrible event and its image back into a framework of meaning, the way the transpersonality of prosody constituted a community; poets were the unacknowledged legislators of the world, it seemed to me.⁷⁶

The narrator states that the traumatic event is integrated back into a 'framework' by the language written by Noonan and spoken by Reagan. Drawing a parallel between the political manipulation of a national tragedy and 'the transpersonality of prosody' reduces the political context of the Challenger disaster to incidental status. When the narrator says he felt 'in [his] chest' the 'authority and dignity, of mourning and reassurance' it is appended with the caption from McAuliffe's image: 'the sentence pulled me into the future.' With this, Reagan and Noonan become the ironic progenitors of the narrator-poet, a powerful hetero-coupling symbolic of the powers of the military-industrial complex. The narrator being pulled into the future by the language of Reagan erases the role of McAuliffe in this particular story of technology, replaced by the apparent power of prosody. McAuliffe's political purchase in the text is erased, or written over, in favour of an ironic statement of origin. The ironic stance of the novel here does not adequately voice the violent political actions of the nation state.

This political erasure happens in the next mention of McAuliffe when the narrator explains the *Challenger* joke cycles. The text quotes some of the jokes which circulated

⁷⁵ Ibid., p.110.

⁷⁶ Ibid., p.113.

after the disaster, including two which textually dismember McAuliffe, an echo of the disembodied hand of Joan of Arc from the earlier picture: 'Did you know that Christa McAuliffe was blue-eyed? One blew left and one blew right [...] How do they know what shampoo Christa McAuliffe used? They found her head and shoulders.' McAuliffe is a figure who was pulling-and-pulled into the future, and while the narrator denigrates the jokes in the speech, he claims them as a version of cultural collectivity. The narrator states 'the anonymous jokes we were told and retold' which 'were our way of dealing with the remainder of the trauma that the elegy cycle [...] couldn't fully integrate into our lives.'⁷⁷ The suggestion is that the jokes are used to make the event tellable in a way which is colloquial and thus collectively understood. This leads the narrator to call the jokes, like Reagan's rhetoric, 'bad forms of collectivity that can serve as figures of its real possibility.' This is to say that collectivity is initially figured by a state leader who is a 'mass murderer,' and in jokes which re-enact the imagined process of dismemberment. The figures of possible collectivity are 'prosody and grammar,' that with which 'we build a social world' and organize 'meaning and time.'⁷⁸ This description of a movement to collectivity assumes that the jokes are able to unproblematically reintegrate a traumatic event. The textual reproduction of the *Challenger*, and of McAuliffe specifically, once more relies on the necessary absence of knowledge about the reasons for the disaster, replaced by the writing over of such trauma.

A reading of the jokes in terms of what they communicate about technology shows how they highlight the political limits of *10:04*, how the reduction of Christa McAuliffe to leftover interface effect signals political problems. Writing about the social understanding of the disaster, Ann Larabee suggests that '[t]hese jokes present the body/technology interface as a spectacularly violent one, as opposed to the cultural ideal.'⁷⁹ For Larabee, the joke cycle enacts a social repression which masks the actual conditions of the death of McAuliffe and the other crew. Relocated in this context, the technology of poetry as a method for a kind of emancipation, a transformation of the figures of 'bad collectivity,' seems to require a repression that pretends at a comforting knowing. Larabee elaborates on the lack of knowledge concerning the disaster as an explanation for the joke cycles:

⁷⁷ Ibid., p.115.

⁷⁸ Ibid., p.116.

⁷⁹ Larabee, 'Remembering the Shuttle'.

[with *Challenger*] technology violently entraps, penetrates, and chars the body locked in its embrace. It is this possibility that evokes both national efforts at repression and the return of the repressed through the joke cycle. In a national spectacle of disaster, the body is the pain of technological violence that can never be represented, but only displaced by word and image.⁸⁰

The notion of McAuliffe as the ‘painful thing’ in Reagan’s language can here be relocated as the reality of technological violence on a national scale. In *10:04*, the image of McAuliffe alive and floating and the words of Reagan evoking sublime progress serve to displace the pain of technology entrapping and penetrating the body. This can be compared to the way multiple fires in *Back to the Future* are seemingly benign, simply pyrotechnic figures of the power of science, and not fires which kill. *10:04* presents the narrative of the disaster as an ironic tool for imagining a better future by the figuration of poetic language, language which was borne of the necessity for political manipulation to retain the impression of power and control. The attempt to know is haunted by the actual experience of the astronauts and their unknowable death as the crew plummeted to the ocean.⁸¹ Christa McAuliffe is an inescapable, deathly, textual figure in the recurring and retold story of attempts at community. Rather than working through the disaster as a traumatic memory, the text repeats the death of McAuliffe, in the perpetual disintegration of her textual and literal body.

In summary, McAuliffe’s cyborg presence can be read as an ironic resistance to Reagan’s words in the text. But she is simultaneously material for the accelerating reproduction of political capital via the sublime technological rhetoric of the nation state. Penley explains that ‘the Reagan administration tried its best to turn the accident into patriotic fodder (much to the disgust of the astronauts’ families and many others)’ and that the media used the disaster to demonstrate television’s power in being able to ‘create an ‘us’ [...] in our collective national grief.’⁸² In the context of this description of *Challenger*’s cultural significance, it is difficult to disentangle the collectivity described by the narrator of *10:04* from the required erasure of the disaster’s material conditions, and the simultaneous rhetorical erasure of McAuliffe. Both acts of erasure are required for the sustaining of a collective ‘national grief’ which looks uncritically at the conditions

⁸⁰ Ibid.

⁸¹ ‘Careful study of footage from the explosion clearly revealed that the forward fuselage containing the crew compartment hurtled to the ocean intact. Neither NASA nor the Rogers Commission were very willing to admit this dangerous fact as they attempted to restore public faith in technology.’ Ibid., p.10.

⁸² Penley, *NASA/TREK*, p.45.

which led to McAuliffe's selection, the death of the astronaut crew, and the troubling undermining of women in significant technologies. The way *10:04* ties the possibility of collectivity to an event of neoliberal disaster asks that the event be read over again, but does so at the expense of performing an irony which elides material violence, obscuring the conditions which Haraway would describe as being 'in the belly of the monster.'⁸³ McAuliffe is a casualty of the autofictive male narrator's origin story.

Alex's Reproductive Autonomy

The presence of a voiceless McAuliffe as a component part of a 'bad form of collectivity' raises questions concerning the position and agency of women in the rest of *10:04*. McAuliffe resonates as a silent woman in a scenario of state exploration. Her written-over presence in the text highlights Alex's own semi-present status, as well as her economic and reproductive precarity. While she finishes the novel pregnant, Alex's autonomy in the text is undermined by the narrator's admission that 'Alex wanted to be left out of my fiction.'⁸⁴ Alex is in fact in two fictions, represented as Liza in the short story 'The Golden Vanity' as well as the novel as a whole. She is also a signifier for the imagination of collectivity at the end of the text, as is the child she bears, when the narrator imagines 'each woman' he passes as pregnant, catalysed by a 'strange energy' of public togetherness. Alex is, like McAuliffe, objectified by the technology of the novel. Alex inhabits a version of McAuliffe's weightlessness in the NASA training image, as though weightless in the text. Identifying how Alex's voice is present or silent can show how the ethical aim of the text seems limited to a form of sincere reassurance which is ultimately homosocial, which minimizes the bodily reality of contemporary reproductive technologies for women. Alex's voice, unlike McAuliffe's, is able to surface in *10:04*, to become heard against the narrator's, but it is situated in a text that is obsessed first and foremost with its own reproduction.

Early in the text, Alex's direct speech outlines her relative economic precarity regarding reproduction. While the narrator writes the concerns of his ability to reproduce himself in metaphysical terms, flickering throughout the novel, Alex's experience of the process of reproduction is firmly limited by material conditions. She has only 'seventy-five weeks of unemployment benefits and insurance plus modest savings' which means

⁸³ Haraway, *Promises of Monsters*, p.68.

⁸⁴ Lerner, *10:04*, p.57.

she ‘should be more afraid to reproduce than ever.’ She wants her terminally-ill mother to meet her child, and so ‘can’t wait for professional and biological rhythms to coincide.’⁸⁵ Alex knows she must use ART if she is to reproduce. She is obstructed by the fact she is a thirty-six year-old single woman who must pay large sums of money in order to reproduce outside of the conditions of a heteronormative relationship. She makes it clear to the narrator that ‘fucking you would be bizarre’ but eventually the two do have sex, in order make sure of conception.⁸⁶ Alex’s situation contrasts with the narrator’s ‘strong six-figures’ for the novel he writes, and while the narrator supports Alex with these costs, it is clear that the experience puts huge strain on Alex financially. She takes a new job ‘for which she was radically overqualified and underpaid,’ tutoring in an after-school programme, welcoming ‘whatever money.’

The moment where Alex’s voice contests being objectified by technology of *10:04* is after the narrator tries to initiate sex. When the narrator goes to Alex’s apartment while drunk, after the panel at Columbia where a new writer acquaintance has told him to ‘do it all,’ he appears to reject the role Alex has asked him to take in the process of reproduction. Alex becomes ‘particularly pretty’ to him, and his ability to carry out the sexual act becomes the primary concern in what was before a carefully discussed non-heteronormative kinship:

‘I’m doing it all,’ I said meaninglessly, and then I said: ‘I’m not going back there to jack off into a cup every month for two years. Okay, so my sperm are a little abnormal, but it doesn’t mean I can’t get you pregnant.’⁸⁷

The narrator’s anxiety about his sperm is communicated carelessly while drunk. Alex has been concerned about the results, given that they heavily influence the process of having a child. The narrator has already failed to respond to her text message asking ‘Results?’⁸⁸ Rather than addressing the possible obstacle to Alex’s reproduction, the narrator says he wants to ‘get [Alex] pregnant.’ Alex’s subjectivity as constituted by biotechnologies is subordinated to an anxiety about male fertility that comes with an attendant language of virility and potency. It is possible for the narrator to resist his being made an object of technological process, of scientific objectivity, but for Alex the process simply involves a

⁸⁵ Ibid., p.9.

⁸⁶ Ibid., p.7.

⁸⁷ Ibid., p.127.

⁸⁸ Ibid., p.101.

transformation from object of reproductive science to object of male gaze: a thing to be acted upon, made pregnant. This transformation is rejected by the restatement of direct speech, the pragmatic voice of Alex: ‘Go to sleep, you fucking idiot, we are not having sex.’⁸⁹ Her words ‘stun’ the narrator, and once again, as in the conversation with Sharon, the narrator’s anxiety concerning death, his need to overcome this as central to his own well-being, is confronted by the political situation of the precarious but powerful non-male voice. The narrator is mocked by the text here, speaking ‘meaninglessly,’ undermining the power of his own textual reproduction. While this irony works through a humiliating humour, nonetheless Alex has to give voice to a demand against the narrator’s masculine ego. Unlike McAuliffe, Alex is not silent in this text, but must resist becoming the object of masculine reproduction.

The reflexivity of *10:04* means there is some analysis of this moment in the pages of the text. When the narrator apologizes for being drunk, Alex directly addresses the problem of his commitment to having a child with her. To Alex, the narrator’s drunkenness is one manifestation of his undecidable thinking, his flickering which is typified by his writing. It is a manner of thinking which concerns her because of the very possibilities for the deniability of meaning:

“if we’re going to try to make a baby, however we try to make one, I don’t want it to be one of the things you get to deny you wanted or deny ever happened.”

“What do you mean?”

“It was the only kind of first date he could bring himself to go on, the kind you could deny after the fact had been a date at all.”

“That’s fiction and we’re not talking about a first date.”⁹⁰

Alex demonstrates her irrepressible agency, her claims for a ‘serious’ and open conversation about ‘reproduction strategy,’ by quoting the narrator’s fiction back at him. She demonstrates a cognizance with the way the narrator writes the possibility of things remaining undecidable, his privileging of his own reproductive interface over their shared process of biotechnological production. Alex challenges this by shifting the narrator’s anxious concerns about the ‘future’ into the present. The narrator responds by complaining that he is only ‘kind of’ involved: ‘you’re asking me to be a flickering presence. I give reproductive cells and then the rest we figure out as we go along.’ To

⁸⁹ Ibid., p.127.

⁹⁰ Ibid., p.136.

‘figure out’ a different, unknown figuration of being a father presents a barrier to his thinking. Flickering involves an uncertain pattern of meaning which does not require the fatherly or authorial presence for its significance. When he asks ‘[w]hat, we’d be a couple? Are you proposing?’ Alex responds in joking terms that he is able to understand: ‘No. People do this. It would be like we were...amicably divorced.’⁹¹ Alex reasserts that there is a possibility outside of a traditional coupling, something which needs to be improvised, ‘worked out.’ This is to say that Alex is committed to the unexpected, rather than the certainty of knowing the future. She expects to suffer the difficulties of being the object of reproductive technologies formed by a patriarchal social system and does suffer ‘unexpected bleeding’ at the end of the novel.

This section of the novel finishes with the narrator’s mode of reproduction being disrupted. Alex tells the narrator ‘a story about her mother she made me swear I’d never include in anything, no matter how disguised, no matter how thoroughly I failed to describe faces or changed names.’⁹² The interface process of *10:04* is disrupted by Alex’s challenge to the narrator’s own rights of reproduction, after telling him ‘I don’t want what we’re doing to just end up as notes for a novel.’⁹³ The message is one that undermines the ironic posture of the novel: no matter how thorough the ironic method which the narrator might use, Alex’s story of her mother is not allowed to become part of the narrative of *10:04*. What is found through reading Alex’s presence in cyborg terms is the way the novel at times subordinates the material conditions of artificial reproductive technology to the problem of reproduction via the technology of writing. The narrator’s writing-as-reproduction looks to control all outcomes, whereas Alex can be understood as retaining a sense of the risks and dangers of reproduction, read from a woman’s situated perspective.

Alex’s ultrasound at the end of the text draws together these problems of representation and reproduction. The narrator describes the ultrasound system as ‘the Rolls-Royce of ultrasound machinery’ knowingly ironic in its sensationalising of this instrument of medical reproduction via industrial technological production. The technology of the ultrasound is also compared to the digital technology for tracking the storm, the ‘million media’ and apps which allowed the first storm to be visible.⁹⁴ This

⁹¹ Ibid., p.136-37.

⁹² Ibid., p.143.

⁹³ Ibid., p.137.

⁹⁴ Ibid., p.17.

sense of sublimity, of technological power able to see and know both the human being and the environment, is communicated in the parallel the narrator draws between himself and the baby:

On the flat-screen hung high up on the wall, we see the image of the coming storm, its limbs moving in real time, the brain visible in its translucent skull. The doctor dwells on the rapidly beating heart, then lets us hear it at high volume. It has only been a couple of months since I heard mine on a similar machine.⁹⁵

While the narrator implies a similarity or sameness in the way the ‘machine’ tracks their heartbeats, the foetus inhabits a very different ontological status. The foetus is an object of biotechnology, of scientific seeing, and its oncoming birth signals its cyborg status. It is already a creature of the technology which makes it visible, in the familiar HMI of the real-time ultrasound, and further becomes a ‘creature of social reality’ through its appearance.⁹⁶ The hybrid nature of the child here is linked to the storm: it is ‘natural’ like the storm, but simultaneously a figure of ‘culture’ through the process of the sonogram. It takes part in the technological mythos of ultrasound images which are used to signify life, growth and progress. The foetus is the locus for an altered techno-sublimity, the wonder at the growth of microscopic human life, an inversion of the sublime power of a climate-change induced, apocalyptic storm. The description even makes the image of the baby in the mother’s body into a version of the storm itself; the baby is the ‘coming storm,’ communicating both anxiety on the narrator’s part, and drawing together two different motifs of the future, reproduction and disaster. It suggests a cyborg resonance, the child being both animal, machine and human. The baby thus becomes a symbol of frightening, ontologically significant reproductive change. The almost-storm, almost-octopus child is a figure of a different form of kinship, one which makes technology and

⁹⁵ Ibid., p.233.

⁹⁶ The status of the foetus as cyborg has been explored by Heather Latimer, in her work on Shelley Jackson’s the Patchwork girl: ‘If Haraway’s cyborg is important precisely because it resists categorization as either technological or natural, then through the use of fetal imaging the sonographic fetus has become a boundary to this theory [...] the fetus [disrupts] the digital/organic border as a cyborg is contained through the erasure of the technology that makes it visible in the first place. It therefore acts as a limit to how posthuman theories affect reproductive technologies in that it is a cyborg which is often used to reinscribe stable meanings to the human/machine dualism they supposedly disrupt.’ It is important to remain aware of the difficult status of the fetus as both visible through and effaced by reproductive technologies. Heather Latimer, ‘Reproductive Technologies, Fetal Icons, and Genetic Freaks: Shelley Jackson’s Patchwork Girl and the Limits and Possibilities of Donna Haraway’s Cyborg’, *MFS Modern Fiction Studies*, 57 (2011) 318-35, p.323.

the human reciprocal, conceived of together, an ‘origin’ which is made up of that which already exists.

The novel’s paternal limit concerning reproduction is reintroduced when the narrator states that ‘it will be months before we can look closely at the aorta.’ The concern over his own death is present again, even in the moment where it is acknowledged that the body in reproduction, Alex, is at severe risk due to unexpected bleeding. The ultrasound is a technology that is able to reveal the possibility of the narrator’s reproduction of himself, ‘just a little different,’ at the expense of the body of the mother. The text appears to acknowledge this, in another description of voice. The narrator tries to describe an experience on a writing trip in Marfa to Alex as they walk, but his voice ‘sounded weird in the lightless streets – loud, conspicuous, although there was plenty of other noise.’ The narrator’s narration is literally too loud, too much of itself. This ‘fathering’ of description, the authorial autonomy, becomes an excess, a noise. Modes of reproduction clash and are silenced or become noisy. The text retreats to the form of poetry in order to reduce the volume of such conflicts. The final image of Alex’s pregnant body is a flattened poetic one, and she becomes represented, symbolized, as a reproductive cipher, rather than a physical, bleeding body.

Conclusion: Referring Inwards

For a text concerned with technological, biological and literary reproduction, the ending of *10:04* appears to block ways of imagining the future. The final passage of the novel is preceded by Reagan’s line, but in the voice of the narrator: ‘I want to say something to the school children of America[.]’ The mixture of tenses and images of New York city which comprise the final pages of the novel are framed with the recurrence of the memory of the *Challenger* disaster. What triggers that recall is Reagan. His state of the union address in February of 1986 is the postgraph to the novel. The line he quotes from *Back to the Future* captions Vija Celmins *Concentric Bearings B* (see figure 7): ‘Where we’re going, we don’t need roads.’⁹⁷ In its original context, the line evokes the sublime desires of the nation state to continue its self-reproduction via the logistical processes of science and technology. In *10:04*, the quoting of *Back to the Future* has a further resonance, recalling Marty McFly’s fears of fading out of existence pictured earlier in the text, making Reagan’s

⁹⁷ Lerner, *10:04*, p.241.

Image removed due to copyright restrictions

Figure 7 — Vija Celmins, *Concentric Bearings B* (p.241)

speech a reference to the novel itself. Andrew Britton's 1986 critique of contemporary film sees this form of reference as typical of works like *Back to the Future*, stating that 'Reaganite entertainment refers to itself in order to persuade us that it doesn't refer outwards at all.'⁹⁸ *10:04* appears to ironically undermine Reagan's appeal for a collectivity formed by excitement, hope and wonder, by juxtaposing it with the doomed, falling plane in Celmins' contemporary image. However, with the recurrence of an image accompanied by Reagan's words, the reader is undeniably directed back towards Christa McAuliffe's floating body.

10:04's appeal outwards is thus limited by the irony inherent in its interface. McAuliffe's cyborg presence troubles the attempted sincerity of the narrator's final line. The claim, voiced through Whitman, that 'I know it's hard to understand/I am with you, and I know how it is' has its sincerity undercut by the way McAuliffe represents a horrific unknowing, an intraface which punctures the neat ethical resolution of the text. What remains is a resigned atmosphere, where the fact that things are 'just a little different' is less than comforting. Reading *10:04* with the intraface of the cyborg emphasizes the implicit political limits found in its interface, highlighting the gravity of cyborg traces. While its interface process flickers at points in order to demonstrate the necessarily

⁹⁸ Shail and Stoate, *Back to the future*, p.31.

tentative movements involving a claim of sincerity, the novel's comforting, poetic, political and ethical claim to 'know how it is' is crucially fractured by the voices and silences of women. They disturb and disrupt the attempted 'perfect communication' of a contemporary novel which claims to 'know how it is.'

Chapter 6: Entanglement and Separability in Ruth Ozeki's *A Tale for the Time Being*

Augmenting the Cyborg

The reading in this final chapter looks to another way of rethinking social relations at the interface. The cyborg is not a static figure and should not remain safely in-tact as a critical figuration which reveals the way technology is a contested zone. I here augment the cyborg intraface with Denise Ferreira da Silva's conception of quantum poetics. Da Silva describes a way of thinking about social relations through the language of quantum physics and I suggest here that her language helps to explain how Ruth Ozeki's *A Tale for the Time Being* (2013) can be understood as an interface that challenges logics of separation. The novel connects cyborg competencies and quantum entanglement and attempts to breach the interface limits of its form. Reading the ways that interfaces figure in this novel reveals political limits in relation to gender and class. My reading repositions the concepts of voice and signal in relation to the interface addressed in the previous readings in this thesis, as well as suggestively refiguring the concept of 'bothness' as addressed in the reading of *How to be both*.

The novel presents the intertwined story of two characters. The first the reader encounters is the diary narrative of the first-person narrator, Nao, an adolescent girl in Japan. The other is that of a writer, Ruth, living on an island off the west coast of Vancouver, who finds Nao's diary washed up on the shore. The diary is seemingly part of the debris of the tsunami caused by the Tōhoku earthquake in 2011. While this structure bears some basic similarities to *How to be both*, unlike that text each of the characters are situated in the first decade of the twenty-first century, although it is revealed that Nao's story happens years before Ruth finds her diary. Nao's diarized narrative is about coping with her family's move to Japan after the burst of the dot-com bubble in the early twenty-first century, and her difficulty in coping after her father's subsequent attempts at suicide. She is bullied and abused by her peers, and while she demonstrates competency with technological interfaces, they are also the locus of her abuse. Ruth engages in detailed internet searches and e-mail contact while attempting to find out what happened to Nao and her father. Ruth intervenes in their relationship during a dream

episode. She tells Nao's father not to commit suicide, warning him he is selfish because it will lead to his daughter doing the same. Nao's story ends with her father designing a piece of software to help erase evidence of her having been abused.

The interface process of *A Tale for the Time Being* is in-part a narrativizing of quantum physics. The central question raised by the novel is how social relations articulated by processes of writing and reading can be understood in terms of quantum physics. The novel expresses this in terms of intimacy, with Ruth stating that 'not-knowing is the most intimate way' in the epilogue.¹ This statement describes a way of thinking about the world which embraces epistemological uncertainty. It gestures towards the findings of quantum physics as suggestive of a distinct epistemological basis from classical physics. Da Silva's essay 'On Difference Without Separability' (2016), speaks to this question of how to think quantum physics textually. She argues that social relations can be rethought via the discipline of quantum physics, because its theorized structures suggest that human beings are connected through a relation called entanglement. The relation of entanglement is one that da Silva reads as having a powerful political resonance because it describes a reality that is prior to those boundaries and distinctions that da Silva understands as the condition of possibility for violence. In understanding with Stiegler that 'every border is technical,' I here read the interface through a cyborg intraface which hopes to do away with such borders.

The term entanglement describes circumstances in which separate entities 'behave like a single system.'² This was called 'spooky action at a distance' by Albert Einstein and is a contested concept in the development of quantum physics.³ Da Silva suggests that a poetics influenced by the structures of quantum mechanics can help to think a political and philosophical elsewhere, to challenge what she understands as the current logic of separation which is the basis for violence, for which the structure of the border is the epitome. Rather than conceiving of others as estranged, as 'a whole constituted of formally separate parts,' quantum figures invite a different 'imaging' of difference.

¹ Ruth L. Ozeki, *A Tale For The Time Being* (Edinburgh: Canongate, 2013), p.402.

² Ibid., p.409.

³ 'I cannot make a case for my attitude in physics which you would consider at all reasonable. I admit, of course, that there is a considerable amount of validity in the statistical approach which you were the first to recognize clearly as necessary given the framework of the existing formalism. I cannot seriously believe in it because the theory cannot be reconciled with the idea that physics should represent a reality in time and space, free from spooky actions at a distance.; Letter from Einstein to Max Born, 3 March 1947; Albert Einstein, Hedwig Born, and Max Born, *The Born-Einstein letters : friendship, politics, and physics in uncertain times : correspondence between Albert Einstein and Max and Hedwig Born from 1916 to 1955* (Basingstoke: Macmillan, 1971), p.158.

'Difference' writes da Silva 'is not a manifestation of an unresolvable *estrangement*, but the expression of an elementary *entanglement*.'⁴ I suggest that Haraway's cyborg is a political and ethical figuration which also thinks in terms of entanglement, adhering to the necessary imaging of difference whilst retaining a wary fear of the separate or the bordered, located at the site of 'leaky distinctions.'⁵ As discussed in chapter one, Haraway sees the cyborg as inhabiting a conceptual space, between a single being and an other: '[o]ne is too few but two are too many.'⁶ Two is too many, because it makes possible the condition of separability, of estrangement, whereas oneness denies the very notion of difference. Between the 'too few' and the 'too many' is a critical location in common for da Silva and Haraway. Both thinkers figure a way past the borders of violence via breaching the conceptual borders of selves as sovereign individuals.

Recent critical readings have identified the multifaceted nature of *A Tale for the Time Being*, and have explored its relation to technology, gender politics and posthumanism. One of the central tensions in such readings is the human-machine relation. Marlo Starr, for instance, attempts to distinguish between the way the text differently values digital communication and analogue writing. Starr's claim that 'the novel takes pains to distinguish between the diary and the Internet as mediums for communication' arguably doesn't account for the way such forms interact throughout the text.⁷ Nao's diary is a form of unfamiliar interface. It is influenced by blog-writing but its provenance is uncertain. Sue Lovell's calls *A Tale for the Time Being* a 'posthumanist narrative,' understanding the novel as engaging in a 'political quest' to 'raise awareness of existing in ways that exceed humanist subjectivity.'⁸ One of the ways it does this is to highlight the 'porous boundaries between these three storyworlds' of Nao, Ruth and the reader, articulating a 'challenge to the sole reality of the original actual world.'⁹ This blurring of boundaries, Lovell states, is part of the strategies of posthumanist narrative generally: 'Texts [...] work discursively to provide opportunities for readers to *become*

⁴ Denise Ferreira da Silva, 'On Difference Without Separability', 32a São Paulo Art Biennial, (2016), Living Uncertainty, 57-65, p.65. Emphasis in original. Haraway's recent work *Staying with the Trouble* refers to a related form of poetics, in the phrase 'tentacular thinking.' See Chapter 2, 'Tentacular Thinking' in Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016).

⁵ Haraway, *A Cyborg Manifesto*, p.11.

⁶ *Ibid.*, p.60.

⁷ Marlo Starr, 'Beyond Machine Dreams: Zen, Cyber-, and Transnational Feminisms in Ruth Ozeki's *A Tale for the Time Being*', *Meridians: feminism, race, transnationalism*, 13 (2016) 99-122, p.115.

⁸ Sue Lovell, 'Toward a Poetics of Posthumanist Narrative Using Ruth Ozeki's *A Tale for the Time Being*', *Critique: Studies in Contemporary Fiction*, 59 (2018) 57-74, p.57, p.70.

⁹ *Ibid.*, p.60.

Posthumanist. Narrative discourse creates subject positions that readers occupy in order to experience new subjectivities.¹⁰ The suggestion that readers ‘occupy’ a position of posthumanism is one that conflicts with my cyborg reading of the novel, although I concur with Lovell’s analysis of the ways the novel uses ‘superposition and entanglement’ to communicate the blurring of ‘ontological boundaries.’¹¹ The notion that readers can ‘experience’ posthumanity is one that elides the political reality of cyborg thinking, and assumes a productive empathetic link between reader and character. Such a move partly commodifies experiences of subjects who do not already comfortably fit the narrow, politicized category of the ‘human.’ My reading instead does not look to resolve the novel as an ‘experience’ of posthumanism, but to consider what the interface of the text moves towards or processes as an articulation of marginalized experience.

I also agree with Peter Schmidt, who identifies how the novel’s ‘understanding of identity and agency as interpersonal is matched by its love of its own heterogeneous form.’¹² This sees the text’s heterogeneity as central to its perspective on social relations, suggesting that its form communicates agency as reliant on the other. My reading looks to engage in the ways the novel attempts to exceed the boundaries of individual subjectivity, as Schmidt suggests, but by thinking the text as an interface which highlights the political significance of technological competencies. *A Tale for the Time Being* is a changing, shifting process which mediates between different ‘significant material.’ It is a digital screen, an epistolary diary-novel, a graphic, a religious text, a found text, a ‘fertile nexus.’ This variety in position and situation suggests the text can be thought of primarily as a collection of interface effects. These effects communicate a version of contemporary life which is articulated in the novel by Nao’s father: ‘our feeling of alive has no real edge or boundary.’¹³ *A Tale for the Time Being* is positioned to ‘pose its edges as questions’ to return to Dinnen’s articulation, because it is comprised of multiple ‘edges.’ While I have read *How to be both* as a text which gestures towards superpositionality in the ‘bothness’ of its form, Ozeki’s novel explicitly makes quantum poetics a central part of its overall structure and language. It challenges the limits of the novel interface in a different way to

¹⁰ Ibid., emphasis in original.

¹¹ Ibid., pp.66-7.

¹² Peter Schmidt, ‘Wave or Particle? Crossing Borders in Ruth Ozeki’s novel *A Tale For The Time Being* (2013)’, in *Crossing Borders: Essays on Literature, Culture, and Society in Honor of Amritjit Singh*, ed. by Tapan Basu; Tasneem Shahnaaz (Madison: Farleigh Dickinson University Press, 2017), pp. 17-27, p.24.

¹³ Ozeki, *Time Being*, p.87.

Smith's novel, using quantum structures as descriptors of relationships between the textual and actual world.

Quantum Poetics

In 'Difference Without Separability' da Silva conveys the idea of a sociality which acknowledges differences between beings, but in such a way as to deny the necessity of their separation by conceptual borders.¹⁴ Nao is a character who is no stranger to estrangement, as seen when she is ghosted by Kayla, which I explore later in this chapter. I here outline da Silva's work on quantum poetics, to activate the terms separability and entanglement for use in this chapter, drawing a parallel with Stiegler's thinking.

Da Silva's work is located in critical race theory, her major work to date being *Towards A Global Idea of Race* (2007). The kernel of her project is explained by Alva Gotby as tracing 'ontoepistemological formulations of the racial — ways of knowing that institute the object they seek to know.'¹⁵ These formulations revolve around Da Silva's ontological figure of the 'transparent I,' a term for describing a universal subject of reason post-Enlightenment, the figure which non-European/non-White subjects must look to mimic in order to partake in the sanctioned values of justice and equality.¹⁶ The non-transparent subject is required to become transparent, but in doing so adheres to a logic of selfhood which is always committed to the erasure of difference. This logic destroys those figured as other, either by assimilation or extermination. One way this is explicated in da Silva's essay 'To Be Announced' is that racial others are found 'always already in the juridical, economic, and ethical register of coloniality-patriarchy-slavery, that is, in accounts of domination, in bondage, marriage and rape.'¹⁷ Post-Enlightenment thinking is defined by previous registers of knowing, which continue to figure the non-European other as that which is, as Christopher Lee articulates, 'disposable and unworthy.'¹⁸ Da Silva acknowledges Luce Irigaray, Gayatri Spivak and Sylvia Wynter as thinkers who inform her work, in that they have previously articulated how being 'other-wise' is

¹⁴ da Silva, 'Difference Without Separability', p.63.

¹⁵ Alva Gotby, 'Body, Geography, Exteriority: Race and spatiality in the writings of Denise Ferreira da Silva', (Södertörn University, 2016), p.6.

¹⁶ Christopher Lee, *The Semblance of Identity : Aesthetic Mediation in Asian American literature* (Stanford, California: Stanford University Press, 2012), p.98.

¹⁷ Denise Ferreira da Silva, 'To Be Announced: Radical Praxis or Knowing (at) the Limits of Justice', *Social Text*, 31 (2013) 43-62, p.49.

¹⁸ Lee, *The Semblance of Identity : Aesthetic Mediation in Asian American literature*, p.98.

‘something more than that which can be signified by a mode of being human’ and considered how to ‘expose the relationship that is knowledge itself and its effects.’¹⁹ I will return to this phrasing to help to make sense of the modes of being human suggested in *A Tale for the Time Being*. Post-Enlightenment knowledge practices work to exclude those bodies which are not legible to a European or Western-centric concept of the human being. In the language of this thesis, such knowledge practices can be understood as technologies which delimit the category of the human. Mechanisms of domination rely on the maintenance of a border between the ‘who’ and the ‘what.’ Every separation, or border, ‘is technical.’²⁰ The obscuring of the reciprocal relation of the human and the technical, understood in the context of da Silva’s work, is one which disguises the political violence of the border. Every distinction between the human and the technical can be said to enact a form of exclusion or separation.

In attempting to expose the relationship of such technologies to the boundaries of subjectivity, da Silva’s thinking moves to quantum physics.²¹ Quantum structures, which purport to show the entanglement of the actual and virtual, trouble the certainty of sequential space and time, causality. Causality is the scientific paradigm which shapes dominant (i.e. Kantian, Cartesian, Newtonian) conceptions of subjectivity:

experiments in particle physics have astonished scientists and laypeople [...] the counter-intuitive results of experiments in particle physics have been yielding descriptions of the World with features — uncertainty and non-locality — that violate parameters of certainty.²²

Da Silva highlights how experiments evidencing entanglement trouble knowledge practices that rely on firm boundaries. Understanding the category of the human as denoting beings who can, for instance, reason to the ‘correct’ conditions of moral or ethical life is disturbed by the sense that all life is predicated on essential uncertainty at a molecular level. The principles of quantum physics support ‘a kind of thinking which

¹⁹ da Silva, ‘To Be Announced’, pp.58-9.

²⁰ Stiegler, *Technics and Time Vol. 2*, p.157.

²¹ The final footnote of ‘To Be Announced’ clarifies Da Silva’s movement into quantum physics: ‘It should be noted that this reference to physics is not a recourse to the authority of science but is actually a reference to particle physics as a domain of knowledge, in which the practitioners have been forced to renounce their claims to any authority. That is, I am more interested in the philosophical openings their acknowledgment of the impossibility of certainty provides, in particular in the possibility of dismantling Kant’s account of knowledge, which is still at the basis of most social scientific, legal, and common-sense views of the movement of knowledge.’ da Silva, ‘To Be Announced’, p.62, FN 30.

²² da Silva, ‘Difference Without Separability’ p.59.

does not reproduce the methodological and ontological grounds of the modern subject.²³ To paraphrase da Silva, if the parameters of certainty can be violated to show the entanglement of beings, then the determination of causation for actions by a stable subject who reasons separately from others is unsettled. In da Silva's words 'knowing and thinking can no longer be reduced to determinacy.' From this position, the boundaries of sociality can begin to be rethought:

when the social reflects The Entangled World, sociality becomes neither the cause nor the effect of relations involving separate existents, but the uncertain condition under which everything that exists is a singular expression of each and every actual-virtual other existant.²⁴

How the Entangled World is reflected in sociality is a question of some difficulty, but da Silva suggests a possible way forward is for quantum concepts to be understood as 'poetic descriptors.' 'Non-locality (as an epistemological principle)' and 'virtuality (as an ontological descriptor)' can be viewed as aesthetic and ethical concepts, in that they 'invite us to image the social without the [Kantian] Understanding's deadly distinctions.'²⁵ The 'something more' which cannot 'be signified by a mode of being human,' that which looks to overcome reason as the progenitor of boundaries between the 'who' and the 'what' is made partially articulable by quantum poetics for da Silva.²⁶

In order to read *A Tale for the Time Being* as an attempt to represent difference without separability, I here connect da Silva's notion of quantum poetics to the figure of the cyborg. The cyborg is an entangled figure for whom difference without separability is vitally important. It is a poetic figuration which is already invested with a way of thinking different possibilities as entangled. As already explored in chapter four of this thesis, Haraway makes the claim in 'Situated Knowledges' that visions of the world cannot be oblivious to anything and must articulate or expose the relationship between 'knowledge itself and its effects.'²⁷ Haraway's question 'with whose blood were my eyes crafted?' strikes at the assumptions of traditional models of scientific method and objectivity which form part of the 'deadly distinctions' that da Silva cites as responsible for a logic of

²³ Ibid., p.64.

²⁴ Ibid., p.65.

²⁵ This is the understanding from Kant which sees distinctions as predicated on an idea of being human, one that understands transcendental reason as that which allows for the self-determination of a subject, distinct from the representations it considers. Ibid., p.59.

²⁶ da Silva, 'To Be Announced', p.58.

²⁷ Ibid., p.58.

separation.²⁸ The cyborg can be understood as a figure that is able to be readily entangled with different modes of telling, to help image difference without separability. The cyborg is able to exist in a quantum environment, because it inhabits the space between the single-same and the separate-multiple. It is 'like a single system' but not singular, able to be in two places at once, as both a 'creature of fiction' and 'social reality' simultaneously.

A Tale for the Time Being makes contemporary communication technology an important formal element and includes detailed descriptions of the experience of interacting via technological interfaces. As with Lerner's *10:04*, these representations are situated against the backdrop of global historical crisis, and while the interface limits of both of these novels gesture towards the political reality of the reader, they do so with very different expectations. The interface of Lerner's text is governed by the authority of the narrator, whereas in Ozeki's novel textual heterogeneity contributes to an atmosphere of uncertainty. If *10:04* is concerned with expressing a common political reality for author and reader, *A Tale for the Time Being* foregrounds the reader-character-author relation without expressing an explicit politics to guide such a relation. Lerner's text is a translating movement towards 'sincerity,' from the novel to poetry, which uses its autofictive status to establish an ironic or knowing stance towards such a movement. Ozeki's interface does not claim to 'know how it is' but instead attempts to convey a much more uncertain reader-author-character relation that is 'intimate' because of its uncertainty. The link between intimacy and uncertainty is a shared unknowing, one which suggests a closer or more careful proximity between beings is generated. In a Harawayan sense, this knowledge is an awareness of the 'blood' with which eyes are crafted, the sense in which claims to present knowledge are conditioned by previous claims to the power or prior validation of other knowledges. *A Tale for the Time Being* 'violates the parameters of certainty' because the novel views uncertain knowing as necessary for the possibility of intimate care.

Technological Access

Like the other novels addressed in this thesis, the perspective on the relation of the subject to technology in *A Tale for the Time Being* is ambivalent, although there are moments of reaction against the effects of the networked interface. For Nao there is 'nothing sadder

²⁸ Haraway, *Simians*, p.192.

than cyberspace when you're floating around out there, all alone, talking to yourself.²⁹ Talking to 'yourself' is a tragedy, one that is seemingly a heightened form of personal isolation. The very possibilities afforded by the internet are in one sense those which intensify Nao's loneliness. In another sense, Nao understands such 'talking' online as firmly embodied, not merely virtual. Communicating online is described as 'the way your pixels start behaving,' reflective of a subject's identity as embodied at the interface.³⁰ Furthermore, Nao's diary is a confluence of print and electronic affordances, bearing a resemblance to texts on blog platforms from the early 2000s, such as Livejournal. This suggests the lack of a clear border or boundary between forms of writing in cyberspace and those supposedly offline. Nao is in fact rarely 'alone' in 'cyberspace,' as often her narrative will pause to send a text to her great-grandmother, Jiko, who is her main form of support. While the magnitude of the information society leaves Nao 'floating,' talking to herself, the 'cyberspace' that her and her grandmother inhabit, supported via the same networks, is central to Nao's subjectivity and her continued survival.

Ruth makes use of technological interfaces in a more instrumental way to facilitate her access to the world. The internet is described as her 'primary portal to the world' on Cortes Island, and her Amazon and Google searches at the computer are described to the reader, becoming forms of 'portal' to the character of Nao.³¹ The interface turns Ruth's narrative into a form of detective fiction, and the multiple platforms she uses remain flat and uninflected. The movement of Ruth towards the 'truth' of Nao's narrative via internet searches also generates a friction. Ruth's interface use results in 'agitation' described as 'a paradoxical feeling that built up inside her when she was spending too much time online.'³² This description recalls Galloway's language for defining interface effects. Yet, this agitation moves the text into a political zone of exclusion, establishing a border that is undeniably technical. This paradox is described as temporal, an 'urgent lassitude' and a 'simultaneous rushing and lagging behind.'³³ The oxymoronic descriptions suggest an estranging of the interface interaction, as though Ruth struggles to articulate the experience. Her voice then pathologizes this feeling, with a comparison to the 'arrhythmic gait of Parkinson's patients.' Their 'lurching' and stalling 'eventually towards their deaths' connects the feeling of being at the interface with loss and grief, but also with an ableist

²⁹ Ozeki, *Time Being*, p.125.

³⁰ *Ibid.*, p.126.

³¹ *Ibid.*, p.147.

³² *Ibid.*, p.227.

³³ *Ibid.*

Image removed due to copyright restrictions

Figure 8 — Excerpt from *A Tale for the Time Being*, (pp.227-8)

notion of interface interaction as diminishing agency or attention. The interface becomes an ‘agitation’ or friction for the able-bodied, one which is not generative but seemingly debilitating, which conflicts with the idea of interfaces as sites which often facilitate accessibility. This feeling is then translated into a typographical signal (see figure 8) communicating an affective frustration or outburst. This language reproduces a reactionary perspective on the human-machine interface.

The typographical amplification of the ‘temporal stuttering’ on the page resonates with the discussions of voice, signals and noise in the other novels in this thesis. *How to be both* articulates the gap between the texted signal and the heard voice, to communicate the unsayable and powerfully embodied interface effect, inaugurating a social relationship that is beyond certain articulation. *NW* and *10:04* present ideas of voice and voicing which are limited in their ability to articulate a political imaginary beyond the logics of domination by patriarchal and state structures of meaning. *A Tale for the Time Being* appears to voice agitation on the page as a temporary disturbance to the form of the novel which is exclusionary in a different sense. Ruth’s ‘agitation’ is an unforeseen interface effect that ‘stops’ at the bottom of an otherwise blank page, reaching a limit which is suggestive of a textual boundary, a border. When the process of interface interaction becomes uncomfortable within the very text of the novel, the category of the able-bodied human appears restated as an exclusionary political concept. The ‘temporal stuttering,’ seemingly, must be stopped, because it disturbs the agency of the able-bodied author

figure. Contained at the edge of the form of *A Tale for the Time Being* is a political reaction that figures technology as the catalyst for threats to the able body, excluding the disabled body by the restating of a technical border between the author and uncertain, marginalized struggle of living with disability.

Reading Debris

The historical and political frame for the novel is that of global crisis. There is not a direct reference to state politics or politicians, like the presence of Reagan in *10:04*. Instead, the incomprehensible scale of global politics is a blur. Nao laments her helplessness in the face of such an overwhelming set of forces:

So what am I supposed to do? It's not like I can fix my dad's psychological problems, or the dot-com bubble, or the lousy Japanese economy, or my so-called best friend in America's betrayal of me, or getting bullied in school, or terrorism, or war, or global warming, or species extinction, right?³⁴

Nao is aware of her marginalisation, resulting in a feeling of powerlessness, and her solution is to reconceive it through her writing, which becomes gradually more entangled with Ruth's own search for traces of Nao's narrative. The two narratives appear 'like a single system'. What Nao is 'supposed to do' is not clear, but the novel posits a way of thinking through this question by the resistant practices of reading and writing. Historical events of global significance are reconfigured as less important than the telling of social relations they might lead to or indirectly create, which is the stories that generate the possibility of continued surviving. The focus on continued survival, and the ever-present threat of suicide for Nao, situates the novel within the frame of the cyborg.

The fragmenting of global, political crises into personal subjectivity is communicated in the motif of debris. When Ruth finds Nao's diary, it is amongst debris on the beach which 'a few years earlier' was 'severed feet,' perhaps victims of the tsunami. The 'debris,' though, includes jellyfish: 'The beaches were overrun with jellyfish these days, the monstrous red stinging kind that looked like wounds along the shoreline.'³⁵ This image positions the opening of the novel on a human-nonhuman boundary, as though the entry to the narrative is a form of 'wound' in the category of the human. The 'debris'

³⁴ Ibid., p.169.

³⁵ Ibid., p.8.

of Nao's Hello Kitty lunchbox generates a 'whatness' at the start of the narrative, a mystery. This is the question of 'what' is in the bag, but it is also the Stieglerean question of 'what' constitutes the human and the technical. The 'plastic freezer bag' which contains Nao's diary is 'someone's garbage, no doubt' but also is implicitly put in parallel with dismembered limbs, a 'part' of someone. Ruth's reaction to the translucent bag is to 'take it home, and throw it out,' suggestive of the desire to dispel the 'rotting' external object that is monstrous and other. Yet, this 'what' outside of Ruth is that which comes to define and create the 'who' of the author-character, through her unexpected reading of the diary. When the canonical cover of Marcel Proust's *À la recherche du temps perdu* reveals 'adolescent purple handwriting,' it feels like 'a desecration' because of the way the limits of the literary object have been so boldly breached, literally re-written. The established canonical limits of the textual debris disturb a firm boundary between garbage and prestige forms of writing. The globally-resonant tragedy of the tsunami generates debris, but the debris itself is what starts a technological process of reading which writes over the canonical, literary novel. The resistant possibilities for thinking about subjectivity are created in the reading of Nao's diary, with the interface of *A Tale for the Time Being* emphasizing the marginal status of her narrative as debris that 'desecrates' institutional value. The novel form is made analogous to rotting garbage. This emphasizes the ways in which the reading process is central to the creation of cultural value, turning Nao's narrative, which begins the interface of *A Tale for the Time Being*, into one that transgresses more 'certain' forms. Nao's diary is a kind of debris which disturbs the technical border of the literary novel.

The significance of debris in the novel alters when considering the translucent bodies of jellyfish. Ruth mistakes the freezer bag for a jellyfish, establishing an unusual machine-animal hybrid image of the jellyfish book. The 'monstrous' jellyfish then recur in the novel's final footnote which quotes physicist Erwin Schrodinger. The quotation is Schrodinger's refutation of the many-worlds interpretation of quantum physics first published by Hugh Everett.³⁶ Schrodinger states that if the laws of nature took the form of the many-worlds perspective for only fifteen minutes 'we should find our surroundings rapidly turning into a quagmire [...] ourselves probably becoming jellyfish.' This reference

³⁶ The novel itself provides a gloss on this interpretation: 'the many-worlds interpretation [...] challenges this theory of wave-function collapse, positing instead that the superposed quantum system persists and branches. At every juncture – in every Zen moment when possibilities arise – a schism occurs, worlds branch, and multiplicity ensues.' *ibid.*, p.415. The lay understanding of this concept is that there are infinite possible universes, within which every possible outcome has occurred.

is at the end of the text in its footnotes, meaning the novel is framed by images of the jellyfish. The jellyfish becomes a metonym of the ‘infinitely all-inclusive, and yet mutually unknowable, web of many worlds,’ a wound that the text does not heal.³⁷ Nao’s writing later reflects an interest in the monstrous connotations of the creature, when she views herself as ‘a giant prehistoric squid’ in a video of her being abused which is posted online.³⁸ She also becomes obsessed with prehistoric sea creatures, stating she wants her ‘knowledge base to be more subtle.’³⁹ The jellyfish debris is the figure for thinking beyond, to a way of knowing that is not able to be expelled, and which unexpectedly shatters the boundaries of the ‘who’ with the strangeness of the ‘what.’

The motif of debris recurs in Nao’s narrative also, when she describes her diary as ‘lost forever’ either ‘in the trash or recycled.’⁴⁰ The responsibility of the reader, that their reading establishes the existence of Nao’s narrative, is playfully referred to when Nao asks ‘Hey, answer me! Am I stuck inside of a garbage can, or not?’ followed by a smiling emoji. This signals the materiality of this version of the diary, that Nao will never just be ‘in a garbage can’ because her text is simultaneously print, electronic and handwritten. The reference to the garbage can echoes the suicide note of Lizzy Everett, Hugh’s daughter. Lizzy’s handwritten note is the final appendix and a historical intertext:

Please burn me and DON’T FILE ME ☹. Please sprinkle me in some nice body of water... or the garbage, maybe that way I’ll end up in the correct parallel universe to meet up w/Daddy.⁴¹

The recurrence of the image of writing being in the garbage, and the smiling emoji, as well as the notion of Lizzy being ‘in some nice body of water’ ambiguously links Nao and Lizzy as character and actual historical figure. Like the jellyfish image, the reference to being put in the garbage shifts thinking about subjectivity into a non-anthropocentric perspective. It is suggestive of the human subject becoming debris, formed also by the telling of its desired position outside of a coherent or traditional human subject. This textual parallel puts the novel in the actual world context of Lizzy’s understanding of many-worlds theory, and Nao’s character is repositioned as an echo of Lizzy’s life. The

³⁷ Ibid., p.415.

³⁸ Ibid., p.278.

³⁹ Ibid., p.265.

⁴⁰ Ibid., p.27.

⁴¹ Ibid., p.418. See Peter Byrne, ‘The Many Worlds of Hugh Everett’, *Scientific American*, (2008) <<https://www.scientificamerican.com/article/hugh-everett-biography/>> [Accessed 09/03/2018].

note is a piece of debris which gestures towards the entanglement of this novel's interface with other types of writing interfaces, uncertainly breaching the limits of the text.

Writing in *Quantum Buddhism*, Graham Smethen suggests that many-worlds theory 'can only make some sort of sense if our standards of what constitutes identity and difference are allowed to melt into a logical miasma [...] science fiction frisson seems to be the order of the day.'⁴² Smethen's suggestion of how the theory might 'make sense' can be seen as a way of describing the political 'sense' of Ozeki's novel. Embracing logical 'miasma,' rather than attempting to know the seemingly total and powerful narrative arc of global history is a process for learning about or acknowledging other ways of being. *A Tale for the Time Being* is framed by strange images and texts which are miasmatic: jellyfish which are wounds, suicide notes which point to parallel universes. The novel interface is defamiliarized via the 'generative friction' of images of debris, meaning its object-status is uncertain, the limits of its form breached at points and made permeable. Debris characterizes the uncertainty of this novel interface, undermining the expectations of the canonical text and establishing an intimate cyborg frame, whereby the 'who' is not safe from the 'what' but must instead constantly address the unexpected flotsam and jetsam of the world. While the final limit of the text appears to 'clean' this debris, as I will explain below, the provenance of these images suggests a non-anthropocentric mode of understanding, one that comes from the margins of the novel itself.

Entangled Interfaces

The novel centres quantum mechanics as a possible guide for the process of reading. In 'Appendix B: Quantum Mechanics' is found a basic description of some of the principles of quantum mechanics, which explicitly connects quantum principles to reading and to characters in *A Tale for the Time Being*:

- entanglement: by which two particles can coordinate their properties across space and time and behave like a single system (i.e., a Zen master and his disciple; a character and her narrator; old Jiko and Nao and Oliver and me?)⁴³

⁴² Graham Smetham, *Quantum Buddhism: Dancing in Emptiness - Reality Revealed at the Interface of Quantum Physics & Buddhist Philosophy* (Brighton, England: Shunyata Press, 2010), p.309.

⁴³ Ozeki, *Time Being*, p.409.

Referring to the relation of 'a character and her narrator' as like a quantum structure suggests that the form of a novel is a structure of entanglement. The sense of a character as coherent or easily identified-with is disturbed by the distinction between a character and their narration. The list of characters and the reference to 'and me' further disturbs a comfortable delineation of characters from other subject-figures involved in the text. The 'and me' simultaneously refers to the author Ruth Ozeki and her character in the autofictive novel. Figures in the text start to collapse, partly defined by the positions which make them different, but not able to be disentangled. The polysyndeton conveys a difficulty in understanding social connections and relations, signalling da Silva's 'uncertain condition' of sociality. The appendix thus implies that the reading process generates an entangled sociality. The paired and listed figures imply a cyborg hybridity where the borders between subjectivities become uncertain or even unnecessary.

The interface of this novel itself enacts a process of indeterminacy. It requires constant physical manipulating, movement between footnotes and appendices, and a single path through the text is not clearly signalled. This indeterminate reading forces a constant turning both inward towards the novel itself and outward towards what Gerard Genette refers to as 'the world's discourse about the text.'⁴⁴ The novel thus becomes a node in a network of knowledge practices, comprised of multiple forms of writing (diary, academic paper, religious text, e-mail) a media ecology which is combined by the digital print text. This is further highlighted by the list of specific locations which open the novel: 'are you in a New York subway car? [...] on a sandy beach in Phuket? [...] having your toenails buffed in Brighton?'⁴⁵ The reader is aware both of their own 'locality,' the myriad possible localities of other readers, and the 'non-locality' of the text, written in 'a café in Akiba Electricity Town.' Furthermore, the reader is referred to by the text as an 'observer,' suggesting that the very process of reading might be viewed as a form of quantum measurement, the coming together of micro and macro scales.⁴⁶ The book is at once both a tangible fixed object and one constantly under remeasurement. For example, this is signalled in the shift in scale with Ruth's 'temporal stuttering.' The effect is to position the reader as though a scientist at a highly complex experimental interface. The 'scale' of their reading constantly alters and changes in order to accommodate shifts in perspective.

⁴⁴ Gerard Genette, *Paratexts : thresholds of interpretation* (Cambridge: Cambridge University Press, 1997), p.2.

⁴⁵ Ozeki, *Time Being*, p.3.

⁴⁶ *Ibid.*, p.413.

This status of the novel as an indeterminate interface is further demonstrated in Ruth's description of Nao's handwriting early in the text, which has a metatextual resonance. Ruth sees print as 'predictable and impersonal, conveying information in a mechanical transaction with the reader's eye' where handwriting 'resists the eye, reveals its meaning slowly, and is intimate as skin.'⁴⁷ The implicit position here is that handwriting conveys a more faithful or sincere experience of another identity for the reader, whereas print is devoid of such possibility for personality. However, this distinction is already complicated by the fact that Nao's diary is first encountered by the reader as print, the digital-born typographic interface of the novel. This false distinction between the machine as impersonal and the handwritten as intimate forces this 'product of production' uncertainly into the foreground.⁴⁸ Nao's handwriting is already mechanically (digitally) printed, and the text here resembles a wave function, both hand-writing and digital print working as a single system. This entangling of affordances undermines the reality of Ruth's value judgement, ironically highlighting the intimacy available at the interface. Here, Ruth demonstrates an inability to view the digital production of Nao's narrative as integral to her personhood. Nao is made visible and vivid to the reader because of digital production, and risks being made an unperson — 'impersonal' — by value judgements which would claim the absence of intimacy at the interface. This demonstrates the ways that images of quantum poetics intervene in mechanisms of separability, by challenging a judgement that would reaffirm a hierarchy of textual forms and affective expression. It reveals the political and ethical borders which the assumption of certainty implicitly establishes, boundaries that delimit intimate communication to only handwritten text or 'authentic' modes.

The novel's entangling of different forms of writing and reading as 'like a single system' serves to highlight that reading can be seen as a process of technological interaction, shaped by prejudices about the interface at which one is reading. In this way, as Jennifer Wicke articulates in her analysis of the epistolary novel form, *A Tale for the Time Being* 'knows that it will be consumed — it stages the very act of its own consumption, and problematizes it.'⁴⁹ The value judgement on mechanical print as that which merely '[conveys] information' resituates the reader at a suddenly defamiliarized

⁴⁷ Ibid., p.12.

⁴⁸ Delany, *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction*, p.209.

⁴⁹ Jennifer Wicke, 'Vampiric Typewriting, 'Dracula' and Its Media', *English Literary History*, 59 (1992) 467-93, p.491.

media interface, asking whether the text they hold is in fact ‘impersonal’ or whether Ruth’s apparent distinction between the human values of different types of typographical reproduction is a valid one. These questions remain unresolved, and instead the problematisation of a politics of reading is posited by the text, left open. The process of reading is made integral to the very possibilities available for being politically visible, echoing the way that quantum measurement is linked to the positionality of the observer.

Separability and Ghosting

A Tale for the Time Being presents the reality of separability through Nao’s experiences. The possible overcoming of such separability is communicated through vivid cyborg figurations. Nao is a character who is othered by her peers, and suffers from suicidal ideation. She describes herself as ‘invisible’, her own life is ‘unreal’ and she is made ‘absent’ from her school even while she attends, not being granted the status of human.⁵⁰ Nao is physically and sexually abused because of her status as other. She is referred to as ‘Transfer Student,’ a ‘ho,’ and as a germ, the carrier of ‘some disgusting American disease.’ She is not referred to by name, and her cultural difference is viewed as a pathology. Finally, she is also described by her abusers as stinking like something dead.⁵¹ This is the language of separability, the manifestation of the ‘deadly distinction’ identified by da Silva. The attempted rape of Nao in the school bathroom is the most striking example, where Nao’s menstrual bleeding is the focus of the abuse, and the students take her stained underwear to sell online. Reiko and the group of students leave because there’s ‘way too much blood,’ worried that the imagined reality they have created, Nao’s death, has come true.⁵² The image of excessive blood suggests that Nao’s human status becomes apparent to the students, bodily present in a way which makes a ‘deadly distinction’ too difficult to sustain. In both this text and in Smith’s *How to be both* a sexually abused woman signifies in terms of blood as a challenge to violence. While Nao’s blood signifies in a more visceral way to the bloodied, vital eyes of George and del Cossa’s sight, the confluence of bloodiness emphasizes how the boundary of separability is a violent one. The consequences of such borders are always bloody.

⁵⁰ Ozeki, *Time Being*, pp.76-79.

⁵¹ *Ibid.*, pp.99-100.

⁵² *Ibid.*, p.277.

Nao is also subject to the logic of separation in the interface interaction. Her everyday lived experience is fetishized by her friend, Kayla, from her previous American school. This results in other differently deathly consequences. Kayla uses Nao to reproduce her own position as ‘the most popular girl.’⁵³ Nao’s life is artificial, ‘cosplay,’ a form of costume that can be safely worn and discarded: ‘To her, my new life was just cosplay [...] Our chats and emails went nowhere.’⁵⁴ The ‘nowhere’ of their communication is a temporal-spatial blankness, the result of Kayla’s failure to continue to recognize Nao as a subject with whom it is possible to retain a relationship, and she eventually ‘blocks’ Nao from her buddy list, the ultimate social act of separability which is the digital denial of interface possibilities. The possibility of solidarity between female friends is signalled as an affordance of the interface which Kayla neglects. In this way, *A Tale for the Time Being* displays a similar dramatization of a failed interface connection found in *NW* when Leah and Keisha chat online. It is not the design of the interface that undermines the possibility for solidarity, but the borders which condition such interfaces, whether those found in the school or workplace, or those which establish the power of the nation state. When Kayla texts Nao back in reply to her picture in school uniform, it is virtually a parody of textspeak, affectless in its envisioning of Nao as an aesthetic to be replicated, an other who is known with certainty: ‘OMG I luv yr uni4m! [...] I cn go as a jap skoolgrl 4 haloween.’ The textspeak also reproduces a racial slur, a manifestation of Kayla’s lack of textual care in the interface interaction, one which reduces Nao to a stereotype. This is not the careless typo of ‘Bye noe’ as with Leah and Keisha, but a tone-deaf message, whereby the limitations of the interface work to reproduce the logic of separability manifest in the borders of the nation state.

Kayla’s ‘disappearance’ can be viewed as an instance of ghosting, a behaviour of disengagement from interface interaction that demonstrates a peculiar aspect of the messaging interface.⁵⁵ To ‘ghost’ someone is to stop responding to messages, breaking contact without engaging in the emotional labour required to repair or carefully end a meaningful social relationship. Nao continues to write emails, signalling the importance of this writing and the social connection it provides, but Kayla refuses to respond. When

⁵³ Ibid., p.127.

⁵⁴ Ibid., p.126.

⁵⁵ Ghosting is a phenomenon which is now linked to the affordances and limitations of digital communication. See Susie Coen, ‘Ghosting: Have Apps Like Tinder Killed Off Basic Decency When It Comes To Dating?’, *The Independent*, (2015) <<https://www.independent.co.uk/life-style/love-sex/ghosting-dating-tinder-added-to-dictionary-etiquette>> [Accessed 24/07/19].

she does eventually reply, it is a ‘tight, bright, cheerful’ little email, which ‘made it clear that she really wasn’t interested in me if I was going to be a whiner.’ The effect of this ghosting is described in terms of life and death, with the networked email interface as a metaphor:

maybe this is what it’s like when you die. Your inbox stays empty [...] you check your SENT box to make sure your outgoing mail is okay, and then you check your ISP to make sure your account is still active, and eventually you have to conclude that you’re dead.⁵⁶

A loss of communication signals the inability to perform Nao’s subjectivity. Without communication across a border or boundary, Nao feels no longer visible, and undergoes a spiritual death. The interface reinforces the helplessness felt by Nao in relation to global crisis. It is a kind of ‘deadly distinction’ which is easily performed by the popular and powerful Kayla, which makes the interface a textual site of dangerously powerful communication.⁵⁷ The politics of this ghosting are those of white, post-Enlightenment patterns of thought, an orientalising which manifests through an interface competency, and which makes the ‘jap’ girl into a reduced version of her interface presence, something to be objectified and then ignored, safely on the other side of a border.

Nao’s reaction to the above is the beginning of a fiction of empowerment and resistance. She feels ‘like a ghost.’⁵⁸ In Nao’s overcoming this sense of separability, the novel displays what da Silva calls ‘a more complex reality in which everything has both actual (spacetime) and a virtual (nonlocal) existence.’⁵⁹ The movement through this more complex reality which allows Nao to survive is a cyborg competency, a being between dream-state and reality which allows the text to move through to a ‘more complex’ narrative state, one that attempts to overcome exclusion. The ghost can be read as a cyborg figuration, one that troubles the separateness of fictional and actual worlds in the novel. Nao identifies with ghosts of Japanese mythology, as ‘usually they’re women who are righteously pissed off because someone has done something horrible to them.’ She demonstrates a knowledge of ‘ikisudama’— living ghosts — and explains ‘tatari’ as spirit attacks, a process of ‘wreaking vengeance.’ Nao’s reading creates her ‘goal for the

⁵⁶ Ozeki, *Time Being*, p.127.

⁵⁷ da Silva, 'Difference Without Separability', p.59.

⁵⁸ Ozeki, *Time Being*, p.127.

⁵⁹ da Silva, 'Difference Without Separability', p.64.

summer' to 'become a living ghost' in order to '[wreak] vengeance on her shitty classmates.'⁶⁰

Reading the actual and virtual together across a boundary of life and death is what generates positive resistance to Nao's abuse. Nao's dream of puncturing 'Reiko's horrible eye' appears 'so real' that it occurs in actuality, when Nao sees Reiko wearing an eyepatch in school.⁶¹ Nao describes the dream violence in terms which recall jellyfish bodies and the supernatural breaching of fleshy boundaries: 'I closed my eyes and stuck the knife into the dark hole, over and over again, until I felt something tear. A thick liquid as cold as nitrogen started oozing slowly from the rip in the membrane.' Nao is a ghostly-cyborg here, 'a creature of social reality' and a 'creature of fiction' resisting via the stories she tells the reader, in an image of extraordinary rupture.⁶² Reiko's eye signifies the violence against Nao, described as 'supersmart,' granting it omniscience or universal knowing. It is this eye which sees Nao as 'something loathsome and half-dead'⁶³ similar to the 'disposable and unworthy' figure from da Silva that Lee describes.⁶⁴ This eye is not wounded or bloody, not granted the same situatedness as Nao. Nao's sudden outburst of violence links to contemporary feminist thought regarding the feminist subject in social life. Sara Ahmed explains how modes of expressing feminist anger are suppressed by patriarchal discourses of acceptability, reinforcing the status quo. She refers to the figure of the 'feminist killjoy' and the event of the 'snap' to communicate the experience feminist anger. Nao's conception of the spirit attacks, and her own eventual spirit attack, can be conceived in these terms; the spirit attack is a 'snap' which is supernaturally figured, a material-semiotic destruction of her abusers.⁶⁵

A Cyborg Superpower

Nao's 'superpower' is a further cyborg figuration of her resistance to deadly distinctions. It also works to figure a feminist solidarity between Nao and her great-grandmother. When Jiko tells her 'it would be best for you to have a superpower' Nao considers it an idea 'for young people' and that Jiko must have 'only had ghosts and samurai and demons

⁶⁰ Ozeki, *Time Being* p.127.

⁶¹ Ibid., pp.129-130.

⁶² Haraway, *A Cyborg Manifesto*, p.5.

⁶³ Ozeki, *Time Being*, p.128.

⁶⁴ Lee, *The Semblance of Identity: Aesthetic Mediation in Asian American literature*, p.98.

⁶⁵ See Ahmed, *Living A Feminist Life*, pp.203-06.

and oni. Not *SUPAHIRO*! With *SUPAPAWA*!'⁶⁶ The superpower becomes central to their inter-generational affinity and helps Nao to survive. Jiko explains the way to access a superpower is through the Zen Buddhist practice of meditation called *zazen*. It is a process described by Nao as 'a home that you can't ever lose.'⁶⁷ The uncertain and hybrid meaning of 'superpower' is further complicated by its echo of the quantum term 'superposition.'⁶⁸ Hearing this echo here suggests that performing a superpower relies on non-locality. It is by thinking of herself as a ghost with a superpower that Nao can feel her social world as a possible home, one where she might feel empowered and comforted, because she has recourse to acting outside of its previous logics of separability. In da Silva's language, Nao has access to 'something more than that which can be signified by a mode of *being human*.'⁶⁹ The superpower thus contains a political, quantum resonance, one which describes how to think resistance to violence and separation, by engaging in a fictional superpositionality. The form of *a Tale for the Time Being*, already open, is able to accommodate this merging of powers.

The superpower helps Nao to engage in resistance to abusive and difficult conditions. In reaction to her father's second suicide attempt, Nao shaves her head, finally rejecting her status as child, telling him 'if you're going to do something, please do it properly.'⁷⁰ The twin discourses of religious commitment and superhero origin story are present in this ritual. It inaugurates her superpower in school the following day, which is a performance of psychic noise:

The *supapawa* of my bald and shining head radiated through the classroom and out into the world, a bright bulb, a beacon, beaming light into every crack of darkness on the earth and blinding all my enemies [...] I opened my mouth and a piercing cry broke from my throat like an eagle, shaking the earth and penetrating into every corner of the universe. I watched my classmates press their hands over their ears, and saw the blood run through their fingers as their eardrums shattered.⁷¹

The violent imagery is both serious and, in a macabre sense, playful. The bloodiness of the wounded membranes, the shattered eardrums, recalls Nao's previous abuse. The strangeness of a 'shattered' membrane makes the violence uncanny. It both does and does

⁶⁶ Ozeki, *Time Being* p.176.

⁶⁷ Ibid., p.183.

⁶⁸ Ibid., p.409.

⁶⁹ da Silva, 'To Be Announced', p.58.

⁷⁰ Ozeki, *Time Being*, p.286.

⁷¹ Ibid., pp.287-8.

not happen in *A Tale for the Time Being*, as the passage breaks with the realistic mode reserved for Nao's school days and becomes a conscious fantasy of violence. The cosmic proportions of Nao's description are ironically super-powerful, as the reader disbelieves the actuality of Nao's piercing cry. She also bows to the teacher and leaves the room in an ironic show of politeness, but knows she is 'never coming back.'⁷² The text permits the coming together of the actual and virtual via these ironic signals, and the separation between modes of reality and dream is collapsed in a way which disturbs the reader's ability to comfortably 'know' the text. The reader is forced to reflect on the ways in which they care about Nao's resistance, whether to faithfully see from Nao's perspective, or to assume it is merely a fantasy. The power is described by images of 'beaming light' illuminating 'every crack of darkness' and the noise of Nao's cry is 'like an eagle' as though manifesting a generic, Western symbol of freedom. It is an ironically 'enlightening' cry as retribution against post-Enlightenment 'deadly distinctions.'

The superpower recurs when Nao recounts the sex work which helps her and her family to survive. The work leads to a pragmatic realisation of the gravity of dominant, heteronormative assumptions concerning the fixity of gender roles, and gender is highlighted as a powerful technology, an interface with the world which Nao manipulates:

Mostly I've decided it doesn't matter. It's not such a big deal, anyway, male, female. As far as I'm concerned, *sometimes I feel more like one, and sometimes I feel more like the other*, and mostly I feel somewhere-in-between, especially when my hair was first growing back after I'd shaved it.⁷³

It is the 'feeling' of gender which Nao emphasizes. Ahmed articulates the importance of feeling for thinking gender and embodiment, stating that such 'feelings' can be understood in terms of 'comfort' which associates embodiment with an extended seamlessness in the world: 'to be comfortable is to be so at ease with one's environment that it is hard to distinguish where one's body ends and the world begins.'⁷⁴ Nao's sense that it 'doesn't matter' is indicative of being at-ease, comfortable with her body-in-space, but she also implicitly demonstrates an understanding of the 'concealed' borders that, as Ahmed states, 'police what is inside and outside the meaning of "woman".'⁷⁵ Nao's feeling of performance is indicative of the kind of 'transformative politics' that Ahmed refers to,

⁷² Ibid., p.288.

⁷³ Ibid., p.299. My emphasis.

⁷⁴ Sara Ahmed, *The cultural politics of emotion* (Edinburgh: Edinburgh University Press, 2004), p.148.

⁷⁵ Ahmed, *Differences that matter: feminist theory and postmodernism*, p.90.

in that it is a ‘continual reflexivity’ that acknowledges in its references to ‘male’ and ‘female’ the fact that the meaning of Nao’s body still inheres within narratives of essentialism.⁷⁶ It is also a resistance to ‘separability’ in specifically gendered terms, resisting the borders of policing.

The superpower trope is also used to describe Nao’s resistance to male domination when she is forced to take another client for sex, one who ‘didn’t waste any time’ while ‘he did things to my body.’⁷⁷ While Nao purposefully tries to become disembodied, ‘clean and cold and very far away,’ she is brought back to bodily experience through a phone call from Jiko.⁷⁸ This event is unlike common representations of commercial sex which involve disembodiment in order to overcome abuse.⁷⁹ Nao suggests that ‘the sound of the phone ringing actually did save me’ and it leads to her becoming a powerful agent: ‘I summoned up my superpower and pushed the hentai down onto his back.’ The technological interface appears immediately after this event, to emphasize that Nao’s status as living ghost cyborg is a process which must adapt and constantly re-read and resituate itself. The message tells Nao that Jiko is dying, but Nao cannot read it effectively first time. She ‘couldn’t take in the meaning’ and she must ‘read it again.’ This difficulty in reading is also found in the ‘re-reading’ of her body, as she ‘caught sight of a naked girl in the mirrors, endlessly reflecting. Her body was raw-looking, gawky and awkward.’⁸⁰ Nao’s vision of herself as an object, ‘endlessly reflecting’ in the mirrored room, is an image of sameness, reflection generating copies, leading to ways of knowing that reproduce dominant, patriarchal subjectivities of individual separation. Both Nao and the reader are shown the consequences of masculine objectification of the female body, in that the only way for Nao to read herself in this environment of sexual violence is as multiple, separate images. The mirrored room signals the difficulty of situated reading while surrounded by reflections, and the way that separability relies on the replicable and expendable body.

The meaning of Nao’s body is acknowledged as a problem of articulation, when she tells ‘a good story about in-between,’ about her relationship with one of the clients

⁷⁶ Ibid., p.91.

⁷⁷ Ozeki, *Time Being*, p.335.

⁷⁸ Ibid.

⁷⁹ ‘the majority of the violent scenes tend to rely on what trauma survivors have identified as coping mechanisms, namely, out-of-body experience of detachment, complete surrender as a method for self-preservation, or numbing of the senses.’ Laura Barberán Reinares, *Sex Trafficking in Postcolonial Literature: Transnational Narratives from Joyce to Bolaño* (New York: Routledge, 2015) pp.61-62.

⁸⁰ Ozeki, *Time Being*, p.336.

for her sex work, Ryu. After Nao finds she is unable to engage in sex with Ryu, she dresses in his suit: 'He said I looked just like a bishonen [a beautiful youth, beautiful boy] but actually I was *cuter than any boy*.'⁸¹ Nao's dressing affords her a way of experiencing a (temporarily) satisfying sexuality, one in which she 'could have fallen in love with [herself].'⁸² That she 'could' have fallen in love with herself indicates a superpositionality with regard to her gender performativity, in that she sees herself as a subject for her own desire, is able to situate herself in a position of uncertainty which grants her a new, pleasurable agency, although not one she is able to act upon. To think of this in terms of her superpower, she is both 'inside and outside' a gender binary, able to see the borders that confine her social performance, as well as performing as a 'creature of fiction.' As such, Nao does not inhabit a simple post-gender positionality, but can be described as entangled in multiple, simultaneous gender identities, recalling Hugh Everett's many-worlds interpretation of quantum theory. Nao's telling of the story is marked by such indeterminacy: she has 'mostly' decided it doesn't matter, 'it's not such a big deal.' This can be further thought of as a cyborg positionality, a movement out of a gender binary which is not yet total, given that the story of male identity remains a part of her taking pleasure in the experience. Outside the hotel she '[enjoys] being male.'⁸³ As Ahmed makes clear, '[it] is through being fixed in intelligible forms that "woman" comes to have certain effects that constitutes the boundaries of embodied subject ("women")' but such fixation 'cannot be halted, command over her meaning cannot secure her [as] an object.'⁸⁴ If the 'war of signification takes place at the level of embodiment,' Nao's embodiment is granted potency by her competency with technologies of gender.⁸⁵ In the 'war of signification,' Nao overcomes any logic of separability governing her own sense of gender roles. Like Ali Smith's *Franscescho del Cossa*, her competency with the *techné* of gender allows her to control her own existence, to survive both within and without a gender binary as a 'who' that knows she is also a 'what.'

⁸¹ Ibid., p.300. My emphasis.

⁸² Ibid.

⁸³ Ibid., p.302.

⁸⁴ Ahmed, *Differences that matter: feminist theory and postmodernism*, pp.91-92.

⁸⁵ Ibid., p.92.

Conclusion: Violent Separation

I have argued that *A Tale for the Time Being* is an open novel interface, one which breaches boundaries between reader, character and author. The effects of such breaching can be effectively described in terms of quantum poetics. The novel challenges the logic of separation which is the foundation for the abuse of its central character, Nao. However, reading with da Silva and Haraway highlights a disturbing limit at the end of Nao's narrative. Nao describes her father's ability to write computer code as his superpower, when he writes a program to delete his daughter's past internet presence. This alters the radical resistance found in the term 'superpower' from before. In order to undertake this powerful act of coding, Haruki has 'stopped reading The Great Minds of Western Philosophy completely, and spends all his time programming, which really is his superpower.'⁸⁶ This rejection of the Western tradition of philosophical knowledge seems to continue the text's challenge to a logic of separation, but his and Nao's story ends with a technology that traffics in certainty. The Mu-Mu Vital Hygenics security system, coded by Haruki, appear to reinstate a sovereign subject. Code replaces philosophy as a powerful language for executing a causal logic, one that works to establish exclusive categories of being. The novel ends with an image of the interface not as a quantum figuration but as a tool for enforcing the deadly distinctions of separability.

The software is a system which can 'clean' search engine databases, on the basis that 'mistakes' are made by people which the software can 'sanitize.'⁸⁷ The language of cleanliness implies a moral dimension to Haruki's technology. It can purify the interface and re-establish a subjectivity which is separate from it. Haruki launches an internet start-up based on the software, and Nao is able to 'make a fresh start in her new life in Montreal, Canada.'⁸⁸ The dot-com bubble, one of the crisis events which listed by Nao in the text, recurs as something to be dismissed or forgotten. Haruki recuperates his original bourgeois status, stating 'for the first time since the dot-com bubble burst, I can provide a comfortable lifestyle for my family again.'⁸⁹ This providence is at the expense of entanglement as a social condition.

This software posits an exclusionary logic, with a new start effectively erasing trauma. Haruki's new technological system reinforces class distinctions, given that only

⁸⁶ Ozeki, *Time Being*, p.389.

⁸⁷ *Ibid.*, p.382.

⁸⁸ *Ibid.*

⁸⁹ *Ibid.*, p.383.

the very wealthy can afford to pay for Q-Mu, a version of the cleaning software which makes use of quantum technology to [exchange] all of the instances for naughts.⁹⁰ Quantum entanglement is instrumentalized to sustain the reputations of the wealthy. In direct contrast to da Silva's thinking about the potential for quantum poetics in overcoming separability, quantum technology is used to extend a logic of separability. Furthermore, with Haruki's claim that 'suicide is old-thinking [...] it is also messy and unnecessary' there is a denigration of mental trauma via the comforting novelty of internet-generated capital.⁹¹ Nao is reinstalled in a powerful, Western nation state, able to comfortably choose the status of 'unbeing' (Muyu) which is not processual but total. The language associated with the MuMu software intensifies the sense that trauma is 'cleansed' from the resolution of Nao's narrative. This contrasts with the overall form of the novel as one which is littered with debris.

While the novel attempts to restate the uncertain entanglement of Nao and Ruth via the epilogue, the association of quantum knowing with technological capital and the sublime possibility of total erasure appears to close down the text. The crimes which separability made possible, the sexual violence of which Nao was a victim, are erased. Nao is made separate from her trauma and its conceptual conditions, and her father re-establishes the possibility for a fatal cycle of technologically sublime 'progress' which previously left him suicidal. It is an instance of 'perfect communication' by a totalizing code, able to delete everything across all timelines. The code is also one of ultra-causal control because it can erase previous causes. Finally, the cleanliness of Nao's new online life contains an irony, in that it implicitly cleans the debris, the miasma, which is signalled by jellyfish and garbage elsewhere in the text. The software is too clean, moving Nao's uncertain cyborg position towards a majority literary-cultural position. Rather than continuing to write over the literary works of the canon, she intends to read Proust, and to write the story of Jiko on 'plain old paper.'⁹²

This recuperation of Nao's position highlights the difficulty of sustaining the image of the entangled cyborg. The status of living ghost is not a position that Nao wishes to remain in, because she was subject to horrific abuses. Her father's coding allows her to move out of the marginal status in which she began the text, where she stated 'by the

⁹⁰ Ibid.

⁹¹ Ibid.

⁹² Ibid., p.390.

time you read this, everything will be different. . .⁹³ The software signals the ways in which logics of exclusion are constantly restated by attempts at total control of causality. If the interface process of reading this novel means to generate a 'different' state, Nao's status at the end of the novel is conspicuous for its stasis and totality. It is 'different' rather than a continuing 'difference,' as she is effectively made separate from the narrative the reader has just experienced. The interface of the novel produces a version of the interface in the narrative as which does not signal an intraface mode, but is rather a powerful instrument for sovereign control. In its final production of the interface, the text does not sustain the processual difference of Nao's telling, instead reinforcing a recognisable bourgeois subjectivity that is 'cleaned.'

The juxtaposition of quantum and global scales in *A Tale for the Time Being* emphasizes that knowledge about connections between people in the world always relies on the acceptance of a particular scale for such knowledge. It is an attempt to address a shift in that scale to a quantum level which the novel presents as its main challenge to the reader of its interface. The author Ruth worries about the way her human status is disturbed by the 'temporal stuttering' of the interface, as though suggestive of a concern with progress or movement forward, one that is encapsulated by the capitalist logic of Nao's 'fresh start.' While attempting to signify 'something more than that which can be signified by a mode of being human' the novel reveals its signification to still be bordered by a certain separability. In *A Tale for the Time Being* the final image of the human is predicated on a 'who' on which the 'what' can act, despite the powerful cyborg resonances which this reading has revealed.

⁹³ Ibid., p.4.

Conclusion

The intersection of questions about the future of reading and the nature of interface are intimately connected. The articulation of a fuller theory of interface lies ahead.¹

—Johanna Drucker, 'Humanities Approaches to Interface Theory'

This thesis has argued for the necessity of reading the novel as an interface, and demonstrated the ways in which a method of reading which is positioned as such reveals complex political relationship between novels as interfaces and as mediums for the representation of interfaces. The synecdochic relationship of the interface is an agonized node concerning the representation of technology in the novel and perspectives on the status of the technological in social life. It now remains to clarify what common patterns such readings have revealed about the contemporary novel and what future directions for research my work gestures towards.

What each of these readings show is that different attitudes to the possibility of reading interfaces condition the kinds of subjectivity possible in these textual worlds. The common patterns in these readings are related to anxiety surrounding the way the interface figures in social life. This is often articulated through a moral concern regarding the production and reproduction of the subject in the contemporary period. While each of these novels understands the inextricable ways in which daily life is entangled with contemporary interfaces, each text runs up against a limit in terms of which subjects the novel is able to make visible and heard. The contemporary novel manifests an anxiety regarding its own powers of reproduction, which is present when other interfaces produce a version of reality within these texts.

NW is bounded by an appeal to justice which closes down the space within which to reimagine the lives of Leah and Keisha/Natalie. The text effectively stops at Leah's confrontation with expectations of privileged reproduction, with the edge of the interface reinforcing a social justice that would imply the eventual resignation of Leah to the role of reproductive woman. This reinforcing of a dominant mode of understanding reproduction is also manifest in the end of *10:04* where to 'know how it is' is a state that does not effectively convey the embodied identity of the woman as a subject of reproductive technologies. If these texts exemplify attempts to understand the 'contours

¹ Drucker, 'Humanities Approaches To Interface Theory', p.15.

of our time,' then the discursive landscape is shaped by abortive attempts to imagine subject positions which resist or challenge the status quo.

Both *How to be both* and *A Tale for the Time Being* can be said to attempt movements further past the limits of the novel form, although with the use of different formally experimental techniques. Both make their interfaces more permeable in order to communicate a reading process which is ultimately more open. Both texts still manifest problematic political edges, as in the way that *How to be both* flattens the internet in relation to structural violence, and the way that *A Tale for the Time Being* establishes an economic, privileged limit at the end of the narrative, a capitalistic restating of a recognisable bourgeois subject position. In summary, cyborg reading of the contemporary novel demonstrates that literary novels struggle against the limitations of their conventions in relation to the technological. The interface as a process of production is subordinated to the novel as a process of production, in the way that each of these texts work to establish their particular narrative resolution (or lack thereof) as novelistic rather than technological. Apart from contributing to the critical sub-disciplines growing around each of these novelists, my readings contribute to nuancing literary-critical discussions of the presence of technology in the contemporary period more generally. A textual and figurative approach is one that highlights not just technological structures or objects but the consequences for subjectivity which are manifest in the way such technologies are represented and written about.

Leading on from the above, what this project has only gestured towards is the significant intersection of disability studies, literary studies and science and technology studies. In this sense, the thesis contributes to modes of rethinking Donna Haraway's cyborg for the contemporary period. The questions of access raised by the reading of *A Tale for the Time Being* and of the connection of technological determinism with a form of social privilege in *NW*, for instance, highlight the ways in which conceptions of interface interactions often ignore disabled bodies. In Jillian Weise's 2018 article 'Common Cyborg', she powerfully highlights the technological reality for disabled people as one that theoretical cyborg discussions do not adequately address. Disabled people rely on prostheses and other forms of embodied interface interactions not just for support, but for survival in everyday life. The prostheses is the interface between disability and ableist conceptions of the subject. Weise's cyborg concerns are instances of everyday survival:

'cyborg concerns: Can I afford my leg? Will a stalker, a doctor or the law kill me?'² Further work is required on the ways that representations of interface interaction in contemporary fiction acknowledge the everyday conditions of disabled subjects, to establish the ways in which a form such as the novel establishes limits regarding the visibility of different forms of technology.³ This would acknowledge the inadequacy of the cyborg as a figuration for thinking about disabled bodies given the ways in which such people are conspicuously absent from Haraway's work. It would also highlight the ways in which the reactionary or determinist position of the literary novel and its critics in relation to the technological is a more obviously exclusionary political position. In the ways they address interface interactions, the contemporary novel appears to exclude and undermine representations of the disabled body.

More broadly, as suggested by Johanna Drucker, a fuller theory of the interface lies ahead of work at the intersection of the literary, the interface and the cyborg. This requires a continued examination of the representations of interfaces, and the way texts situate or locate such forms in their notions of reality. The interface is a process which defines the contemporary period. It provides a hermeneutic through which to consider the production of subjectivity as a textual phenomenon. Via processes of convergence, the interface will become a more specialized form in social life in the coming decades. The cyborg is only one critical position from which to consider these ideas, and indeed, as Weise suggests, has become a more benign and less radical figure over time. The movement I make towards quantum physics with Denise Ferreira da Silva in the final chapter is suggestive of the ways in which a theory of interface studies might continue to develop. The sense in which interfaces enact an uncertain logic, one that is constantly in flux, is something which challenges not merely the certainty of the printed word, but the sense in which form is itself bounded or limited by genre expectations or performances of subjectivity. The ways in which market logics continue to shape the development and

² Weise, 'Common Cyborg'.

³ A recently begun inter-disciplinary research project at University of Leeds is dedicated to addressing the intersection of cultural imagination and disability. See 'Imagining Technologies for Disability Futures', University of Leeds, (<<https://ahc.leeds.ac.uk/directories1/dir-record/research-projects/1209/imagining-technologies-for-disability-futures> > [Accessed 19/07/19] A recent issue of the *Journal of Literary and Cultural Disability Studies* includes indicative articles surrounding disability, technology and the category of the human. See for examples Sue Smith, "'Human Form Did Not Make A Human Creature": Autism and the Male Human Machine in Marge Piercy's *He, She and It*", *Journal of Literary and Cultural Disability Studies*, 11 (2017) 423-41. Alice Hall's *Literature and Disability* identifies some of the limitations of Haraway's work in relation to prostheses. See Alice Hall, *Literature and disability* (London: Routledge, 2015), p.65.

use of interfaces is a major problem in this respect, in that such logics aim for certainty in the reproduction of capital. In response to great political upheaval and intensifying concerns over the separations of peoples in the twenty-first century, the heavily politicized and personally invasive technologies of the contemporary period may be reconfigured as resistant nodes via thinking with quantum mechanics. The limits of interfaces guide the politics available to readers and the conditions of possibility.

The final path for further thinking which this thesis contributes to is the epistemology of reading as a process. In a dialogue on reading as a cultural practice in 1987, Roger Chartier and Pierre Bourdieu discuss a historically contingent basis for thinking about reading. Bourdieu articulates a response to reading in relation to a set of historical conditions:

We must also avoid universalizing a particular way of reading that is an institution with a history [...] If what I say about reading is true, that it is the product of the conditions in which I have been produced as a reader, then becoming aware of that is perhaps the only chance of escaping the effects of those conditions. That is what gives an epistemological purpose to any historical reflection on reading.⁴

In reading the novel as interface my reading has attempted to remain aware of the conditions which produce readers. I have attempted to fracture, however slightly, the notion of reading as 'an institution with a history' by reading the institutional technology of the novel with the anti-institutional or blasphemous cyborg figuration. My thesis contributes to the discipline of literary studies work whose epistemological purpose is to make readers aware of the conditions of their reading. In locating the novel as interface, I restate Bourdieu's articulation of cultural production:

the essence of cultural production is to produce the belief in the value of the product, and that this cannot be achieved by any single producer alone: all of the producers of a given product must work together, even while battling with one another.⁵

Cultural production must be understood as a network of products which contribute to 'belief' in the notion of cultural value. In reading the novel as interface, the locating of the institutional 'print' text as unambiguously technological suggests a repositioning of

⁴ Todd W. Reeser and Steven D. Spalding, 'Reading Literature/Culture: A Translation of "Reading as a Cultural Practice" (1983)', *Style*, 36 (2002) 659-75, p.665.

⁵ *Ibid.*, p.669.

the ways such a form contributes to the 'belief' in such value. The limits demonstrated in the novel form are pressurized and eventually breached by movements into and towards other forms. In the course of addressing the political and ethical problems in performing subjectivity found in the above readings, the novel may come to more closely resemble those other interfaces which it judges and attempts to represent.

Bibliography

- Abbinnett, Ross, *The Thought of Bernard Stiegler : Capitalism, Technology and the Politics of Spirit* (London: Routledge, 2018).
- Adiseshiah, Sian, and Hildyard, Rupert, eds., *Twenty-First Century Fiction : What Happens Now* (Basingstoke: Palgrave Macmillan, 2013).
- Ahmed, Sara, *Differences that matter : feminist theory and postmodernism* (Cambridge: Cambridge University Press, 1998).
- , *The cultural politics of emotion* (Edinburgh: Edinburgh University Press, 2004).
- , *Living A Feminist Life* (Durham: Duke University Press, 2017).
- Arias, Rosario, 'Life After Man? Posthumanity and Genetic Engineering in Margaret Atwood's *Oryx and Crake* and Kazuo Ishiguro's *Never Let Me Go* ', in *Restoring the Mystery of the Rainbow: Literature's Refraction of Science, Vol. 1*, ed. by Valeria Tinkler-Villani and C.C. Barfoot (Amsterdam and New York: Rodopi, 2011), pp. 379-94.
- Barnett, Tully, 'Technology, The Human and The Sublime', in *The Human and The Humanities in Literature, Language and Culture*, ed. by Peter Goodall (University of Sydney: AUMLA, 2009), pp. 219-30.
- Barr, Marleen S., *Alien to femininity : speculative fiction and feminist theory* (New York: Greenwood ; London, 1987).
- Bassett, Caroline, 'Not Now? Feminism, Technology, Postdigital', in *Postdigital Aesthetics*, ed. by David Berry (Palgrave Macmillan: London, 2015), pp. 136-50.
- Baym, Nancy K., *Personal Connections in the Digital Age* (Cambridge: Polity, 2010).
- Beckman, Jonathan, '10:04 by Ben Lerner, review: 'I doubt I'll read a finer novel all year'', *The Daily Telegraph*, (2015) <<https://www.telegraph.co.uk/books/what-to-read/1004-by-ben-lerner-review/>> [Accessed 09/01/19]

- Benfey, Christopher, 'How to be both,' by Ali Smith', *The New York Times*, (2014)
 <<https://www.nytimes.com/2015/01/04/books/review/how-to-be-both-by-ali-smith-review.html>> [Accessed 06/05/19]
- Benjamin, Walter, 'Theses on the Philosophy of History', in *Illuminations* (New York: Schocken, 1969).
- Birkerts, Sven, *The Gutenberg elegies : the fate of reading in an electronic age* (Boston ; London: Faber and Faber, 1994).
- Blalock, Stephanie M., "'Tell what I meant by Calamus": Walt Whitman's Vision of Comradeship from Fred Vaughan to the Fred Gray Association", in *Whitman among the Bohemians*, ed. by Edward Whitney Joanna Levin (Iowa: University of Iowa Press, 2014), pp. 172-88.
- Bolter, J. David, and Grusin, Richard A., *Remediation : Understanding New Media* (Cambridge, Mass. ; London: MIT Press, 1999).
- Boxall, Peter, *Twenty-First-Century Fiction : a critical introduction* (Cambridge ; New York: Cambridge University Press, 2013).
- boyd, danah, *It's complicated : the social lives of networked teens* (New Haven and London: Yale University Press, 2014).
- Braidotti, Rosi, *The Posthuman* (Cambridge: Polity, 2013).
- Brosch, Renate, 'Ekphrasis in Recent Popular Novels: Reaffirming the Power of Art Images', *Poetics Today*, 39 (2018), 403-23.
- Brouillette, Sarah, 'Neoliberalism and the Demise of the Literary', in *Neoliberalism and Contemporary Literary Culture*, ed. by Mitchum Huehls and Rachel Greenwald Smith (Baltimore: John Hopkins University Press, 2017), pp. 277-90.
- Bruyn, Ben De, 'Realism 4°. Objects, weather and infrastructure in Ben Lerner's 10:04', *Textual Practice*, 31 (2017), 951-71.

Bukatman, Scott, *Terminal identity : the virtual subject in postmodern science fiction* (Durham, NC: Duke University Press, 1993).

Butler, Judith, 'The Body You Want: Liz Kotz Interviews Judith Butler', Artforum, (<https://www.artforum.com/print/previews/199209/the-body-you-want-an-interview-with-judith-butler-33505>) > [Accessed 29/03/18]

———, *Bodies that matter : on the discursive limits of "sex"* (New York ; London: Routledge, 1993).

———, *Undoing gender* (New York ; London: Routledge, 2004).

———, *Giving an account of oneself* (Ashland, Ohio: Fordham University Press, 2005).

———, *Notes toward a performative theory of assembly* (Harvard: Harvard University Press, 2015).

Butler, Octavia E., 'Dawn', in *Lilith's Brood* (New York: Grand Central Publishing, 1987).

Byrne, Peter, 'The Many Worlds of Hugh Everett', Scientific American, (2008) <https://www.scientificamerican.com/article/hugh-everett-biography/> > [Accessed 09/03/2018]

Campbell, Fiona Kumari, *Contours of Ableism : the production of disability and abledness* (Basingstoke: Palgrave Macmillan, 2009).

Carr, Nicholas G., *The shallows : how the Internet is changing the way we think, read and remember* (London: Atlantic, 2010).

Carroll, Rachel, 'Imitations of Life: Cloning, Heterosexuality and the Human in Kazuo Ishiguro's Never Let Me Go', *Journal of Gender Studies*, 19 (2010), 59-71.

Castells, Manuel, *End of Millennium* (Oxford: Blackwell, 2000).

Cavallo, Guglielmo, and Chartier, Roger, *A History of Reading in the West* (Oxford: Polity, 2003).

'Chat Roulette', <http://www.chatroulette.com> > [Accessed 24/07/19]

- Chun, Wendy Hui Kyong, 'Race and/as Technology or How to Do Things to Race', in *Race After The Internet*, ed. by Lisa Nakamura and Peter A. Chow-White (New York: Routledge, 2012), pp. 38-60.
- Clark, Andy, *Natural-born cyborgs : why minds and technologies are made to merge* (New York: Oxford University Press, 2003).
- Coen, Susie, 'Ghosting: Have Apps Like Tinder Killed Off Basic Decency When It Comes To Dating?', *The Independent*, (2015)
<<https://www.independent.co.uk/life-style/love-sex/ghosting-dating-tinder-added-to-dictionary-etiquette>> [Accessed 24/07/19]
- Coleman, Beth, 'Race as Technology', *Camera Obscura* (2009), 177-207.
- Colligan, Colette, and Linley, Margaret, *Media, technology, and literature in the nineteenth century : image, sound, touch* (Farnham: Ashgate, 2011).
- Collins, Patricia Hill, *Black Feminist Thought : knowledge, consciousness, and the politics of empowerment* (Boston [Mass.] ; London: Unwin Hyman, 1990).
- Colthup, Heidi Ann, 'You Were all the World Like a Beach to me'. The Use of Second Person Address to Create Multiple Worlds in Literary Video Games: 'Dear Esther', a Case Study', *International Journal of Transmedia Literacy*, 4 (2018), 117-36.
- Cossa, Francesco del, 'Mese di Marzo', (Palazzo Schifanoia, Ferrara: 1468-70).
- Coupland, Douglas, *Microserfs* (London: Flamingo, 1995).
- Cramer, Florian, 'What Is 'Post-digital'?', in *Postdigital Aesthetics: Art, Computation and Design*, ed. by David M. Berry and Michael Dieter (London: Palgrave Macmillan, 2015), pp. 12-26.
- da Silva, Denise Ferreira, 'To Be Announced: Radical Praxis or Knowing (at) the Limits of Justice', *Social Text*, 31 (2013), 43-62.
- , 'On Difference Without Separability', in *Living Uncertainty*, ed. by 32a São Paulo Art Biennial (São Paulo: Oficina de Imaginação Política, 2016), pp. 57-65.

- Daley, Christopher, 'Case Studies in Reading 1: Key Primary Literary Texts', in *The Science Fiction Handbook*, ed. by Nick Hubble and Aristeidis Mousoutzanis (London: Bloomsbury Academic, 2013), pp. 75-99.
- Daniels, Jesse, 'Rethinking Cyberfeminism', *WSQ: Women's Studies Quarterly*, 37 (2004), 101-24.
- Davey, Frank, *Post-national arguments : the politics of the Anglophone-Canadian novel since 1967* (Toronto: University of Toronto Press, 1993).
- Davis, Jade E., 'From Cyborg to Black Slave: A find and replace edit by Jade' (2011) <<https://goo.gl/haJKnK>> [Accessed 16/03/2018]
- Delany, Samuel R., "Is Cyberpunk a Good Thing or a Bad Thing?", *Mississippi Review* 16 (1988), 16-65.
- , 'Some Real Mothers...: The SF Eye Interview', in *Silent Interviews: On Language, Race, Sex, Science Fiction and Some Comics* (Hanover: University Press of New England, 1994), pp. 164-85.
- , *The Jewel-Hinged Jaw : Notes on the Language of Science Fiction*. Rev. ed. edn (Middletown, Conn.: Wesleyan University Press, 2009).
- DeLillo, Don, *Cosmopolis : a novel* (New York: Scribner, 2003).
- Derrida, Jacques, and Stiegler, Bernard, *Echographies of television : filmed interviews* (Cambridge: Polity Press, 2002).
- Dieter, Michael, 'Dark Patterns: Interface Design, Augmentation and Crisis', in *Postdigital Aesthetics: art, computation and design*, ed. by David M. Berry and Michael Dieter (London: Palgrave Macmillan, 2015).
- Dijk, Jan van, *The Network Society* (London: Sage, 2012).
- Dinnen, Zara, *The Digital Banal : new media and American literature and culture* (New York: Columbia University Press, 2018).

- , '(The) Digital', in *The Routledge Companion to Twenty-First Century Literary Fiction*, ed. by Daniel O'Gorman and Robert Eaglestone (New York and London: Routledge, 2019), pp. 213-24.
- Donawerth, Jane, *Frankenstein's Daughters : women writing science fiction* (Syracuse, N.Y.: Syracuse University Press, 1997).
- Drucker, Johanna, 'Entity to Event: From Literal, Mechanistic Materiality to Probabilistic Materiality', *parallax*, 15 (2009), 4-17.
- , 'Humanities Approaches To Interface Theory', *Culture Machine*, 12 (2011), 1-20.
- Dusek, Val, *Philosophy of technology : an introduction* (Oxford: Blackwell, 2006).
- Dutton, William H., ed., *The Oxford Handbook of Internet Studies* (Oxford: Oxford University Press, 2013).
- Dworkin, Craig, *No Medium* (Cambridge, Mass. ; London: MIT Press, 2013).
- Eaglestone, Robert, *Contemporary fiction : a very short introduction*, *Very short introductions* 362 (Oxford: Oxford University Press, 2013).
- Einstein, Albert, Born, Hedwig, and Born, Max, *The Born-Einstein letters : friendship, politics, and physics in uncertain times : correspondence between Albert Einstein and Max and Hedwig Born from 1916 to 1955* (Basingstoke: Macmillan, 1971).
- 'Electronic Literature Organization', ELO, (<www.eliterature.org> [Accessed 06/01/19])
- Eliot, T.S., *The Wasteland and Other Poems* (London: Harcourt, 2014).
- Emerson, Lori, *Reading Writing Interfaces : From the Digital to the Bookbound* (Minneapolis: University of Minnesota Press, 2014).
- Erding, Carolyn, and Risam, Rooper, 'Introduction: A gathering of feminist perspectives on digital labor', *First Monday*, (2018)
<<http://www.firstmonday.dk/ojs/index.php/fm/article/view/8278/6646>>
[Accessed 01/06/18]

- Ess, Charles, *Digital media ethics* (Cambridge: Polity, 2009).
- Fabbri, Dino, ed., *I Maestri Del Colore: Cossa* (Milano: Fratelli Fabbri, 1985).
- Farkas, Zita, 'Book Apps and Digital Textuality', *Alluvium*, 6 (2017).
- Feenberg, Andrew, 'From Essentialism to Constructivism: Philosophy of Technology at the Crossroads', in *Technology and the Good Life?*, ed. by Eric Higgs, Andrew Light and David Strong (Chicago: University of Chicago Press, 2000).
- Ferguson, George, *Signs & symbols in Christian art* (Oxford: Oxford University Press, 1966).
- Figlerowicz, Marta, 'The Novel of Infinite Storage', *Poetics Today*, 39 (2018), 201-19.
- Fitzpatrick, Kathleen, *The Anxiety of Obsolescence : the American novel in the age of television* (Nashville, Tenn.: Vanderbilt University Press, 2006).
- Flood, Alison, 'Ali Smith wins Baileys prize with How to Be Both', *The Guardian*, (2015) <<https://www.theguardian.com/books/2015/jun/03/ali-smith-wins-baileys-prize-with-how-to-be-both>> [Accessed 06/05/19]
- Galloway, Alexander R., *The Interface Effect* (Cambridge: Polity, 2012).
- Genette, Gerard, *Paratexts : thresholds of interpretation* (Cambridge: Cambridge University Press, 1997).
- Germana, Monica, 'Strangers and Intrusions', in *The Contemporary British Novel Since 2000*, ed. by James Acheson (Edinburgh: Edinburgh University Press, 2017).
- Gibbons, Alison, 'Postmodernism is dead. What comes next?', *Times Literary Supplement*, (2017) <<https://www.the-tls.co.uk/articles/public/postmodernism-dead-come-next/>> [Accessed 06/05/19]
- , 'Autonarration, I, and Odd Address in Ben Lerner's Autofictional Novel *10:04*', in *Pronouns in Literature: Positions and Perspectives in Language*, ed. by Alison Gibbons and Andrea Macrae (London: Palgrave Macmillan, 2018), pp. 75-96.

- Giblett, Rodney James, *Sublime communication technologies* (Basingstoke: Palgrave Macmillan, 2008).
- Gibson, William, *Neuromancer* (New York: Berkley, 1984).
- Giles, Paul, 'Sentimental Posthumanism: David Foster Wallace', *Twentieth Century Literature*, 53 (2007), 327-44.
- Gillis, Stacy, 'The (Post)Feminist Politics of Cyberpunk', *Gothic Studies*, 9 (2007), 7-19.
- Gitelman, Lisa, *Always Already New: Media, History and the Data of Culture* (Cambridge, Mass.: MIT, 2006).
- Gitelman, Lisa, and Pingree, Geoffrey B., *New media, 1740-1915* (Cambridge, Mass. ; London: MIT Press, 2003).
- Goody, Alex, *Technology, literature and culture* (Cambridge: Polity, 2011).
- Gotby, Alva, 'Body, Geography, Exteriority: Race and spatiality in the writings of Denise Ferreira da Silva' (Södertörn University, 2016).
- Green, Michelle Erica, "'There Goes the Neighborhood": Octavia Butler's Demand for Diversity in Utopias', in *Utopian and Science Fiction by Women : Worlds of Difference*, ed. by Jane Donawerth and Carol A. Kolmerten (Liverpool: Liverpool University Press, 1994).
- Griffin, Gabriele, 'Science and the cultural imaginary: the case of Kazuo Ishiguro's *Never Let Me Go*', *Textual Practice*, 23 (2009), 645-63.
- Hall, Alice, *Literature and disability* (London: Routledge, 2015).
- Hall, Steven, *The Raw Shark Texts* (Edinburgh: Canongate, 2007).
- Hansen, Denise Rose, 'Ben Lerner and the Novel in the Age of Digital Media', *The International Journal of the Book*, 15 (2017), 11-21.
- Haraway, Donna J., 'A Manifesto for Cyborgs - Science, Technology, and Socialist Feminism in the 1980s', *Socialist Review* (1985), 65-107.

- , 'A Cyborg Manifesto: science, technology and socialist-feminism in the late twentieth century', in *Simians, Cyborgs, and Women : the re-invention of nature* (London: Free Association, 1991).
- , *Simians, Cyborgs and Women : the reinvention of nature* (London: Free Association, 1991).
- , 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', in *Simians, Cyborgs and Women: The Reinvention of Nature* (London: Free Association Books, 1991).
- , *Primate visions : gender, race and nature in the world of modern science* (London: Verso, 1992).
- , *Modest-Witness@Second-Millennium.FemaleMan-Meets-OncoMouse : feminism and technoscience* (New York ; London: Routledge, 1997).
- , 'Cyborgs to Companion Species: Reconfiguring Kinship in Technoscience', in *Chasing Technoscience: Matrix for Materiality*, ed. by Don Ihde and Evan Selinger (Indianapolis: Indianapolis University Press, 2003), pp. 58-83.
- , 'The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others', in *The Haraway Reader*, ed. by Donna J. Haraway (London: Routledge, 2004), pp. 63-124.
- , 'A Cyborg Manifesto', in *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016), pp. 3-90.
- , *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016).
- , *Staying with the Trouble : Making Kin in the Chthulucene* (Durham: Duke University Press, 2016).
- Haraway, Donna Jeanne, and Goodeve, Thyrza Nichols, *How like a leaf : an interview with Thyrza Goodeve* (New York: Routledge, 2000).

- Harding, Sandra G., 'Rethinking Standpoint Epistemology: What Is 'Strong Objectivity?', in *Feminism and science*, ed. by Evelyn Fox Keller and Helen E. Longino (London ; New York: Oxford University Press, 1996).
- Hayles, N. Katherine, *How We Became Posthuman : virtual bodies in cybernetics, literature, and informatics* (Chicago: University of Chicago Press, 1999).
- , 'The Illusion of Autonomy and the Fact of Recursivity: Virtual Ecologies, Entertainment, and "Infinite Jest"', *New Literary History*, 30 (1999), 675-97.
- , *Writing machines* (Cambridge, Mass: MIT, 2002).
- , 'The Future of Literature: complex surfaces of electronic texts and print books', *Collection Management*, 31 (2007), 85-114.
- , *Electronic literature : new horizons for the literary* (Notre Dame, Ind.: University of Notre Dame, 2008).
- Hayles, N. Katherine, and Pressman, Jessica, eds., *Comparative Textual Media : Transforming the Humanities in the Postprint Era* (Minneapolis: University of Minnesota Press, 2013).
- Heidegger, Martin, 'The Question Concerning Technology', in *Technology Studies*, ed. by Rayvon Fouché (Los Angeles: SAGE, 2008).
- Heiney, Anna, 'Kennedy Space Center: Historical Timeline', NASA.gov, (2012)
<<https://www.nasa.gov/centers/kennedy/about/history/timeline/80s-decade.html>> [Accessed 08/05/09]
- Hester, Helen, *Xenofeminism* (Cambridge: Polity Press, 2018).
- Holdenraber, Paul, 'Live from the NYPL: Zadie Smith', New York Public Library, (2010) <<https://www.nypl.org/audiovideo/zadie-smith>> [Accessed 24/07/19]
- Hookway, Branden, *Interface* (Cambridge, Massachusetts: MIT Press, 2014).
- Houser, Tammy Amiel, 'Zadie Smith's *NW*: Unsettling the Promise of Empathy ', *Contemporary Literature*, 58 (2017), 116-48.

- 'Imagining Technologies for Disability Futures', Univeristy of Leeds,
 (<<https://ahc.leeds.ac.uk/directories1/dir-record/research-projects/1209/imagining-technologies-for-disability-futures> > [Accessed 19/07/19]
- Introna, Lucas, 'Phenomenological Approaches to Ethics and Information Technology' (2011)
 <<https://plato.stanford.edu/archives/sum2011/entries/ethics-it-phenomenology/>> [Accessed 28/03/19]
- Irigaray, Luce, *To speak is never neutral* (London ; New York, NY: Continuum, 2002).
- Ishiguro, Kazuo, *Never Let Me Go* (London: Faber and Faber, 2010).
- James, Robin, ' "Robo - Diva R&B" : Aesthetics, Politics, and Black Female Robots in Contemporary Popular Music', *Journal of Popular Music Studies*, 20 (2008), 402-23.
- , 'Introduction to The Sonic Episteme, v 2.2', *It's Her Factory*, (2017)
 <<https://www.its-her-factory.com/2017/10/introduction-to-the-sonic-episteme-v-2-2/>> [Accessed 24/07/19]
- Jameson, Fredric, *Postmodernism, or, The cultural logic of late capitalism* (London: Verso, 1991).
- , 'In Soviet Arcadia', *New Left Review*, 75 (2012), 119-27.
- Johanna, Drucker, 'Theory as Praxis: The Poetics of Electronic Textuality', *Modernism/modernity*, 9 (2002), 683-91.
- , 'Graphic Devices: Narration and Navigation', *Narrative*, 16 (2008), 121-39.
- Johnson, Diego Fernandez-Duque and Mark L., 'Attention Metaphors: How Metaphors Guide the Cognitive Psychology of Attention', *Cognitive Science*, 23 (1999), 83-116.

Johnson, Steven, *Interface Culture : How New Technology Transforms the Way we Create and Communicate* (San Francisco: HarperEdge, 1997).

Jurgenson, Nathan, 'Digital Dualism versus Augmented Reality', The Society Pages: Cyborgology, (2011)
 <<https://thesocietypages.org/cyborgology/2011/02/24/digital-dualism-versus-augmented-reality/>> [Accessed 31/08/18]

Katz, D., "'I did not walk here all the way from prose": Ben Lerner's virtual poetics', *Textual Practice*, 31 (2017), 315-37.

Keller, Evelyn Fox, 'The Biological Gaze', in *Future Natural*, ed. by Sally Stafford (New York: Routledge, 1995).

Keller, Evelyn Fox, and Longino, Helen E., 'Introduction', in *Feminism and Science*, ed. by Evelyn Fox Keller and Helen E. Longino (London ; New York: Oxford University Press, 1996).

Kember, Sarah, 'Feminist Figuration and the Question of Origin', in *Futurenatural: Science, Nature, Culture*, ed. by George Robertson et al (London: Routledge, 1996), pp. 253-66.

Kember, Sarah, and Zylinska, Joanna, *Life after new media : mediation as a vital process* (Cambridge, Mass.: MIT Press, 2012).

Kirby, Alan, *Digimodernism : how new technologies dismantle the postmodern and reconfigure our culture* (London: Continuum, 2009).

Kirschenbaum, Matthew, 'So the Colours Cover the Wires: Interface, Aesthetics and Usability', in *A Companion to Digital Humanities*, ed. by Ray Siemens Susan Schreibman, John Unsworth (Oxford: Blackwell, 2004), pp. 523-42.

Kirschenbaum, Matthew G., *Track changes : a Literary History of Word Processing* (Cambridge: Harvard University Press, 2016).

- Kline, Nathan S, and Clyne, Manfred, 'Drugs, Space, and Cybernetics: Evolution to Cyborgs', in *Psychophysiological Aspects of Space Flight*, ed. by Bernard E. Flaherty (New York: Columbia University Press, 1961), pp. 345-71.
- Knepper, Wendy, 'Revisionary Modernism and Postmillennial Experimentation in Zadie Smith's NW', in *Reading Zadie Smith: The First Decade and Beyond*, ed. by Philip Tew (London: Bloomsbury, 2013), pp. 111-26.
- Lang, Anouk, 'Introduction: Transforming Reading', in *From Codex to Hypertext: Reading at the Turn of the Twenty-First Century*, ed. by Anouk Lang (Amherst: University of Massachusetts Press, 2012), pp. 1-24.
- Lanier, Jaron, *You are not a gadget : a manifesto* (New York: Alfred A. Knopf, 2010).
- Larabee, Ann, 'Remembering the Shuttle, Forgetting the Loom: Intepreting the Challenger Disaster', *Postmodern Culture*, 4 (1994).
- Latimer, Heather, 'Reproductive Technologies, Fetal Icons, and Genetic Freaks: Shelley Jackson's Patchwork Girl and the Limits and Possibilities of Donna Haraway's Cyborg', *MFS Modern Fiction Studies*, 57 (2011), 318-35.
- Latour, Bruno, 'Body, Cyborgs and the Politics of Incarnation ', in *The Darwin College Lectures: The Body*, ed. by Sean T. Sweeney and Ian Hodder (Cambridge: Cambridge University Press, 2002), pp. 127-41.
- Le Guin, Ursula K., *Always Coming Home* (London: Gollancz, 1985).
- Lea, Daniel, 'Ali Smith', in *The Routledge Companion to Twenty-First Century Literary Fiction*, ed. by Daniel O'Gorman and Robert Eaglestone (New York and London: Routledge, 2019), pp. pp.396-404.
- Leary, Timothy, 'The Cyber-Punk: The Individual as Reality Pilot', *Mississippi Review*, 16 (1988), 252-65.
- Lee, Christopher, *The Semblance of Identity : Aesthetic Mediation in Asian American literature* (Stanford, California: Stanford University Press, 2012).

- Lefanu, Sarah, *In the chinks of the world machine : feminism and science fiction* (London: Women's Press, 1988).
- Leigh, Fiona, 'Platonic Dialogue, Maieutic Method and Critical Thinking', *Journal of Philosophy of Education*, 41 (2007), 309-23.
- Lerner, Ben, 'The Golden Vanity', *The New Yorker*, (2012) [Accessed 06/05/19]
 ———, *10:04* (London: Granta Books, 2014).
- Light, Alison, "'Returning to Manderly": Romance Fiction, Female Sexuality and Class', *Feminist Review*, 1 (1984), 7-25.
- Lim, Jessica, and Zetter, Nathaniel, 'Embodying Media: From Print to the Digital', University of Cambridge, (<<https://www.english.cam.ac.uk/research/lrm/wp-content/uploads/2017/05/Embodying-Media-schedule.pdf>> [Accessed 06/05/19]
- López-Ropero, Lourdes, 'Searching for a "Different Kind of Freedom": Postcoloniality and Postfeminist Subjecthood in Zadie Smith's *NW*', *Atlantis: Journal of the Spanish Association of Anglo-American Studies*, 38 (2016), 123-39.
- Lovell, Sue, 'Toward a Poetics of Posthumanist Narrative Using Ruth Ozeki's *A Tale for the Time Being*', *Critique: Studies in Contemporary Fiction*, 59 (2018), 57-74.
- LTM Research Group, 'Literature Technology Media', University of Cambridge, (<<https://www.english.cam.ac.uk/research/lrm/>> [Accessed 06/05/19]
- Luckhurst, Roger, 'Modern literature and technology', The British Library, (2016)
 <<https://www.bl.uk/20th-century-literature/articles/modern-literature-and-technology>> [Accessed 06/05/19]
- Lupton, Christina, 'EN375 - Fiction Now: Narrative, Media and Theory in the 21st Century', University of Warwick, Faculty of Arts,
 (<<https://warwick.ac.uk/fac/arts/english/currentstudents/undergraduate/mod>

[ules/fictionnownarrativemediaandtheoryinthe21stcentury/>](#) [Accessed 06/05/19]

Lury, Celia, *Cultural rights : technology, legality and personality* (London ; New York: Routledge, 1993).

Lykke, Nina, and Braidotti, Rosi, *Between monsters, goddesses, and cyborgs : feminist confrontations with science, medicine, and cyberspace* (London: Zed Books, 1996).

Lyons, Martyn, *Books : a living history* (London: Thames & Hudson, 2011).

Manca, Joseph, 'Francesco del Cossa's Call For Justice', *Source: Notes in the History of Art*, 12 (1993), 12-15.

Mangen, Anne, 'Textual Reading on Paper and Screens', in *Information Design: Research and Practice*, ed. by Alison Black, Paul Luna, Ole Lund and Sue Walker (London and New York: Routledge).

Mangen, Anne, and Weel, Adriaan van der, 'The evolution of reading in the age of digitisation: an integrative framework for reading research ', *Literacy*, 50 (2016), 116-24.

Markham, Annette, 'AOIR Guidelines: Ethical Decision Making and Internet Research Ethics', Association of Internet Researchers (AOIR), (2012)
<https://aoir.org/wp-content/uploads/2017/01/aoir_ethics_graphic_2016.pdf> [Accessed 06/01/19]

Martin, Robert K., *The Homosexual Tradition in American Poetry* (Iowa: University of Iowa Press, 1979).

McGann, Jerome J., *Radiant Textuality : literature after the World Wide Web* (New York ; Basingstoke: Palgrave, 2001).

'Measuring The Information Society Report', (Geneva, Switzerland: International Telecommunications Union, 2014).

- 'Measuring The Information Society Report', (Geneva, Switzerland: International Telecommunications Union, 2015).
- Menke, Richard, 'Telegraphic Realism: Henry James's In The Cage', *PMLA*, 115 (2000), 975-90.
- Miall, David S., 'Confounding the Literary: Temporal Problems in Hypertext', in *From Codex to Hypertext: Reading at the Turn of the Twenty-First Century*, ed. by Anouk Lang (Amherst: University of Massachusetts Press, 2012), pp. 203-16.
- Miller, D. A., *The novel and the police* (Berkeley: University of California Press, 1988).
- , *Jane Austen, or, The secret of style* (Princeton, N.J. ; Oxford: Princeton University Press, 2003).
- Mosco, Vincent, *The Digital Sublime : myth, power, and cyberspace* (Cambridge, Mass. ; London: MIT Press, 2004).
- Mulder, Tavid, and Roda, Michelle, 'Novel Technologies' Recap', Duke University Press, (2015) <<https://novel.trinity.duke.edu/news/2016/01/19/novel-technologies-recap>> [Accessed 24/07/19]
- Mulvey, Laura, 'Visual Pleasure and Narrative Cinema (1975)', in *Visual and Other Pleasures* (Basingstoke: Palgrave Macmillan, 2009).
- Muri, Allison, *The Enlightenment cyborg : a history of communications and control in the human machine, 1660-1830* (Toronto: University of Toronto Press, 2006).
- Nakamura, Lisa, 'Cybertrace', in *Identity Tehnologies: Constructing The Self Online*, ed. by Anna Poletti and Julie Rak (Wisconsin: University of Wisconsin Press, 2014), pp. 42-53.
- 'New Media Literary Studies', in *What Happens Now?* (Loughborough University: British Association of Contemporary Literary Studies, 2018).
- Nicholson-Roberts, Joel, and Jackson, Edward, 'White Guys: Questioning Infinite Jest's New Sincerity', *Orbit: A Journal of American Literature*, 5 (2017).

- Noys, Benjamin, 'Happy Like Neurotics: Roland Barthes, Ben Lerner, and the Writing of Neurosis', *College Literature*, 45 (2018), 222-45.
- Nye, David E., *American Technological Sublime* (Cambridge, Mass. ; London: MIT Press, 1994).
- O'Gorman, Daniel, and Eaglestone, Robert, *The Routledge companion to twenty-first century literary fiction*. 1st edn (New York and London: Routledge, 2019).
- O'Neill, Shaleph, *Interactive Media: The Semiotics of Embodied Interaction* (London: Springer, 2008).
- 'OECD Science, Technology and Industry Scoreboard 2017: The digital transformation', (Paris: OECD, 2017).
- Ortberg, Daniel Mallory, 'Next on "Black Mirror"'(2015) <<http://the-toast.net/2015/01/20/next-black-mirror/>> [Accessed 06/05/19]
- Ortner, Sherry, 'Is Female to Male as Nature is to Culture?', in *Women, Culture and Society*, ed. by Michelle Zimbalist Rosaldo and Louise Lamphere (Stanford: Stanford University Press, 1974), pp. 67-88.
- Ozeki, Ruth L., *A Tale For The Time Being* (Edinburgh: Canongate, 2013).
- Penley, Constance, *NASA/TREK : popular science and sex in America* (London: Verso, 1997).
- Penley, Constance, and Ross, Andrew, *Technoculture* (Minneapolis: University of Minnesota Press, 1991).
- Peters, John Durham, *Speaking into the Air : a History of the Idea of Communication* (Chicago, Ill.: University of Chicago Press, 1999).
- , *Courting the Abyss : Free Speech and Liberal Tradition* (Chicago, Ill.: University of Chicago Press, 2005).
- Plant, Sadie, *Zeros and Ones : digital women and the new technoculture* (London: Fourth Estate, 1998).

- Pohl, Rebecca, 'Ali Smith, Enthusiasm, and the Literary Market', *Modern Fiction Studies*, 63 (2017), 694-713.
- Poland, Bailey, *Haters : harassment, abuse, and violence online* (Nebraska: Potomac Books, 2016).
- Pøld, Soren, 'Interface Realisms: The Interface as Aesthetic Form', *Postmodern Culture*, 15 (2005).
- Prasad, Ajnesh, 'Cyborg Writing as a Political Act: Reading Donna Haraway in Organization Studies', *Gender, Work & Organization*, 23 (2016), 431-46.
- Pressman, Jessica, *Digital modernism : making it new in new media* (2014).
- , 'The Aesthetic of Bookishness in Twenty-First Century Literature', in *Michigan Quarterly Review* (Michigan Publishing, Fall 2009).
- Quirk, James W. Carey and John, 'The Mythos of the Electronic Revolution', in *Communication as Culture : essays on Media and Society* (Boston: Unwin Hyman, 1989), pp. 113-41.
- Reeser, Todd W., and Spalding, Steven D., 'Reading Literature/Culture: A Translation of "Reading as a Cultural Practice" (1983)', *Style*, 36 (2002), 659-75.
- Reimer, Jeremy, 'A History of the GUI', arstechnica, (2005)
 <<https://arstechnica.com/features/2005/05/gui/3/>> [Accessed 06/01/19]
- Reinares, Laura Barberán, *Sex Trafficking in Postcolonial Literature: Transnational Narratives from Joyce to Bolaño* (New York: Routledge, 2015).
- Rice, Kylan, 'Reformatted/Re-fleshed: Gender, the Internet and New Configurations for Embodiment', *Criterion*, 7 (2014), 85-97.
- Ricoeur, Paul, *Time and Narrative, Volume 3*. trans. Kathellen Blarney and David Pellauer (London: Chicago University Press, 1990).
- Rotunno, Laura, 'User IDs: Email Novels and the Search for Identity', *a/b: Auto/Biography Studies*, 21 (2006), 70-82.

- Russ, Joanna, *The female man* (London: Women's Press, 1985, 1975).
- Ryan, Johnny, *A History of the Internet and the Digital Future* (London: Reaktion, 2010).
- 'Saint Lucy', BBC, (2009)
 <<http://www.bbc.co.uk/religion/religions/christianity/saints/lucy.shtml>>
 [Accessed 06/05/19]
- 'Saint Lucy (c. 1473/1474): Provenance, Exhibition History, Bibliography', National Gallery of Art, (<<https://www.nga.gov/collection/art-object-page.369.html>>
 [Accessed 06/05/19]
- Sandoval, Chela, *Methodology of the oppressed* (Minneapolis ; London: University of Minnesota Press, 2000).
- Sayers, Phillip, 'Representing Entertainment(s) in "Infinite Jest"', *Studies in the Novel*, 44 (2012), 346-63.
- Schatzberg, Eric, *Technology : critical history of a concept* (Chicago: University of Chicago Press, 2018).
- Schippers, Mimi, 'Recovering the Feminine Other: Masculinity, Femininity and Gender Hegemony', *Theory and Society*, 36 (2007), 85-102.
- Schmidt, Peter, 'Wave or Particle? Crossing Borders in Ruth Ozeki's novel *A Tale For The Time Being* (2013)', in *Crossing Borders: Essays on Literature, Culture, and Society in Honor of Amritjit Singh*, ed. by Tapan Basu; Tasneem Shahnaaz (Madison: Farleigh Dickinson University Press, 2017), pp. 17-27.
- Schneider, Joseph W., *Donna Haraway : live theory* (London: Continuum, 2005).
- Schnelbach, Leah, 'Snow Crash and Infinite Jest Both Predicted Our Cyberpunk Present', Macmillan, (2016) <<https://www.tor.com/2016/06/08/cyberpunk-snow-crash-and-infinite-jest/>> [Accessed 14/01/19]
- Shaddox, Karl, 'Generic Considerations in Ishiguro's *Never Let Me Go*', *Human Rights Quarterly*, 35 (2013), 448-69.

- Shail, Andrew, and Stoate, Robin, *Back to the future* (Basingstoke: Palgrave Macmillan, 2010).
- Shaw, Rhonda, 'Our Bodies, Ourselves', Technology, and Questions of Ethics: Cyberfeminism and the Lived Body', *Australian Feminist Studies*, 18 (2003), 44-55.
- Shaw, Robert E., and Bransford, John, *Perceiving, acting and knowing : toward an ecological psychology* (Hillsdale: Erlbaum, 1977).
- Smetham, Graham, *Quantum Buddhism: Dancing in Emptiness - Reality Revealed at the Interface of Quantum Physics & Buddhist Philosophy* (Brighton, England: Shunyata Press, 2010).
- Smith, Alan, and Rogers, Steven, 'Web 2.0 and Official Statistics: The Case for a Multi-Disciplinary Approach', *Statistical Journal of the LAOS*, 25 (2008), 117-23.
- Smith, Ali, *How to be both* (London: Penguin (Random House), 2014).
- , *How to be both*. Kindle edn (London: Penguin, 2014).
- Smith, Sue, "'Human Form Did Not Make A Human Creature": Autism and the Male Human Machine in Marge Piercy's *He, She and It*', *Journal of Literary and Cultural Disability Studies*, 11 (2017), 423-41.
- Smith, Zadie, 'Generation Why?', *New York Review of Books*, (2010)
 <<https://www.nybooks.com/articles/2010/11/25/generation-why/>>
 [Accessed 08/01/19]
- , *NW* (London: Penguin, 2013).
- Sofia, Zoe, 'Exterminating Fetuses, Abortion, Disarmament, and the Sexo-Semiotics of Extraterrestrialism', *Diacritics-a Review of Contemporary Criticism*, 14 (1984), 47-59.
- Starr, Marlo, 'Beyond Machine Dreams: Zen, Cyber-, and Transnational Feminisms in Ruth Ozeki's *A Tale for the Time Being*', *Meridians: feminism, race, transnationalism*, 13 (2016), 99-122.

Steadman, Carl, 'Two Solitudes' (1995)

<<http://intertext.com/magazine/v5n1/solitudes.html>> [Accessed 31/08/18]

Stephenson, Neal, *Snow Crash* (New York: Bantam Books, 1992).

Sterne, Jonathan, 'Communication as Techné', in *Communication as-- : perspectives on theory*, ed. by Gregory J. Shepherd, Jeffrey St. John and Theodore G. Striphas (London: SAGE, 2006), pp. 91-98.

Stiegler, Bernard, *Technics and Time Vol. 1* (Stanford, CA: Stanford University Press, 1998).

———, *Technics and Time Vol. 2* (Stanford, CA: Stanford University Press, 1998).

Strathern, Marilyn, *Partial Connections* (Walnut Creek: Altamira Press, 2005).

Sturken, Marita, Thomas, Douglas, and Ball-Rokeach, Sandra, *Technological visions : the hopes and fears that shape new technologies* (Philadelphia: Temple University Press, 2004).

Suvín, Darko, 'On Gibson and Cyberpunk SF', in *Storming the Reality Studio : a casebook of cyberpunk and postmodern science fiction*, ed. by Larry McCaffery (Durham: Duke University Press, 1991).

Tabachnick, David, 'Heidegger's Essentialist Responses to the Challenge of Technology', *Canadian Journal of Political Science*, 40 (2007), 487-505.

Tew, Philip, *Zadie Smith* (New York: Palgrave Macmillan, 2010).

'Theorizing The Web 2014', 2014) <<https://www.theorizingtheweb.org/2014/ttw14-print-program.pdf>> [Accessed 06/05/19]

Thompson, Iain, 'What's Wrong with Being a Technological Essentialist? A Response to Feenberg', *Inquiry: An Interdisciplinary Journal of Philosophy*, 43 (2000), 429-44.

Thomson, J. A. K., and Tredennick, Hugh, *The ethics of Aristotle : the Nicomachean ethics*, *Penguin classics*. (Harmondsworth: Penguin, 1976).

- Timeto, Federica, *Diffractional Technospaces : a feminist approach to the mediations of space and representation* (London: Routledge, 2015).
- Tulley, Ronald Jerome, 'Is There Techne in My Logos? On the Origins and Evolution of the Ideographic Term—Technology', *The International Journal of Technology, Knowledge and Society*, 4 (2008), 93-104.
- Ulmann, Bernd, *Analog Computing* (München: De Gruyter Oldenbourg, 2013).
- Vaccari, Andrés, 'Unweaving the Program: Stiegler and the Hegemony of Technics', *Transformations Journal of Media & Culture* (2009), 1-25.
- Vlacos, Sophie, 'Realisms', in *The Routledge Companion to Twenty-First Century Literary Fiction*, ed. by Daniel O'Gorman and Robert Eaglestone (New York and London: Routledge, 2019).
- Wajcman, Judy, *Feminism Confronts Technology* (Cambridge: Polity, 1991).
- , 'Patriarchy, Technology and Conceptions of Skill', *Work and Occupations*, 18 (1991), 29-45.
- Wallace, David Foster, *Infinite Jest* (London: Abacus, 1997).
- Walsh, Joanna, 'Seed', Editions at Play with Visual Editions, (2017) <<https://seed-story.com>> [Accessed 06/01/19]
- Wark, McKenzie, *Molecular red : theory for the Anthropocene* (London: Verso, 2015), pp. xxiv, 280 pages.
- 'The Wasteland App', Touch Press, (<www.thewasteland.touchpress.com> [Accessed 24/07/19])
- Weise, Jillian, "Common Cyborg", Granta, (2018) <<https://granta.com/common-cyborg/>> [Accessed 24/07/19]
- Wells, Lynn, 'The Right to a Secret: Zadie Smith's *NW*', in *Reading Zadie Smith: The First Decade and Beyond*, ed. by Philip Tew (London: Bloomsbury, 2013), pp. 97-110.

- White, Michele, 'Visual Pleasure in Textual Places: Gazing in multi-user object-orientated worlds', *Information, Communication and Society*, 2 (1999), 496-520.
- Whitehead, Anne, 'Writing with Care: Kasuo Ishiguro's *Never Let Me Go*', *Contemporary Literature*, 52 (2011), 54-83.
- Wicke, Jennifer, 'Vampiric Typewriting, 'Dracula' and Its Media', *English Literary History*, 59 (1992), 467-93.
- Wiener, Norbert, *Cybernetics : or control and communication in the animal and the machine* (New York: John Wiley, 1948).
- Williams, Frederick, *The Communications Revolution* (Beverly Hills ; London: Sage, 1982).
- Wolmark, Jenny, *Aliens and Others: Science Fiction, Feminism and Postmodernism* (New York ; London: Harvester Wheatsheaf, 1993).
- , *Cybersexualities : a reader on feminist theory cyborgs and cyberspace* (Edinburgh: Edinburgh University Press, 1999).
- World Bank Group, 'Individuals using the Internet (% of population)'(2017)
<<http://data.worldbank.org/indicator/IT.NET.USER.ZS?end=2017&start=2015>> [Accessed 06/05/19]
- Wynter, Sylvia, 'On Disenchanted Discourse: "Minority" Literary Criticism and beyond', *Cultural Critique*, 3 (1987), 207-44.
- Young-Hae Chang Heavy Industries, 'Dakota'
<www.yhchang.com/DAKOTA_V.html> [Accessed 06/01/19]
- Young, John K., *Black writers, white publishers : marketplace politics in twentieth-century African American literature* (Jackson: University Press of Mississippi, 2006).
- Young, Tory, 'Invisibility and power in the digital age: issues for feminist queer narratology', *Textual Practice*, 32 (2018), 991-1006.