



*A woodcut from 'A Moderne House-Keeping',
a chapbook published in Sheffield by William Cryer, c.1760*

Project knole

An Autocosmic Approach To Authoring Resonant Computational Characters

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Declaration Of Conflicting Interests

The author is aware of no conflicting interests that would affect the integrity of this thesis.

Abstract

Project `knole`, consisting of this thesis and a mixed reality installation artwork centred around a computational simulation, is a practice-based response to the question of how a character in a work of computational narrative art might maintain their defining quality of dynamic agency within a system (arguably one of the key potentials of the form), while achieving the ‘resonant’ qualities of characters in more materially-static art-forms.

In all aspects of this project, I explore a new methodology for achieving this balance; between the authorship of a procedural computational system, and the ability of that system to ‘resonate’ with the imagination of an audience. This methodology, which I term the ‘autocosmic’, seeks inspiration for the curation of audience response outside the obvious boundaries of artistic discipline, across the wider spectrum of human imaginative engagement; examples often drawn from everyday life.

As well as defining the terms ‘resonance’ and ‘autocosmic’, and delineating my methodology more generally, this thesis demonstrates how this methodology was employed within my creative work. In particular, it shows how some of the perennial problems of computational character development might be mediated by exploring other, often non-aestheticised examples of imaginative, narrative engagement with personified systems. In the context of this project, such examples come from the everyday, historio-cultural relationship between human beings and the environments they inhabit, outside of artistic practice.

From this ‘autocosmic’ launchpad, I have developed an artwork that starts to explore how this rich cultural and biological lineage of human social engagement with systemic place can be applied fruitfully to the development of a ‘resonant’ computational character.

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"A Spyrit... [of] Convenient Providense"

Introducing Project knole

On 19th August 1758, at six o'clock in the evening, a bell sounded in the eaves of Mr. Elijah Knole's cotton mill; precisely as and when it sounded every day. The wealthy Methodist had built the mill on the high gritstone moors on the western outskirts of the English city of Sheffield, seeking to exploit the flow of the river Night as it tumbled from the moor's heights. Though he was something of a pioneer of mechanisation, Mr. Knole's 'stations', which spun his cotton into thread, and wove that thread into cloth, were primitive and still needed human operators. The rain-lashed moors were sparsely populated, and so Mr. Knole had built several new settlements to tempt prospective workers. When the final bell struck – the sixteenth time it had sounded since dawn, as it measured out the day shift – a stream of people left their 'stations' and began the short, uphill commute to these 'newly Built' hamlets.

Amongst them was a young woman named Anne Latch, returning with her husband John to their home in the village of Nighthead. Their Spartan-yet-sturdy gritstone cottage had been built by Anne's father, Caleb, a mason who helped to build many of Mr. Knole's model villages. Caleb had died when Anne was a girl, leaving her raising to his neighbours, Sarah and Matthew Marchand. When she was old enough she had joined them in working at the mill, and there met John – each subsequent day's passing measured out by the sounding of those bells.

It was raining, as it often did on the Derbyshire moors: there was little chance that evening of spying the comet, or 'hairy star', that had been predicted to appear across the country that year by the astronomer and physicist Edmond Halley¹. Like many, Anne was hurrying home after a long shift, eager to shut herself indoors. Unlike many of her peers, however, fearful

¹ Cook, Alan *Edmond Halley: Charting the Heavens and the Seas*. Oxford: Clarendon Press, 1998.

of the baleful influence of the comet, or the 'medley of supernatural figures'² which many still believed to lurk out on the moor, Anne's own fears were private and unexpressed; her personal universe populated by more mundane horrors.

Reaching the door ahead of her husband, Anne rushed straight into the kitchen – the quietest room, deep in the house, and the warmest, and thus her favourite. She knew its dimensions so well that, as she lit candles and carefully removed her soaked shawl, she instantly noticed that something was awry.

In the mortar of the ashlar wall was a thin crack, about as tall as a mousehole, and emitting a pale glow. It had not been there that morning. She lowered herself onto her aching knees, and looked inside. A pair of wan, pupil-less eyes looked back, and from somewhere in that little, glowing darkness came a strong yet unearthly voice: asking politely for a glass of water.

* * * * *

Project *knole*, an original practice-based project of which this thesis is both a component and a formal companion, takes this event as the start of its trajectory into Anne's story. It is a 'frictional tale' (as one contemporary had it) which will engulf the following two years of her life, and bond it, inextricably, with that of the supernatural creature – a creature which Anne comes to call her 'Beest' - that has immured itself in the very fabric of her father's house. It is a narrative that sees Anne emancipate herself from her work at the mill, using the 'Beest' to transform into a 'cunning woman'; a breed of magical healer, soothsayer and 'shrewd entrepreneur'³ who throughout British history has tended to the superstitions, quarrels and psychosomatics of the populace⁴.

² Wilby, Emma 'The Witch's Familiar and the Fairy in Early Modern England and Scotland'. *Folklore* 111 (2), pp. 283 – 205, 2000, p. 301.

³ Davies, Owen 'Cunning-Folk in England and Wales during the Eighteenth and Nineteenth Centuries'. *Rural History* 8 (1), 2008, pp. 91-107, p. 94.

⁴ Davies, Owen *Popular Magic: Cunning-folk in English history*. London: Hambleton Continuum, 2007.

With the 'Beest' as her 'familiar spirit'⁵, Anne fabricates a new, syncretistic view of the world, drawing both on her peripheral understanding of new scientific advances and her own inescapable preoccupations. This 'new, inosent Theory of the world', as it comes to be known, catapults her into the public eye; individuals from all strata of society come to visit with her, and to pay her for the use of her creature's powers. Her new fame brings trouble, as well as renown. By the August of 1760, amid lurid stories of murder, bestiality and witchcraft, Anne – by now 'much-trafficked and feared' – is forced to flee Nighthead, her father's house, and the 'Beest' that brought this questionable fortune to her doorstep.

* * * * *

Anne Latch's tale is not just 'frictional', of course, but 'fictional' as well. While elements of her 'storyworld'⁶ impinge on the historical record, there is many 'points... [of] divergence'⁷; neither Anne, her husband John, the village of Nighthead nor many of the other narrative elements ever truly existed. The material of the project, while presenting themselves as primary sources, are most properly considered 'counterfactual', pseudepigraphical, metafictional⁸, semi-epistolary, or works of 'fantasy history'⁹. Hers is a particular and 'non-actual'¹⁰ version of 18th century England, occupying the common narrative space which Maître delineates as 'an oscillation between could-be-actual and could-never-be-actual'¹¹.

⁵ Wilby, Emma, 2000, p.301.

⁶ Ryan, Marie-Laure *Storyworld across Media: Toward a Media-Conscious Narratology*. Nebraska: UNP, 2014.

⁷ Willis, Connie *Blackout*. USA: Ballantine, 2010.

⁸ Elias, Amy J. 'Postmodern Metafiction'. In: Duvall, John N. (eds.) *The Cambridge Companion To American Fiction After 1945*. Cambridge: CUP, 2012, pp. 15 – 29.

⁹ Morse, Donald E. 'The Rise of Counterfactual History and the Permeability of Disciplines' In: *Displacing The Anxieties of Our World: Spaces of the Imagination*. Newcastle: Cambridge Publishers, 2017. p.13.

¹⁰ Margolin, Uri 'Introducing & Sustaining Characters in Literary Narrative: A Set of Conditions'. *Style* 21 (1) 1987, pp.107-124 , p. 110.

¹¹ Ryan, Marie Laure 'Possible-Worlds Theory'. In: Herman, David *et al.* (eds.) *The Routledge Encyclopedia of Narrative Theory*. London: Routledge, 2005, pp. 446-450, p. 449.

Of course pseudepigraphy, the 'blur[ring of] the boundaries between the fictional and real'¹², the 'reauthoring process of "natural" into fictive discourse'¹³ and the use of non-traditional narrative structures are all well-established techniques across the history of narrative experiences¹⁴¹⁵¹⁶¹⁷, and Project `knole` is no different. Like any work of fiction, it uses rhetorical, narrative and aesthetic techniques to explore and provoke ideas at many resolutions. In the most coarse-grained sense, it is concerned with the 'long eighteenth century'¹⁸ itself: a tumultuous era which transformed the nature of many social, political and economic realities in Europe and beyond, including gender relations, the law, science, art, philosophy, class, the press and working life. It explores some elements of these philosophies and social practices in more detail than others; most notably, the nature of religious belief and superstitious practice in 18th century England through the traditions of 'cunning folk' and 'low magic'¹⁹; familiar spirits, demons and fairies²⁰.

Such formal themes are complemented by, and parsed through, Anne's personal story; an example of how the practice of narrative (like the practice of history), most properly focuses on the 'subjectivity of individuals'²¹²²

¹² Benford, Steve and Giannachi, Gabriella. 'Interaction As Performance'. *Interactions* 19 (3), 2012, pp. 38-43, p. 38.

¹³ Beebee, Thomas O. 'Introduction: letters, genealogy, power'. In: Beebee, Thomas O. (eds.) *Epistolary Fiction in Europe, 1500 – 1850*. Cambridge: CUP, 1999, pp. 1 – 17, p. 8.

¹⁴ Sayad, Cecilia 'Found-Footage Horror and the Frame's Undoing'. *Cinema Journal* 55 (2), 2016, pp. 43-66.

¹⁵ Clore, Dan 'The Lurker on Threshold of Interpretation: Hoax *Necronomicons* and Paratextual Noise', 2006 [Online]. Available at: <http://www.geocities.ws/clorebeast/lurker.htm> [Accessed 20th October 2019].

¹⁶ Beebee, Thomas O. *Epistolary Fiction in Europe 1500 – 1850*. Cambridge: Cambridge University Press, 1999.

¹⁷ Fimi, Dimitra 'The Past as an Imaginary World: The Case of Medievalism'. In: Wolf, Mark J.P. (eds.) *Revisiting Imaginary Worlds: A Subcreation Studies Anthology*. New York: Routledge, 2017, pp. 46 – 66.

¹⁸ Davies, Owen and De Bleacourt, Willem *Beyond the Witch Trials*. Manchester: Manchester University Press, 2004.

¹⁹ Davies, Owen, 2007.

²⁰ Wilby, Emma, 2000.

²¹ Neithammer, Lutz *Posthistoire*. London: Verso, 1992, p. 149

²² Matelic, Candace Tangorra, 2014.

'making concrete choices in given circumstances'²³ 'in [a] certain place... in certain times'²⁴²⁵. Through Anne Latch, her 'Beest', and some of the other persons that intrude on their small, indoor universe, *knole* explores not just historical contexts, but human contexts, as well: contexts of love, toil, faith, misunderstanding, jealousy, loneliness, fear, revenge and hubris. Anne and her cohort are merely a handful of examples of the vast population of fictional characters in human culture that become, through their narratives, tools of 'communication and understanding'²⁶; lives put to work in 'texts'²⁷ for some communicative 'intent or purpose'²⁸.

As a thesis, however – beyond its role as a fictional narrative - the project is not merely concerned with historio-social detail. *knole* is not only a work *containing* fictional characters, whose narrative is *about* those characters' lives and times. It is a work concerning the very concept of 'fictional characters' themselves, and the methods of their construction: namely, how they might be produced to a higher 'quality'; particularly in works of digital, or computational, narrative art.

* * * * *

Before I continue, I want to refine my chosen definitions of these two terms, 'fictional character' and 'quality'. The former, despite a seeming commonality in everyday discourse, 'is a matter of long-standing debate'²⁹,

²³ Greenblatt, Stephen 'Resonance and Wonder'. *Bulletin of the American Academy of Arts and Sciences* 43 (4), 1990, pp. 11-34, p.30.

²⁴ *Inner Lives Project: Histories From Within*, 2018 [Online]. Available at: <https://innerlives.org/about/> [Accessed 18th August 2018].

²⁵ Cohn, Dorritt 'Fictional versus Historical Lives: Borderlines and Borderline Cases'. *The Journal of Narrative Technique*. 19 (1), 1989, pp. 3-24, p. 3.

²⁶ Oatley, Keith and Mar, Raymond 'The Function of Fiction is the Abstraction and Simulation of Social Experience'. *Perspectives on Psychological Science* 3 (3), 2008, pp. 173-193, p. 173.

²⁷ Lotman, Yuri *The Structure of the Artistic Text*. Ann Arbor: University of Michigan Press, 1977.

²⁸ Dean, David. *Museum Exhibition: Theory and Practice*. London: Routledge, 1994, p. 4.

²⁹ Jannidis, Fotis, 'Character' *the living handbook of narratology*, 2013 [Online]. Available at: <https://www.lhn.uni-hamburg.de/node/41.html> [Accessed: 20th October 2019].

exposed to the vogues and peccadilloes of literary movements, philosophical discourse and wider social contexts³⁰. From its formal origins in the dramatic and civil culture of Ancient Greece and Aristotle's concept of *ethos*³¹³², there remains what Keen identifies as a fundamental split in understanding of the concept³³.

On one side of the debate stands what might be called a 'classical' position, borne out of that Hellenistic scholarship, and taken up in recent times by scholars such as the American New Critics³⁴, Russian Formalists³⁵ and certain feminist rhetorics³⁶³⁷³⁸. It is a view that defines characters not in terms of their personhood, but in terms of their role within a text. By such a definition, characters are merely 'humanised outcropping[s]'³⁹, 'clusters of... semes'⁴⁰ perceived as structural and 'functional categor[ies]'⁴¹ or 'effect[s]'⁴²⁴³. On the other side is what has been called a 'commonsensical' view of character⁴⁴⁴⁵, as complete fictional *persons* distinguishable from their containing narratives. As well as being a position commonly taken by 'naive'

³⁰ Bradbury, Malcolm 'Character'. In: Childs, Peter and Fowler, Roger *The Routledge Dictionary Of Literary Terms*. London: Routledge, 2006, p.24.

³¹ Felski, Rita. 'Introduction'. *New Literary History*, 42 (2), 2011, pp.v-ix, p. v.

³² Aristotle, *Poetics*. London: Penguin Classics, 1996.

³³ Keen, Suzanne 'Reader's Temperaments and Fictional Character'. *New Literary History* 42 (2), 2011, pp.295 – 314, p. 295

³⁴ Richards, Ivor Armstrong *Practical Criticism*. London: Kegan Paul, Trench, Trubner, 1930.

³⁵ Propp, Vladimir *Morphology of the Folktale*. Texas: University of Texas Press, 1968.

³⁶ Scheiber, Andrew "The Arm Lifted against Me': Love, Terror and the Construction of Gender in "Wieland"". *Early American Literature* 26 (2), 1991, pp. 173-194.

³⁷ Cixous, Helene 'The Character of "Character"'. *New Literary History* 5 (2), 1974, pp. 383-403.

³⁸ Thomasson, Amie *Fiction and Metaphysics*. Cambridge: Cambridge University Press, 1999.

³⁹ Bradbury, Malcolm 'Character'. In: Childs, Peter and Fowler, Roger *The Routledge Dictionary Of Literary Terms*. London: Routledge, 2006, p.23.

⁴⁰ Margolin, Uri 'Introducing & Sustaining Characters in Literary Narrative: A Set of Conditions', p. 107.

⁴¹ Ibid, p. 107.

⁴² Jannidis, Fotis *Character*, 2013 [Online]. Available at: <http://wikis.sub.uni-hamburg.de/lhn/index.php/Character> [Accessed: 18th August 2018].

⁴³ Felski, Rita, 2011, p. v.

⁴⁴ Ryan, Marie Laure 'Kinds of Minds: On Alan Palmer's "Social Minds"'. *Style* 45 (4), 2011, pp. 654 – 659.

audiences towards narratives⁴⁶, the position has found its scholarly foundations as part of the 'post-classical'⁴⁷⁴⁸⁴⁹ shift across the humanities⁵⁰. 'Character-focussed criticism'⁵¹ thus privileges 'the world of individuals'⁵² and 'existents'⁵³ over structural considerations; characters as perceived 'intentional agents'⁵⁴⁵⁵ rather than rhetorical devices or structural emergences. To such scholars characters are, in a very definite and precise way, *persons* of their own.

It may seem an academic nicety to agonise over these two positions, but the core question – whether or not a character can be conceived of as a distinct person, real or not – is an important distinction for this thesis. It is a distinction that decides not only how characters of 'quality' can be developed through practice (as this thesis explores), but also what that 'quality' is, and how it is arrived at through 'judgements of relative value [and] evaluation'⁵⁶ – that is, what Shinkle calls the 'concern... with what cultural forms... do'⁵⁷, and how well they do it.

⁴⁵ Caracciolo, Marco 'Narrative Space and Reader's Response to Stories: A Phenomenological Account'. *Style* 47 (4), 2013, pp. 425 – 444.

⁴⁶ Keen, Suzanne 'Reader's Temperaments and Fictional Character'. *New Literary History* 42 (2), 2011, pp.295 – 314, p. 295

⁴⁷ Mani, Inderjeet *Computational narratology*, 2013 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/computational-narratology> [Accessed 18th August 2018].

⁴⁸ Koenitz, Hartmut *et al.* 'Introduction: Perspectives On Interactive Digital Narrative'. In: Koenitz, Hartmut *et al.* (eds.), 2015, pp. 1 - 8, p. 4.

⁴⁹ Thon, Jan Noel 'Narrativity'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, p. 351 – 355.

⁵⁰ Felski, Rita 2011, p. v.

⁵¹ Currie, Gregory 'Narrative and the Psychology of Character'. *The Journal of Aesthetics and Art Criticism*, 2009, pp. 1 – 12, p. 61 – 71, p. 61.

⁵² Martinez Bonati, Felix *Fictive Discourse and the Structures of Literature: A Phenomenological Approach*. New York: Cornell University Press, 1981, p. 3.

⁵³ Ryan, Marie-Laure, 2014.

⁵⁴ Mar, Raymond A. and Oatley, Keith, 2008, p. 3.

⁵⁵ Roser, Nancy *et al.* 'Characters As Guides To Meaning'. *The Reading Teacher* 60 (6), 2007, pp. 548 – 559.

⁵⁶ Layton, Robert *The Anthropology Of Art*. Cambridge, CUP, 2009, p.18.

⁵⁷ Shinkle, Eugenie 'Videogames and the Digital Sublime' In: Karatzogianni, Athina and Kuntsman, Adi (eds.) Germany: Springer, 2012, pp. 94 – 108, p. 95.

The component definitions of this 'quality', across many relevant critical fields, are strikingly diverse. Various, fictional characters 'of quality' are defined as 'evocative'⁵⁸, 'provo[cative]'⁵⁹, 'sympath[etic]'⁶⁰, 'memorable'⁶¹, 'rich'⁶², 'engaging'⁶³ and 'transporting'⁶⁴. The reading group I studied as part of my research into this topic (see Appendix 2) offered similar definitions of 'believability', 'well-drawnness' and 'plausibility'; of behaving 'realistically', of avoiding 'clunkiness' and the treatment of characters as mere 'devices'.

It is the 'post-classical' position of audience reception theory⁶⁵⁶⁶⁶⁷ which reveals the unifying methodological factor behind the above remarks. While originating in classical concepts of narrative in drama and literature⁶⁸, this model has spread to cinema⁶⁹⁷⁰⁷¹, the visual arts⁷², theatre studies⁷³⁷⁴,

⁵⁸ Turkle, Sherry *The Second Self: Computers and the Human Spirit*. Massachusetts: MIT, 2005, p. 19.

⁵⁹ Tilden, Freeman *Interpreting Our Heritage*. North Carolina: University of North Carolina Press, 1957, p.152.

⁶⁰ Oatley, Keith 1994, p.53.

⁶¹ Boswijk, Albert *et al. The Economy Of Experiences*. Amsterdam: European Centre for the Experience and Transformation Economy, 2012.

⁶² Nicolopoulou, Ageliki and Richner, Elizabeth 'From Actors to Agents to Persons: The Development of Character Representation in Young Children's Narratives'. *Child Development* 78 (2), 2007, pp. 412-429, p. 412.

⁶³ Heidibrink, Simone *et al.* 'Theorizing Religion in Digital Games. Perspectives and Approaches'. *Online Heidelberg Journal of Religions on the Internet* 5 (1), 2014.

⁶⁴ Rain, Marina *et al.* 'Adult attachment and transportation into narrative worlds'. *Personal Relationships* 24 (1), 2017, pp. 49 – 74, p.49.

⁶⁵ Holub, Robert C. *Reception Theory: A Critical Introduction*. London: Methuen, 1984.

⁶⁶ Iser, Wolfgang *The Act of Reading: A Theory of Aesthetic Response*. Baltimore: The John Hopkins University Press, 1978.

⁶⁷ Jauss, Hans Robert *Toward an Aesthetic of Reception*. Minneapolis: University of Minnesota Minnss, 1982.82.

⁶⁸ Prince, Gerald *Reader*, 2013 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/reader> [Accessed: 8th August 2018].

⁶⁹ Hirschman, Elizabeth C. 'Applying Reader-Response Theory to a Television Program'. *Advances in Consumer Research* 26, 1999, pp. 549-554.

⁷⁰ Turvey, Malcolm 'Seeing theory: on perception and emotional response in current film theory'. In: Allen, Richard and Smith, Murray (eds.) *Film Theory And Philosophy*. Oxford: OUP, 1997, pp. 431 – 457.

⁷¹ Kratka, Jana 'The Relation between a Viewer and the Fictional Character in Light of his Activity, Reflection and Experiential Learning'. *The International Journal of Learning* 16 (6), 2009.

exhibition design and museum studies⁷⁵⁷⁶⁷⁷ and is firmly part of the 'subjective turn' in narratology more broadly. It sites the study of narrative and character in the 'procedural tension' between the 'text' itself and the internalised subjective processes of that text's audience⁷⁸; a phenomenon originating in a representative text, but not constrained by it. The theory shows how the reception of a text by an audience leads to an imaginative galvanisation and extrapolation of the source material, an 'aesthetic engagement'⁷⁹ actively constructing the characters into subjectively-complete persons within a 'temporarily shared social reality'⁸⁰. This reality is subject to many individual, 'culturally and temporally specific'⁸¹ influences, including the audience's personal emotions and memories⁸², their temperaments⁸³, 'identities'⁸⁴, personal 'schemas' of information about the world⁸⁵, and by any 'interpretative

⁷² Bal, Mieke *Reading Rembrandt: Beyond The Word-Image Opposition*. Amsterdam: Amsterdam University Press, 2006.

⁷³ Laurel, Brenda *Computers as Theatre*. Boston: Addison-Wesley, 1993.

⁷⁴ Bennett, Susan *Theatre Audiences: A theory of production and reception*. London: Routledge, 1997.

⁷⁵ Heath, Christian and vom Lehn, Dirk 'Configuring Reception: (Dis-)Regarding the 'Spectator' in Museums and Galleries'. *Theory, Culture and Society* 21 (6), 2004, pp. 43-65.

⁷⁶ Meisner, Robin *et al.* 'Exhibiting Performance: Co-participation in science centres and museums'. *International Journal of Science Education* 29 (12), 2007, pp. 1531 – 1555.

⁷⁷ Crane, Susan A. 'Memory, Distortion and History in the Museum' In: Carbonell, Bettina Messias *ed. Museum Studies: An Anthology of Contexts*. Oxford: Wiley-Blackwell, 2012.

⁷⁸ Iser, Wolfgang 'The Reading Process: A Phenomenological Approach'. *New Literary History* 3 (2), 1972 PP.279 – 299, p. 298.

⁷⁹ Berleant, Arnold 'What Is Aesthetic Engagement?', *Contemporary Aesthetics*, 2013 [Online]. Available at: <https://contempaesthetics.org/newvolume/pages/article.php?articleID=684> [Accessed: 20th October 2019].

⁸⁰ Rommetveit, Ragnar 'Outlines of a Dialogically Based Social-Cognitive Approach to Human Cognition and Communication'. In: World, Astri Heen (eds.) *The Dialogical Alternative: Toward a Theory of Language and Mind*. Oslo: Scandinavian University Press, 1992.

⁸¹ Alexander, Marc and Emmott, Catherine, 2014.

⁸² Miall, David S. 'Anticipation and feeling in literary response: A neuropsychological perspective'. *Poetics* 23 (1), 1995, pp.275 – 298.

⁸³ Keen, Suzanne, 2011.

⁸⁴ Holland, Norman. *Poems In Persons: An introduction to the psychoanalysis of literature*. New York: W.W. Norton & Company, 1974.

⁸⁵ Narvaez, Darcia 'The influence of moral schemas on the reconstruction of moral narratives in eighth graders and college students'. *Journal of*

communities'⁸⁶ of which they may be a part. Indeed, it also includes those 'metareferential'⁸⁷ elements of the work; that is, those elements which signal that it is a constructed work of narrative rather than an objective reality, and allow the audience to navigate that construction through their 'media knowledges'⁸⁸⁸⁹. To this theory, narrative is first and foremost a 'set of cognitive operations', rather than a text⁹⁰.

The 'classical' position still has many advantages, not least in its reminder that fictional characters, despite the more-abstract debates⁹¹ on their philosophical and semantic reality⁹²⁹³⁹⁴, have no *biological* reality: that they are artificial, mediated⁹⁵, 'radically incomplete'⁹⁶⁹⁷⁹⁸ and constructed through originating 'texts'⁹⁹¹⁰⁰. If characters are indeed persons, that personhood is (in the most literal, practical sense) unreal.

Educational Psychology 90 (1), 1998, pp.13 – 24, p. 13.

⁸⁶ Fish, Stanley *Is There a Text in This Class? The Authority of Interpretative Communities*. Massachusetts: Harvard University Press, 1982.

⁸⁷ Wolf, Werner *et al. Metareference across media: theory and case studies*. Amsterdam: Rodopi, 2009.

⁸⁸ Neumann, Birgit and Nunning, Ansgar *Metanarration and Metafiction*, 2014 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/metanarration-and-metafiction#Wolf2009> [Accessed: 18th August 2018].

⁸⁹ Ryan, Marie-Laure, 2014.

⁹⁰ Ryan, Marie-Laure, 2014, p.

⁹¹ Lewis, David *On The Plurality Of Worlds*. Oxford: Blackwell, 1986.

⁹² Friend, Stacie 'Fictional Characters'. *Philosophy Compass* 2 (2), 2007, pp.141-156.

⁹³ Kroon, Fred *et al.* 2011

⁹⁴ Ryan, Marie-Laure 'Fiction as a Logical, Ontological and Illocutionary Issue'. *Style* 18 (2), 1984, pp. 121-139

⁹⁵ Alexander, Marc and Emmott, Catherine 'Schemata'. In: Huhn, P. *Handbook of Narratology*. Berlin: De Gruyter, 2014.

⁹⁶ Genette, Gérard 'Discours du récit'. In: *Figures III*. Paris: Seuil, 1972.

⁹⁷ Niederhoff, Burkhard *Focalization*, 2013 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/focalization> [Accessed: 18th August 2018].

⁹⁸ Margolin, Uri, 1987, p.108.

⁹⁹ Lotman, Yuri, 1977.

¹⁰⁰ Kroon, Fred *et al. Fiction: The Stanford Encyclopedia of Philosophy*, 2011 [Online]. Available at: <https://plato.stanford.edu/archives/win2016/entries/fiction/> [Accessed: 18th August 2018].

However, the position of audience reception theory, supported by my own experiences as a researcher and as an artist, does not make personhood and artefactuality mutually exclusive. In the reading group I studied, and in my own observations of my artistic processes, characters are constructed *through* reception into 'coherent entities'¹⁰¹, 'non-actual individual[s]... endowed with inner states, knowledge and belief sets, memories, attitudes and intentions'¹⁰² - even if those aspects are never fully, explicitly delineated. As an artist primarily concerned with the production of characters, rather than their logical, semantic or academic nature, I must draw my definitions from such a dynamic. From my methodological perspective, this is where the nature and activity of characters is decided.

For the purposes of this thesis, I define fictional characters – my own, and those of others – as examples of:

'non-actual'¹⁰³, individual persons, initially and partially mediated within a system of narrative representation, and extrapolated into a more complete personhood through the necessary perceptions and imaginative processes of their audience.

From this 'post-classical' definition of character, a general definition of the 'quality' by which such an artefact may be judged can also be gleaned. The static work produced by the artist – what Kuzmicova calls the 'text' factor'¹⁰⁴ - is part of a larger, executive process (a 'reader' and 'situation factor'¹⁰⁵) where work – and persons - 'only come... to life'¹⁰⁶. No matter the tools, traditions, approaches or objectives of the artist creating character, it is the nature and quality of this communication with the audience's imagination

¹⁰¹ Laurel, Brenda *Computers as Theatre*. Boston: Addison-Wesley, 1993, p. 3

¹⁰² Margolin, Uri, 1990, p. 844.

¹⁰³ Margolin, Uri, 1987, p. 3.

¹⁰⁴ Kuzmičová, Anežka 'Literary Narrative and Mental Imagery: A View from Embodied Cognition'. *Style* 48 (3), 2014, pp. 275 – 295, p. 280.

¹⁰⁵ Ibid.

¹⁰⁶ Huizinga, Johan. *Homo Ludens*. Boston: The Beacon Press, 1955, p. 165.

– what Champion calls ‘hermeneutic richness’¹⁰⁷ – which must ultimately concern them. This ‘quality’, being the focus of my study, needs a more definitive term: in the absence of anything definitive, I will hereafter be referring to a character’s ‘resonance’. It is a word that has useful, metaphorical connotations: connotations of potential, echo, relay, timbre, tone and volume; elements of communication which, above all, symbolise what a character ‘makes the imagination *do*’¹⁰⁸.

A character’s ‘resonance’, then, may be defined as:

how, and to what degree, the representation of a character interacts with the imagination of an audience; both in the becoming of a non-actual person within a storyworld, and in exploring the context and ramifications of their containing text through that imagination.

* * * * *

Project `knole`, in its academic remit, is concerned with the ‘resonance’ of one particular form of character: those which feature in works – like videogames, digital installations and other works of ‘digital art’¹⁰⁹ – that use digital computation as an integral driver of their narrative significances.

Project `knole` has been developed as one of these works of computational narrative art (or ‘comp-art’): a multi-modal or transmedial¹¹⁰

¹⁰⁷ Champion, Erik ‘Roleplaying And Rituals For Cultural Heritage-Oriented Games’. *Proceedings of DiGRA 2015: Diversity of Play: Games – Cultures – Identities*. DiGRA, 2015.

¹⁰⁸ Moran, Richard ‘The Expression Of Feeling In Imagination’. *The Philosophical Review* 103 (1), 1994, pp. 75 – 106.

¹⁰⁹ Christine PaulPaul, *ane Digit DigitChristial Art*. London: Thames15.

¹¹⁰ Dena, Christy ‘Transmedial Fiction’. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 486 – 489.

work spread 'intracompositionally'¹¹¹ across several 'platforms'¹¹² but together forming a single 'distributed' narrative experience with digital computation at its heart¹¹³¹¹⁴.

The audience's experience of *knole* begins with the project's website (<http://robsherman.co.uk/knole>), which serves as an initial introduction to the narrative context of the work and my research. The website also serves as the delivery mechanism for the main textual element of *knole*'s intracompositional narrative. This is a downloadable collection of documents, supposedly¹¹⁵ digitised from paper originals, that represent the surviving documentary evidence of Anne Latch from contemporary sources, collected and distributed by a contemporary publisher. It is a fragmentary hodgepodge of contemporary ballads, court proceedings, Anne's written correspondence and the 'receipts', or spells, by which she performed her duties as a cunning woman. This collection (hereafter referred to as the *Housekeeping*, referring to the title given to it by its publisher) may be investigated at the audience member's leisure, and stands as its own, complex portrait of a woman caught in the jaws of a transformational experience, in a transformational age.

¹¹¹ Dena, Christy *Transmedia Practice: Theorising the Practice of Expressing a Fictional World across Distinct Media and Environment*. [PhD dissertation], University of Sydney, 2009.

¹¹² J Jenkins, Henry *Yes, Transmedia HAS a History! An Interview with Matthew Freeman (Part Two)*, 2017 [Online]. Available at: <http://henryjenkins.org/blog/2017/01/yes-transmedia-has-a-history-an-interview-with-matthew-freeman-part-two.html> [Accessed: 18th August 2018].

¹¹³ Walker, Jill 'Distributed Narrative: Telling Stories across Networks'. In: Consalvo, Mia *et al. Internet Research Annual 2004*. Brighton: Peter Lang, 2004.

¹¹⁴ Ryan, Marie-Laure *Narration In Various Media*, 2014 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/narration-various-media> [Accessed: 18th August 2018].

¹¹⁵ Elias, Amy J., 2012, p. 24.

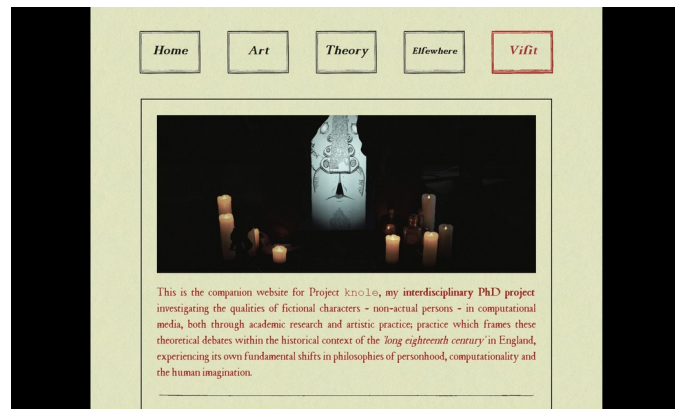


Figure 1: The website for Project *knole*¹¹⁶.

While the *Housekeeping* can stand alone as a narrative artefact, it is designed to complement, and augment (along with the website material) another component of the experience entirely. This is a site-specific digital installation work, installed (for the purposes of my examination) at Corsham Court in Wiltshire, Bath Spa University's postgraduate campus. However, it has also been installed, during the course of my research, at the Museum of Witchcraft and Magic in Boscastle, Cornwall (see Appendix 1), and there is scope for the installation to be hosted elsewhere in the future (see Conclusion).

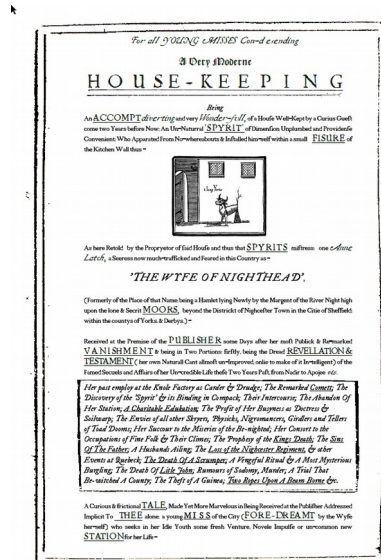


Figure 2: The title page of the *Housekeeping*¹¹⁷.

¹¹⁶ See Appendix 9, Figure 16.

¹¹⁷ See Appendix 9, Figure 17.

Having visited the project's website, and read the *Housekeeping*, an audience member can visit the installation, wherever it is hosted, and enter a sparse simulacrum of Anne's kitchen: the locus of her personal, historicised domain, and the lair of her 'Beest'. Dark, damp and lit only by (LED) candles, all that remains of her physical presence are a few accoutrements of the 'cunning craft' (some bottled liquids, a string of horseshoes, a Book of Common Prayer) and a magic circle chalked on the flagstones in front of a dark wall. Up that wall, a crack runs nearly a metre high: far larger than when Anne first discovered it on that wet day in 1758.

Inside that crack, displayed on a large, portrait-oriented touchscreen, is a digital simulation of Anne's 'Beest'; an artificially-intelligent and interactive character rendered as a virtual agent¹¹⁸. Drawing on the principles of mixed reality (or, as Bolter might insist, 'augmented virtuality'¹¹⁹) to unite the physical and digital components of this installation, the virtual 'Beest' is sensitive to the audience member's presence through several modes; relying on three cameras, a microphone and a touchscreen to detect vocal volume, specific phrases, movement, facial features, emotions, physical objects and touch input. These inputs (and others) are supported by the use of well-established artificial intelligence techniques, including a behavioural model based on the work of Joanna Bryson at the University of Bath¹²⁰, and a simple emotional/conceptual model that is a hybrid of several different approaches¹²¹¹²².

¹¹⁸ Russell, Stuart and Norvig, Peter *Artificial Intelligence: A Modern Approach*. Boston: Pearson, 2009, p. 31.

¹¹⁹ Bolter, Jay David 'Augmented Reality'. In: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, p. 30.

¹²⁰ Bryson, Joanna J. *Behaviour Oriented Design (BOD)*, 2013 [Online]. Available at: <http://www.cs.bath.ac.uk/~jjb/web/bod.html> [Accessed 18th August 2018].

¹²¹ Novikova, Jekaterina and Watts, Leon *A Design Model of Emotional Body Expressions in Non-humanoid Robots*. Japan: HAI, 2014.

¹²² Bryson, Joanna J and Tanguy, Emmanuel. 'Simplifying the Design of Human-Like Behaviour: Emotions as Durative Dynamic State for Action Selection'. *International Journal of Synthetic Emotions* 1 (1) 2010, pp. 1–21.



Figure 3: The simulation of the 'Beest'¹²³.

The key to this physical/digital interplay is the *Housekeeping* itself. At the centre of the document are a selection of Anne's surviving spells: instructions for using this mysterious 'Beest' as an assistant, a source of ingredients and magical interface, to accomplish all manner of supernatural ends. Visitors can follow Anne's instructions with the 'Beest' themselves, exploring its unique biology and enacting rituals to supposedly cure everything from headaches to cancer; to brew a love potion, or stave off unwanted pregnancies. However, around and between Anne's own words are hints of a darker and deeper context for the 'Beest'. Visitors can err away from Anne's detached, sometimes-cruel directives, perhaps instead treating the simulated creature with something approaching kindness. In the act of interpreting the *Housekeeping*, and in experimenting with that interpretation through their exploration of the 'Beest' and its mixed-reality context, an audience member can illuminate some of those 'mundane horrors' of Anne's life and times; those subjective, emotional conflicts and perspectives that are important to historical and human understanding, but so often lost to the record.

* * * * *

The creation of *any* sort of 'resonant' character is no easy task, requiring a keen balance between the affordances and potentials of the media

¹²³ See Appendix 9, Figure 13p.

employed, and the potentials for imaginative engagement with audiences. This is arguably the main creative work of any narrative artist. However, this thesis charts how the ‘particular’¹²⁴ potentials for the ‘resonant’ representation of fictional characters in the computational mode give rise to ‘particular’ challenges which remain deep-seated in practice of the form.

In short, such characters struggle to ally their computational nature with the necessity for them to ‘resonate’ as a non-actual person in a narrative text. The most basic elements of such computational characters are still regularly debated at high-profile conferences¹²⁵, jeremiads both popular¹²⁶ and academic¹²⁷ written lamenting their failings; sometimes even their need to exist is questioned¹²⁸. The question remains: how can characters in works of computational art maintain their defining quality of dynamic agency within a system, while also achieving those ‘resonant’ qualities of characters found in more static artforms?

My artistic practice in this project, as an example of computational characterisation, represents a small original contribution to this torrid field. Rather than exemplifying cutting-edge technologies, novel algorithms or new subject matter, I have approached this issue laterally. I have attempted to reorient the practice of computational narrative artists – the production of ‘resonance’ through mediating narrative devices - away from the exemplars of other narrative media, through a reconsideration of some of the elements underlying ‘resonance’ - in the main, the human imaginative impulse and its narrative consequences *beyond* the strictly artistic. I believe this methodology, which I call the ‘autocosmic’, better suits the ‘particular’ qualities of systemic procedurality and explicit interactivity that undergird many of the potentials of

¹²⁴ Keogh, Brendan 'Across Worlds and Bodies: Criticism in the Age of Video Games'. *Journal of Games Criticism*, 2014 [Online]. Available at: <http://gamescriticism.org/articles/keogh-1-1/>. [Accessed: 8th August 2018].

¹²⁵ Koster, Raph *et al.* *AI Wish List: What Do Designers Want out of AI?* San Francisco: Game Developer's Conference, 2018.

¹²⁶ Bogost, Ian *Video Games Are Better Without Characters*, 2015 [Online]. Available at: <https://www.theatlantic.com/technology/archive/2015/03/video-games-are-better-without-characters/387556/> [Accessed 18th August 2018].

¹²⁷ Tence, Fabian *et al.* 'The Challenge of Believability in Video Games: Definitions, Agent's Models and Imitation Learning'. France: UEB, 2010.

¹²⁸ Bogost, Ian, 2015.

computational narrative art, and might better help such artists produce computational characters of ‘quality’.

This thesis explains and contextualises this methodology, and demonstrates how I used it in Project `knole` to create at least two ‘resonant’ computational characters; the ‘Beest’, rendered in simulation directly, and Anne herself, present in computational negative through her influence upon the creature’s closeted little realm: a realm of which she was both architect, and mistress.

The thesis is structured as follows:

Chapter 1 more precisely defines ‘computational narrative art’, and subsequently the concept of ‘computational character’, in the context of this thesis. It then explores the specific history, and affordances, of such characters: the ‘particular’ potentials, and challenges, of creating characters that are both computationally meaningful and narratively ‘resonant’.

Chapter 2 proposes and develops the ‘autocosmic’ methodology, drawing on a strong interdisciplinary consensus, as an approach to realising some of the aforementioned potentials, and addressing some of their accompanying challenges: primarily, through seeking methodological exemplars of narrative engagement *outside* the purview of older, static artforms.

Chapter 3 is a more specific study of how the ‘autocosmic’ methodology was employed in Project `knole`. In short, I detail how human imaginative engagement with environments and ecosystems throughout history – engagement that is often systemic, narrative and socialised - serves as a better model for systemic, narrative representations of computational character with which an audience can socially interact, as opposed to traditional models from literature, film and other static artforms. This model of ‘character-as-environment’ provides a basis for addressing the issues of computational character development through `knole`’s fiction, artefactual construction and strategies of audience engagement.

The **Conclusion** addresses the development of the artistic work, and avenues of study, initiated with this Project. It looks to how I might refine the ‘autocosmic’ methodology, and the concept of ‘character-as-environment’, in future projects. Most broadly, it considers how a person-oriented, systems-focussed, interdisciplinary approach to narrative production might yield ‘resonant’ results beyond those narrowly pursued in these pages, and in my shadowy recreation of Anne Latch’s kitchen.

"The Warmth Without The Fyre"

Specific Challenges To Authoring Resonant Computational Characters

Section 1.1: Fuller Definitions Of Computational Art, & Computational Character

While the Introduction to this thesis gave broad definitions to set the most general bounds of my enquiry, 'transcending' any particular form¹²⁹, Project `knole` is, in fact, in a particular form, using a particular set of modes and 'media ecolog[ies]'¹³⁰ to achieve its goals. In this chapter I want to focus on the specific ramifications of the type of narrative art, and type of character, that I am interested in building. This specificity is not merely for reasons of scope, but also for those of theoretical rigour. As Marshall McLuhan suggested over fifty years ago, 'the medium is the message'¹³¹: though this statement was not without its ambiguities, it is true that the technologies, 'frameworks'¹³² 'tools... materials... and capacities'¹³³ that a narrative artist uses, alongside their attendant cultures, institutions and constraints, are not 'neutral vessel[s]'¹³⁴ for an imaginative process, or 'pipelines for the transfer'¹³⁵ of agnostic meaning, but are also constitutive 'languages'¹³⁶ and 'specific affordances'¹³⁷ by which

¹²⁹ Koenitz, Harmut, 2015, p.94.

¹³⁰ Goddard, Michael. 'Media Ecology' In: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: John Hopkins University Press, 2014, p. 331.

¹³¹ McLuhan, Marshall *Understanding Media: The Extensions Of Man*. Massachusetts: The MIT Press, 1994.

¹³² Copplestone, Tara 'Designing and Developing a Playful Past in Video Games'. In: Mol, Angus (eds.) *The Interactive Past: Archaeology, Heritage and Video Games*. Leiden: Sidestone Press, 2017, pp. 85 – 97.

¹³³ Thomson-Jones, Katherine *The Philosophy Of Digital Art*, 2015 [Online]. Available at: <https://plato.stanford.edu/entries/digital-art/> [Accessed: 8th August 2018].

¹³⁴ Parry, Ross *Museums In The Digital Age*. Oxon: Routledge, 2010, p. 226.

¹³⁵ Ong, Walter J. *Orality and Literacy. The Technologizing of the Word*. London: Methuen, 1982.

¹³⁶ Meyrowitz, Joshua. 'Images of Media: Hidden Ferment—and Harmony—in the Field.' *Journal of Communications* 43, 1993, pp. 55–66

meaning is constructed¹³⁸ in the audience's reception of that work. They not only facilitate a character's 'resonance', but help shape its very nature.

The installation, and the computational simulation at its heart, forms the thematic and methodological navel of the entire *knole* experience. The *Housekeeping* and the website are augmentative of it, and are employed in support of it (see Chapter 3); while the transmedial nature of the project is an important drive for its narrative power, the project as a whole is undoubtedly, first and foremost, a work specifically of narrative computational art, or comp-art. This thesis stands as a 'medium-specific analysis'¹³⁹ of characters created using this subset of tools.

The term 'computational art' is a nominal one, designed to encapsulate an indistinct cluster of different artistic traditions, often 'present[ing]... liminal... category-challenging experiences'¹⁴⁰ in seemingly perpendicular cultures. There remains little agreement on how best to delineate and summarise its core qualities and member artefacts¹⁴¹; the concept (however it is expressed) has variously stretched and shrunk to incorporate such diverse work as videogames, robotic art¹⁴², interactive fiction¹⁴³, 'interactive digital narrative'¹⁴⁴, web art¹⁴⁵, 'interactive... immersion exhibits'¹⁴⁶,

¹³⁷ Koenitz, Hartmut 'Towards A Theoretical Framework for Interactive Digital Narrative'. *Proceedings of the Third Joint Conference on Interactive Digital Storytelling*, ICIDS: Edinburgh, 2010, p.2.

¹³⁸ Ryan, Marie-Laure, 2014.

¹³⁹ Hayles, Katherine 'Print Is Flat, Code Is Deep: The Importance of Media-Specific Analysis'. *Poetics Today* 25 (1), 2004, pp.67 – 90.

¹⁴⁰ Turkle, Sherry 'A Nascent Robotics Culture: New Complicities For Companionship, 2006 [Online]. Available at: https://www.student.cs.uwaterloo.ca/~cs492/papers/ST_Nascent%20Robotics%20Culture.pdf [Accessed 18th August 2018].

¹⁴¹ Simanowski, Roberto. 'Digital And Net Art' In: Ryan, Marie-Laure *et al. The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, p.133.

¹⁴² Herath, Damith *et al. (eds.) Robots and Art: Exploring an Unlikely Symbiosis*. London: Springer, 2016

¹⁴³ Montfort, Nick *Twist Little Passages: An Approach To Interactive Fiction*. Massachusetts: The MIT Press, 2005.

¹⁴⁴ Koenitz, Harmut, 2015.

¹⁴⁵ Jenkins, Hannah, 'My boyfriend came back from the war'. *The Lifted Brow* 44, 2019, pp. 38 – 32.

digital installation art¹⁴⁷¹⁴⁸¹⁴⁹¹⁵⁰¹⁵¹¹⁵² and many others. Terms like new media¹⁵³, interactive art¹⁵⁴, digital art¹⁵⁵¹⁵⁶ or any other number of terms all have some lack, or imprecision, of their own¹⁵⁷¹⁵⁸¹⁵⁹¹⁶⁰¹⁶¹.

As a working artist who is undertaking a practical investigation, I prefer the phrase 'computational art' because it makes a practical distinction as to the methodological baseplate that such works share. It makes a 'particular'¹⁶²

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- ¹⁴⁶ Pennisi, Lisa *et al.* 'Can an Immersion Exhibit Inspire Connection to Nature and Environmentally Responsible Behavior?' *Journal of Interpretation Research* 22 (2), 2017 [Online] Available at: https://www.interpnet.com/NAI/nai/_publications/JIR_v22n2_Pennisi.aspx [Accessed 18th August 2018].
- ¹⁴⁷ Campbell, Jim *Jim Campbell Portfolio*, 2017 [Online]. Available at: <http://www.jimcampbell.tv/portfolio/installations/> [Accessed 18th August 2018].
- ¹⁴⁸ Goldberg, Ken *The Whole Cinemagillah*. National Museum of Jewish History, Pennsylvania, 2017.
- ¹⁴⁹ Cardiff, Janet *To Touch*, 1993 [Online]. Available at: <http://www.cardiffmiller.com/artworks/inst/totouch.html#> [Accessed: 18th August 2018].
- ¹⁵⁰ Mondloch, Kate 'Digital Installation Art'. In: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014.
- ¹⁵¹ Benford, Steve and Giannachi, Gabriella *Performing Mixed Reality*. Massachusetts: The MIT Press, 2011.
- ¹⁵² Papaefthymiou, Margarita *et al.* 'Gamified AR/VR Character Rendering and Animation-Enabling Technologies'. In: Ioannides, Marinos *et al.* *Mixed Reality and Gamification for Cultural Heritage*. London: Springer, 2017.
- ¹⁵³ Manovich, Lev. *The Language of New Media*. Massachusetts: The MIT Press, 2001.
- ¹⁵⁴ Zimmerman, Eric 'Narrative, Interactivity, Play and Games: Four Naughty Concepts in Need of Discipline'. In: Pearce, Celia *et al.* (eds.) *First Person: New Media as Story, Performance and Game*. Massachusetts: The MIT Press, 2004.
- ¹⁵⁵ Simanowski, Roberto, 2014, p. 133.
- ¹⁵⁶ Paul, Christiane *Digital Art*. London: Thames and Hudson, 2015.
- ¹⁵⁷ Marvin, Carolyn *When Old Technologies Were New: The Emergence of Modern Communications in the Late Nineteenth-Century*. New York: Oxford University Press, 1988, p. 3.
- ¹⁵⁸ Pressman, Jessica. 'Old Media/New Media'. In: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, p. 365.
- ¹⁵⁹ Paul, Christiane, 2015.
- ¹⁶⁰ Mechant, Peter and Van Looy, Jan 'Interactivity'. In: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, p. 304.

distinction of the 'intramedial'¹⁶³, 'prototypical qualities' that candidate artworks all possess¹⁶⁴, and the modes and 'formal poetics'¹⁶⁵ by which they communicate their significances¹⁶⁶. In short, it is a term that speaks more precisely to how these works *work*.

Above all else, 'comp-art' is art that computes – that dynamically 'calculate[s]'¹⁶⁷, manipulates, 'integrate[s]'¹⁶⁸¹⁶⁹, generates or transforms variable information¹⁷⁰, as digitally-represented 'data'¹⁷¹, by means of an 'electronic computational device'¹⁷² operating according to sets of programmed instructions which represent the 'codified rules of operation'.¹⁷³ Often (yet not

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- ¹⁶¹ Penny, Simon 'Robotics and Art, Computationalism and Embodiement'. *In*: Herath, Damith *et al.* *Robots And Art: Exploring An Unlikely Symbiosis*. Singapore: Springer, 2016, p. 51.
- ¹⁶² Keogh, Brendan, 2015.
- ¹⁶³ Ibid.
- ¹⁶⁴ Kahurlahti, Veli-Matti 'Defining The Videogame'. *Game Studies* 15 (2), 2015, [Online]. Available at: <http://gamestudies.org/1502/articles/karhulahti> [Accessed 8th August 2018].
- ¹⁶⁵ Galloway, Alexander, 2006, p. 113.
- ¹⁶⁶ Thon, Jan-Noel 'Mediality'. *In*: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, p. 334.
- ¹⁶⁷ Stevenson, Angus *Oxford Reference: Computation*, 2010 [Online]. Available at: http://www.oxfordreference.com/abstract/10.1093/acref/9780199571123.001.0001/m_en_gb0169140 [Accessed: 18th August 2018].
- ¹⁶⁸ Neitzel, Britta *Narrativity of Computer Games*, 2014 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/narrativity-computer-games> [Accessed 8th August 2018].
- ¹⁶⁹ Manovich, Lev, 2001, p. 47.
- ¹⁷⁰ Manovich, Lev, 'New Media: a User's Guide', *Manovich*, 1999 [Online]. Available at: <http://manovich.net/index.php/projects/new-media-a-user-s-guide> [Accessed: 20th October 2019].
- ¹⁷¹ Fuller, Matthew 'Data'. *In*: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, p. 125.
- ¹⁷² Galloway, Alexander R *Gaming: Essays in Algorithmic Culture*. London: University of Minnesota Press, 2006.
- ¹⁷³ Galloway, Alexander, 2006, p.5.

always¹⁷⁴¹⁷⁵¹⁷⁶¹⁷⁷¹⁷⁸¹⁷⁹¹⁸⁰¹⁸¹¹⁸²¹⁸³¹⁸⁴), this computation is defined by the ‘explicit’¹⁸⁵ influence and interaction of the audience themselves, allowing them to ‘intervene in a meaningful way’¹⁸⁶: by using a ‘technical interface’¹⁸⁷¹⁸⁸ which converts their physical actions into data parseable by the machine¹⁸⁹¹⁹⁰. This allows them to ‘intentionally influence salient aspects’¹⁹¹ of the representation and ‘push... into the system’¹⁹², either ‘explor[ing]’ that system or ‘ontological[ly]’ manipulating its data themselves, thus materially performing the narrative ‘instantiation’¹⁹³¹⁹⁴. In narrative comp-art, the ‘text’ is thus

¹⁷⁴ Flanagan, Mary, 2009.

¹⁷⁵ Edmond Jones, Robert *The Dramatic Imagination: Reflections and Speculations on the Art of Theatre*. London: Routledge, 2004.

¹⁷⁶ Mondloch, Kate, 2014, p.149.

¹⁷⁷ Murray, Janet, 1997, p. 43.

¹⁷⁸ Candy, Linda and Ferguson, Sam (eds.), 2014.

¹⁷⁹ Ryan, Marie-Laure *Narrative As Virtual Reality 2: Revisiting Immersion and Interactivity in Literature and Electronic Media*. Baltimore: John Hopkins University Press, 2015, p. 207.

¹⁸⁰ Laurel, Brenda, 1993, p.28.

¹⁸¹ Campbell, Jim *Portfolio (Installations)*, 2018 [Online]. Available at: <http://www.jimcampbell.tv/portfolio/installations/> [Accessed 8th August 2018].

¹⁸² Cheng, Ian *iancheng*, 2018 [Online]. Available at: <http://iancheng.com/> [Accessed 8th August 2018].

¹⁸³ Newman, James, 2002.

¹⁸⁴ Koster, Raph *et al. AI Wish List: What Do Designers Want out of AI?*, 2018 [Online]. Available at: <https://www.gdcvault.com/play/1024900/AI-Wish-List-What-Do> [Accessed 8th August 2018].

¹⁸⁵ Salen, Katie and Zimmerman, Eric, 2004, p. 69.

¹⁸⁶ Cameron, Andy *Dissimulations: Illusions of Interactivity*, 1995 [Online]. Available at: <http://infotype.rmit.edu.au/rebecca/html/dissimulations> [Accessed 8th August 2018].

¹⁸⁷ Dreher, Thomas *History of Computer Art*, 2015 [Online]. Available at: http://iasl.uni-muenchen.de/links/GCA_Indexe.html [Accessed 8th August 2018].

¹⁸⁸ Mondloch, Kate, 2014, p.149.

¹⁸⁹ Hansen, Mark *Bodies In Code: Interfaces with Digital Media*. London: Routledge, 2006.

¹⁹⁰ Therrien, Carl, 2014.

¹⁹¹ Roth, Christian and Koenitz, Hartmut ‘Evaluating the User Experience of Interactive Digital Narrative’. *Proceedings of the 1st International Workshop on Multimedia Alternate Realities* (2016), pp.31 -36.

¹⁹² Anthropy, Anna and Clark, Naomi, 2014, p. 137.

¹⁹³ Koenitz, Hartmut *et al.*, 2015, p. 98.

¹⁹⁴ Koenitz, Hartmut ‘Design Approaches for Interactive Digital Narratives’. In: Schoenau-Fog, Henrik *et al. (eds.) Interactive Storytelling: 8th International Conference on Interactive Storytelling*. Heidelberg: Springer, 2015, pp. 50 – 58, p. 52.

computed; no longer a purely static representation but to some degree manipulated, and ‘instantiat[ed]’, according to the host hardware, the software’s ‘rules of operation’¹⁹⁵¹⁹⁶¹⁹⁷¹⁹⁸ and the various inputs to that instantiation.

‘Computational’ is not a perfect term, nor is it unique to modern digital technology¹⁹⁹. Some non-digital artforms, such as improvisational theatre²⁰⁰, Oulipan literature²⁰¹ and tabletop roleplaying²⁰², are strictly (and non-digitally) computational with rulesets of varying determinacy. However, the term is now so naturalised to digital technology that it can usefully serve to collectively denote a particular sort of narrative art: works whose narrative elements, including their characters, are in part explicitly produced through the computational paradigm.

If computational narrative art is a ‘particular’²⁰³ type of narrative, it follows that the representations of the characters in those narratives must be ‘particular’ in their own way, while still sharing many of the same universal, ‘intermedial’²⁰⁴ qualities that *any* character possesses. Characters in work of narrative comp-art are still ‘carefully structured and constrained’²⁰⁵ and ‘deliberately simplified’²⁰⁶ representations of a non-actual personhood and

¹⁹⁵ Ibid.

¹⁹⁶ Bogost, Ian, 2015.

¹⁹⁷ Murray, Janet, 1997, p. 88.

¹⁹⁸ Koenitz, Hartmut *et al.*, 2015, p. 98.

¹⁹⁹ Grier, David Alan. *When Computers Were Human*. Oxford: Princeton University Press, 2005.

²⁰⁰ Frost, Anthony and Yarrow, Ralph *Improvisation in Drama, Theatre and Performance: History, Practice, Theory*. London: Palgrave Macmillan, 2007.

²⁰¹ Matthews, Harry and Brothie, Alastair *Oulipo Compendium*. London: Atlas Press, 2010.

²⁰² Bowman, Sarah Lynne *The Functions of Role-Playing Games: How Participants Create Community, Solve Problems and Explore Identity*. North Carolina: McFarland and Company, 2010.

²⁰³ Keogh, Brendan, 2015.

²⁰⁴ Rajewsky, Irina ‘Intermediality, Intertextuality and Remediation: A Literary Perspective on Intermediality’. *Intermedialities* 6 (1), 2005, pp. 43–64, p. 43.

²⁰⁵ Murray, Janet *Hamlet on the Holodeck: The Future of Narrative In Cyberspace*. Boston: MIT Press, 1997, p. 132

²⁰⁶ Crawford, Chris *Art of Computer Game Design*. New York: McGraw-Hill, 1984, p. 9.

their travails, manufactured within a 'system of representation'²⁰⁷ by an artist to be 'read'²⁰⁸ by its audience. The audience reception model, by which I arrived at my original definitions of character and 'resonance', is similarly important to comp-art. A privileging of the phenomenon of 'communication' and the 'participating act'²⁰⁹, of comp-art as 'experience [rather than] artefact or object'²¹⁰, is identifiable across the literature: from Turing's original writings on artificial intelligence²¹¹²¹²²¹³, within the game design canon²¹⁴²¹⁵²¹⁶ and interactive design literature²¹⁷²¹⁸²¹⁹, through to human-computer interaction²²⁰²²¹²²² and the field's own investigations into audience reception theory explicitly²²³²²⁴. A

²⁰⁷ Mateas, Michael 'Expressive AI: A Hybrid Art And Science Practice' *Leonardo* 34 (2), 2001, pp. 147-153.

²⁰⁸ Flanagan, Mary *Critical Play: Radical Game Design*. Massachusetts: The MIT Press, 2009, p. 140.

²⁰⁹ Koenitz, Hartmut *et al.*, 2015, p. 92.

²¹⁰ Candy, Linda and Ferguson, Sam (eds.) *Interactive Experience in the Digital Age*. London: Springer, 2014, p. 2.

²¹¹ Sterrett, Susan 'Turing's Two Tests For Intelligence*'. *Minds and Machines* 10 (4), 2000, pp. 541 – 559.

²¹² Turing, Alan 'Computing Machinery & Intelligence'. *Mind* 49 (22), 1950, pp. 1 – 22.

²¹³ McCorduck, Pamela *Machines Who Think*. San Francisco: W.H. Freeman, 1979, p. 380.

²¹⁴ Madigan, James *Getting Gamers: The Psychology of Video Games and their Impact on the People Who Play Them*. Maryland: Rowman & Littlefield, 2015.

²¹⁵ Koenitz, Harmut 'Narrative in Videogames' In: Lee, Newton (eds.) *Encyclopedia of Computer Graphics and Games*. London: Springer, 2018. 'pearce's foray into the experiential dimension'

²¹⁶ Caracciolo, Marco, 2013.

²¹⁷ Tennent, Paul *et al.* 'The Challenges of Visual-Kinaesthetic Experience' *Proceedings of the 2017 Conference on Designing Interactive Systems*, 2017, pp. 1265-1276.

²¹⁸ Reeves, Bryon and Nass, Clifford *The Media Equation. How People Treat Computers, Television and New Media Like Real People and Places*. Cambridge: Cambridge University Press, 1996.

²¹⁹ Veldhuyzen, Wim and Stassen, Henk 'The Internal Model: What Does It Mean In Human Control?' In: Sheridan, Thomas and Johansen, Gunnar (eds.) *Monitoring Behaviour and Supervisory Control*. London: Springer, 1976, pp. 157 – 171.

²²⁰ Dix, Alan *et al.*, 2004.

²²¹ Norman, Donald *The Design Of Future Things*. New York: Basic Books, 2007.

²²² Jocelyn Spence on third wave HCI

²²³ Sanders, April 'Parallels Between The Gaming Experience and Rosenblatt's Reader Response Theory'. PhD Thesis: University of North Text, 2013.

²²⁴ Sanders, April 'Understanding the Video Game Experience through Reader Response Theory'. *READ* 2 (3), 2017, pp. 45 – 63.

computational character is still a member of the wider population of mediated, 'non-actual' persons²²⁵, and must still adhere to the most general precepts of their construction.

However, as the previous section delineated, a chosen medium gives a character a definite 'language'²²⁶ through which these precepts can be reached in specific manifestations: in this case, the use of computational techniques to represent personhood, as a form of *computational character*.

Such characters can take many forms. Most commonly, they include 'system-based artworks... exhibit[ing] autonomous behaviours and... intentions'²²⁷, 'computational entities that... interact... with human beings'²²⁸; 'sociable machines'²²⁹²³⁰; or, more prosaically (and contestedly²³¹) artificial intelligence²³². Some, such as the recently-dead scientists and soldiers of first-person shooter *Doom 3*²³³ or the character of Henry David Thoreau's sister Sophia in 'heritage game' *Walden: A Game*²³⁴, derive their computational resonance not from being dynamically computational *themselves*, as formal entities, but from functioning as static, mediated elements within a wider computational paradigm or environment. Other comp-artworks take a more formalist approach, using the computational mode to build 'drama' or 'experience' managers²³⁵²³⁶ which compute dramatic structures, plots, genre conventions and narratological procedures rather than individual character's

²²⁵ Margolin, Uri, 1987, p. 110. cite

²²⁶ Meyrowitz, Joshua, 1993. Cite from 1.1

²²⁷ Candy, Linda and Ferguson, Sam (eds.), 2014, p. 3.

²²⁸ Turkle, Sherry 'Artificial Intelligence At 50: From Building Intelligence to Nurturing Socialabilities'. *Proceedings of Dartmouth Artificial Intelligence Conference*, 2006.

²²⁹ Brazeal, Cynthia *Designing Sociable Robots*. Massachusetts: The MIT Press, 2002.

²³⁰ Kidd, Cory *et al.* 'Effect of a robot on user perceptions'. *Proceedings of IROS 2004*: Sendai, 2004.

²³¹ Nucl.ai *The Principles Of Modern Game AI*, 2015 [Online]. Available at: <https://courses.nucl.ai/> [Accessed: 8th August 2018].

²³² Russell, Stuart and Norvig, Peter, 2009., p.

²³³ Id Software *DOOM 3*. [PC Software] US: Activision, 2004.

²³⁴ Fullerton, Tracy *et al.* *Walden: A Game* [PC Software]. US: USC Games, 2017.

²³⁵ Reidl, Mark *et al.*, 2011.

personhoods²³⁷²³⁸²³⁹²⁴⁰. Perhaps the most successful and popular example of this remains the 12-year-old interactive drama *Façade*²⁴¹²⁴². Other examples include computational characters controlled by real people, whether the audience member themselves or other audience members in a networked work of comp-art²⁴³; as Appendix 4 illustrates, such characters lie outside the purview of this thesis.

Perhaps the most paradigmatic approach – and the one which I have followed most centrally with Project *knole* – cleaves to the 'character-focussed'²⁴⁴ theories outlined in Chapter 1, in which characters are perceived as 'perdurant'²⁴⁵, individual, complex and hermetic individuals; in other words, as 'intelligent agents'²⁴⁶²⁴⁷²⁴⁸.

In such an approach, the methodological and formal is tied to the theoretical; representations of characters are constructed so as to be, in procedural simulation, complex individuals featuring some of the elements 'central to personhood'²⁴⁹; most commonly memories, emotions²⁵⁰, 'reciprocity'

²³⁶ Hartmut, Koenitz *et al.* 'Introduction: A Concise History of Interactive Digital Narrative'. In: Koenitz, Hartmut *et al.* (eds.), 2015, pp. 9 - 21, p. 18.

²³⁷ Bringsjord, Selmer, 2001.

²³⁸ Magerko, Brian 'Interactive Drama'. In: Ryan, Marie-Laure (eds.), 2014, pp. 284 – 288, p. 286. Digital Media ref 1 for this.

²³⁹ Ryan, Marie-Laure 'Interactive Narrative'. In: Ryan, Marie-Laure (eds.), 2014, pp. 292 – 298, p. 297.

²⁴⁰ Szilas, Nicolas 'Reconsidering the Role of AI in Interactive Digital Narrative'. In: Hartmut, Koenitz *et al.* (eds.), 2014, pp. 136 - 150, p. 136.

²⁴¹ Mateas, Michael and Stern, Andrew 'Facade: An Experiment in Building a Fully-Realized Interactive Drama'. Game Developer's Conference:, 2003.

²⁴² Mani, Inderjeet, 2014.

²⁴³ Ryan, Marie-Laure, 2009.

²⁴⁴ Currie, Gregory, 2009, p.61.

²⁴⁵ Lewis, David Kellogg, 1986.

²⁴⁶ Bickmore, Timothy *et al.* *Proceedings Of The 14th International Conference on Intelligent Virtual Agents*. Boston: IVA, 2014.

²⁴⁷ Mar, Raymond and Oatley, Keith, 2008.

²⁴⁸ Machidon, Octavian *et al.*, 2016.

²⁴⁹ Bringsjord, Selmer 'Is It Possible to Build Dramatically Compelling Interactive Digital Entertainment (in the form, e.g., of computer games)?'. *Game Studies* 1 (1), 2001.

²⁵⁰ Afonso, Nuno and Prada, Rui 'Agents That Relate: Improving The Social Believability Of Non-Player Characters in Role-Playing Games'. *Proceedings of ICEC 2008*, 2008.

and social interaction²⁵¹, 'personality'²⁵² and, perhaps most importantly, dynamic agency: the ability to in some way 'change, and create and pursue goals'²⁵³ within a complex system. In its simplest terms, Project `knole` is a narrative work of comp-art centred around an agent-based computational character: the simulation of Anne's 'Beest'. It uses the tenets of computation to represent many of the qualities of personhood described above, featuring a simple emotional model²⁵⁴, subdoxastic reactions to stimuli²⁵⁵, the encoded apparatus of decision-making, and a simulated embodiment. I chose this approach originally not only because of its endorsement of my own theories of character and narrative, but also because of its popularity and pedigree for simulating personhood computationally, including non-player characters in videogames²⁵⁶²⁵⁷, robots²⁵⁸, 'virtual humans' and 'interactive, intelligent agents' in works of heritage interpretation and research²⁵⁹²⁶⁰²⁶¹.

Whatever their specific form, it can be argued that (borrowing Slater's pillars of traditional aesthetic judgement) such computational characters, and the narrative works that contain them, use the computational paradigm and the 'nature of complex systems'²⁶², in combination with the

²⁵¹ Gouldner, Alvin 'The Norm of Reciprocation: A Preliminary Statement'. *American Sociological Review* 25, 1960, pp. 161-178.

²⁵² Afonso, Nuno and Prada, Rui, 2008.

²⁵³ Russell, Stuart and Norvig, Peter, 2009, p. 4.

²⁵⁴ See Appendix #9, Figures 17a – 17e.

²⁵⁵ See Appendix #9, Figure 18.

²⁵⁶ Afonso, Nuno and Prada, Rui, 2008.

²⁵⁷ Tronstad, Ragnhild 'NPC (Nonplayer Character)' *In: Ryan, Marie-Laure et al. (eds.)*, 2014, pp. 363 – 365.

²⁵⁸ Brazeal, Cynthia, 2002.

²⁵⁹ Graham, Shawn 'On Games that Play Themselves Agent based models, archaeogaming, and the useful deaths of digital Romans'. *In: Mol, Angus et al.*, 2017, pp.123 – 131.

²⁶⁰ Ch'ng, Eugene *et al.* 'Simulation and Visualisation of Agent Survival and Settlement Behaviours in the Hunter-Gatherer Colonisation of Mesolithic Landscapes'. *In: Ch'ng, Eugene et al. (eds.) Visual Heritage in the Digital Age*. London: Springer, 2013, pp. 235 – 258.

²⁶¹ Rodrigues, Sergio Hortas *et al.* 'A Process Model of Empathy For Virtual Agents'. *Interacting With Computers* 27 (4), 2015, pp. 1 – 21.

²⁶² Anthropy, Anna and Clark, Naomi *A Game Design Vocabulary: Exploring The Foundational Principles Behind Good Game Design*. Boston: Addison-Wesley, 2014, p.184.

audience's imaginative faculties, to *form, represent* and *express* personhood
'resonantly'²⁶³²⁶⁴.

²⁶³ Slater, Barry, 2018.

²⁶⁴ Penny, Simon, 2016, p. 47.

Section 1.2: Specific Potentials For The ‘Resonance’ Of Computational Characters

Computational characters, in works of narrative comp-art ‘resonate’ in specific, ‘particular’ ways. They have particular ways of achieving that resonance, and particular criteria for evaluating its effectiveness. My original definition of ‘resonance’, in the Introduction, was a universal one; the nature and extent of the interactions between a character representation and its audience’s embodied imagination. I believe that this definition still holds, in the main, for computational characters. A comp-artist still ‘projects... a world’²⁶⁵, just as any narrative artist provokes, semantically, a ‘virtual reality’²⁶⁶ in the minds of their audience. They are still concerned with the ‘holding power’²⁶⁷ of those realities and their denizens, their potential for ‘immersion’²⁶⁸, ‘incorporation’²⁶⁹, ‘presence’²⁷⁰²⁷¹, involvement²⁷² and believability²⁷³²⁷⁴²⁷⁵.

In order to test this, I supplemented my work with reading groups (outlined in Appendix 2) with a study into the experiences of participants playing a selection of videogames (see Appendix 3). Despite the diversity of character representation in the games under study – from the abstract blocks of *Thomas Was Alone*²⁷⁶ to the ostensibly ‘realistic’ representations of

²⁶⁵ Ryan, Marie-Laure ‘Impossible Worlds and Aesthetic Illusion’. In: Bernhard, Walter and Wolf, Werner (eds.) *Aesthetic Illusion in Literature and Other Media*. Eds. Amsterdam/New York: Rodopi, 2013, pp.131- 148, p.131.

²⁶⁶ Ryan, Marie-Laure, 2015.

²⁶⁷ Turkle, Sherry *The Second Self: Computers and the Human Spirit*. Massachusetts: The MIT Press, 2005, p. 65.

²⁶⁸ Thon, Jan Noel, 2014, p. 269.

²⁶⁹ Calleja, Gordon, 2011.

²⁷⁰ PLudic Reality: a consecality: a construct for analysing meaning-mapping and epistemology in play’. [Research Paper]. University of Portsmouth, 2007.

²⁷¹ Tamborini, Ron and Skalski, Paul. ‘The Role of Presence in the Experience of Electronic Games’. In: Vorderer, Peter and Bryant, Jennings (eds.) *Playing video games: Motives, responses, and consequences*. New Jersey: Lawrence Erlbaum Associates Publishers, 2006, pp. 225-240.

²⁷² Ibid.

²⁷³ Loyall, Bryan A. *Believable Agents: Building Interactive Personalities*. [PhD Dissertation]: Carnegie Mellon University, 1997.

²⁷⁴ Fogg, B.J. and Tseng, Shawn ‘Credibility and Computing Technology’. *Communications of the ACM* 42 (5), 1999, pp.39 – 45.

²⁷⁵ Lankoski, Petri and Bjork, Staffan ‘Gameplay Design Patterns for Believable Non-Player Characters’. *Proceedings of the DiGRA 2007 Conference: Situated Play*, 2007.

²⁷⁶ Bithell, Mike *Thomas Was Alone*. [PC Software] UK: Mike Bithell, 2012.

fantastical characters in *The Elder Scrolls V: Skyrim*²⁷⁷ - in each case the player undertook a familiar process of narrative engagement, recognisable from my original reading study. Partial representations of characters, through perception and interaction, were extrapolated and vivified through imaginative, 'social'²⁷⁸ augmentation and reciprocal 'sensemaking'²⁷⁹ and 'signification'²⁸⁰ into 'autonomous intentional agents'²⁸¹, drawing on a familiar suite of diverse 'underlying logic[s]'²⁸²²⁸³, 'personal needs, associations, biases and fantasies'²⁸⁴²⁸⁵: the participant's personal memories, their socio-cultural contexts²⁸⁶, their emotions²⁸⁷, their bodies²⁸⁸²⁸⁹²⁹⁰, 'non-diegetic'²⁹¹ elements

²⁷⁷ Bethesda Softworks *The Elder Scrolls V: Skyrim*. [PC Software] US: Bethesda Softworks, 2011.

²⁷⁸ Calleja, Gordon *In-Game: From Immersion to Incorporation*. London: MIT Press, 2011, p. 43

²⁷⁹ Lucas, Pereira Luis and Licinio, Roque 'Understanding the Videogame Medium Through Perspectives Of Participation'. *Proceedings of the 2014 DiGRA International Conference: DeFragging Games Studies*, 2014.

²⁸⁰ Flanagan, Mary, 2009, p.192.

²⁸¹ Mar, Raymond and Oatley, Keith, 2008, p. 174.

²⁸² Manovich, Lev, '2001, p. Database as a Genre of New Media', *AI & Society* 001 [Online]. Available at: http://vv.arts.ucla.edu/AI_Society/manovich.html [Accessed: 9th October, 2020].

²⁸³ Keogh, Brendan, 2014.

²⁸⁴ Baker, Malcolm and Richardson, Brenda *A Grand Design: The Art of the Victoria and Albert Museum*. London: Victoria and Albert Museum, 1997.

²⁸⁵ De Wildt, Lars 'Playing The Other: Role-playing religion in videogames'. *European Journal of Cultural Studies* 21 (3), 2018.

²⁸⁶ Salen, Katie and Zimmerman, Eric, 2004, p.117.

²⁸⁷ Roth, Christian and Koenitz, Hartmut, 2016.th and koenitz again

²⁸⁸ Stojnic, Aneta 'Digital anthropomorphism'. *Performance Research* 20 (2), 2015, pp. 70 – 77.

²⁸⁹ Keogh, Brendan, 2014.

²⁹⁰ Flanagan, Mary, 2009, p.150.

²⁹¹ Iacovides, Ioanna *et al.* 'Removing the HUD: The Impact of Non-Diegetic Game Elements and Expertise on Player Involvement'. *Proceedings of the 2015 Annual Symposium on Computer-Human Interaction in Play*, 2015, pp. 13 -22.

such as game interfaces²⁹²²⁹³²⁹⁴²⁹⁵²⁹⁶²⁹⁷, and extra-textual knowledge of the form's conventions, cultures and norms²⁹⁸²⁹⁹³⁰⁰. The participants, like those in my reading group study, were concerned with familiar markers of 'resonant' sophistication: a capacity for 'complexity', 'hidden layers' and the ability 'to make people care about... subjects, and... subject's feelings'.

All of the above qualities may, as in any character, be taken as markers of 'resonance': however, they do not speak to the narrower methodologies by which this 'resonance' is achieved; 'how', and 'to what extent', in my original definition, are left undefined, and are subjective to both the specific form of the character and the party undertaking the evaluation. Who decides on the measures of resonance, and how they will be evaluated?

Like other artefactual characters, computational characters may be judged according to the traditional yardstick of the author or designer's 'communicative intention'³⁰¹³⁰², often 'persuasive [or] didactic'³⁰³ in nature³⁰⁴³⁰⁵.

²⁹² Keogh, Brendan *On The Beginner's Guide*, 2015 [Online]. Available at: <https://brkeogh.com/2015/10/03/on-the-beginners-gude/> [Accessed: 8th August].

²⁹³ Miller, Kiri 'The Accidental Carjack: Ethnography, Gameworld Tourism and Grand Theft Auto'. *Game Studies* 8(1), 2008.

²⁹⁴ Newman, James 'The Myth of the Ergodic Videogame'. *Game Studies* 2 (1), 2002.

²⁹⁵ Galloway, Alexander, 2006, p.14.

²⁹⁶ Wesp, Edward, 2012.

²⁹⁷ Seraphine, Frederic 2016.

²⁹⁸ Werner, Wolf *et al*, 2009.

²⁹⁹ Salen, Katie and Zimmerman, Eric, 2004.,

³⁰⁰ Bourgonjon, Jeroen 'The Meaning and Relevance of Video Game Literacy'. *Comparative Literature & Culture* 16 (5), 2014, p. 8.

³⁰¹ Schonert, Jorg *Author*, 2014 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/author> [Accessed 8th August 2018].

³⁰² Mellmann, Katja 'On the Emergence of Aesthetic Illusion An Evolutionary Perspective'. In: Wolf, Werner. *Immersion and Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

³⁰³ Wolf, Werner 'Aesthetic Illusion'. In: Wolf, Werner *et al*. *Immersion And Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

³⁰⁴ Bogost, Ian 'Persuasive Games: The Expressive Power of Videogames'. Massachusetts: The MIT Press, 2007.

³⁰⁵ Farrell, John *The Varieties of Authorial Intention: Literary Theory Beyond the Intentional Fallacy*. London: Palgrave Macmillan, 2017.

By such a measure, resonance is in part determined by an artist's own responses to their work 'before it is made, as it is made, and after it is made'³⁰⁶, and how it cleaves to those original intentions. Others (particularly in computational discourses³⁰⁷³⁰⁸³⁰⁹) have de-emphasised the author's personal objectives and perspectives as biased, 'highly flawed'³¹⁰, patriarchal³¹¹, over-simplistic³¹²³¹³ or irrelevant; instead favouring the criteria for judgement that arise from the audience themselves in reception of the text³¹⁴³¹⁵³¹⁶³¹⁷³¹⁸³¹⁹³²⁰³²¹³²². However, in the search for a consensus of interrogable evaluative criteria, this 'messier' reliance upon the 'protean'³²³ and diverse responses of mass audiences has often proved difficult to utilise for theoretical work and its

³⁰⁶ Murray, Donald M, 1982.

³⁰⁷ Banks, John 'Co-creating Videogames' London: Bloomsbury, 2013.

³⁰⁸ Jennings, S. C. 'Co-Creation and the Distributed Authorship of Video Games'. In: Valentine, K. D., & Jensen, L. J. (eds.), *Examining the Evolution of Gaming and Its Impact on Social, Cultural, and Political Perspectives* Pennsylvania: IGI, 2016, pp. 123-146.

³⁰⁹ Lopes, Ana Caterina *et al.* 'Approaches to authorship in video games: the director, the studio and the player'. *Proceedings of the International Conference on Illustration * Animation*. Portugal: CONFIA, 2018, pp. 577 – 585. Cite 3

³¹⁰ Wolf, Werner, 2004, p. 326.

³¹¹ Eagleton, Mary 'Feminism and the Death of the Author'. In: Eagleton, Mary *Figuring The Woman Author in Contemporary Fiction*. London: Springer, 2005, pp. 15 – 36. citation

³¹² Cioffi, Frank. 'Intention and Interpretation in Criticism'. *Proceedings of the Aristotelian Society* 64 (85), 1963.

³¹³ Myers, David 'Authorial intent and videogames'. In: Mitgutsch, Konstantin *et al.* (eds.) *Context Matters! Proceedings of the Vienna Games Conference 2013*. Austria: New Academic Press, 2013, pp.110 – 120.

³¹⁴ Koblizek, Tomas *eds.* *The Aesthetic Illusion in Literature and the Arts*. London: Bloomsbury, 2017.

³¹⁵ Keen, Suzanne, 2011.

³¹⁶ Frasca, Gonzalo 'Rethinking agency and immersion: video games as a means of consciousness-raising'. *Digital Creativity* 12 (1), 2001, pp. 167 – 174.

³¹⁷ Schneider, Ralf 'Toward a Cognitive Theory of Literary Character: The Dynamics of Mental-Model Construction'. *Style* 35 (4), 2001, pp. 607–639.

³¹⁸ Machidon, Octavian M. *et al.* 'Virtual humans in cultural heritage ICT: A review'. *Journal of Cultural Heritage* 33, 2018, pp. 249 – 260, p. 256.

³¹⁹ Ibid.

³²⁰ Schonert, Jorg, 2014.

³²¹ Iser, Wolfgang, 1972.

³²² Booth, Wayne C. *The Rhetoric of Fiction*. London: University of Chicago Press, 1961.

³²³ Keen, Suzanne, 2011 *bid*, p.296.

attendant models³²⁴³²⁵³²⁶; particularly when the difficulty of quantifying unexpected and ‘aberrant encodings’³²⁷ are taken into account³²⁸³²⁹³³⁰. In computational art, often dominated by player-centric cultures of videogame practice, this over-privileging of audience response is increasingly being questioned³³¹³³²³³³³³⁴.

Many evaluative models of audience reception, particularly in comp-art³³⁵³³⁶, do not treat ‘resonance’ as a quantitative gauge, but rather as a complex interlock of intentions, responses and predispositions lying in some emergent nexus between audience, author, context, media and the experience of the communicating act itself; each perspective on such an interlock dependent on subjective concerns. While others may (and indeed do) have other perspectives on how I might define an achievable and desirable

³²⁴ Stromer-Galley, Jennifer and Schiappa, Edward ‘The Argumentative Burdens of Audience Conjectures: Audience Research in Popular Culture Criticism’. *Communication Theory* 8 (1), 2006, pp.27 – 62.

³²⁵ Mann, P.H. ‘Surveying a Theatre Audience: Methodology Problems’. *British Journal of Sociology* 14 (4), 1966, pp. 380 – 387.

³²⁶ Brough, Melissa ‘Participatory Culture’. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 382 – 387, p. 386.

³²⁷ Eco, Umberto, Splendore, Paola (trans.) ‘Towards a Semiotic Inquiry Into the Television Message’. *Working Papers in Cultural Studies* 3, 1972, pp.103-21, p. 103.

³²⁸ Barthes, Roland *Image-Music-Text*. New York: Hill and Wang, 1977.

³²⁹ Treanor, Mike ‘Investigating Procedural Expression and Interpretation in Videogames’. [PhD Thesis]. University of California Santa Cruz, 2013.Unex

³³⁰ Jennings, Stephanie C. ‘Passing As Method: Subjectivity in Video Games Criticism’. *Journal of Games Criticism* 2 (1), 2015.

³³¹ Paul, Christopher A. *The Toxic Meritocracy of Videogames: Why Gaming Culture is the Worst*. Minneapolis: UMP, 2018.Dean

³³² Brice, Mattie ‘KILL THE PLAYER’, *Mattie Brice*, 2015 [Online]. Available at: <http://www.mattiebrice.com/kill-the-player/> [Accessed: 22nd October 2020].

³³³ Fizek, Sonia ‘The death of the player: videogames and post-humanism’. *Proceedings of the Beyond Humanism Conference*. Poland, 2018, pp. 30 – 31.

³³⁴ Behrenhausen, Bryan G ‘The active audience, again: Player-centric game studies and the problem of binarism’. *New Media and Society* 15 (6), 2013, pp. 872 – 889.

³³⁵ Hunicke, Robin *et al.* ‘MDA: A Formal Approach to Game Design and Game Research’. In: *Proceedings of the Challenges in Games AI Workshop, Nineteenth National Conference of Artificial Intelligence*. 2004, pp. 1-4.

³³⁶ Calalleja, Gordon, 2011.

‘resonance’ in my work, as both producer and critic of knowledge (under the aegis of a self-reflexive academic investigation) it is my own informed perspective and objectives, drawn from the literature, that must form the frame of my enquiry – for all its potential bias. This is particularly important when the artist is considered as in some sort of communication with their ‘other self’, as their own audience or ‘first reader’³³⁷, seeking to satisfy some artistic objective; admittedly, this remains an under-explored area of study³³⁸³³⁹³⁴⁰³⁴¹.

As such, I have judged the ‘resonance’ of my characters in both generic and specific manners, while attempting to consider not only my own goals and responses but the prototypical parameters by which critics, theorists and audiences approach such works; as well as remaining alive to the inevitability, and the value, of unexpected or emergent receptions of my work over which I have no control.

Like many narrative artists who subscribe to reception theory, I will consider my characters ‘resonant’ if my audience responds emotionally, socially and intellectually to them as realised, ‘non-actual’³⁴² persons. I will also judge them by the extent to which they create a ‘pluralistic’³⁴³ and rich evocation of the historical era in which they are situated, and how they challenge existing ideas and attitudes³⁴⁴, or ‘unsettle established

³³⁷ Murray, Donald M. 'Teaching The Other Self: The Writer's First Reader'. *College Composition and Communication* 33 (2), 1982, pp. 140-147, p.140.

³³⁸ Ibid.

³³⁹ Langer, Judith A. and Flihan, Sheila 'Writing and Reading Relationships: Constructive Tasks'. In: Indrisano, Roselmina and Squire, James R. *Eds. Perspectives On Writing: Research, Theory and Practice*. Canada, IRA, 2000.

³⁴⁰ Graves, Don & Hansen, Jane. 'The author's chair'. In: Jensen, I.M. *eds. Composing and Comprehending*. Illinois: ERIC Clearinghouse on Communication Skills, 1984, pp. 69-76

³⁴¹ Kopas, Merritt *ed. Videogames For Humans.: Twine Authors In Conversation*. US: Instar Books, 2014. Videogame

³⁴² Margolin, Uri, 1987, p. 110.

³⁴³ Rahaman, Hafizur and Kiang, Tan Beng 'Digital Heritage Interpretation: Learning from the Realm of Real-World'. *Journal Of Interpretation Research* 22 (2), 2017, pp. 54 – 64, p. 58.

³⁴⁴ Dean, David, p. 15.

meanings'³⁴⁵³⁴⁶. However, I am also interested in two more contingent measures of my own: how well my characters explore and expand the concept of character itself, 'metareferential[ly]'³⁴⁷; and finally, how my characters achieve all of these 'resonant' goals through the 'particular'³⁴⁸ affordances and potentials of the computational medium.

* * * * *

What is the 'particular' potential of the computational medium, and of computational characters? Many frameworks, theories, advocacies and artworks exist as evangelising examples of the 'new possibilities in art and entertainment'³⁴⁹ for 'unique aesthetic experiences'³⁵⁰, 'new models of character, story and language'³⁵¹ and an 'expan[sion of] the catalog of narrative modalities'³⁵² to 'deliver... radically new forms of art... and social experiences'³⁵³ and 'augment and afford experiential understanding'³⁵⁴. Of course, one must be cautious not to define any one, unique goal for an entire artform: as this thesis will explore, comp-artists have many different philosophies, and objectives, for their practice. What is more, terms such as 'new' and 'unique' are troublesome when one considers the venerability of the human imaginative response which all art draws upon³⁵⁵. They are terms which are tinged with an utopianism and

³⁴⁵ Bouquet, Mary. 'Thinking And Doing Otherwise: Anthropological Theory in Exhibitionary Practice'. In: Carbonell, Bettina Messias *Museum Studies: An Anthology of Contexts*. Chichester: Wiley-Blackwell, 2012. p. 186.

³⁴⁶ Tilden, Freeman, p. 152

³⁴⁷ Wolf, Werner 'Metareference across Media: The Concept, its Transmedial Potentials and Problems, Main Forms and Functions.' In: Wolf, Werner *et al. Metareference across Media: Theory and Case Studies*. Amsterdam: Rodopi, 2009, p. 31.

³⁴⁸ Keogh, Brendan, 2015. keogh

³⁴⁹ Mateas, Michael. 'Interactive drama, art and artificial intelligence'. [PhD Thesis]. Pittsburgh: Carnegie Mellon University, 2002.

³⁵⁰ De Lucena, Daniel Pettersen and Da Mota, Rosilane Ribeiro, 2017, p. 816.

³⁵¹ Wardrip-Fruin, Noah, 2009, p.2.

³⁵² Ryan, Marie-Laure, 2001.

³⁵³ Ryan, Marie-Laure 'Preface'. In: Ryan, Marie-Laure *et al. (eds.)*, 2014, p. ix.

³⁵⁴ Champion, Erik 'Otherness of Place: Game-based Interaction and Learning in Virtual Heritage Projects'. *International Journal of Heritage Studies* 14 (3), 2008, pp. 210 – 228.

³⁵⁵ Keogh, Brendan *Videogames aren't special. Videogames aren't unique*, 2015. [Online] Available from:

triumphalism that often infects technological discourses³⁵⁶, and does not recognise the universalities in the purpose of *all* art. However, reviewing the literature it seems reasonable to state that there is a consensus of what a work of narrative comp-art – and a computational character – *might* do.

In his audience-centred, psychologically-driven thesis of literary significance, theorist Keith Oatley frames books as simulations run on minds, just as computer simulations run on computers³⁵⁷. In comp-art, this computation of audience engagement is partnered with the computation of the artwork itself: a systemic and materially dynamic, rather than merely mimetic and static, representation³⁵⁸. It is from this partnership and interplay of computations and communications, of these two sorts of Suzanne Keen's 'unpredictable afterwards'³⁵⁹, that computational character draws much of its power.

Computational characters court the imaginations of their audiences not just as 'active' readers³⁶⁰ of static texts, but as 'operator[s]'³⁶¹³⁶² and 'participa[nt]s... in... cybernetic circuit[s]'³⁶³, 'interaction trajectories'³⁶⁴ which ergodically³⁶⁵ *produce* texts or, in Benford and Giannachi's words, 'trajectories'³⁶⁶; 'dynamic syuzhets'³⁶⁷³⁶⁸ from authored *fabulas* of varying determinacy. These circuits, their resultant texts and the communicative acts which they entail thus can become complex, interpenetrated sites of 'resonant'

<https://brkeogh.com/2015/04/30/videogames-arent-special-videogames-arent-unique/> [Accessed 30th March 2018].

³⁵⁶ Pressman, Jessica 'Old Media/New Media'. In: Ryan, Marie-Laure (eds.), 2014, pp. 365 – 366.

³⁵⁷ Oatley, Keith, 2008.

³⁵⁸ Galloway, Alexander, 2004, p.72.

³⁵⁹ Keen, 2011, p. 300.

³⁶⁰ Flanagan, Mary, 2009, p. 170.

³⁶¹ Galloway, Alexander, 2006, p.5.

³⁶² Bogost, Ian, 2017.

³⁶³ Calleja, Gordon, 2011, p.2.

³⁶⁴ Benford, Steve and Giannachi, Gabriella, 2011.

³⁶⁵ Aarseth, Espen. *Cybertext: Perspectives on Ergodic Literature*. Baltimore: John Hopkins University Press, 1997.

³⁶⁶ Benford, Steve and Giannachi, Gabriella, 2011.

³⁶⁷ Wood, Hannah 'Dynamic Syuzhets: Writing and Design Methods for Playable Stories'. *Proceedings of the International Conference on Interactive Digital Storytelling*, 2017, pp. 24 – 37.

³⁶⁸ Nietzel, Britta, 2014.

imaginative engagement, interpretation or 'incorporation'³⁶⁹, creating 'beauty and meaning'³⁷⁰ through characterisation by their own means of 'expressive processing'³⁷¹. These engagements include those with the structures of the database; with the 'coherent'³⁷² rulesets, 'dynamics' or 'mechanics'³⁷³³⁷⁴ which manipulate and control them; with the operation of those rulesets through interfaces; with the resultant procedural performances and signifying actions of both audience and system³⁷⁵³⁷⁶³⁷⁷³⁷⁸³⁷⁹ in their 'cybernetic relationship'³⁸⁰, whether 'canonically' designed to occur or non-deterministically emergent³⁸¹; away from direct engagement through 'offline', 'macro' engagement³⁸², 'historic' recall³⁸³ and 'synoptic' judgement³⁸⁴³⁸⁵; in totality, as a holistic, complex and multifaceted 'involvement'³⁸⁶³⁸⁷.

³⁶⁹ Calleja, Gordon, 2011.

³⁷⁰ Zimmerman, Eric 'Manifesto for a Ludic Century'. In: Walz, Steffen and Deterding, Sebastian (eds.) *The Gameful World: Approaches, Issues, Applications*. Cambridge: The MIT Press, 2014, pp. 19 – 24, p. 22.

³⁷¹ Wardrip-Fruin, Noah *Expressive Processing: Digital Fictions, Computer Games and Software Studies*. Massachusetts: The MIT Press, 2009.

³⁷² Benford, Steve and Giannachi, Gabriella, 2011.

³⁷³ Hunnicke, Robin et al. 'MDA: A Formal Approach to Game Design and Game Research'. *Proceedings of the AAAI Workshop on Challenges in Game AI* 4 (1), 2004.

³⁷⁴ Hartmut, Koentiz, 2015, p. 91.

³⁷⁵ Candy, Linda and Ferguson, Sam (eds.), 2014.

³⁷⁶ Penny, Simon 'Robotics and Art, Computationalism and Embodiment'. In: Herath, Damith et al. (eds.) *Robots And Art: Exploring an Unlikely Symbiosis*. Singapore: Springer, 2016, pp. 47 - 65.

³⁷⁷ Laurel, Brenda, 1993.

³⁷⁸ Dalsgard, Peter and Hansen, Lone Koefoed 'Performing Perception – Staging Aesthetic of Interaction'. *ACM Transactions of Computer-Human Interaction* 15 (3), 2008, pp. 13 – 46.

³⁷⁹ Vella, Daniel 'No Mastery Without Mystery: Dark Souls and the Ludic Sublime'. *Game Studies* 15 (1), 2015.

³⁸⁰ Mullaney, Brett *The Greatest Art Form: Video Games and the Evolution of Artistic Expression*. CreateSpace, 2013.

³⁸¹ Benford, Steve and Giannachi, Gabriella, 2011., p.

³⁸² Newman, James, 2002.

³⁸³ Benford, Steve and Giannachi, Gabriella, 2011., p.

³⁸⁴ Calleja, Gordon, 2011, p.4.

³⁸⁵ Nitsche, Michael, 2008, p. 52. Videogame spaces bok - "Chapter 2 - "the basis fr

³⁸⁶ Newman, James, 2002.

³⁸⁷ Calleja, Gordon, 2011, p.4.

Specifically for computational characters - the very core of these narrative texts and interpretative acts - 'particular'³⁸⁸ opportunities for engagement arise. They present interesting opportunities for narratively significant relationships between characters and audiences; 'co-presence'³⁸⁹ with an 'intimate machine'³⁹⁰ or potential 'discussion partner'³⁹¹ or 'social partner'³⁹² that goes beyond the parasocial and becomes truly social³⁹³³⁹⁴, leading audiences to experience personally-oriented emotions such as pride, shame and guilt as a direct result of their own actions, and potentially opening fresh lines of enquiry, understanding, empathy and engagement³⁹⁵³⁹⁶. The signification of the algorithmic processes and systems that lie at the heart of such characters – the perceivable patterns and structures by which they operate - provide a 'particular'³⁹⁷ way to understand and represent the functioning of the complex 'cosmos' of personhood³⁹⁸: directly utilising human sensitivity to relational elements, underlying patterns and systemic affordances in environments to create 'deeper understandings'³⁹⁹, 'metaphors'⁴⁰⁰ and 'emotional nuance'⁴⁰¹ for the complex beings, relationships and social processes that lie at the heart of all stories⁴⁰². For simulationists like Bogost and Frasca,

³⁸⁸ Keogh, Brendan, 2015.

³⁸⁹ Calleja, Gordon, 2011, p.4.

³⁹⁰ Frude, Neil and Jandric, Petar 'The Intimate Machine – 30 Years On'. *E-Learning & Digital Media* 12 (3-4), 2015, pp. 410 – 424.

³⁹¹ Crane, Susan, 2012, p. 308.

³⁹² Machidon, Octavian *et al.*, 2016, p. 250.

³⁹³ Banks, Jaime and Bowman, Nicholas David 'Avatars are (sometimes) people too: linguistic indicators of parasocial and social ties in player-avatar relationships'. *New Media & Society* 18 (7), 2016, pp. 1257 – 1276.

³⁹⁴ Gouldner, Alvin, 1960.

³⁹⁵ Tavinor, Grant, 2007, p. 142.

³⁹⁶ Bown, Oliver, 2014.

³⁹⁷ Keogh, Brendan, 2015.

³⁹⁸ Lantz, Frank 'Foreword' *In*: Salen, Katie and Zimmerman, Eric, 2004, p.x.

³⁹⁹ Reed, Aaron *In*: Stuart, Keith *Video games where people matter? The strange future of emotional AI*, 2016, [Online]. Available at: <https://www.theguardian.com/technology/2016/oct/12/video-game-characters-emotional-ai-developers> [Accessed 8th August 2018].

⁴⁰⁰ De Lucena, Daniel Pettersen and Da Mota, Rosilane Ribeiro 'Games as expression - On the artistic nature of games'. *Proceedings of SBGames*. Curitiba, Brazil: SB Games, 2017, pp. 812- 822, p. 813.

⁴⁰¹ Bogost, Ian, 2015.

⁴⁰² Murray, Janet 'Research Into Interactive Digital Narrative: A Kaleidoscopic View'. *In*: Rouse, Rebecca *et al. (eds.)* London: Springer, 2018, p.1.

the systemic and the computational can teach us, through a 'procedural rhetoric'⁴⁰³, what it means to be human⁴⁰⁴.

Project `knole`, then, is an attempt to achieve 'resonance' through these specific potentials; and it is perhaps the greatest methodological challenge that I have ever faced as an artist. I began my career as a writer of prose, gradually shifting to the computational mode through the implementation in my work of techniques from transmedia narrative⁴⁰⁵, interactive fiction and games design⁴⁰⁶. `knole`, with its thousands of lines of code, animated graphical elements and simulatory models of personhood, represents a significant step beyond my usual practice. However, it is not only an attempt to improve my skills and widen my repertoire: in its construction, and in its fiction, it is (quite literally) a face-to-face confrontation with the struggles of computational character to achieve this 'particular'⁴⁰⁷ potential over its still-lengthening history.

⁴⁰³ Bogost, Ian, 2017.

⁴⁰⁴ Frasca, Gonzalo 'Simulation versus Narrative: Introduction to Ludology'. In: Wolf, Mark and Perron, Bernard (eds.) *The Video Game Theory Reader*. New York: Routledge, 2003.

⁴⁰⁵ Sherman, Rob *The Black Crown Project Archive*, 2018 [Online]. Available at: <https://github.com/bonfiredog/blackcrownproject> [Accessed 8th August 2018].

⁴⁰⁶ Sherman, Rob *The Spare Set*, 2014 [Online]. Available at: <http://bonfiredog.co.uk/thespareset> [Accessed 8th August 2018].

⁴⁰⁷ Keogh, Brendan, 2015.

Section 1.3: The Challenges of Computational Characterisation

Given its role as 'the Holy Grail of digital entertainment'⁴⁰⁸, art and education, one of its 'ultimate goal[s]'⁴⁰⁹, it is no surprise that the potential creation of 'resonant' computational characters and their narratives has been a perennial topic of discussion, lambast and productive tension since the form's beginnings. Such characters remain 'one of the big challenges of modern computing'⁴¹⁰, 'as elusive as [they are] enticing'⁴¹² and subject to fundamental difficulties and 'open problems'⁴¹⁴ that are 'particular'⁴¹⁵ to the form⁴¹⁶.

For some, these challenges are always productive; for others, they threaten 'the viability of interactive digital storytelling'⁴¹⁸ itself, relegating comp-art to '[playing] second fiddle to cinema, literature [and] music'⁴¹⁹ as a narrative art-form, in which 'the best... stories are still worse than even middling books and films'⁴²⁰. Criticisms range from practitioners lamenting, as

⁴⁰⁸ Ryan, Marie-Laure 'Interactive Narrative'. In: Ryan, Marie-Laure (eds.) *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014, pp. 292-297, p.292.

⁴⁰⁹ Machidon, Octavian *et al.*, 2016, p. 250.

⁴¹⁰ Alderman, Naomi *Why can't we talk to the characters in games? Careful what you wish for...*, 2016 [Online]. Available at: <https://www.theguardian.com/technology/2016/jan/11/games-computers-conversation-characters> [Accessed 8th August 2018].

⁴¹¹ Machidon, Octavian *et al.*, 2016, p.249.

⁴¹² Ryan, Marie-Laure, 2014, p. 292.

⁴¹³ Koenitz, Hartmut *et al.* (eds.), 2015, p. 137.

⁴¹⁴ Riedl, Mark, 2012, p.3.

⁴¹⁵ Keogh, Brendan, 2015.

⁴¹⁶ Short, Emily *Conversation*, undated [Online]. Available at: <https://emshort.blog/how-to-play/writing-if/my-articles/conversation/> [Accessed 8th August 2018].

⁴¹⁷ Millington, Ian and Funge, John *Artificial Intelligence for Games*. Massachusetts: Morgan Kaufman, 2009.

⁴¹⁸ Rank, Stefan and Petta, Paolo 'Backstory authoring for affective agents'. *Proceedings of the 5th International Conference on Interactive Storytelling*. San Sebastian: ACM Digital Library, 2012.

⁴¹⁹ Samyn, Michael *Almost Art*, 2011 [Online]. Available at: http://www.escapistmagazine.com/articles/view/video-games/issues/issue_291/8608-Almost-Art [Accessed 8th August 2018].

⁴²⁰ Bogost, Ian, 2017.

recently as 2013, that videogames can create more believable guns than people⁴²¹; to charges of 'wooden cutouts'⁴²², 'shallow, static and lacking in believability'⁴²³; to virtual heritage specialists criticising the difficulties of achieving 'social' or 'cultural presence' in the virtual spaces at the centre of their interpretations⁴²⁴⁴²⁵⁴²⁶; to audiences themselves, including members of my study group, criticising the computational characters they encounter as 'distant', 'stupid', 'forgettable', 'uninteresting', 'predictable', 'confusing' or 'unbelievable'.

The participants in my study were, on the whole, optimistic about the future of characterisation in comp-art; believing that, 'with enough space and time', practice would improve. Others writing on the subject are not so sure about this 'hypothetical future'⁴²⁷, and resurrect older debates about the role of narrative in comp-artforms such as videogames⁴²⁸⁴²⁹⁴³⁰; asking provocative questions about whether 'interactive digital narrative' is any longer the most appropriate goal for scholarship and practice⁴³¹: indeed, whether

⁴²¹ Mark, Dave *et al.* *Never Mind Small Steps: What's The Giant Leap For AI?*, 2013 [Online]. Available at: <http://www.gdcvault.com/play/1018056/Never-Mind-Small-Steps-What> [Accessed 8th August 2018].

⁴²² Hruska, Joel *The Quest To Improve Videogame AI*, 2016 [Online]. Available at: <https://www.magzter.com/articles/1642/143107/56a26114033e9> [Accessed 8th August 2018].

⁴²³ Koenitz, Hartmut *et al.*, 2015, p. 2.

⁴²⁴ Champion, Erik 'Social Presence and Cultural Presence in Oblivion'. *Proceedings of the 7th International Digital Arts and Culture Conference: The Future of Digital Media Culture*, 2007.

⁴²⁵ Tan, Beng Kiang and Rahaman, Hafizur 'Virtual heritage: Reality and criticism'. *Proceedings of the 2009 CAADFutures Conference*. Montreal, 2009, pp. 143 – 156, p. 148.

⁴²⁶ Machidon, Octavian *et al.* 'Virtual humans at cultural heritage ICT applications: A review'. *Journal of Cultural Heritage* 33 (1), 2018, pp. 249 – 260.

⁴²⁷ Bogost, Ian, 2017.

⁴²⁸ Koenitz, Hartmut *et al.*, 2015, p. 69.

⁴²⁹ Kokonis, Michalis 'Intermediality between Games and Fiction: The "Ludology vs. Narratology" Debate in Computer Game Studies: A Response to Gonzalo Frasca'. *Film and Media Studies* 9, 2014, pp. 171 – 188.

⁴³⁰ Ryan, Marie-Laure, 2015.

⁴³¹ Szilas, Nicolas in Koenitz, Hartmut *et al.* (eds.), 2014, p. 136.

comp-art is really an appropriate tool for representing character and narrative *at all*⁴³²⁴³³⁴³⁴⁴³⁵.

While the execution of character in all works of narrative art can be subject to criticism, there seems to be a typical difference in how computational character is discussed. There seems to be a basal, historic challenge of 'resonance'; namely, a challenge in making characters *both* meaningfully computational *and* resonant with the general imaginative faculties of their audience. It is this challenge which is central to this thesis: however, it is such a multifarious and complex debate that a full account of it is beyond my remit. In review, however, certain trends can be identified. The nexus of the challenge lies in formal consideration of the computer itself, its 'internal affordances'⁴³⁶ and 'prototypical qualities'⁴³⁷; and the cultural issues, in comp-artforms themselves, to which such formal issues inevitably and naturally give rise and interpenetrate.

Project *knole*, both in its form and fiction, seeks to represent these challenges. It explores the fundamental 'technical limitations'⁴³⁸ of the computational mode; limitations that arise from the 'formality gap'⁴³⁹ in comp-art's communication of complete worlds through incomplete representation: the translation, as Simon Penny has it, of 'atoms into bits'⁴⁴⁰.

* * * * *

Though her birth pre-dates the invention of the digital computer by some 200 years, the concerns of my character Anne Latch seem oddly familiar. In the letter at the heart of the *Housekeeping*, which forms a sort of proto-feminist, rationalist manifesto, Anne laments the complexity, unpredictability

⁴³² Bogost, Ian, 2015.

⁴³³ Bogost, Ian, 2017.

⁴³⁴ Jull, Jesper 'Games telling Stories? A brief note on games and narratives'. *Game Studies* 1 (1), 2001.

⁴³⁵ Eskenlinen, Markku 'The Gaming Situation'. *Game Studies* 1 (1), 2001.

⁴³⁶ Copplestone, Tara, 2017, p. 88.

⁴³⁷ Thon, Jan-Noel, 2014, p. 334.

⁴³⁸ Parry, Ross, 2010, p. 261.

⁴³⁹ Dix, Alan *et al.* 2004, p. 232.

⁴⁴⁰ Penny, Simon, 2016, p.61.

and attendant dangers of the world around her; a world where the functionality of its systems, are still largely misunderstood by a majority of the populace⁴⁴¹. In everyday life (particularly, as Anne bitterly notes, the lives of women⁴⁴²⁴⁴³), such obscure systemics are perceived variously as luck, fate, fortune, or the caprice of supernatural beings. In Anne's case, it is the personified whims of a malevolent 'Forse', drawing on a piecemeal, 'inosent' Theory cribbed from her semi-literate understanding of the principles of Gravity⁴⁴⁴, which gofern[s]... over all Bodies', and underpins the workings of the Visible world. In such a world, the ability to explain, to simplify, to map, to model – indeed to control – the ineffable and the inexplicable are highly sought; whether through the practice of modern (and ancient) scientific enquiry⁴⁴⁵ or the parallel traditions of magic⁴⁴⁶⁴⁴⁷.

The 'Beest' that arrives in Anne's home seems to provide its own, personalised solution to the issues of her environment's complex systems: a way not only to 'View' the 'Troth' that underlies existence, but to control it, as well. While the creature has the form, and many of the trappings, of the 'familiar spirits' of witches and cunning folk in previous centuries⁴⁴⁸, the 'Beest' seems to be divested of many of the more troublesome, naturalistic qualities of other beings that surrounded 18th century rural life; whether the moods of ornery cattle or the untameable predilections of supernatural entities⁴⁴⁹⁴⁵⁰. Anne writes in glowing terms of the 'Beest's' calm, compliant, almost-robotic

⁴⁴¹ Harding, Roberta 'Rubbing the Rabbit's Foot: Gallows Superstitions and Public Healthcare in England during the Eighteenth and Nineteenth Centuries'. *Boston University Public Interest Law Journal* 25 (2), 2016.

⁴⁴² Hill, Bridget (eds.) *Eighteenth Century Women: An Anthology*. Oxon: Routledge, 2013.

⁴⁴³ Sollee, Kristen J. *Witches, Sluts, Feminists: Conjuring the Sex Positive*. Berkeley: Stone Bridge Press, 2017.

⁴⁴⁴ Newton, Isaac *et al.* (trans.) *The Principia: Mathematical Principles Of Natural Philosophy*. London: University of California Press, 1999.

⁴⁴⁵ Henry, John 'Magic and the origins of modern science' *The Lancet* 354 (1), 1999.

⁴⁴⁶ Davies, Owen, 2008, p. 105.

⁴⁴⁷ Davies, Owen, *Grimoires: A History of Magic Books*. Oxford: Oxford University Press, 2009.

⁴⁴⁸ Wilby, Emma, 2000.

⁴⁴⁹ Clark, Stuart. *Thinking With Demons: The Idea Of Witchcraft In Early Modern Europe*. Oxford: Oxford University Press, 1999.

⁴⁵⁰ Davies, Owen. *Witchcraft, Magic and Culture 1736 – 1951*. Manchester: Manchester University Press, 1999.

behaviour, and plots the unerring predictability of its function and form. She insists that it has no desires, no wants, no 'Lusts' of its own; indeed no character, except that of a mechanomorphic servant.

Its only purpose is to 'Work' infallibly, with no 'froth[ing]... or Protest'; to be manipulated, like the 'stations' at Mr. Knole's mill, in a sequence of unambiguous actions designed for specific ends. Anne terms such actions and ends her 'Method' - a set of simple, strictly-prescribed 'operaytings' of the Beast which she has developed to allow her to influence, and instrumentalise, the naturalistic chaos of 'GRAVITAS' which has previously ruled her life, and the lives of her peers. When Anne states that the creature is the 'Consoal of the World', she means this in two senses: both as a saviour for those beset by the opaque influences of the 'Forses' that harry human life, and as a form of depersonalised instrument.

Anne's particular, 'moderne' model of the universe seeks total transformation of the complex subjectivities and opaque mysteries of everyday life into a 'bounded orderly cosmos'⁴⁵¹; not through the complications of emotion, drama, bodily self and ineffable social contracts that have defined relations between 'cunning women' and their familiar spirits for centuries⁴⁵², but instead through mechanistic manipulation of a new sort of being – a person, as Anne sees it, with neither emotion, nor volition, nor any desire other than to 'Work'.

In the context of the burgeoning Enlightenment, and the coming Industrial Revolution (see Chapter 3), Anne's 'Newly Beast, some Beast verie Perfeckt' seems more like a computer, with its logical systems and algorithmic operations, than a 'Beest' at all; indeed, Anne hopes that it is the first of many such 'Beests', in a 'Newly Age' of honest work, mechanised predictability, denatured 'Troth' and control.

⁴⁵¹ Vella, Daniel, 2015.

⁴⁵² Rose-Millar, Charlotte 'Over-familiar spirits: seventeenth century English witches and their devils'. In: Kounine, Laura and Ostling, Michael (eds.) *Emotions in the History of Witchcraft*. London: Palgrave Macmillan, 2016, pp. 173 – 189.

Of course, not everybody in Anne's 'storyworld' shares her utopian, utilitarian views. In the ballad which is included with the *Housekeeping*, supposedly penned by a poor shepherd, or 'goodly Christian Witness' to Anne's growing notoriety, we are given another perspective on the 'Beest' and its work; a 'false Virtual', designed only to ensnare the foolish and the blasphemous. The writer of the ballad pours scorn on those who climb to the village of Nighthead to buy the spells and charms created by Anne and her Beest, as falling for a clever trick that is fundamentally disconnected from the real world: a world full of analogue complexity, difficulty and God-given hardship. To place one's faith in something which appears to simplistically delineate the secret processes which underlie existence is, in the 'Witness's words, like seeking 'the warmth without the fyre'.

Indeed, considering Anne's eventual fate, it could be argued that this 'formality gap' between the reality of the 'Beest' and its work, and Anne's perceptions of it, are just too great to be overcome. Even in her final moments as the famed 'Wyfe of Nighthead' - shunned by the county, embroiled in scandal and rumour, her own rituals failing to prevent an unexpected pregnancy, Anne continues to believe in the revolutionary nature of her 'Work', and the creature which is its engine. Rather than a revelation of her mistakes, her circumstances become a vindication of her 'Troth', despite all evidence to the contrary. The *Housekeeping*, and the creature, become a gift to a young woman from the city below the moor who has appeared to Anne in a dream, full of self-evident significance; and who, she is convinced, will be honoured to continue her important 'Industry'. To the very end, it might be argued, Anne never overcame or tamed the complexity of the world: she merely reductively ignored it.

* * * * *

The similarities between Anne's particular conception of the 'Beest' and modern computers is not, of course, accidental. Just as the 'Beest' supposedly provides a meaningful, operable interface with the *functionality* of the world, so does narrative comp-art attempt to provide a procedural interface between the audience and a storyworld's characters, using the paradigm of digital computing. Unlike other narrative artforms, which hinge on static

reproductions of certain elements of personhood, comp-art seeks to meaningfully *simulate* personhood; that is, to demonstrate something, through its systems, of the *functionality* of personhood.

In other artforms, this functionality – the actual procedures of characters living and interacting – is computed in Keith Oatley's original 'simulator'⁴⁵³: the embodied minds of the various authors and audiences of the narrative experience. The author decides what characters will do and say; the film editor slices and predetermines the shots; the improvisational performers draw on their own human experiences to calculate their output⁴⁵⁴⁴⁵⁵; the audience receives, responds and shapes. In each case, as Ken Perlin points out⁴⁵⁶, it is the human mind which undertakes this calculation; a tool evolved to execute these 'complicated recursive systems'⁴⁵⁷, the 'subjectively ambiguous'⁴⁵⁸, instinctive and often ineffable processes by which beings function; functionalities such as social conflict⁴⁵⁹, learning and emotion, 'interpersonal relationships'⁴⁶⁰⁴⁶¹ and 'internal mental... action' - the elements, in short, of drama⁴⁶² - whose modelling forms the elusive objective of many disciplines, sciences and enquiries.

⁴⁵³ Oatley, Keith, 2008.

⁴⁵⁴ Koentiz, Hartmut *et al.*, 2015, p. 187.

⁴⁵⁵ Frost, Anthony and Yarrow, Ralph 2007.

⁴⁵⁶ Perlin, Ken 'Can There Be A Form Between Game And Story?'. In: Wardrip-Fruin, Noah and Harrigan, Pat (*eds.*), 2004.

⁴⁵⁷ Hofstadter, Douglas, 2000, p. 152.

⁴⁵⁸ Hugill, Andrew and Yang, Hongi 'The creative turn: New challenges for computing'. *International Journal of Creative Computing* 1 (1), 2013, pp. 1 – 15, p. 1

⁴⁵⁹ Salen, Katie and Zimmerman, Eric, 2004, p.382.

⁴⁶⁰ Aarseth, Espen 'Genre trouble: narrativism and the art of simulsion' In: Wardrip-Fruin, Noah and Harrigan, Pat (*eds.*) *First person: new media as story, performance, and game*. Cambridge: The MIT Press, 2004, p. 50.

⁴⁶¹ Spector, Warren *Narratives in Games – Role, Forms, Problems and Potential*, 2013 [Online]. Available at: <https://www.gdcvault.com/play/1018122/Narrative-in-Games-Role-Forms> [Accessed 8th August 2018].

⁴⁶² Ryan, Marie-Laure, 2001.

When this 'qualitatively variable'⁴⁶³ 'squishy stuff'⁴⁶⁴, as Falstein calls it, is instead (in part) parsed through the rigid⁴⁶⁵, 'objectively precise'⁴⁶⁶ and 'quantitatively controlling'⁴⁶⁷ machine, operated by the flow of electricity through integrated circuitry controlled by transistors which can perform binary logic operations on binary data⁴⁶⁸, the fundamental differences between these two different processes become painfully apparent⁴⁶⁹⁴⁷⁰⁴⁷¹. This is particularly exacerbated by the concept of interactivity, in which such fragile systemic representations are open to the unpredictable manipulations of the audience themselves⁴⁷². Douglas Hofstadter, in his early philosophical consideration of natural and artificial intelligence, maintains a 'reductionist faith'⁴⁷³ that computers can be used to imitate, in a functionally meaningful way, the 'incalculability of life'⁴⁷⁴ through a meaningful 'simplification... [of] real-world ideas'⁴⁷⁵; though the scale of the challenge clearly daunts (and delights) him. His position is emblematic of a tension in the scholarship between those who believe the 'mechanizability'⁴⁷⁶ of intelligence – of personhood – is

⁴⁶³ Hugill, Andrew and Yang, Hongji, 2013, p. 1

⁴⁶⁴ Koster, Raph, 2018.

⁴⁶⁵ Hofstadter, Douglas, 2000, p.298.

⁴⁶⁶ Hugill and Yang, 2013, p. 2.

⁴⁶⁷ Ibid.

⁴⁶⁸ Pelzold, Charles *Code: The Hidden Language of Computer Hardware And Software*. USA: Microsoft Press, 1999.

⁴⁶⁹ Elson, David 'Artificial Intelligence'. In: Ryan, Marie-Laure *et al. (eds.)*, 2014, pp. 18 – 22.

⁴⁷⁰ Hofstadter, Douglas, 2000, p. 676.

⁴⁷¹ Bogost, Ian 'Video games remind us that not everything in life has a computable answer', *Quartz*, 2018 [Online]. Available at: <https://qz.com/1433042/video-games-remind-us-that-not-everything-in-life-has-a-computable-answer/> [Accessed: 20th June 2020].

⁴⁷² Aylett, Ruth 'Emergent narrative, social immersion and “storification”'. *Proceedings of the 1st international workshop on narrative and interactive learning environments*. Edinburgh, 2000, pp. 35–44.

⁴⁷³ Hofstadter, Douglas, 2000, p. 572

⁴⁷⁴ Murray, Janet, 1997, p. 297.

⁴⁷⁵ Gard, Toby *Building Character*, 2000 [Online]. Available at: <https://www.scribd.com/document/321423675/Toby-Gard-2000-Building-Character> [Accessed 8th August 2018].

⁴⁷⁶ Hofstadter, Douglas, 2000, p.58.

possible⁴⁷⁷⁴⁷⁸, and those who do not⁴⁷⁹⁴⁸⁰. Discussion of such scholastic tensions, still extant today, is beyond my remit here; but even in taking Hofstadter's optimistic position, by his own admission, 'there is a long road ahead'⁴⁸¹. The length of that road, especially for an impatient artist, remains frustratingly obscure.

It is in reconciling this 'formality gap'⁴⁸² – in meaningfully representing the systemic procedurality of characters as 'non-actual' persons with 'vast[ly] discrepant[t]'⁴⁸³⁴⁸⁴ computational tools – that remains the greatest formal challenge to realising truly resonant computational characters as this thesis defines them⁴⁸⁵. It is from this discrepancy that much of the lack of resonance in such characters – their 'narrative dissonance'⁴⁸⁶, frequent charges of 'ludological centrism'⁴⁸⁷, their lack of believability⁴⁸⁸, depth, subtlety, complexity – has arisen. Often, in works of narrative comp-art, the 'formality gap' between the fact of personhood and its computational simulation goes beyond the artful, or the instructive; it becomes reductive.

⁴⁷⁷ Petrovic, Vladimir M. 'Artificial Intelligence and Virtual Worlds – Toward Human-Level AI Agents'. *IEEE Access* 6 (2018), pp. 39976 – 39988.

⁴⁷⁸ McCarthy, John 'From here to human-level AI'. *Artificial Intelligence* 171 (18), 2007, pp. 1174 – 1182.

⁴⁷⁹ Harnad, Stevan 'Minds, machines and Searle'. *Journal of Experimental and Theoretical Artificial Intelligence*. 1 (1), 1989, pp. 5 – 25.

⁴⁸⁰ Windfield, Alan 'Artificial Intelligence will not turn into Frankenstein's monster'. *The Observer*, 2014 [Online]. Available at: <https://www.theguardian.com/technology/2014/aug/10/artificial-intelligence-will-not-become-a-frankensteins-monster-ian-winfield> [Accessed: 20th September 2019]. One other

⁴⁸¹ Hofstadter, Douglas, 2000, p. 573.

⁴⁸² Dix, Alan *et al.* 2004, p. 232.

⁴⁸³ Norman, Donald, 2007.

⁴⁸⁴ Asma, Stephen, 2017.

⁴⁸⁵ Ryan, Marie-Laure 'From Playfields To Fictional Worlds: A Second Life for Ariosto'. *New Literary History* 40 (1), 2009, pp.159 – 177.

⁴⁸⁶ Seraphine, Frederic, 2016.

⁴⁸⁷ Cășvean, Tulia Maria 'What is Games Studies Anyway? Legitimacy of Game Studies Beyond Ludo-centrism vs. Narrato-centrism Debate'. *Revista Română de Jurnalism si Comunicare* 11 (1), 2016, pp. 48 – 59.

⁴⁸⁸ Tence, Fabien *et al.* 'The Challenge of Believability in Video Games: Definitions, Agents Models and Imitation Learning'. France: *GAMEON-ASIA*, 2010, [Online]. Available at: <https://arxiv.org/abs/1009.0451v1> [Accessed 8th August 2018].

It was this central issue, these 'enormous limitations'⁴⁸⁹, that one of my study participants labelled as the 'pressures of the medium': and it is these pressures, likely to remain inherent to the form, which have in part informed the various artistic, critical and methodological discourses of comp-art culture, the 'external affordances of the discipline'⁴⁹⁰ and the 'changing political, social, and cultural contexts in which they are produced and consumed'⁴⁹¹. In the mainstream videogame industry, perhaps the most common source of narrative characterisation in 'comp-art', and most influential on tangential disciplines (see Appendix 5), these limitations have contributed to a cyclical *status quo* of risk-aversion, narrative conservatism⁴⁹² and stagnation⁴⁹³⁴⁹⁴⁴⁹⁵⁴⁹⁶; '[the] ringing [of] changes on the same few subjects', methodologies, characters and their fictions⁴⁹⁷⁴⁹⁸⁴⁹⁹, a 'downgrad[ing]' of narrative sophistication and its implementation computationally⁵⁰⁰⁵⁰¹, an underdevelopment of tools and techniques for addressing computational character⁵⁰²⁵⁰³⁵⁰⁴: even a bizarre and

⁴⁸⁹ Giner-Sorolla, Roger *Crimes Against Mimesis*, 2005 [Online]. Available at: https://web.archive.org/web/20050619081931/http://www.geocities.com/aetus_kane/writing/cam.html [Accessed 8th August 2018].

⁴⁹⁰ Coplestone, Tara, 2017, p.88.

⁴⁹¹ Kerr, Aphra. *The business and culture of digital Games: Gamework/gameplay*. London: Sage, 2006, p. 4.

⁴⁹² Anthropy, Anna and Clark, Naomi, 2014, p.10.

⁴⁹³ Smith Ed *Don't Hate The Game, Hate The Player*, 2017 [Online]. Available at: <https://www.youtube.com/watch?v=k7aeD1vAYCE> [Accessed 8th August].

⁴⁹⁴ Anthropy, Anna, and Clark, Naomi, 2014, p.xiv.

⁴⁹⁵ Dyer-Witheford, Nick and de Peuter, Grieg *Games Of Empire: Global Capitalism And Video Games*. Minnesota: University of Minnesota Press, 2009, p. 71.

⁴⁹⁶ Keogh, Brendan *ungaming*, 2016 [Online]. Available at: <http://ungaming.tumblr.com/post/149102772520/i-tweeted-a-link-to-this-article-on-the-bus-about> [Accessed: 8th August 2018].

⁴⁹⁷ Ibid.

⁴⁹⁸ Ryerson, Liz *Indie Entitlement*, 2014 [Online]. Available at: <https://ellaguro.blogspot.com/2014/06/indie-entitlement.html> [Accessed 8th August 2018].

⁴⁹⁹ Majewski, Jakub 'Cultural Heritage In Role-Playing Games: A Map Of Approaches'. *Furnace 2* (1), 2015, [Online]. Available at: <https://furnacejournal.files.wordpress.com/2015/09/majewski.pdf> [Accessed 8th August 2018].

⁵⁰⁰ Newman, James, 2002.

⁵⁰¹ Hunicke, Robin *et al.*, 2004.

⁵⁰² Stuart, Keith, 2016.

⁵⁰³ Reed, Aaron *In: Stuart, Keith*, 2016.

⁵⁰⁴ Smith, Harvey and Worch, Matthias *What Happened Here? Environmental Storytelling*, 2010 [Online]. Available at:

defeatist surfeit of self-reflexive 'in-jokes' and self-neoteny about those very inadequacies⁵⁰⁵⁵⁰⁶⁵⁰⁷⁵⁰⁸. Even outside such specific criticisms, it appears clear that comp-art faces fundamental challenges to the creation of resonant computational characterisation. These issues, and responses to them, may be distinguished into two categories: those in which computational characters lack resonance as representations of personhood, or in which a (perhaps otherwise resonant) character does not achieve those qualities and responses primarily through computation.

Anne's utopian conception of her 'Beest' - as a manageable, predictable and ultimately mechanomorphic being shorn of any Personality, a 'vending machine'⁵⁰⁹ for particular purposes and uses – is matched by those characters in comp-art which use computational techniques to represent personhood systemically, but which fail to create appropriate resonance from these techniques. This failure arises fundamentally from the enormous formal, semantic differences between the *functionality* of personhood and the *functionality* of the computer, and is concretised into deficient practices of 'technological reductionism'⁵¹⁰, focalisation on the 'low-hanging fruit' of simulation⁵¹¹ and 'mechanical parody'⁵¹².

Examples of such approaches include mechanistic and reductive depictions of romance and social interactions⁵¹³⁵¹⁴; frustratingly stupid

<http://www.gdevault.com/play/1012647/What-Happened-Here-Environmental> [Accessed 8th August 2018].

⁵⁰⁵ Williamson, Alan 'Yokosuka, 1986'. *Five Out of Ten* 3 (1), 2014.

⁵⁰⁶ Anthropy, Anna and Clark, Naomi, 2014.

⁵⁰⁷ Lantz, Frank, 2004, p. xi.

⁵⁰⁸ Ryan, Marie-Laure, 2015, p. 181.

⁵⁰⁹ Hernandez, Patricia *You Know What's Gross? We Play Nice Guys (tm) In So Many Games*, 2012 [Online]. Available at:

<http://nightmaremode.thegamerstrust.com/2012/12/03/you-know-whats-gross-we-play-nice-guys-in-so-many-games/> [Accessed 8th August 2018].

⁵¹⁰ Ruffino, Paolo 'Narratives of independent production in video game culture'. *Loading...* 7 (11), 2012, pp.106 – 121.

⁵¹¹ Koster, Raph *et al.*, 2018.

⁵¹² Weizenbaum, Joseph *Computer Power and Human Reason: From Judgement to Calculation*. San Francisco: W.H. Freeman, 1977, p. 9.

⁵¹³ Hernandez, Patricia, 2012.

⁵¹⁴ Joho, Jess *Video Games Like 'Mass Effect' Should Just Admit They're Bad at Sex*, 2017 [Online]. Available at: https://motherboard.vice.com/en_us/article/aepnn5/video-games-like-mass-

'companion' characters⁵¹⁵; frequent 'glitches' or incoherences in computational representations of character⁵¹⁶; the vast number of 'utilitarian [and] transactional' conversation models⁵¹⁷⁵¹⁸⁵¹⁹⁵²⁰⁵²¹; and the crude 'moral calculus'⁵²² and 'predictable, solvable problems'⁵²³ of simulations of social reputation, persuasion and faction politics⁵²⁴⁵²⁵⁵²⁶ which remain popular both in the videogames industry and beyond. I witnessed them frequently during my study: from players struggling to reconcile the overtly mechanical, repetitive systems of *Shelter*⁵²⁷ with its ostensible narrative of animal motherhood, to the lack of interest demonstrated by players in the lives and personhoods of the various characters they encountered in *Skyrim*⁵²⁸.

effect-should-just-admit-theyre-bad-at-sex [Accessed 8th August 2018].

⁵¹⁵ Tremblay, Jonathan 'Improving Behaviour and Decision Making for Companions in Modern Digital Games'. AIIDE 2013: AAAI, 2013.

⁵¹⁶ Lewis, Chris *et al.* 'What went wrong: A taxonomy of video game bugs'. *Proceedings of the Fifth International Conference on the Foundations of Digital Games*: Monterey, 2010, pp. 108 – 115.

⁵¹⁷ Bell, Alice *The Fuckeduplet 1: Dialogue in Games is Fucked - Alice Bell*. Videobrain, London, 2016 [Online]. Available at: <https://www.youtube.com/watch?v=nWD6bb3AbS8> [Accessed: 8th August 2018].

⁵¹⁸ Zhu, Jichen 'Dialogue Systems'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 130 – 133.

⁵¹⁹ Galloway, Alexander, 2006, p.68.

⁵²⁰ Smith, Adam *Living Worlds: The Joy of NPC Schedules*, 2016 [Online]. Available at: <https://www.rockpapershotgun.com/2016/01/06/the-joy-of-npc-schedules/> [Accessed 8th August 2018].

⁵²¹ Short, Emily *Conversation* [Online]. Available at: <https://emshort.blog/how-to-play/writing-if/my-articles/conversation/> [Accessed 8th August 2018].

⁵²² Champion, Erik, 2004.

⁵²³ Kopas, Meritt *Soft Chambers*, 2015 [Online]. Available at: <http://softchambers.com/> [Accessed 8th August 2018].

⁵²⁴ Champion, Erik, 2003. Applying Game Design, erik champion

⁵²⁵ Ryan, James Owen *et al.*, 'Towards Characters Who Observe, Tell, Misremember & Lie'. *Experimental AI in Games: Papers from the AIIDE 2015 Workshop*, 2015 [Online]. Available at: <https://www.aaai.org/ocs/index.php/AIIDE/AIIDE15/paper/view/11667/11394> [Accessed 8th August 2018].

⁵²⁶ Champion, Erik, 2007.

⁵²⁷ Might & Delight, 2013.

⁵²⁸ Bethesda Softworks, 2011.

In such cases, while characterisation is attempted through systemic means, the resulting characters function 'simpl[y] and dispensibl[y]'⁵²⁹, with little computational exploration of any inner, interpersonal life or its 'unique, complex circumstances'⁵³⁰⁵³¹⁵³²⁵³³. They serve as little more than 'props'⁵³⁴⁵³⁵ and 'mere decoration',⁵³⁶ 'artificial constructs' or 'puppets'⁵³⁷, 'equipment to be utilised'⁵³⁸ in the pursuit of less personalised and more 'effectively computable'⁵³⁹ functionalities within "misleading and impoverished social and cultural worlds"⁵⁴⁰. These functionalities include more 'tightly constrained domains'⁵⁴¹: the 'quantifiable outcomes'⁵⁴² and 'challenge-based' goals and 'flows'⁵⁴³ of 'ludic' or skill-based contests⁵⁴⁴⁵⁴⁵⁵⁴⁶; the constructive, 'sandbox' elements of paidic play⁵⁴⁷; formalist and less character-centric narrative

⁵²⁹ Ryan, Marie-Laure 'Interactive Narrative, Plot Types & Interpersonal Relations'. *Intersemiose* 2 (4), 2013, pp. 26 - 37, p. 30.

⁵³⁰ Anthropy, Anna and Clark, Naomi, 2011, p. 185.

⁵³¹ Koster, Raph *et al.*, 2018.

⁵³² Mol, Angus *et al.*, 2017.

⁵³³ Veale, Kevin, 2012.

⁵³⁴ Koster, Raph *et al.*, 2018.

⁵³⁵ Smith, Adam, 2016.

⁵³⁶ Machidon, Octavian *et al.*, 2016, p. 250.

⁵³⁷ Salen, Katie and Zimmerman, Eric, 2004, p.446.

⁵³⁸ Newman, James, 2002.

⁵³⁹ Finn, Ed *What Algorithms Want: Imagination in the Age of Computing*. Massachusetts: The MIT Press, 2017, p. 42.

⁵⁴⁰ Champion, Erik, 'Roleplaying and Rituals For Cultural Heritage-Oriented Games'.

⁵⁴¹ Winston, Patrick 'AI memo no. 366'. [Technical Report]. Massachusetts: MIT, 1976.

⁵⁴² Salen, Katie and Zimmerman, Eric, 2004, p.93.

⁵⁴³ Cowley, Ben *et al.* 'Towards an understanding of flow in video games'. *Computers In Entertainment* 6 (2), 2008, pp. 20:1 – 20:27.

⁵⁴⁴ Calleja, Gordon, 2011, p. 52.

⁵⁴⁵ Thon, Jan-Noel, 2014.

⁵⁴⁶ Ermi, Laura and Mayra, Frans 'Fundamental Components of the Gameplay Experience: Analysing Immersion'. In: de Castell, Suzanne and Jenson, Jennifer (eds.) *Changing Views: Worlds In Play. Selected Papers of the 2005 DiGRA 2nd International Conference*. DiGRA, 2005.

⁵⁴⁷ Iversen, Sara Mosberg. 'Between Regulation and Improvisation: Playing and Analysing "Games in the Middle"'. [PhD Thesis]. IT University of Copenhagen, 2009, p. 77. Paid in sandbox

structures⁵⁴⁸⁵⁴⁹; and the 'kinaesthetic'⁵⁵⁰, 'spatial... temporal relations'⁵⁵¹ used to represent Euclidian space. most often, as in Anne's conceptual universe, focussed on gravity, and its various employments. Such focuses are reinforced and informed by other reductive practises: the prevalence of dehumanising interaction models, particularly through combat⁵⁵²⁵⁵³⁵⁵⁴; a methodological undervaluing of opacity, ambiguity and ineffability in computational representative systems⁵⁵⁵⁵⁵⁶⁵⁵⁷⁵⁵⁸⁵⁵⁹⁵⁶⁰⁵⁶¹ in favour of 'goal-related engagement'⁵⁶²; and the over-emphasis of an audience's instrumental agency⁵⁶³⁵⁶⁴⁵⁶⁵⁵⁶⁶⁵⁶⁷, which serves to 'fetishize control'⁵⁶⁸; emphasise reactivity and 'immediate response'⁵⁶⁹ over passivity, unpredictability or introspection⁵⁷⁰⁵⁷¹.

⁵⁴⁸ Ryan, Marie-Laure, 2013, p. 30.

⁵⁴⁹ Brusentsev, Andrew *et al.* 'An investigation of Vladimir Propp's 31 functions and 8 broad character types and how they apply to the analysis of video games'. *Proceedings of The 8th Australasian Conference on Interactive Entertainment: Playing the System*. New York: ACM, 2012, pp. 2:1 – 2:10.

⁵⁵⁰ Calleja, Gordon, 2011, p. 55.

⁵⁵¹ Gernsbacher, Morton Ann *et al.*, 'Do Readers Mentally Represent Characters' Emotional States?' *Cogn Emot* 6 (2), 1992, pp. 89-111, p.104.

⁵⁵² Kocurek, Carly 'Who hearkens to the monster's scream? Death, violence and the veil of the monstrous in video games'. *Visual Studies* 30 (1), 2015, pp. 78 – 89.

⁵⁵³ Lindsey, Patrick 'The Immersion Fallacy'. *Five Out Of Ten* 8, 2014,

⁵⁵⁴ Stuart, Keith, 2016.

⁵⁵⁵ McMaster, Michael, 2014.

⁵⁵⁶ Kopas, Merritt, 2015.

⁵⁵⁷ Joho, Jess *Video games are creating smarter animals*, 2017 [Online]. Available at: <https://www.polygon.com/features/2017/5/17/15442666/videogame-animals-smarter> [Accessed 8th August 2018].

⁵⁵⁸ Ryan, James Owen *et al.*, 2015, p.56.

⁵⁵⁹ Koster, Raph *et al.*, 2018.

⁵⁶⁰ Ashwell, Sam Kabo, 2014.

⁵⁶¹ Warpefelt, Henrik and Straat, Bjorn 'Breaking immersion by creating social unbelievability'. *Proceedings of AISB 2013 Convention. Social Coordination: Principles, Artefacts and Theories*, 2013, pp. 92-100.

⁵⁶² Lankoski, Petri 'Player Character Engagement in Computer Games'. *Games & Culture* 6 (4), 2011, pp. 291 – 311, p. 291.

⁵⁶³ Kabo Ashwell, Sam, 2014.

⁵⁶⁴ Anthropy, Anna and Clark, Naomi, 2011, p.48.

⁵⁶⁵ Flanagan, Mary, 2009, p. 185.

⁵⁶⁶ Brice, Mattie *Death of the Player*, 2013 [Online]. Available at: <http://www.mattiebrice.com/death-of-the-player/> [Accessed 8th August 2018].

⁵⁶⁷ Smith, Ed, 2017.

⁵⁶⁸ Galloway, Alexander, 2006, p.93.

⁵⁶⁹ Ryan, Marie-Laure, 2001.

Represented characters in such works – iconified⁵⁷², 'dumb[ed] down'⁵⁷³, transparent - often demonstrate a clear and 'dissonant'⁵⁷⁴ space between their 'non-actual'⁵⁷⁵ personhood and their reductive representation⁵⁷⁶. The communication between artefact and the experience of that artefact *as a person* – and the resonance of that communication – inevitably suffers in such circumstances.

In the face of such a norm, some works use the ubiquity of these approaches and the 'contemporary standards'⁵⁷⁷ of characterisation as a form of self-reflexivity or metalepsis⁵⁷⁸, 'critiqu[ing or] subvert[ing]... the original function of the appropriated technology'⁵⁷⁹ in order to express particular artistic agendas: a recent example of this applied to characterisation is Jimmy Andrews' and Loren Schmidt's *Realistic Kissing Simulator*⁵⁸⁰, an artwork which stands as a critique of the lacklustre treatment of sexual politics in videogames by the use of unsubtle physical manipulations to lampoon a complex and intimate emotional act. For some, these works are an important

⁵⁷⁰ Bogost, Ian *Proteus: A Trio of Artisanal Game Reviews*, 2013 [Online]. Available at: <http://bogost.com/writing/proteus/> [Accessed: 8th August 2018].

⁵⁷¹ Keogh, Brendan, 2014.

⁵⁷² Majewski, Jakub, 2015, p.2.

⁵⁷³ Roberts, David *et al.* 'Beyond Adversarial: The Case for Game AI as Storytelling'. *Proceedings of DiGRA 2009*. DiGRA, 2009.

⁵⁷⁴ Hocking, Clint *Ludonarrative Dissonance In Bioshock*, 2007 [Online]. Available at: https://clicknothing.typepad.com/click_nothing/2007/10/ludonarrative-d.html [Accessed: 8th August 2018].

⁵⁷⁵ Margolin, Uri, 1987, p. 110.

⁵⁷⁶ Seraphine, Frederic 2016.

⁵⁷⁷ Lindsay, Grace 'Critical Games: Critical Design in Independent Games'. *Proceedings of DiGRA 2014*, 2014 [Online]. Available at: https://www.researchgate.net/publication/267153275_Critical_Games_Critical_Design_in_Independent_Games [Accessed 8th August 2018], p. 5.

⁵⁷⁸ Harpold, Terry 'Screw The Grue: Mediality, Metalepsis, Recapture'. *Game Studies* 7 (1), 2007 [Online]. Available at: <http://gamestudies.org/0701/articles/harpold> [Accessed 8th August 2018].

⁵⁷⁹ Kroos, Christian 'The Art in the Machine'. In: Herath, Damien *et al.*, 2016 pp. 19 – 25, p. 25.

⁵⁸⁰ Andrews Jimmy and Schmidt, Loren *Realistic Kissing Simulator* [Online]. Available at: <http://jimmylands.com/experiments/kissing/> [Accessed 8th August 2018].

avant-garde⁵⁸¹: for others, they are a 'reactionary'⁵⁸² 'reinforcing [of] the... monoculture'⁵⁸³ which ultimately 'devolves into conceptualism'⁵⁸⁴ rather than tackling problems of characterisation directly⁵⁸⁵.

Others have attempted to tackle the formal challenges, risks and expenses of computational representation in a different manner: pursuing resonance of character by devaluing, or discarding, the necessity of computation. Such works focus on the insights of audience response theory⁵⁸⁶⁵⁸⁷ which champion artworks as 'imaginative acts'⁵⁸⁸, 'manifest through experiential effects'⁵⁸⁹, producing works of comp-art and characterisations which do not centre on systemics, but rather the 'surface signs'⁵⁹⁰ of the mediated, 'embedded'⁵⁹¹ mimetic. Such works are more static than procedural, having more in common with 'radio plays'⁵⁹² or novels⁵⁹³, the computation (as in traditional works) offloaded onto the augmentative platforms of their audience's embodied minds, and their faculties of 'projection'⁵⁹⁴, experiential

⁵⁸¹ Schrank, Brian *Avant-Garde Videogames: Playing with Technoculture*. Massachusetts: The MIT Press, 2014.

⁵⁸² Galloway, Alexander, 2006, p.125.

⁵⁸³ McMaster, Michael *Against Introspection: A speculative manifesto*, 2017 [Online]. Available at: <http://michaeljmcmaster.com/writing/Against%20Introspection%20-%20Michael%20McMaster.pdf> [Accessed 8th August 2018].

⁵⁸⁴ Bogost, Ian, 2017.

⁵⁸⁵ Holloway-Attaway, Lissa 'Artgames: Playing with Material Boundaries and Staking Claims' [Online]. Available at: <https://www.diva-portal.org/smash/get/diva2:1068196/FULLTEXT01.pdf> [Accessed: 20th September 2020].

⁵⁸⁶ Sanders, April, 2013.

⁵⁸⁷ Sanders, April, 2017.

⁵⁸⁸ Martin, Gareth Damian *No Man's Sky Is A Theater of Processes*, 2016 [Online]. Available at: <https://killscreen.com/articles/no-mans-sky-theater-processes/> [Accessed 8th August 2018].

⁵⁸⁹ Salen, Katie and Zimmerman, Eric, 2004, p. 323.

⁵⁹⁰ Aarseth, Espen, 1997, p.29.

⁵⁹¹ Wei, Huaxin 'Embedded narrative in game design'. *Proceedings of the International Academic Conference on the Future of Game Design and Technology*, 2010, pp. 247-250.

⁵⁹² Pratt, Charles *In: Klepek, Patrick 'Videogames Don't Have A Choice But To Tell Stories'*, 2017 [Online]. Available at: https://waypoint.vice.com/en_us/article/8qpdmv/video-games-dont-have-a-choice-but-to-tell-stories [Accessed 8th August 2018].

⁵⁹³ Galloway, Alexander, 2014.

⁵⁹⁴ Mateas, Michael 'Expressive AI: Games and Artificial Intelligence'. *Proceedings of Level Up: Digital Games Research Conference*. DGRC:

modelling⁵⁹⁵, 'illusion'⁵⁹⁶, 'interpretative affordances'⁵⁹⁷ and other psychological/physiological abilities⁵⁹⁸⁵⁹⁹. To such artists, these tools are far more powerful than the material technologies provoking them⁶⁰⁰.

Examples of such approaches include the trope of the cutscene⁶⁰¹ in videogames; the use of fixed narrative elements to contextualise emergent, abstract gameplay, as in Mike Bithell's *Thomas Was Alone*⁶⁰²; the use of depopulated environments and objects to explore and embody personhood through 'environmental storytelling'⁶⁰³⁶⁰⁴⁶⁰⁵; the 'illusion of intelligence'⁶⁰⁶⁶⁰⁷ in videogames and robotic art such as that of Edward Ihnatowicz⁶⁰⁸ and Simon Penny⁶⁰⁹; the use of 'negative agency'⁶¹⁰, 'expressive acts'⁶¹¹, the 'reflective

Utrecht, 2003.

⁵⁹⁵ Salen, Katie and Zimmerman, Eric, 2004, p. 323.

⁵⁹⁶ Laurel, Brenda, 1993, p. 35.

⁵⁹⁷ Mateas, Michael, 20021, p. 148.

⁵⁹⁸ Madigan, James, 2016.

⁵⁹⁹ Hodent, Celia 'The Gamer's Brain: The UX of Engagement and Immersion (or Retention)', 2017 [Online]. Available at: <https://www.gdcvault.com/play/1024482/The-Gamer-s-Brain-Part> [Accessed 8th August 2018].

⁶⁰⁰ Pinchbeck, Daniel 'Trigens Can't Swim: Intelligence and Intentionality in First Person Game Worlds' In: *Conference Proceedings of the Philosophy Of Computer Games 2008*. Potsdam: Potsdam University Press, 2008.

⁶⁰¹ Klevjer, Run 'Cut Scenes'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, p. 106.

⁶⁰² Bithell, Mike, 2012.

⁶⁰³ Calleja, Gordon, 2011, p.119.

⁶⁰⁴ Jenkins, Henry, 2006.

⁶⁰⁵ Machidon, Octavian *et al.*, 2016, p. 249.

⁶⁰⁶ Reidl, Mark 'Interactive Narrative: A Novel Application of Artificial Intelligence for Computer Games'. *Proceedings of the Twenty-Sixth AAAI Conference on Artificial Intelligence*: AAAI, 2012, pp. 2160 – 2166 , p. 2160.

⁶⁰⁷ Riedl, Mark, 2012.

⁶⁰⁸ Glynn, Ruairi 'Edward Ihnatowicz – The Senster', 2008 [Online]. Available at: <http://www.interactivearchitecture.org/edward-ihnatowicz-the-senster.html> [Accessed 8th August 2018].

⁶⁰⁹ Penny, Simon *Petit Mal*, 2006 [Online]. Available at: <http://simonpenny.net/works/petitmal.html> [Accessed 8th August 2018].

⁶¹⁰ Kabo Ashwell, Sam, 2014.

⁶¹¹ Galloway, Alexander, 2004, p.2.

choice'⁶¹², the 'illusion of agency'⁶¹³ or choice⁶¹⁴⁶¹⁵ and other 'apparent'⁶¹⁶ emergences which serve to give audiences a sense of computational resonance without practically encoding it. Such an approach questions whether resonant characters in comp-art need to be computational at all: however, as Ryan pointed out nearly two decades ago⁶¹⁷, if such reliance on mimetic rather than systemic engagement is not managed well, relying instead on 'clever but shallow trickery'⁶¹⁸ or 'swindles'⁶¹⁹, it can merely throw into sharper relief the deficiency of the computation beneath.

* * * * *

My critiques above are not designed to be dismissive. All of the works that I have cited above are, on the whole, genuine attempts by talented commercial producers, independent artists and critical theorists alike⁶²⁰⁶²¹ to confront the formal challenges of computational characterisation, and work towards the murky shibboleth, and illusory poster child, of narrative comp-art's 'particular'⁶²² potential: a character that is both computational and resonant.

The qualities of such a character lies somewhere in the balance between Oatley's two forms of computation⁶²³; between comp-art's universal and 'particular' tenets; between the 'surface signs'⁶²⁴ of mimesis and the

⁶¹² Anthropy, Anna and Clark, Naomi, 2011, p. 177.

⁶¹³ Fendt, Matthew William *et al.* 'Achieving The Illusion Of Agency'. In: Oyarzun, David *et al.* (eds.) *Proceedings of the International Conference on Interactive Digital Storytelling*. ICIDS: Spain, 2012, pp. 114 – 125.

⁶¹⁴ Froschauer, Adrian *Clementine will remember all of that: The Illusion of Choice in Telltale Games' The Walking Dead*, 2014 [Online]. Available at: <http://ontologicalgeek.com/clementine-will-remember-all-of-that/> [Accessed 8th August 2018].

⁶¹⁵ Koenitz, Hartmut, 2015, p. 8. 'the possibility of IDN stagecraft'

⁶¹⁶ Tronstad, Ragnhild, 2014, p. 181.

⁶¹⁷ Ryan, Marie-Laure, 2001.

⁶¹⁸ Bringsjord, Selmer, 2001.

⁶¹⁹ Ashwell, Sam Kabo, 2014.

⁶²⁰ Anthropy, Anna and Clark, Naomi, 2014.

⁶²¹ Zimmerman, Eric, 2014.

⁶²² Keogh, Brendan, 2015.cite

⁶²³ Oatley, Keith, 2008.

⁶²⁴ Aarseth, Espen, 1997, p. 29.

'modelling [of] systems'⁶²⁵ as complementary 'sources of meaning'⁶²⁶ and 'means of expression'⁶²⁷. Determining the proper balance or 'blend of human and computer meanings'⁶²⁸ - between 'animism, artistry and AI'⁶²⁹ 'computer logic and human logic'⁶³⁰, 'interpretative' and 'authorial affordance[s]', 'meaning making and machine structure'⁶³¹ – remains both a 'common fantasy' and a 'common nightmare' within comp-art⁶³². Whether commercial or artistic, common or 'radical'⁶³³, such approaches all stand as attempts to reconcile these 'deliciously difficult'⁶³⁴ and 'worthy problem[s]... in desperate need of further examination'⁶³⁵.

⁶²⁵ Bogost, Ian, 2017.

⁶²⁶ Vella, Daniel, 2015.

⁶²⁷ Wardrip-Fruin, Noah, 2009, p. 295.

⁶²⁸ Norman, Donald, 2007.

⁶²⁹ Frude, Neil and Jandric, Petar "'The Intimate Machine" – 30 Years On'. *E-Learning and Digital Media* 12 (3-4), 2015, pp. 410 – 424. Frude and Jandric, 2015

⁶³⁰ Dix, Alan *et al.*, 2004,

⁶³¹ Mateas, Michael, 2001, p. 151.

⁶³² Short, Tanya X. *Writing Modular Characters for System-Driven Games*, 2018 [Online]. Available at: <https://www.gdcvault.com/play/1025017/Writing-Modular-Characters-for-System> [Accessed 8th August 2018].

⁶³³ Galloway, Alexander, 2006, p.125.

⁶³⁴ Zimmerman, Eric, 2014.

⁶³⁵ Bailey, Christine *et al.* 'Believability Through Psychosocial Behaviour: Creating Bots That Are More Engaging and Entertaining'. *In*: Hingston, Peter (eds.) *Believable Bots*. Berlin: Springer, 2012, pp. 29 – 70, p. 29.

"Hollow Forms"

The Autocosmic Methodology & Its Application To Computational Character

Section 2.1: Some Approaches To Overcoming The Challenges Of Computational Character

In order to approach and mediate these central challenges to creating 'resonant' computational characters, my 'critical technical practice'⁶³⁶, and practice-based research⁶³⁷⁶³⁸⁶³⁹ has come to rely on a number of existing methodologies from across the working cultures of the form.

1) Technological approaches to computational characterisation.

knole's development included numerous investigations into the landscape of technologies (whether hardware or software) that could be applied to acts of characterisation. Fully 75% of my study group saw technical improvements as being the most important factor in improving computational characters, including machine learning and neural network

⁶³⁶ Mateas, Michael, 2002, p. ii.

⁶³⁷ Candy, Linda and Edmonds, Ernest 'Practice-Based Research in the Creative Arts: Foundations and Futures from the Front Line'. *Leonardo* 51(1), 2018, pp. 63-69.

⁶³⁸ Koenitz, Hartmut 'Interactive Storytelling Paradigms and Representations: A Humanities-Based Perspective'. *Handbook of Digital Games and Entertainment Technologies*, 2016, pp. 1 – 15.

⁶³⁹ Spence, Jocelyn *et al.* 'Seeing with New Eyes: Design for In-the-Wild Museum Gifting'. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, 2019, pp. 1 – 13, p. 1.

techniques⁶⁴⁰⁶⁴¹⁶⁴²⁶⁴³, natural language processing⁶⁴⁴⁶⁴⁵, affective and biofeedback techniques⁶⁴⁶⁶⁴⁷, innovative input and output devices⁶⁴⁸⁶⁴⁹, new software tools for AI⁶⁵⁰, and academic models of artificial intelligence that are beginning to make in-roads into consumer and artistic spheres⁶⁵¹⁶⁵².

The final iteration of the simulation is based on several overlain considerations of these technological approaches. These considerations include their ease of implementation, their ability to usefully bridge the formal gulf between actual and aesthetic functionality of personhood, and whether the implementation of such technologies in the utopianism of 'techno-determinist' cultures⁶⁵³⁶⁵⁴⁶⁵⁵ are actually evidence of 'technical progress outstrip[ping]

⁶⁴⁰ Penny, Simon, 2016, p.55.

⁶⁴¹ Russell, Stuart and Norvig, Peter, 2009, p. 697

⁶⁴² Tence, Fabien *et al.*, 2010.

⁶⁴³ Harris, Terry and Gittens, Curtis 'Modeling believable agents using a descriptive approach'. *Biologically Inspired Cognitive Architectures* 14 (1), 2015, pp.10 -21.

⁶⁴⁴ Mateas, Michael and Stern, Andrew, 2003.

⁶⁴⁵ Ma, Minhua *et al.* 'Question-Answering Virtual Humans Based on Pre-recorded Testimonies for Holocaust Education'. In: Ma, Minhua *et al.* (eds.) *Serious Games and Edutainment Applications*. London: Springer, 2011., pp.

⁶⁴⁶ Christy, Thomas and Kuncheva, Ludmila I. 'Technological Advancements in Affective Gaming: A Historical Survey'. *GSTF International Journal on Computing* 3 (4), 2014, pp. 32 – 42. Christy and Kucheva 2014

⁶⁴⁷ Champion, Erik and Dekker, Andrew 'Biofeedback and Virtual Environments'. *International Journal of Architectural Computing* 9 (4), 2011, pp. 377 – 396.

⁶⁴⁸ Murata, Tomoya and Shin, Jungpil 'Hand Gesture and Character Recognition Based on Kinect Sensor'. *International Journal of Distributed Sensor Networks* 2014

⁶⁴⁹ *Magic Leap*, 2018 [Online]. Available at: <https://www.magicleap.com/> [Accessed 8th August 2018].

⁶⁵⁰ *SpiritAI*, 2018 [Online]. Available at: <https://spiritai.com/> [Accessed 8th August 2018].

⁶⁵¹ Yannakakis, Georgios and Togelius, Julian 'A Panorama of Artificial and Computational Intelligence In Games'. *IEEE Transactions on Computational Intelligence and AI in Games* 7 (4), 2015, pp. 317 – 335.

⁶⁵² Togelius, Julian *Why academics and game industry don't collaborate on AI, and how we could improve the situation*, 2014 [Online]. Available at: <http://togelius.blogspot.co.uk/2014/10/why-academics-and-game-industry-dont.html> [Accessed: 8th August 2018].

⁶⁵³ Keogh, Brendan *2016-08-17*, 2016 [Online]. Available at: <http://ungaming.tumblr.com/post/149102772520/i-tweeted-a-link-to-this-article-on-the-bus-about> [Accessed 8th August 2018]

aesthetic progress'⁶⁵⁶, damaging the 'visionary impulse'⁶⁵⁷ that must guide narrative art, and standing as evidence of an immature practice seeking 'scientific curiosity [rather than] creative enterprise'⁶⁵⁸⁶⁵⁹.

Through such study and critical thinking, I came to use a palette of tools and technologies which provided a proper mix of 'resonant' experimentation, theoretical grounding, artistic expressivity and suitability to my capabilities as a programmer. *knole* does not use any revolutionary technologies or softwares: it was built and runs with the now-venerable Gamemaker Studio 1.4 IDE⁶⁶⁰, mostly used for simple 2D platformer games; even its suitability in that regard, in competition with other, more-advanced platforms, is often debated⁶⁶¹⁶⁶²⁶⁶³⁶⁶⁴. There are certainly few (if any) developers using it to build an AI-driven installation piece. My reasons for using this software were eminently practical: I have used the tool extensively in past

⁶⁵⁴ Hancock, Michael *Games with Words: Textual Representation in the Wake of Graphical Realism in Videogames*. [PhD Thesis]. Canada: University of Waterloo, 2016.

⁶⁵⁵ Rahaman, Hafizur and Kiang, Tan Beng, 2017.

⁶⁵⁶ Bogost, Ian, *The Portrait of the Artist as a Game Studio*, 2012, [Online]. Available at: <https://www.theatlantic.com/technology/archive/2012/03/a-portrait-of-the-artist-as-a-game-studio/254494/> [Accessed: 8th August 2018].

⁶⁵⁷ Mery, David 'Hedging your bets', *EXE Magazine*, August 1999 [Online]. Available at: <https://gizmonaut.net/soapflakes/EXE-199908.html> [Accessed 20th June 2020]. Laurel, Brenda, 1993,

⁶⁵⁸ Mullaney, Brett, 2013.

⁶⁵⁹ Machidon, Octavaian *et al.*, 2016.

⁶⁶⁰ YoYo Games *Gamemaker*, 2018 [Online]. Available at: <https://www.yoyogames.com/gamemaker> [Accessed 8th August, 2018].

⁶⁶¹ TeeGee *Professional developer's look at GameMaker*, 2012 [Online]. Available at: <http://moacube.com/blog/professional-developers-look-at-gamemaker/> [Accessed 8th August 2018].

⁶⁶² Nox *GameMaker is an Abomination*, 2014 [Online]. Available at: http://purplepwny.com/blog/gamemaker_is_an_abomination.html [Accessed 8th August 2018].

⁶⁶³ Lastninja2 *Unity vs. Game Maker for 2D games discussion*, 2016 [Online]. Available at: https://www.reddit.com/r/gamedev/comments/5eaxgv/unity_vs_game_maker_for_2d_games_discussion/ [Accessed 8th August 2018].

⁶⁶⁴ Batchelor, James *YoYo Games: "Our competition with Unity is all in people's heads"*, 2017 [Online]. Available at: <https://www.gamesindustry.biz/articles/2017-03-08-yoyo-games-our-competition-with-unity-is-all-in-peoples-heads> [Accessed 8th August 2018].

work, and committing to learning a more advanced tool like Unity⁶⁶⁵, or implementing an advanced AI suite as part of my development, would have diverted my efforts from creative to technical progress for much of my PhD, with little bearing on my evolving theories. While it may not (in retrospect) have been the most appropriate tool for developing a computational character from scratch, it became an opportunity to learn from, iterate and implement my theoretical work without the more restrictive, pre-emptive affordances of other, more ‘appropriate’ software.

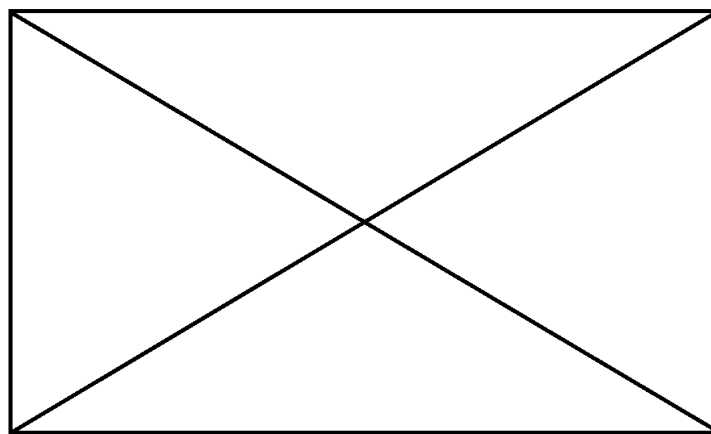


Figure 4: A view of the Gamemaker project for the simulation, with several of the scripts visible⁶⁶⁶.

Despite the simulation being implemented little differently from the simple 'model-based reflex agents'⁶⁶⁷ that have dominated academic and artistic approaches to computational character for decades⁶⁶⁸ (see Chapter 3.5), my use of this simple toolset allowed me to implement and experiment with numerous existing architectures, both from academia and industry, and build my own tailored approach upon them. Thus the simulation is heavily based on Joanna Bryson's Behaviour-Oriented Design framework⁶⁶⁹⁶⁷⁰, a 12-year-old AI

⁶⁶⁵ Unity Technologies *Unity*, 2019 [Online]. Available at: <https://unity3d.com/> [Accessed 8th August 2018].

⁶⁶⁶ See Appendix 9, Figure 18.

⁶⁶⁷ Russell, Stuart and Norvig, Peter, 2009, p. 47

⁶⁶⁸ Millington, Ian and Funge, John, 2009.

⁶⁶⁹ Bryson, Joanna J. 'The Behavior-Oriented Design of Modular Agent Intelligence'. In: Kowalszyk, R. et al. (eds.) *Agent Technologies, Infrastructures, Tools, and Applications for e-Services*. London: Springer, 2003, pp. 61–76.

⁶⁷⁰ Partington, Samuel and Bryson, Joanna 'The Behavior Oriented Design of an Unreal Tournament Character'. In: Panayiotopoulos, T. Et al. (eds.) *The Fifth International Working Conference on Intelligent Virtual Agents*. 2005, pp. 466- 477.

architecture (derived from yet-older models^{671,672}) which combines systemic agency with the mechanics of audience engagement, and is already very popular in games development⁶⁷³. I modified Bryson's original specification slightly by incorporating elements from other work, both new and old, on emotion^{674,675,676,677,678,679,680}, attention⁶⁸¹, utterance^{682,683}, personality^{684,685,686,687,688} and other elements of agent-based systemics⁶⁸⁹ (see Chapter 3). I also experimented with several other technologies, including high-definition

⁶⁷¹ Brooks, Rodney 'Intelligence Without Representation'. *Artificial Intelligence* 47 (1-3), 1991, pp. 139 – 159.

⁶⁷² Connell, Jonathan 'A Colony Architecture for an Artificial Creature' [Technical Report]. Boston: MIT, 1989.

⁶⁷³ Armstrong, Andrew *The Behavior-Oriented Design of Modular Agent Intelligence*, 2009 [Online]. Available at: <https://aigamedev.com/open/reviews/behavior-oriented-design-modular-agent/> [Accessed 8th August 2018].

⁶⁷⁴ Goncalves, Carlos Pedro 'Emotional Responses in Artificial Agent-Based Systems: Reflexivity and Adaptation in Artificial Life' [PhD Dissertation]: Instituto Superior de Ciências Sociais e Políticas, 2014.

⁶⁷⁵ Ruttkay, Zsolt 'Constraint-Based Facial Animation'. *Constraints* 6 (1), 2001, pp.85 – 113.

⁶⁷⁶ Bryson, Joanna J. and Tanguy, Emmanuel 'Simplifying the Design of Human-Like Behaviour: Emotions as Durative Dynamic State for Action Selection'. *International Journal of Synthetic Emotions* 1 (1), 2010, pp. 1 – 21.

⁶⁷⁷ Novikova, Jekaterina *et al.* 'The role of emotions in inter-action selection'. *Interaction Studies* 15 (2), 2014.

⁶⁷⁸ Novikova, Jekaterina and Watts, Leon 'A Design Model of Emotional Body Expressions in Non-humanoid Robots'. *Proceedings of HAI 2014*. Japan: HAI, 2014.

⁶⁷⁹ Dragoni, Aldo Franco 'A MODEL FOR BELIEF REVISION IN A MULTI-AGENT ENVIRONMENT'. *ACM SIGOIS Bulletin* 13 (3), 1992, p. 9.

⁶⁸⁰ See Appendix #9, Figure 17a – 17e.

⁶⁸¹ Yu, Yuanlong *et al.* 'An Object-Based Visual Attention Model for Robotic Applications'. *IEEE Transactions On Systems, Man and Cybernetics* 40 (5), 2010, pp. 1398 – 1412.

⁶⁸² Read, Robin and Belpaeme, Tony 'People Interpret Robotic Non-linguistic Utterances Categorically'. *International Journal of Social Robotics* 8 (1), 2016, pp. 31 – 50.

⁶⁸³ See Appendix #9, Figure 12.

⁶⁸⁴ Pan, Xueni *et al.* 'Expressing Complex Mental States Through Facial Expressions'. *Proceedings of the ACII 2007*. Berlin: ACII, 2007, pp. 745 – 746.

⁶⁸⁵ Evans, Richard 'Representing Personality Traits as Conditionals'. *Proc. Artif. Intell. Simul. Behav.*, 2008, pp. 64-82.

⁶⁸⁶ Barriga, Silviano Diaz *et al.* 'Emotional Attention in Autonomous Agents: a Biologically Inspired Model'. *Proceedings of the 2012 International*

webcams, touchscreens and microphones linked to cloud-based machine learning APIs to facilitate voice, sound, touch, face movement and emotion recognition as part of a 'mixed-reality' methodology (see Item 4 below).

2) Eschewing sophisticated visual representation.

knole is not a demonstration of the 'increasingly visceral representational technologies'⁶⁹⁰, whether in pursuit of graphical realism⁶⁹¹⁶⁹² or stylised visual aesthetics⁶⁹³, that continue to define computational character, particularly in videogames, even outside of the 'AAA production space'⁶⁹⁴. The visual design of the simulation does have some relevance to its narrative 'resonance' – a layered and textured 2D effect that is designed to reproduce the effect of paper⁶⁹⁵, as a commentary on how contemporary media doubted the veracity of Anne's 'sprit' and its practices. There was also the pragmatics of development time, my own artistic ability, and the lack of a budget for working collaboratively with a visual artist to consider. However, the 'Beest's' visual simplicity also serves as a stance on the ever-increasing focus, within comp-art, on the 'uncritical uptake'⁶⁹⁶ of representational fidelity. Such fidelities are often at the expense of the wider variety of experiences and representations important to comp-art, particularly that of the systemic⁶⁹⁷⁶⁹⁸⁶⁹⁹, and are said to

Conference on Cyberworlds. Darmstadt, 2012.

⁶⁸⁷ Bryson, Joanna and McGonigle, Brendan 'Agent architecture as object oriented design'. In: Singh, Munindar *et al.* (eds.) *Intelligent Agents IV: Agent Theories, Architectures, and Languages*. London: Springer, 1997

⁶⁸⁸ Radoslaw, Niewiadomski *et al.* 'Modelling multimodal expression of emotion in a virtual agent' *Philosophical transactions of the Royal Society of London. Series B, Biological sciences* 364(1535), 2009, pp.3539-3548.

⁶⁸⁹ See Appendix #9, Figure 19.

⁶⁹⁰ Murray, Janet, 1997, p. 28.

⁶⁹¹ Grau, Oliver, 2003.

⁶⁹² Bogost, Ian, 2015.

⁶⁹³ Thibault, Mattia *Post-digital games: The Influence of Nostalgia in Indie Games' Graphic Regimes'*. *Gamevironments* 1 (4), 2016, pp. 1 – 24.

⁶⁹⁴ McMaster, Michael *On Formalism*, 2014 [Online]. Available at: <https://medium.com/@michaeljmcmaster/on-formalism-a1b4e95bb435> [Accessed 8th August 2018].

⁶⁹⁵ See Appendix #9, Figure 20.

⁶⁹⁶ Keogh, Brendan, 2014.

⁶⁹⁷ Klevjer, Rune 'Graphical Realism'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 241 – 245.

⁶⁹⁸ Thon, Jan-Noel, 2014.

⁶⁹⁹ Calleja, Gordon, 2011, p. 119.

damage those resonances through over-ambition or unfavourable comparison⁷⁰⁰⁷⁰¹⁷⁰²⁷⁰³⁷⁰⁴⁷⁰⁵. *knole* tries to focus its audience's attention on its systemic resonances of dynamic agency, and demonstrate their importance over any supposed visual realism.

3) Smaller or more considered scales and 'focalisations'⁷⁰⁶ of narrative experience.

knole takes as its computational focus a single character, in face-to-face confrontation with the audience, drawing on trends of 'vignette'⁷⁰⁷⁷⁰⁸ works which seek to 'ratchet the scenario down'⁷⁰⁹ from vast, open-world affairs with much breadth but little depth⁷¹⁰⁷¹¹ to focus artistic efforts on the meaningful and deeper portrayal of interactions between small groups of characters in bounded narrative spaces⁷¹²⁷¹³. Illustrative examples of this include the

⁷⁰⁰ Mori, Masahiro *et al.* 'The Uncanny Valley [From the Field]' *IEEE Robotics & Automation Magazine* 19 (2), 2012, pp. 98 – 100.

⁷⁰¹ Lay, Stephanie *et al.* 'Circling Around the Uncanny Valley: Design Principle for Research Into the Relation Between Human Likeness and Eeriness'. *I-Perception* 7 (6), 2016, pp. 1 – 11.

⁷⁰² Schneider, Edward *et al.* *Exploring the Uncanny Valley with Japanese Video Game Characters*. Proceedings of the DiGRA 2007 Conference. DiGRA, 2007.

⁷⁰³ Ryan, Marie-Laure, 2001.

⁷⁰⁴ Hancock, Michael, 2016.

⁷⁰⁵ Youngblood, G. Michael *et al.* 'Embedding Information into Game Worlds to Improve Interactive Intelligence'. In: Gonzalez-Calero, Pedro Antonio and Gomez-Martin, Marco Antonio (eds.), 2011, p. 31 – 53.

⁷⁰⁶ Genette, Gérard, 1972.

⁷⁰⁷ Boudreault, Simon-Albert 'Small Games, Big Feels: Storytelling with Vignettes' *Game Developer Conference 2017*, 2017 [Online]. Available at: <https://www.gdcvault.com/play/1024430/Small-Games-Big-Feels-Storytelling> [Accessed 8th August 2018].

⁷⁰⁸ Koentiz, Hartmut, 2015, p. 54.

⁷⁰⁹ Short, Emily *Making NPC Interaction More Meaningful | Dark Pixel Podcast: Ep. 101 (Ft. Emily Short)*, 2018 [Online]. Available at: https://www.youtube.com/watch?v=508QS_5oPUs [Accessed 8th August 2018].

⁷¹⁰ Koster, Raph 2018.

⁷¹¹ Youngblood, G. Michael *et al.*, 2011, p. 31.

⁷¹² Machidon, Octavian *et al.*, 2016, p. 259 Machidon quote on virtual hum

⁷¹³ Madigan, James, 2015, p. 154.

previously-mentioned *Facade*⁷¹⁴, Jeroen Stout's upcoming 'interactive theater' work *Cheongsam*⁷¹⁵, and Emily Short's *Galatea*⁷¹⁶⁷¹⁷.

4) The 'mixed reality'⁷¹⁸ dynamic.

On a pragmatic, as well as a narrative level (see Chapter 3), Project knole was an experiment in using 'mixed reality' techniques and the 'post-PC... bodily turn'⁷¹⁹, well-established across comp-art⁷²⁰⁷²¹, to help drive my characters' 'resonance'. I did this by turning a physical space into a 'mixed experiential space'⁷²²; using the modalities of that space in conjunction, or 'hybridity'⁷²³, with the 'virtual world'⁷²⁴⁷²⁵⁷²⁶⁷²⁷⁷²⁸; and leading the audience to a

⁷¹⁴ Mateas, Michael and Stern, Andrew, 2005.

⁷¹⁵ Stout, Jeroen *Cheongsam*, 2018 [Online]. Available at: <http://stoutgames.com/:cheongsam> [Accessed 8th August 2018].

⁷¹⁶ Short, Emily *Galatea* [PC Software], 2000, [Online]. Available at: <https://ifdb.tads.org/viewgame?id=urxrv27t7qtu52lb> [Accessed 8th August 2018].

⁷¹⁷ Dias, Bruno. 2016.

⁷¹⁸ Benford, Steve and Giannachi, Gabriella, 2011.

⁷¹⁹ Knoller, Noam and Ben-Arie, Udi 'The Holodeck is all Around Us – Interface Dispositifs in Interactive Digital Storytelling' *In: Koenitz, Harmut et al. (eds.)*, 2015, pp. 51 – 66, p. 51.

⁷²⁰ Keogh, Brendan *A Play of Bodies: How We Percieve Videogames*. Massachusetts: The MIT Press, 2018.

⁷²¹ Spierling, Ulrike and Iurgel, Ido "'Just Talking about Art" - Creating Virtual Storytelling Experiences in Mixed Reality'. *Proceedings of ICVS 2003*, 2003, pp. 179 – 188.

⁷²² Doyle, Denise 'Immersive storytelling in mixed reality environments'. *Proceedings of the 23rd International Conference on Virtual System and Multimedia (VSMM)*. Dublin: IEEE, pp. 1-4.

⁷²³ Keogh, Brendan *A Play of Bodies: How We Perceive Videogames*. Massachusetts: The MIT Press, 2018, p. 54.

⁷²⁴ Benford, Steve and Giannachi, Gabriella 'Interaction As Performance'. *IXI* 19 (3), 2012, pp. 38 – 43.

⁷²⁵ Dieck, M.C. and Yung, T.H. 'Value of Augmented Reality at Cultural Heritage Sites: A Stakeholder Approach'. *Journal of Destination Marketing and Management* 6 (2), 2017, pp.110 – 117.

⁷²⁶ Green, Jonathan *et al.* 'Camping in the digital wilderness: tents and flashlights as interfaces to virtual worlds'. *CHI'02 Extended Abstracts on Human Factors in Computing Systems*. ACM, 2002.

⁷²⁷ Hall, Tony *et al.* 'The Visitor as Virtual Archaeologist: Explorations in Mixed Reality Technology to Enhance Educational and Social Interaction in the Museum'. *In: Proceedings of the 2001 conference on Virtual reality, archeology, and cultural heritage*. ACM, 2001, pp. 91-96.

⁷²⁸ Benford, Steve *et al.* 'Unearthing Virtual History: Using Diverse Interfaces to Reveal Hidden Virtual Worlds'. *In: Abowd, Gregory et al. (eds.)*

narrative, character-led experience through a wider range of input devices and physical props augmented by their phenomenological experience of their own bodies in space⁷²⁹.

The Project uses these natural faculties of enactment, 'body centred interaction'⁷³⁰, sensory stimulation, proxemics, posture, embodied environmental factors, 'physical bodies and how they are represented'⁷³¹ - in short, active presence, the 'user's sense of *being there*'⁷³² - to provide its audience with multiple 'resonant' pathways, or 'trajectories'⁷³³, into, through and out of their encounter. It co-opts those sensory and embodied modalities through which persons are most typically encountered, and thus facilitates identification, transportation, 'social involvement'⁷³⁴, immediacy, intimacy and metaleptical, thematic consideration precisely through the resonant power of those modalities. I explore more-specific uses of the mixed reality dynamic in Chapter 3.7 of this thesis.

UbiComp 2001: Ubiquitous Computing. Georgia: Springer, 2001, pp. 225 – 231.

⁷²⁹ Keogh, Brendan, 2018, p. 67.

⁷³⁰ Slater, Mel and Usoh, Martin 'Body Centred Interaction in Immersive Virtual Environments'. *Artificial life and virtual reality* 1 (1), 1994, pp. 125-148.

⁷³¹ Calvi, Licia and Spence, Jocelyn 'Engaging Audiences in Museums in a Performance Way'. *Proceedings of the Digital Research in the Humanities and Arts Conference*, 2014, pp. 131 – 145, p. 134.

⁷³² Gilkey, Robert H. 'Creating Auditory Presence'. In: Smith, Michael J. *et al.* (eds.) *Usability Evaluation and Interface Design: Cognitive Engineering, Intelligent Agents and Virtual Reality*. New Jersey: Lawrence Erlbaum, 2001, pp. 609 – 613, p. 609.

⁷³³ Benford, Steve and Giannachi, Gabriella, 2011.

⁷³⁴ Calleja, Gordon, 2011, p. 38.

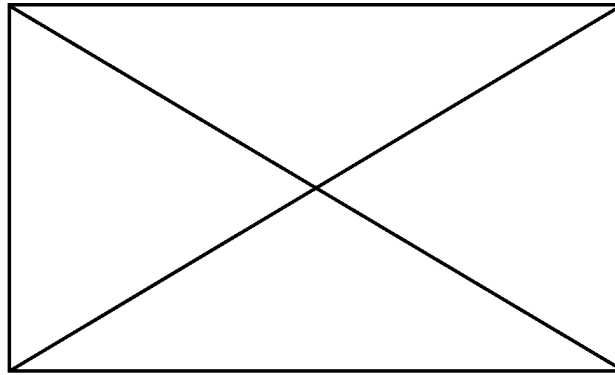


Figure 5: Some of the technologies, spatial devices and physical sets used to facilitate the installation's 'mixed reality' dynamic. They include multiple cameras, a microphone, a physical representation of the 'Beest's' containing 'fisure', and a large touchscreen⁷³⁵.

5) Systemic Approaches To Computational Design.

knole is particularly indebted to the trend of 'systemic' design⁷³⁶ and 'cybernetic thinking'⁷³⁷ within narrative comp-art, particularly in videogames practice: a practice which draws on concepts from information theory, complexity theory and computer science more broadly⁷³⁸ to attempt the building of procedural systems, with varying levels of depth, emergence⁷³⁹ and autonomy⁷⁴⁰, to systemically represent meaningful functionalities of narrative worlds and their existents⁷⁴¹. Koenitz calls such works 'system narratives', and sites them within the broader context of computational 'system art': seeing them as central to the pursuit of meaningful interactive digital narrative⁷⁴². While the ludic structures of many videogames continue to be the most

⁷³⁵ See Appendix 9, Figure 19.

⁷³⁶ Sellers, Mike *A Systemic Approach To Systemic Design*, 2015 [Online]. Available at: <https://www.youtube.com/watch?v=HR8EmTyJz9A> [Accessed 8th August 2018].

⁷³⁷ Bown, Oliver *et al.* 'The Machine As Autonomous Performer'. In: Candy, Linda and Ferguson, Sam (eds.) 2014, p. 76.

⁷³⁸ Goldstein, Jeffrey 'Emergence as a Construct: History and Issues' *Emergence* 1 (1), 1999, pp. 49 – 72.

⁷³⁹ Louchart, Sandy and Aylett, Ruth 'Narrative theory and emergent interactive narrative'. *Int. J. Continuing Engineering Education and Lifelong Learning* 14 (6), 2004, pp. 506 – 519. *et al.*

⁷⁴⁰ Mateas, Michael and Stern, Andrew, 2003.

⁷⁴¹ Koenitz, Hartmut *et al.* 'Introduction: Beyond the Holodeck: A Speculative Perspective on Future Practices'. In: Koenitz, Hartmut *et al.* (eds.), 2015, pp. 151 – 158, p. 154.

⁷⁴² Koenitz, Hartmut, 2016, p.52.

popular way of marrying systemic structures and narrative engagement, many works and authors attempt to look beyond this limited purview to other 'machinic structures'⁷⁴³.

Such approaches can be seen in the high school social simulator *Prom Week*⁷⁴⁴; in Ian Cheng's simulation work⁷⁴⁵; in the 'fantasy world simulator [and] storytelling engine'⁷⁴⁶ *Dwarf Fortress*; in Emily Short's continuing work on 'tighten[ing] the world-plot interface' through systemic design of conversations, dramatic scenarios and social relationships⁷⁴⁷. Even in the consumer space, ambitious works such as *Alien: Isolation*⁷⁴⁸, *Middle Earth: Shadows of War*⁷⁴⁹ and *The Last Guardian*⁷⁵⁰ have been praised for their focus on strong character representation through complex, simulative systems, produced using authored, innovative application of 'tried and tested' approaches rather than technical wizardry⁷⁵¹. These works, and others, have served as important touchstones for *knole*, particularly those which take 'character-first', agency-led approaches to computational narrative. Like them, *knole* has sought, at its heart, to focus on the creation of narrative engagement with character through strong, complex, modular systems, governing the 'Beest's' emotions, behaviours, personality and memory⁷⁵², to

⁷⁴³ Calleja, Gordon, 2011, p. 6.

⁷⁴⁴ UCSC *Prom Week*, 2012 [Online]. Available at: <https://promweek.soe.ucsc.edu/play/> [Accessed 8th August 2018].

⁷⁴⁵ Cheng, Ian, 2018.

⁷⁴⁶ Adams, Tarn *In: Fenlon, Wes Dwarf Fortress creator Tarn Adams talks about simulating the most complex magic system ever*, 2017 [Online]. Available at: <https://www.pcgamer.com/uk/dwarf-fortress-creator-tarn-adams-talks-about-simulating-the-most-complex-magic-system-ever/> [Accessed 8th August 2018].

⁷⁴⁷ Short, Emily *Tightening the World-Plot Interface: or, Why I Am Obsessed With Conversation Models*, 2015 [Online]. Available at: https://www.gamasutra.com/blogs/EmilyShort/20150609/245530/Tightening_the_WorldPlot_Interface_or_Why_I_Am_Obsessed_With_Conversation_Models.php [Accessed 8th August 2018].

⁷⁴⁸ Creative Assembly *Alien: Isolation* [PC Software]. UK: Sega, 2014.

⁷⁴⁹ Monolith Productions *Middle Earth: Shadows of War* [PC Software]. US: Warner Bros. Interactive, 2017.

⁷⁵⁰ SIE Japan Studio *The Last Guardian* [PS4 Software]. Japan: Sony Interactive Entertainment, 2016.

⁷⁵¹ Thompson, Tommy *The Perfect Organism | The AI of Alien: Isolation*, 2016 [Online]. Available at: <https://www.youtube.com/watch?v=Nt1XmiDwxhY> [Accessed 8th August 2018].

⁷⁵² See Appendix #9, Figure 19.

produce emergent behaviours and reactions to audience interaction and other inputs: crafting a subtle, systemic representation of narratively significant personhood.

* * * * *

While these existing methodologies have provided me with robust starting points for tackling the problems of computational character, as I perceive them, my work on `knole` has been centred on another methodology entirely. In the next section, I will outline this methodology, which I term the ‘autocosmic’, as a stance which looks beyond the ‘particular’ qualities of computational art, or even those of fictional characters in *any* form of art, to a broader, more interdisciplinary consideration of what we perceive a ‘person’ to be — fictional or not. It is in this reconsideration that new approaches to the design of computational character reveal themselves.

Section 2.2: The Autocosmic Methodology

The autocosmic methodology has its roots in the ‘post-classical’⁷⁵³ turn in narratology and many of its associated disciplines, explored in the introduction of this thesis. In its exemplars, such as audience response theory, the significances of artistic production are not centred in the form of the work, but in that form’s engagement with the constructive, augmentative imaginations of the audience; it is from this paradigm that I derive my evaluative definition of ‘resonance’, and my definition of a character as a perceived person rather than a pure textual construct.

Of course, this focus on the artefact’s effect on the imagination is not a new development in aesthetic theory. Since Plato and Aristotle’s first formalisations⁷⁵⁴⁷⁵⁵, this ‘imaginative activation’⁷⁵⁶, as a ‘constructive... act’⁷⁵⁷ has been extensively explored. In more recent scholarship, numerous theories have approached this topic with academic rigour, exploring how audiences become ‘immersed’⁷⁵⁸⁷⁵⁹⁷⁶⁰ or ‘absorbed’⁷⁶¹ or ‘transported’ or ‘involved’⁷⁶² in the lives of fictional characters; how they ‘re-center’⁷⁶³ themselves, personally, within the perspectives of fictional others; how they empathise with, and are affected by, the lives of people who were never alive, and who are barely

⁷⁵³ Mani, Inderjeet, 2013.

⁷⁵⁴ Plato, Benjamin Jowett (trans.) *Ion: The Internet Classics Archive*, 2009 [Online]. Available at: <http://classics.mit.edu/Plato/ion.html> [Accessed: 18th August 2018].

⁷⁵⁵ Aristotle, 1996.

⁷⁵⁶ Wolf, Werner, 2011, p.9.

⁷⁵⁷ Oatley, Keith 1999.

⁷⁵⁸ Ryan, Marie-Laure *Possible Worlds, Artificial Intelligence and Narrative Theory*. Bloomington: U of Indiana P, 1991.

⁷⁵⁹ Schaeffer, Jean-Marie. *Pourquoi la fiction?* Paris: Seuil, 1999.

⁷⁶⁰ Ryan, Marie-Laure *Narrative As Virtual Reality II: Revisiting Immersion and Interactivity in Literature and Electronic Media*. Baltimore: John Hopkins University Press, 2016.

⁷⁶¹ Cohen, Jonathan 'Defining Identification: A Theoretical Look at the Identification of Audiences With Media Characters' *Mass Communication and Society* 4 (3), 2001, pp.245-264, p.245.

⁷⁶² Green, Melanie *et al.* 'Understanding Media Enjoyment: The Role of Transportation Into Narrative Worlds'. *Communication Theory* 4 (3), 2004, pp.311-327.

⁷⁶³ Ryan, Marie-Laure, 1991.

represented before them by words on a page, code on the screen or a collection of brushstrokes on a canvas⁷⁶⁴.

The *fact* of the imagination is, in such discourses, rarely debated: however, there often exists a variety of approaches to the *nature* of those imaginings; whether or not the mental simulation of fictive events, and persons, is *typally different* from the other purviews of the imagination; the 'related states in real life'⁷⁶⁵ such as counterfactual and hypothetical thinking, 'conceptual and perceptual errors', religious and superstitious experiences, the mental representation of real social relationships⁷⁶⁶, 'illusory and hallucinatory phenomena'⁷⁶⁷ and the 'vast dynamic world of impulse and dream'⁷⁶⁸ which is the preserve of unaestheticised mental life.

* * * * *

The traditional view, in evidence across many different artforms⁷⁶⁹⁷⁷⁰⁷⁷¹⁷⁷² (including comp-art⁷⁷³), bifurcates the human imagination

⁷⁶⁴ Margolin, Uri, 1990.

⁷⁶⁵ Ibid.

⁷⁶⁶ Wolf, Werner, 2014.

⁷⁶⁷ Sagan, Carl *The Demon-Haunted World: Science as a Candle in the Dark*. London: Random House, 2011.

⁷⁶⁸ Jones, Robert Edmond. *The Dramatic Imagination: Reflections and Speculations on the Art of Theatre*. New York: Routledge, 2004, p. 1.

⁷⁶⁹ Pochat, Gotz 'Aesthetic Illusion and the Breaking of Illusion in Painting (Fourteenth to Twentieth Centuries)'. In: Wolf, Werner *et al.* (eds.) *Immersion and Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

⁷⁷⁰ Cammack, Jocelyn 'Aesthetic Illusion and the Breaking of Illusion in Ambiguous Film Sequences'. In: Wolf, Werner *et al.* (eds.) *Immersion and Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

⁷⁷¹ Bieger, Laura 'Architectures of Immersion: The Material Fictions of the 'New' Las Vegas'. In: Wolf, Werner *et al.* (eds.) *Immersion and Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

⁷⁷² Bernhart, Walter 'Aesthetic Illusion in Instrumental Music?'. In: Wolf, Werner *et al.* (eds.) *Immersion and Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

⁷⁷³ Wessely, Christian 'Aesthetic Illusion in Browser-Based Multiplayer Online Games'. In: Wolf, Werner *et al.* (eds.) *Immersion and Distance: Aesthetic Illusion in Literature and Other Media*. Amsterdam: Rodopi, 2013.

thus, framing audience's responses to fictive worlds as 'illusionist'⁷⁷⁴; that is, as 'aesthetic illusions'⁷⁷⁵. These are 'basically pleasurable mental state[s]'⁷⁷⁶, in which audiences, during the act of reception, 'experience the [storyworld] in a way similar... to real life'.⁷⁷⁷ Often, they can be extremely immersive experiences, with a high degree of verisimilitude⁷⁷⁸ as regards similar, real-life scenarios⁷⁷⁹⁷⁸⁰; sometimes, the line between real and fictional can even be 'temporarily overwhelmed'⁷⁸¹. However, it is theorised that audiences always maintain a 'latent'⁷⁸² or 'aesthetic' distance⁷⁸³, aware that what they are viewing is mimetic - a representation of reality only - and parse such experiences with typically different mental apparatus. This has been called, variously, a 'willing suspension of disbelief'⁷⁸⁴, a 'reception contract'⁷⁸⁵⁷⁸⁶⁷⁸⁷⁷⁸⁸, a 'prospective orientation'⁷⁸⁹ or, simply, 'pretence'⁷⁹⁰. Such an 'orientation' is a vital demarcation, in the human mind, between real and fictional, fantasy and reality; it ensures that audiences will never 'give way... to the[ir] fantasies'⁷⁹¹, and instead use the received artwork as a source of entertainment or

⁷⁷⁴ Wolf, Werner, 2004, p.326.

⁷⁷⁵ Gombrich, Ernst H. *Art And Illusion*. New Jersey: Princeton UP, 1960.

⁷⁷⁶ Wolf, Werner 2014.

⁷⁷⁷ Ibid.

⁷⁷⁸ Bullough, Edward 'Psychical Distance' As A Factor In Art And An Aesthetic Principle'. *Psychology* 5 (2), 1912, pp. 87 – 118.

⁷⁷⁹ Wolf, Werner, 2014.

⁷⁸⁰ Khandaker-Kokokoris, Mitu 'An empirica exploration of aesthetic distance through mimetic interface design in videogames'. [PhD Thesis]. University of Portsmouth, 2015.

⁷⁸¹ Grau, Oliver *Virtual Art: From Illusion To Immersion*. London: The MIT Press, 2003, p. 17.

⁷⁸² Wolf, Werner, 2004, p. 328.

⁷⁸³ Wolf, Werner, 2014.

⁷⁸⁴ Coleridge, Samuel Taylor, Leask, Nigel (eds.) *Biographia Literaria*. London: J.M. Dent, 1997.

⁷⁸⁵ Wolf, Werner, 2014.

⁷⁸⁶ Oatley, Keith 'A taxonomy of the emotions of literary response and a theory of identification in fictional narrative'. *Poetics* 23 (1), 1994, pp. 53-74.

⁷⁸⁷ Gehlen, A *Zur Soziologie und Asthetik der modernen Malerei*. Frankfurt: Athenaur, 1960.

⁷⁸⁸ Gerrig, Richard J. *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. New Haven: Yale UP, 1993.

⁷⁸⁹ Wolf, Werner, 2014.

⁷⁹⁰ Hepola, Alison Jill 'The Reality of Fictional Characters and the Cognitive Value of Literature: Some Surprising Insights from Philosophy' *Expositions* 8 (2), 2014, pp.79-89, p. 80.

⁷⁹¹ Childs Peter and Fowler, Roger, *The Routledge Dictionary of Literary Terms*. New York: Routledge, 2006.

instruction, rather than a 'real' scenario to be dealt with using all their embodied faculties. A work's artifice is also the means by which it is effectively judged; that is, our knowledge of its artifice signals the criteria by which it can be evaluated as a *made thing*, rather than an experience that has arisen naturally⁷⁹².

Traditionally, artists attempting to develop works that engage with, and provoke, such 'aesthetic illusions'⁷⁹³ have needed to develop work according to their basic precepts. Their role is to use the processes, forms and techniques of artifice – of aestheticisation – to set and curate the 'reception contract'⁷⁹⁴ which balances imaginative 'immersion' and 'healthy', 'metareferential'⁷⁹⁵ detachment. They must 'defamiliarise' and 'make strange'⁷⁹⁶ the represented world by relying on conventions of artifice, courting their audience's 'culturally acquired awareness of the difference between representation and reality'⁷⁹⁷. They must construct a bounded, and contingent, form of personhood, drawing on those formal structures in which audiences are literate; preserving the 'real/fictional dichotomy'⁷⁹⁸ by using an audience's personal 'story schemata'⁷⁹⁹ and 'media knowledges'⁸⁰⁰ to orient and drive their experience⁸⁰¹⁸⁰²⁸⁰³.

⁷⁹² Phelan, James *Reading People, Reading Plots: Character, Progression, and the Interpretation of Narrative*. Chicago: University of Chicago Press, 2012.

⁷⁹³ Wolf, Werner 2014.

⁷⁹⁴ Ibid.

⁷⁹⁵ Wolf, Werner *et al.* 2009.

⁷⁹⁶ Shklovskij, Viktor 'Art as Technique'. In: Rivkin, Julie and Michael, Ryan (eds.) *Literary Theory: An Anthology*. Malden: Blackwell Publishing, 1998.

⁷⁹⁷ Wolf, Werner, 2014.

⁷⁹⁸ Sklar, Howard *Believable Fictions: On the Nature of Emotional Responses to Fictional Characters*, 2009 [Online]. Available at: <https://blogs.helsinki.fi/hes-eng/volumes/volume-5/believable-fictions-on-the-nature-of-emotional-responses-to-fictional-characters-howard-sklar/> [Accessed 8th August 2018].

⁷⁹⁹ Rumelhart, David E. 'Notes on a Schema for Stories'. *Representation & Understanding* (1975), pp.211 – 236, p. 211.

⁸⁰⁰ Ryan, Marie-Laure, 2014.

⁸⁰¹ Ryan, Marie-Laure *Avatars of Story*. Minnesota: University of Minnesota Press, 2006, p. 206.

⁸⁰² Benford, Steve and Giannachi, Gabriella *Performing Mixed Reality*. Massachusetts: The MIT Press, 2011.

⁸⁰³ Keogh, Brendan 'On video game criticism', *Overland*, 2014 [Online]. Available at: <https://overland.org.au/previous-issues/issue-214/feature->

According to such discourses, the *other*, everyday forms of imagined personhood are received, processed and enacted in the human imagination quite differently; the dreamt lives of strangers, our mental configurations of spouses, parents and friends, the inhabitants of our dreams and spiritual experiences, imaginary friends⁸⁰⁴⁸⁰⁵⁸⁰⁶, our 'counterfactual' or subjunctive selves, the mediations of living celebrities and dead notables: in short, the 'often encountered yet little acknowledged'⁸⁰⁷ 'fictional entities' or 'ficta' of our waking and sleeping lives⁸⁰⁸. Such characters, and our relationships with them, certainly serve as inspiration for the *content* of narratives; there are many stories about friends and lovers, about religious belief, and artforms might incorporate rhetorical elements of such experiences in order to advance their fantasy. However, in considering the *mechanics* of our actual relationships with such persons – how they are conceived, developed and enacted - we are invited to consider them as a related-yet-separate breed. They exist in 'impermeable ontological domains'⁸⁰⁹.

* * * * *

In recent years, such orthodoxy has been challenged by a bevy of interdisciplinary research between the sciences and the humanities which seeks to 'reorient readings'⁸¹⁰ of aesthetic and narrative theory. From cognitive

brendan-keogh/ [Accessed: 12th December 2019].

⁸⁰⁴ Taylor, Marjorie *Imaginary Companions and the Children Who Create Them*. Oxford, OUP, 1999.

⁸⁰⁵ Taylor, Marjorie *et al.* 'Imaginary Worlds in Middle Childhood: A Qualitative Study of Two Pairs of Coordinated Paracosms'. *Creativity Research Journal* 27 (2), 2015, pp. 167-174.

⁸⁰⁶ Hoff, Eva V. 'Imaginary Companions, Creativity and Self-Image in Middle Childhood' *Creativity Research Journal* 17 (2-3), 2005, pp.167 – 180.

⁸⁰⁷ Thomasson, Amie *Fiction and Metaphysics*. Cambridge: CUP, 1999, p. 35. Kroon, Fred *et al.* 2011.

⁸⁰⁸ Kroon, Fred and Voltolini, Alberto 'Fictional Entities', *The Stanford Encyclopedia of Philosophy*, 2019, [Online]. Available at: <https://plato.stanford.edu/entries/fictional-entities/> [Accessed: 12th December 2018].

⁸⁰⁹ Moran, Richard, 1994.

⁸¹⁰ Ljungberg, Christina 'Reading as mapping'. In: Tally, Robert T. Jr. (eds.) *The Routledge Handbook of Literature and Space*. London: Routledge,

psychology⁸¹¹⁸¹², social psychology and communication theory⁸¹³ to neuroscience⁸¹⁴⁸¹⁵, anthropology⁸¹⁶, narratology⁸¹⁷⁸¹⁸⁸¹⁹⁸²⁰, evolutionary science⁸²¹⁸²² and cognition studies⁸²³⁸²⁴⁸²⁵⁸²⁶, this research is continuing to demonstrate how traditional divisions between the functionality of the imagination are overly simplistic.

As elsewhere in this thesis, this section can only be the barest summary of developments in this vast field. However, in general researchers and practitioners are reassessing the 'ancient embodied systems'⁸²⁷ of the

2017. pp.95-105, p. 95.

⁸¹¹ Holland, Norman *The Nature of Literary Response: Five Readers Reading*. New Jersey: Transaction, 2011.

⁸¹² Bortolussi, Marisa and Dixon, Peter *Psychonarratology: Foundations for the Empirical Study of Literary Response*. Cambridge: Cambridge University Press, 2003.

⁸¹³ Green, Melanie C. *et al. Narrative Impact: Social and Cognitive Foundations*. London: Taylor and Francis, 2003.

⁸¹⁴ Farrow, Tom F.D. *et al.* 'Investigating the functional anatomy of empathy and forgiveness'. *Neuroreport* 12 (11), 2001, pp. 2433 – 2438.

⁸¹⁵ Vogeley, Kai and Fink, Gereon 'Neural correlates of the first-person perspective'. *Trends in Cognitive Sciences* 7 (1), 2003, pp. 38-42.

⁸¹⁶ Markowski, Michel Pawl 'Anthropology and Literature' *Teksty Drugie*, 2007, pp. 24 – 33.

⁸¹⁷ Herman, David. *Narratology Beyond The Human*. Oxford: Oxford University Press, 2018.

⁸¹⁸ Caracciolo, Marco, 2013.

⁸¹⁹ Fish, Stanley 'Interpreting the "Variorum"' *Critical Enquiry* 2 (3), 1976, pp.465-485, p.

⁸²⁰ Thomas, Brook 'The Fictive and the Imaginary: Charting Literary Anthropology, or, What's Literature Have to Do with It?' *American Literary History* 20 (3), 2008, pp.622 – 631, p. 622.

⁸²¹ Pinker, Steven *How The Mind Works*. New York: Norton, 1997.

⁸²² Carroll, Joseph 'Evolution and literary theory'. *Human Nature* 6 (2), 1995, pp. 119 – 134.

⁸²³ Burke, Michael and Troscianko, Emily T. 'Mind, brain, and literature: A dialogue on what the humanities might offer the cognitive sciences'. *Journal of Literary Semantics* 42 (2), 2013, pp. 141 – 148.

⁸²⁴ Herman, David. *Cognitive Narratology*, 2013 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/cognitive-narratology-revised-version-uploaded-22-september-2013> [Accessed 8th August 2018].

⁸²⁵ Caracciolo, Marco, 2013.

⁸²⁶ David Herman 2002.

⁸²⁷ Asma, Stephen T. *Imagination Is Ancient*, 2017 [Online]. Available at: <http://aeon.com/essays/imagination-is-such-an-ancient-ability-it-might-precede-language> [Accessed 8th August 2018].

human imagination⁸²⁸, no matter their latter-day application, as arising from an embodied⁸²⁹⁸³⁰ evolutionary adaptation to 'a hostile world'⁸³¹; an unpredictable and complex environment that was navigated by waypoints of social success and ostracisation, physical danger, nutritional resources and reproductive opportunities⁸³²⁸³³. In such a world, the human brain adapted to pay attention to, mentally process and implement strategies⁸³⁴ towards these patterns of 'supernormal stimuli'⁸³⁵⁸³⁶; leading a combination of 'umwelt' (outer) and 'innenwelt' (inner) environments⁸³⁷ that arise from an

⁸²⁸ Koenig, Nikolaus "'Imaginary Systems" - Media Comprehension, and the Systemic Organization of Human Experience' *Systema* 4 (2), 2016, pp. 29-47.

⁸²⁹ Kenderdine, Sarah 'Embodiment, Entanglement, and Immersion in Digital Cultural Heritage' In: Schreibman, Sarah *et al. (eds.) A New Companion to Digital Humanities*. New York: John Wiley, 2016.

⁸³⁰ hompson, E. and E. Rosch *The Embodied Mind: Cognitive Science and Human Experience*, Cambridge: MIT Press, 1991.

⁸³¹ Asma, Stephen T, 2017.

⁸³² Dennett, Daniel C. *Breaking The Spell: Religion as a natural phenomenon*. London: Penguin, 2007.

⁸³³ Saslow, Carol A. 'Understanding the Perceptual World of Horses'. *Applied Animal Behaviour Science* 78 (2-4), 2002, pp.209 – 224, p. 210.

⁸³⁴ Rochberg-Halton, Eugen 'Objext Relations, Role models and Cultivation of the Self'. *Environment and Behavior* 16 (3), 1984, pp. 335 – 368.1981

⁸³⁵ Dennett, Daniel C., 2007, p. 122.

⁸³⁶ Emmeche, Claus 'Does a robot have an Umwelt? Reflections on the qualitative biosemiotics of Jakob von Uexkull'. *Semiotica* 134 (1/4), 2001, pp. 653 – 693, p. 653.

⁸³⁷ Sharov, Alexei A. 'Functional Information: Towards Synthesis of Biosemiotics and Cybernetics'. *Entropy* 12 (5), 2010, pp.1050 – 1070, p. 1050.

interpenetration of the surrounding environment⁸³⁸⁸³⁹, the body⁸⁴⁰⁸⁴¹⁸⁴²⁸⁴³⁸⁴⁴ and the 'mind incarnate'⁸⁴⁵⁸⁴⁶⁸⁴⁷.

While the specifics of this process of 'mutual interactions'⁸⁴⁸, and the importance of each component, remain a subject of debate⁸⁴⁹⁸⁵⁰⁸⁵¹, there is much consensus on how the body and its sensory faculties respond to exterior stimuli both through 'mindless' or subdoxastic reactions and imaginative mind 'process[es]'⁸⁵²⁸⁵³. These processes actively assimilate, interpret and organise information⁸⁵⁴, both from without and within, into systems of rules, patterns

⁸³⁸ Clark, Andy *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*. Oxford: Oxford University Press, 2008.

⁸³⁹ Barsalou, Lawrence W. 'Grounded Cognition'. *Annual Review of Psychology* 59, 2008, pp.617 – 645.

⁸⁴⁰ Cowart, Monica *Embodied Cognition* [Online]. Available at: <https://www.iep.utm.edu/embodcog/> [Accessed 8th August, 2018].

⁸⁴¹ Miall, David S., 1995

⁸⁴² Oatley, Keith, 1994.

⁸⁴³ Shapiro, Lawrence, 2004.

⁸⁴⁴ Merleau -Ponty, Maurice *The Phenomenology of Perception*. New York: Routledge, 2012.

⁸⁴⁵ Shapiro, Lawrence *The Mind Incarnate*. Massachussets: The MIT Press, 2004.

⁸⁴⁶ Rosch, Eleanor *et al.* *The embodied mind: Cognitive science and human experience*. Massachussets: The MIT Press, 1991.

⁸⁴⁷ Kull, Kalevi *et al.* 'Theses on Biosemiotics: Prolegomena to a Theoretical Biology'. *Biological Theory* 4 (2), 2009, pp.167–173.

⁸⁴⁸ Cowart, Monica Wilson, Roia, Lucia 'Embodied Cognition', *Stanford Encyclopedia of Philosophy*, 2015 [Online]. Available at: <https://plato.stanford.edu/archives/spr2017/entries/embodied-cognition/> [Accessed: 12th December 2019]..

⁸⁴⁹ Milkowski, Marcin. *Explaining The Computational Mind*. London: The MIT Press, 2013, p. viii.

⁸⁵⁰ Cowart, Monica. Wilson, Roia, Lucia, 2015.

⁸⁵¹ Kriz, Willy Christian 'A Systemic-Constructivist Approach to the Facilitation and Debriefing of Simulations and Games'. *Simulation and Gaming* 4 (5), 2010, pp.663 -680.

⁸⁵² Dix, Alan *et al.* *Human-Computer Interaction*. Essex: Pearson, 2004, p. 533..

⁸⁵³ Nass, Clifford and Moon, Youngme 'Machines and Mindlessness: Social Responses to Computers'. *Journal of Social Issues* 56 (1), 2000, pp.81 – 103, p.81.

⁸⁵⁴ Rochberg-Halton, Eugene, 1981.

'mental models'⁸⁵⁵ 'scope syntaxes'⁸⁵⁶, 'scripts'⁸⁵⁷ and 'schemas'⁸⁵⁸; flexible structures which can be tested in 'mental simulation'⁸⁵⁹ and adapted as necessary. With such an embodied, situated system, the human animal has evolved to detect, and 'resonate with', relational 'patterns of information'⁸⁶⁰, forge 'mental maps of time and space'⁸⁶¹ and create 'a coherent understanding of disparate actions and events'⁸⁶² which explain the past, process the present and forearm for the future⁸⁶³.

Such an interdisciplinary baseplate of perception and imagination is, for many scholars⁸⁶⁴⁸⁶⁵⁸⁶⁶, the 'human universal'⁸⁶⁷ origins of what today we consider as narrative. Some scholars criticise this position as an unconsidered

⁸⁵⁵ Johnson-Laird, P.N. *Mental Models: Towards a Cognitive Science of Language, Inference and Consciousness*. Massachusetts: Harvard UP, 1983.

⁸⁵⁶ Cosmides, Leda and Tooby, John 'Consider The Source: The Evolution of Adaptations for Decoupling and Metarepresentation' In: Sperber, Dan *et al. Metarepresentations: A Multidisciplinary Perspective*. Oxford: OUP, 2000, p. 59.

⁸⁵⁷ Schank, Roger and Abelson, Robert *Scripts, Plans, Goals and Understanding: An Inquiry into Human Knowledge Structures*. New Jersey, LEA, 1977.

⁸⁵⁸ Bartlett, F.C. *Remembering*. Cambridge: Cambridge University Press, 1932.

⁸⁵⁹ Oatley, Keith 'The mind's flight simulator'. *The Psychologist* 21 (12), 2008, pp. 1030 – 1032, pp.1031.

⁸⁶⁰ Ryan, Marie-Laure, 2007, p. 27.

⁸⁶¹ Byrne, Ruth and Girotto, Vittorio 'Cognitive Processes in Counterfactual Thinking'. In: Markman, KD *et al. (eds.) Handbook of Imagination and Mental Simulation*. London: Routledge, 2008.

⁸⁶² Green, Melanie C. *et al.*, 2003.

⁸⁶³ Labov, W. 'Some further steps in narrative analysis'. *Journal of Narrative and Life History* 7 (1-4), 1997, pp. 395 – 415.

⁸⁶⁴ Kreiswirth, Martin 'Narrative Turn.' In: Herman, David *et al. (eds.) The Routledge Encyclopedia of Narrative Theory*. London: Routledge, 2005, pp. 377–382, p.377.

⁸⁶⁵ Bruner, Jerome 'The Narrative Construction of Reality'. *Critical Inquiry* 18 (1), 1991, pp.1 – 21.

⁸⁶⁶ Kriswirth, Martin 'Merely Telling Stories? Narrative and Knowledge in the Human Sciences'. *Poetics Today* 21 (2), 2000, pp.293 – 318.

⁸⁶⁷ White, Hayden 'The Value Of Narrativity in the Representation of Reality'. *Critical Inquiry* Autumn 1980, pp. 5 – 28, p.6.

'pannarrativism'⁸⁶⁸⁸⁶⁹, but the popularity of the discourse, and the appearance of evidence supporting it, shows no signs of abating. In the process of cognitive abduction, the seeking of 'eventfulness'⁸⁷⁰ and 'causality'⁸⁷¹ and the drawing of illustrative concatenations of events and stimuli from the real world, we participate in something which is 'constitutive of prototypical human experience'⁸⁷²; 'a construct of our minds' without 'specific form'⁸⁷³, predating the narrative arts in which it was originally identified⁸⁷⁴.

There are many suggestions as to how our internalised, 'self-narratives'⁸⁷⁵, what Tanya Luhrmann calls 'living systems', became publicised in external, social 'communicating systems'⁸⁷⁶, and thus into aestheticised narrative practice: the roles of evolution versus enculturation⁸⁷⁷⁸⁷⁸⁸⁷⁹, of

⁸⁶⁸ Eskenlinen, Markku *Markku Eskenlinen's Response*, 2004 [Online]. Available at: <http://electronicbookreview.com/essay/markku-eskenlinens-response/> [Accessed 8th August 2018].

⁸⁶⁹ Juul, Jesper 'Games telling Stories? A brief note on games and narratives'. *Game Studies* 1 (1), 2001.

⁸⁷⁰ Schmid, Wolf 'Eventfulness, Subject-dependency and Context'. *Foreign Language and Literature* 2 (1), 2010.

⁸⁷¹ Dannenberg, Hilary *Coincidence and Counterfactuality: Plotting Time and Space in Narrative Fiction*. Nebraska: U of Nebraska P, 2008, p. 113.

⁸⁷² Fludernick, Monika *Towards a 'Natural' Narratology*. London: Routledge, 1996, p. 12.

⁸⁷³ Sternberg, Meir 'Reconceptualising narratology. Arguments for a Functionalist and Constructivist Approach to Narrative'. *Enthymema* 4 (1), 2001, pp. 34 – 50, p. 48.

⁸⁷⁴ Morris, Desmond, 2013, p. 96

⁸⁷⁵ Gergen, Kenneth and Gergen, Mary 'Narratives of the Self'. In: Hinchman, Lewis and Hinchman, Sandra (eds.) *Memory, Identity, Community: The Idea of Narrative in the Human Sciences*. New York: State of New York University Press, 1997, p. 163.

⁸⁷⁶ Mellmann, Katja, 2012, p.69

⁸⁷⁷ Pinker, Steven, 1997.

⁸⁷⁸ Mellmann, Katja, 2012.

⁸⁷⁹ Dautenhahn, Kerstin 'Stories of lemurs and robots: The social origin of story-telling'. In: Mateas, Michael and Sengers, P. (eds.) *Advances in Consciousness Research, Vol. 46. Narrative intelligence*. US: John Benjamins, 2003, pp. 63 – 90.

language⁸⁸⁰⁸⁸¹⁸⁸²⁸⁸³⁸⁸⁴, and of religious belief (see Chapter 3), sequentially or 'in symbiotic relation with each other'⁸⁸⁵ remain the key determinants⁸⁸⁶⁸⁸⁷⁸⁸⁸. On one hand, the use of 'flexible cognitive frames'⁸⁸⁹ in our everyday lives to comprehend our partial perceptions of 'sequences of events involving thinking individuals, linked by causal relations, motivated by a conflict, and aiming at its resolution'⁸⁹⁰ within our rules-defined, systemic perception of the world; and on the other, our use of those frames to engage with the 'fragmentary'⁸⁹¹⁸⁹²⁸⁹³⁸⁹⁴ 'storyworlds'⁸⁹⁵, 'cosmos'⁸⁹⁶, 'wahrnehmung'⁸⁹⁷ or 'sujet'⁸⁹⁸ of narrative artworks, operating according to their own, sometimes

⁸⁸⁰ Asma, Stephen T, 2017.

⁸⁸¹ Ong, Walter J. *Orality and Literacy*. London: Routledge, 2013.

⁸⁸² Benzon, William 'The Evolution of Narrative and the Self'. *Journal of Social and Evolutionary Systems*, 16 (2), 1993, pp.129 – 155.

⁸⁸³ Caracciolo, Marco, 2013, p. 10.

⁸⁸⁴ Bordwell, David 'Three Dimensions of Film Narrative'. In: Bordwell, David *Poetics of Cinema*. London: Routledge, 2007.

⁸⁸⁵ Ryan, Marie-Laure, 2014.

⁸⁸⁶ Sugiyama, Michelle 'Food, foragers, and folklore: the role of narrative in human subsistence'. *Evolution and Human Behavior* 22 (4), 2001, pp.221 – 240.

⁸⁸⁷ Sugiyama, Michelle 'On the origins of narrative : Storyteller bias as a fitness-enhancing strategy' *Human Nature* 7 (4), 1996, pp. 403 – 425.

⁸⁸⁸ Coe, Kathryn *et al.* 'Once Upon A Time: Ancestors and the Evolutionary Significance of Stories'. *Anthropological Forum* 16 (1), 2006, pp. 21- 40.

⁸⁸⁹ Herman, David *Story/Logic: Problems and Possibilities of Narrative*. Nebraska: University of Nebraska Press, 2002, p. 49.

⁸⁹⁰ Ryan, Marie-Laure, 2009, p.43.

⁸⁹¹ Sklar, Howard, 2009.

⁸⁹² Iser, Wolfgang, 1978

⁸⁹³ Kahneman, Daniel and Tversky, Amos 'The Simulation Heuristic'. In: Kahneman, Daniel (eds.) *Judgement Under Uncertainty: Heuristics and Biases*. New York: Cambridge University Press, 1982, pp 201–208.

⁸⁹⁴ Bortolussi, Marisa and Dixon, Peter, 2003, p. 124

⁸⁹⁵ Ryan, Marie-Laure, 2013.

⁸⁹⁶ Nash, Christopher *World-Games: The Tradition of Anti-Realist Revolt*. London and New York: Methuen, 1987, p.8.

⁸⁹⁷ Iser, Wolfgang, 1972.

⁸⁹⁸ Wood, Hannah 'Dynamic Syuzhets: Writing and Design Methods for Playable Stories'. In: Nunes, Nuno *Interactive Storytelling*. London: Springer, 2014.

'unnatural'⁸⁹⁹⁹⁰⁰⁹⁰¹⁹⁰² yet 'logical[ly] complete'⁹⁰³⁹⁰⁴⁹⁰⁵⁹⁰⁶⁹⁰⁷ rulesets⁹⁰⁸⁹⁰⁹. Both are acts of 'narrative comprehension'⁹¹⁰ of 'the dimensions of mentally configured worlds'⁹¹¹, and those who inhabit them.

Within the above-described model of the evolved human imagination, it is understandable that our attention, and our imaginative faculties in almost any situation, tend to prioritise the presence of *other* humans, other social beings, like ourselves; indeed, our survival often depends upon the correct mental simulation of the intentions and actions of others⁹¹² through a 'sophisticated process of interpretation with narrative at its core'⁹¹³. Our ability to 'mentalise'⁹¹⁴, empathise⁹¹⁵ and 'impute... what is going on in

⁸⁹⁹ Alber, Jan *Unnatural Narrative: Impossible Worlds in Fiction and Drama*. Nebraska: University of Nebraska Press, 2016.

⁹⁰⁰ Emmott, Catherine *Narrative Comprehension: A Discourse Perspective*. Oxford: OUP, 1997, p. 36.

⁹⁰¹ Ryan, Marie-Laure, 2014.

⁹⁰² Moran, Richard, 1994. Moran, 2017

⁹⁰³ Oatley, Keith 'Emotional Intelligence and the Intelligence of Emotions'. *Psychological Enquiry* 15 (3), 2004, pp.216 – 222, p. 216.

⁹⁰⁴ Crittenden, Charles 'Fictional characters and logical completeness'. *Poetics* 11 (4-6), 1982, pp. 331- 344.

⁹⁰⁵ Toolan, Michael *Coherence*, 2013 [Online]. Available at: <http://www.lhn.uni-hamburg.de/article/coherence> [Accessed; 20th August 2018].

⁹⁰⁶ Lessa, Rodrigo and Araujo, Joao 'World Consistency'. In: Wolf, Mark J. P. (eds.) *The Routledge Companion to Imaginary Worlds*. Oxon: Routledge, 2018.

⁹⁰⁷ Robertson, Benjamin J. 'World Completeness'. In: Wolf, Mark J.P. (eds.), 2018. "world completeness"

⁹⁰⁸ Ronen, Ruth *Possible Worlds In Literary Theory*. Cambridge: Cambridge University Press, 1994.

⁹⁰⁹ Nash, Christopher, 1987, p.8.

⁹¹⁰ Jenkins, Henry 'Game Design as Narrative Architecture'. In: Salen Tekinbas, Katie and Zimmerman, Eric (eds.) *The Game Design Reader: A Rules of Play Anthology*. London: The MIT Press, 2006, pp. 670 - 690

⁹¹¹ Herman, David, 2013.

⁹¹² Saxe, Rebecca *How we read other's minds*, 2009 [Online]. Available at: https://www.ted.com/talks/rebecca_saxe_how_brains_make_moral_judgments [Accessed: 20th August 2018].

⁹¹³ Reidl, Mark *et al.* 'Game AI as Storytelling'. In: Gonzalez-Calero, Pedro Antonio and Gomez-Martin, Marco Antonio (eds.) *Artificial Intelligence for Computer Games*. London: Springer, 2011, p. 130.

⁹¹⁴ Waytz, Adam *et al.* 'Response of Dorsomedial Prefrontal Cortex Predicts Altruistic Behavior'. *The Journal Of Neuroscience* 32 (22), 2012, pp.7646 – 7650, p. 7646.

another person's mind'⁹¹⁶ from partial and indirect social cues is another adaptive tool which finds its 'natural extension' in our interactions with fictive others'⁹¹⁷⁹¹⁸. This is the scientific grounding of the 'character-focussed' approach to narrative delineated in this thesis' introduction'⁹¹⁹⁹²⁰⁹²¹⁹²². Our imaginative engagement with the inhabitants of fictional narrative worlds – with characters – represents the satisfaction of a 'core appetitive circuit'⁹²³ which seeks to understand the 'motives, intentions, beliefs and.. resulting behaviour'⁹²⁴⁹²⁵ of others 'whose inner lives are rarely easily discerned but warrant exploration'⁹²⁶.

Much research, in this field in particular, points to an intriguing complication of the supposed *typal* difference between our perception of real and fictional social others. This includes research on how fictional people can facilitate personal growth'⁹²⁷⁹²⁸⁹²⁹⁹³⁰⁹³¹, or encourage negative social behaviours'⁹³²; studies on 'parasocial', 'psychologically real and meaningful'

⁹¹⁵ Cheetham, Marcus 'Virtual milgram: empathic concern or personal distress? Evidence from functional MRI and dispositional measures'. *Frontiers in Human Neuroscience* 3 (29), 2009, pp. 1 – 13.

⁹¹⁶ Goldman, Alvin *Simulating Minds: The Philosophy, Psychology and Neuroscience of Mindreading*'. Oxford: Oxford University Press, 2006.

⁹¹⁷ Neuroscience and personhood

⁹¹⁸ Green, 2005

⁹¹⁹ Sklar, Howard, 2009.

⁹²⁰ Zunshine, Lisa *Why We Read Fiction: Theory of Mind and the Novel*. Columbus: The Ohio State University Press, 2006.

⁹²¹ Vermeule, Blakey *Why Do We Care About Literary Characters?* Baltimore: John Hopkins University Press, 2010.

⁹²² Nomura, Kohei and Akai, Seiki, 'Empathy with Fictional Stories: Reconsideration of the Fantasy Scale of the Interpersonal Reactivity Index'. *Psychological Reports* 110 (1), 2012, pp.304 – 314.

⁹²³ Costa, 2010

⁹²⁴ Palmer, 2010

⁹²⁵ Foy, Jeffrey and Gerrig, Richard, 2014.

⁹²⁶ Kidd, David Comer and Castano, Emanuele 'Reading Literary Fiction Improves Theory Of Mind'. *Science* 342 (6156), 2013, pp.377 – 380, p. 377.

⁹²⁷ Nicolopoulou, Ageliki and Richner, Elizabeth 'From Actors to Agents to Persons: The Development of Character Representation in Young Children's Narratives'. *Child Development* 78 (2), 2007, pp. 412 - 429

⁹²⁸ Cohen, Jonathan, 2001.

⁹²⁹ Kidd, David Comer and Castano, Emanuele, 2013, p. 377.

⁹³⁰ Oatley, Keith and Mar, Raymond, 2007.

⁹³¹ Vermeule, Blakey, 2010.

⁹³² Tsay, Mina and Krakowiak, Maja 'The impact of perceived character similarity and identification on moral disengagement'. *IJART* 4, 2011, pp.102 – 110.

relationships with otherwise 'unreal' people⁹³³⁹³⁴⁹³⁵⁹³⁶; and ongoing debates⁹³⁷⁹³⁸ on the 'puzzle of fictional emotions'⁹³⁹, a key 'paradox of fiction'⁹⁴⁰ which seeks to reconcile the apparent reality of the emotions that audiences feel towards fictional characters with their supposedly-conscious understanding of their artifice⁹⁴¹. For some scholars, the emotions are only 'pretend'⁹⁴²; for many others, our engagement with imagined characters can sidestep the 'prospective orientation'⁹⁴³ entirely⁹⁴⁴⁹⁴⁵⁹⁴⁶⁹⁴⁷⁹⁴⁸.

Approaching this argument from the other side, there is much research into how our supposedly undistanced, 'hallucinatory' engagements with persons in our lives *outside* of art – both real and unreal - may be more artificial and 'subjunctive' than previously admitted. In studies on counter-

⁹³³ Mar, Raymond A *et al.*, 2011.

⁹³⁴ Derek, Jaye L. *et al.* 'Parasocial relationships and self-discrepancies: Faux relationships have benefits for low self-esteem individuals'. *Personal Relationships* 15 (2), 2008, pp.261 – 280.

⁹³⁵ Stever, Gayle 'Mediated vs. Parasocial Relationships: An Attachment Perspective'. *Journal of Media Psychology* 17 (3), 2013.

⁹³⁶ Rain, Marina *et al.* 'Adult attachment and transportation into narrative worlds'. *Personal Relationships* 24 (1), 2016, pp.49 – 74.

⁹³⁷ Schneider, Steven *The Paradox Of Fiction – The Internet Encyclopedia of Philosophy*, 2017 [Online]. Available at: <http://www.iep.utm.edu/fict-par/> [Accessed: 18th August 2018].

⁹³⁸ Ryan, Marie-Laure, 2014, p. 10.

⁹³⁹ Tavinor, Grant, 2007.

⁹⁴⁰ Radford, Colin 'How Can We Be Moved by the Fate of Anna Karenina?' *Proceedings of the Aristotelian Society* 49, 1975, pp. 67-80.

⁹⁴¹ Moran, Richard 'The Expression Of Feeling In Imagination'. *The Philosophical Review* 103 (1), 1994, pp. 75 – 106.

⁹⁴² Walton, Kendall 'Spelunking, Simulation and Slime: On Being Moved by Fiction'. In: Hjort, Metta (eds.) *Emotion and the Arts*. Oxford: Oxford University Press, 1997.

⁹⁴³ Wolf, Werner, 2014.

⁹⁴⁴ Novitz, David *Knowledge, Fiction and Imagination*. Philadelphia, Temple University Press, 1987.

⁹⁴⁵ Hartz, Glenn 'How We Can Be Moved by Anna Karenina, Green Slime, and a Red Pony.' *Philosophy* 74, 1999, pp. 557-78.

⁹⁴⁶ Säätelä, Simo 'Fiction, Make-Believe and Quasi Emotions.' *British Journal of Aesthetics* 34, 1994, pp. 25-34.

⁹⁴⁷ Young, Garry 'Virtually real emotions and the paradox of fiction: Implications for the use of virtual environments in psychological research'. *Philosophical Psychology* 23 (1), 2010, pp. 1- 21.

⁹⁴⁸ Shedlosky-Shoemaker, Randi *et al.* 'Self-Expansion Through Fictional Characters'. *Self And Identity* 13 (5), 2014, pp. 556 – 578.

factuality⁹⁴⁹⁹⁵⁰⁹⁵¹, social frames⁹⁵², 'cognitive metarepresentation'⁹⁵³, imaginary friends⁹⁵⁴⁹⁵⁵, our relationships with celebrities and media figures⁹⁵⁶⁹⁵⁷⁹⁵⁸, the history of economic and political centres in early human development⁹⁵⁹ - indeed, in the very practice of history itself⁹⁶⁰⁹⁶¹ - we often see our engagement with narrative scenarios outside as the purely aesthetic as nonetheless 'distanced', in some way; engaging with the real world from an external, self-conscious perspective, while still respecting its very real effect on our lives. Such distancing from the real world, while simultaneously participating within its realities, may be key to our healthy psychosocial development. It may be constitutive of our humanity⁹⁶².

* * * * *

No study of this trend, representing as it does a structural shift across many disciplines, could ever be exhaustive. However, the evidence above demonstrates that, from discipline to discipline, the formal divide between imaginative engagement with both fiction and reality is being further

⁹⁴⁹ Byrne, Ruth 'Precis of The Rational Imagination: How People Create Alternatives to Reality'. *Behavioral and Brain Sciences* 30 (1), 2007, pp. 439 – 480.

⁹⁵⁰ Mellmann, Katja, 2013, p. 74.

⁹⁵¹ Wong, Elaine 'The Counterfactual Mind-Set: A Decade of Research' In: Markman, Keith *et al (eds.) The Handbook of Imagination and Mental Simulation*. London: Psychology Press, 2008.

⁹⁵² Goffman, Erving *Frame analysis: An essay on the organisation of experience*. Massachusetts: HUP, 1974.

⁹⁵³ Mellmann, Katja, 2013, p. 74.

⁹⁵⁴ Klausen, Espen and Passman, Richard 'Pretend Companions (Imaginary Playmates): The Emergence of a Field'. *The Journal of Genetic Psychology* 167 (4), 2006, pp. 349 – 364.

⁹⁵⁵ Hoff, Eva 'Imaginary Companions, Creativity and Self-Image in Middle Childhood'. *Creativity Research Journal* 17 (2-3), 2005, pp. 167 – 180.

⁹⁵⁶ Stever, Gayle 'Parasocial and Social Interaction with Celebrities: Classification of Media Fans'. *Journal of Media Psychology* 14 (3), 2009.

⁹⁵⁷ Giles, David 'Parasocial Interaction: A Review of the Literature and a Model for Future Research'. *Media Psychology* 4 (3), 2002, pp. 279 – 305, p. 279.

⁹⁵⁸ Kratka, Jana, 2009.

⁹⁵⁹ Harari, Noah Yuval. *Sapiens*. London: Harvill Secker, 2014.

⁹⁶⁰ Cohn, Dorritt, 1989.

⁹⁶¹ Ricoeur, Paul *et al. Time and Narrative*. Chicago and London: University of Chicago Press, 1990.

⁹⁶² Mellmann, Katja, 2012, p.36.

complicated, or even systemically weakened⁹⁶³. Evidence mounts that everyday illusions can be 'basically pleasurable', or 'distanced', while seemingly 'aesthetic illusions' can be as 'real' and interactive, in a psychological sense, as those encountered in the course of biological life; the full triumph of Berleant's 'aesthetic engagement' over 'aesthetic disinterestedness'⁹⁶⁴. The complexity and interpenetration of these states⁹⁶⁵, and the 'oscillation'⁹⁶⁶ across the 'borderline area' between them⁹⁶⁷, relies on a modern understanding of human embodied mentality, one arising out of a common 'interpretative compulsion'⁹⁶⁸ that excites the 'intrinsically semantic dimension'⁹⁶⁹ of our cognitive, emotive and embodied experience, and manifests most commonly in the perceptive and cognitive frame of 'narrative'⁹⁷⁰; a form which, 'in transaction with realities'⁹⁷¹, is not a "specialized, ad hoc response... to narrative texts"⁹⁷² but broadly representative across human existence.

The 'autocosmic' methodology is not designed to encompass this theoretical and practical drift, in often-disparate areas of academic and artistic thought⁹⁷³, but rather to be one specific emergence of its ramifications. It uses the evidence presented above of the 'contaminations between [the] fictional

⁹⁶³ "radical post-modern thinn(s) in Videogames – Historical and Anthropological Observations". *Heidelberg Journal for Religions on the Internet* 5 (1), 2014, pp. 249 – 278.

⁹⁶⁴ Berleant, Arnold and Hepburn, Ronald 'An Exchange on Disinterestedness', *Contemporary Aesthetics* [Online]. Berleant Available at: <http://aesthetics.org/newvolume/pages/article.php?articleID=209>

⁹⁶⁵ Gendler, Tamar 'Imagination', *Stanford Encyclopedia of Philosophy*, 2019 [Online]. Available at: <https://plato.stanford.edu/entries/imagination/> [Accessed: 20th December 2010].

⁹⁶⁶ Westphal Tally Jr., Robert *Threnia: Place, Narrative and the Spatial Imagination*. Indianapolis: IUP, 2019, p. 41.

⁹⁶⁷ Hofstadter, Douglas, 2000, p. 362

⁹⁶⁸ Mellmann, Katja, 2013, p. 75.

⁹⁶⁹ Monahan, Seth *Mahler's Sonata Narratives*. [PhD Dissertation]. Connecticut: Yale University, 2008.

⁹⁷⁰ Scheibe, Karl E. and Barrett, Frank *The Storied Nature of Human Life: The Life and Work of Theodore R. Sarbin*. London: Palgrave Macmillan, 2017.

⁹⁷¹ Seligman, Steven. 'Illusion as a Basic Psychic Principle: Winnicott, Freud, Oedipus, and Trump'. *The Journal of the American Psychoanalytic Association* 66 (2), 2018, pp. 263-288, p. 263.

⁹⁷² Caracciolo, Marco, 2013.

⁹⁷³ Caracciolo, Marco and Kukkonen, Karin 'Hitting The Wall? The Rhetorical Approach and the Role of Reader Response'. *Style* 52 (1-2), 2018, pp. 45-50.

and factual'⁹⁷⁴ to set a baseline for dismantling the 'unreal discontinuity'⁹⁷⁵ between artistic practice and the constructive narrative acts of real life. It relies on an interdisciplinary conception of the imagination as the main driver of the 'resonance' of both artistic and non-artistic experiences; and thus, in the face of artistic challenges, counsels that artists reach *beyond* the artifices of their own form – indeed, beyond aesthetics entirely - to find new models of constructing narrative experience, where other, more instructive 'resonances' might await.

* * * * *

As mentioned in the previous section, not every scholar agrees that 'everyday aesthetics', and 'pannarrativist' readings of non-aesthetic human experiences, are commensurate with 'aesthetic' narrative practice. Marie-Laure Ryan, whose work on 'transmedia narratology'⁹⁷⁶ has been instrumental in the construction of the 'autocosmic' methodology, is sceptical about the 'narrative turn's influence, and questions the utility of a model of narrative that includes such 'abstractions' as human thought, mental 'experience', 'explanation', and 'representation'⁹⁷⁷. Such a model, she fears, creates a 'free-floating'⁹⁷⁹ use of the term which cannot be productively applied to theoretical work. Instead, she proposes the related term 'narrativity', to describe a 'scalar property' of any 'semiotic object' – not just 'strict narratives'⁹⁸⁰ – which stands to measure the degree of mental narrative excitability that a particular experience or artefact entails⁹⁸¹. It is in this quality of narrativity, rather than narrative explicitly, that

⁹⁷⁴ Schabert, Ina 'Fictional Biography, Factual Biography, and their Contaminations'. *Biography* 5 (1), 1982, pp.1 – 16, p.1.

⁹⁷⁵ Moran, Richard, 1994.

⁹⁷⁶ Ryan, Marie-Laure 'Transmedia Narratology and Transmedia Storytelling' *Artnodes* 18, 2016 [Online]. Available at: <https://artnodes.uoc.edu/articles/abstract/10.7238/a.v0i18.3049/> [Accessed 8th August 2018].

⁹⁷⁷ Ryan, Marie-Laure 'Towards a definition of narrative'. In: Herman, David (eds.) *The Cambridge Companion To Narrative*. Cambridge: Cambridge University Press, 2007.

⁹⁷⁸ Ryan, Marie-Laure 'Ritual Studies and Narratology: What Can They Do For Each Other'. In: Nunning, Vera et al. (eds.) *Ritual And Narrative: Theoretical Explorations and Historical Case Studies*. Berlin: De Gruyter, 2014, pp. 27-50.

⁹⁷⁹ Ryan, Marie-Laure, 2017, p. 528.

⁹⁸⁰ Ibid.

'experientiality'⁹⁸² – the root of autocosmics, and a large part of any definition of 'resonance' – can be found.

My own autocosmic methodology differs from Ryan's position primarily in the fact that its focus is not theoretical, but methodological. The risk of scholarly overextension of the term 'narrative' is something which I recognise⁹⁸³; and in the theoretical workings of narratology, it certainly appears that 'pannarrativism' does often stretch the definition of the term rather thin. For a *methodological* framework, however, such as autocosmics, in use by an artist attempting to find interesting models of narrative engagement within non-aesthetic examples, I am less interested in the semantics of 'narrative' versus 'narrativity', but rather more interested in a free consideration of 'the principal ways we organize our experience of the world'⁹⁸⁴. Whether an experience, text, object or mental phenomenon is truly 'narrative' or merely has 'narrativity' does not prejudice its utility to my 'design activity... [which aims] at building a... software product... that satisf[ies] the author and then, consequently, the end-user'⁹⁸⁵. An 'unaesthetic' experience that has 'narrativity' can still serve as a useful model of 'narrative' engagement to an aesthetic work; and, by Ryan's own definition of a narrative as that which is deliberately designed to induce narrative comprehension⁹⁸⁶, such an experience would become narrative in being implemented aesthetically, through my own authoring, regardless.

⁹⁸¹ Abbot, H. Porter *Narrativity*, 2011 [Online]. Available at: <https://wikis.sub.uni-hamburg.de/lhn/index.php/Narrativity> [Accessed 8th August 2018].

⁹⁸² Ryan, Marie-Laure, 2017.

⁹⁸³ Calleja, Gordon, 2011, p. 113.

⁹⁸⁴ Brooks, Peter *Reading for the Plot: Design and Intention in Narrative* Massachusetts: Harvard University Press, 1984, p. ix.

⁹⁸⁵ Spierling, Ulrike 'Interaction Design Principles as Narrative Techniques for Interactive Digital Storytelling'. In: Koenitz, Hartmut *et al.* (eds.), 2015, pp. 159 – 173, p. 170.

⁹⁸⁶ Pssalacqua, Franco and Pianzola, Federico 'Defining transmedia narrative: problems and questions. Dialogue with Mary-Laure Ryan'. *Enthymema* 4 (1), 2011, p.p. 65 – 72, p. 67.

Ryan's approach has other differences from my own; focussing more on mediated, 'textual manifestations'⁹⁸⁷, 'tellability'⁹⁸⁸, and the importance of more traditional stances on the 'aesthetic', 'distance', 'belief'⁹⁸⁹⁹⁹⁰⁹⁹¹ and other factors which the autocosmic rejects. Particularly, the tenets of detachment, 'aesthetic distance', the 'magic circle' and 'double-consciousness' explored in the first sections of this chapter are still strongly ensconced in many narratological theses in game studies and transmedial narratologies, including Ryan's own⁹⁹²⁹⁹³⁹⁹⁴⁹⁹⁵. I believe that this insistence on a bifurcation of human engagement with imaginatively-stimulating experiences is not only a conceptual problem; it subtly undermines exploration of alternative sources of inspiration for artists such as myself. Instead of 'expand[ing] the concept of narrative to unusable elasticity'⁹⁹⁶, such exploration allows for practical exercises in expanding the modalities of narrative art.

In some of Ryan's more recent writing⁹⁹⁷⁹⁹⁸, I have detected a slight fuzzifying of her stance: a consideration of whether the strict definition of narrative, 'an analytical concept designed by narratologists', is important for 'most people [to] recognize'⁹⁹⁹. In an approach that I welcome, she considers the wider concept of narrative (and thus character) as it is defined by cultural studies, and ends on an ambivalent note; unsure as to whether such a broad definition of narrative to include many everyday imaginings is liberating or

⁹⁸⁷ Ryan, Marie-Laure 'Narrative' In: Szeman, Imre *et al.* (eds.) *A Companion to Critical and Cultural Theory*. London: John Wiley and Sons, 2017, pp. 517 – 531, p. 528.

⁹⁸⁸ Ryan, Marie-Laure 'Embedded Narratives and Tellability'. *Style* 20 (3), 1986, pp. 319 – 340.

⁹⁸⁹ Ryan, Marie-Laure, 2001.

⁹⁹⁰ Ryan, Marie-Laure, 2017.

⁹⁹¹ Ryan, Marie-Laure, 2009.

⁹⁹² Khandaker-Kokoris, Mitu, 2015.

⁹⁹³ Calleja, Gordon, 2011, p. 49.

⁹⁹⁴ Caracciolo, Marco, 2013.

⁹⁹⁵ Salen, Katie and Zimmerman, Eric, 2004, p. 95.

⁹⁹⁶ Calleja, Gordon 'Narrative Involvement in Digital Games'. *Conference proceedings from Foundations of Digital Games. Chania, Crete, Greece*. FDG, 2013, p.2 .

⁹⁹⁷ Ryan, Marie-Laure, 2017.

⁹⁹⁸ Ryan, Marie-Laure 'Ritual Studies and Narratology: What Can They Do For Each Other'. In: Nunning, Vera *et al.* (eds.) *Ritual And Narrative: Theoretical Explorations and Historical Case Studies*. Berlin: De Gruyter, 2014, pp. 27-50.

⁹⁹⁹ Ryan, Marie-Laure, 2017, p. 518.

obfuscating¹⁰⁰⁰. It is in this fuzziness that I site my own autocosmic theory. Autocosmics is unconcerned with the 'technical dimensions'¹⁰⁰¹ of any Grand Theory of narrative versus narrativity: but is instead concerned with interdisciplinary study into the nature of human response to a wide variety of 'resonant' aesthetic and non-aesthetic stimuli – the 'untold stories' and 'purely mental images' that characterise the response of 'most people'¹⁰⁰² – and how those responses and stimuli might be applied constructively to the work of artists trying to deliberately excite that response in some manner.

* * * * *

At face value, my definition of the 'autocosmic' methodology seems very similar to other methodologies that have arisen from the discourses explored in this chapter, and risks 'dilut[ing] terminological precision' through the invention of another term¹⁰⁰³. Across artistic practice over the last sixty years there has been a 'continuing uncertainty' about whether existing definitions of the 'aesthetic'¹⁰⁰⁴¹⁰⁰⁵ are a restrictive social convention¹⁰⁰⁶; and a corresponding interest in redefining the relationship between artistic artefacts and real life¹⁰⁰⁷¹⁰⁰⁸¹⁰⁰⁹. There has thus been a concomitant 'broadening of the aesthetic tradition'¹⁰¹⁰ to reconsider that relationship fundamentally, and to place more emphasis on the 'evanescent relationship... between subject and object', the 'structuring of experiences'¹⁰¹¹, and the 'process of communication',

¹⁰⁰⁰ Ibid. p. 531.

¹⁰⁰¹ Ryan, Marie-Laure, 2017, p.528.

¹⁰⁰² Ryan, Marie-Laure, 2017, p. 518.

¹⁰⁰³ Calleja, Gordon, 2013.

¹⁰⁰⁴ Shelley, James *The Concept of The Aesthetic*, 2017 [Online]. Available at: <https://plato.stanford.edu/entries/aesthetic-concept/#AesObj> [Accessed 8th August 2018].

¹⁰⁰⁵ Williams, Raymond *Marxism and Literature* Oxford: OUP, 1977, p. 155.1983

¹⁰⁰⁶ Mellmann, Katja, 2013, p. 74.

¹⁰⁰⁷ Adajian, Thomas, *The Definition of Art*, 2018 [Online]. Available at: <https://plato.stanford.edu/entries/art-definition/> [Accessed 8th August 2018].

¹⁰⁰⁸ Layton, Robert, 1991, pg. 41.

¹⁰⁰⁹ Berleant, Arnold *Aesthetics and Environment: Variations on a Theme*. London: Routledge, 2004.

¹⁰¹⁰ Slater, Barry *Aesthetics*, 2018 [Online]. Available at: <https://www.iep.utm.edu/aestheti/> [Accessed 8th August 2018].

¹⁰¹¹ Kirkpatrick, Graeme 'Video Game Image: The aesthetic character of digital gaming'. In:

rather than the form or artistic provenance of the object itself¹⁰¹²¹⁰¹³. Such a trend is visible in scholarly investigations into the 'aesthetics of everyday life'¹⁰¹⁴, and the 'postmodern thrust' of Allan Krapow¹⁰¹⁵, Joseph Beuys¹⁰¹⁶, Henry Flynt, the Fluxus collective and other 'concept' artists and performance artists originally emerging in the 1960s. Such artists themselves built on changing interdisciplinary attitudes, and the work of earlier artists and thinkers¹⁰¹⁷¹⁰¹⁸, by attempting to free art from its aestheticised boundaries to draw upon, and interpenetrate with, the embodied 'social reality'¹⁰¹⁹ of everyday life¹⁰²⁰. Through the creation of 'happenings', 'lifeworks'¹⁰²¹ and other performative and transgressive acts, such artists sought to 'decontain' art; to remove it from its 'esthetic' shackles¹⁰²² and use the modes of the reception of real life to inform both 'the perspective of the spectator or the audience'¹⁰²³.

The 'autocosmic' does indeed draw on the example of these movements, though it differs from them in several ways. Unlike Fluxus and other postmodern movements mentioned above, it is not inherently political or conceptual¹⁰²⁴. An 'autocosmic' work does not seek to draw attention to its own artifice, to 'metaleptically'¹⁰²⁵ comment upon its own form, to provoke real-

¹⁰¹² Smith, Jonathan 'Introduction'. In: Light, Andrew and Smith, Jonathan (eds.), 2005, p. x.

¹⁰¹³ 'Developments in aesthetic Engagement?', *Contemporary Aesthetics* [Online]. Available at: <https://contempaesthetics.org/newvolume/pages/article.php?articleID=684>> [Accessed: 20th December, 2019].

¹⁰¹⁴ Light, Andrew and Smith, Jonathan (eds.) *The Aesthetics of Everyday Life*. New York: Columbia University Press, 2005.

¹⁰¹⁵ Krapow, Allan and Kelley, Jeff (eds.) *Essays on the Blurring of Art and Life*. Berkeley: UCP, 1993.

¹⁰¹⁶ Giesen, Bernhard 'Performance Art'. In: Alexander, Jeffrey C. et al. (eds.) *Social Performance: Symbolic Action, Cultural Pragmatics and Ritual*. Cambridge: CUP, 2006, pp. 315 – 324, p. 315.

¹⁰¹⁷ Bradley, Laura *Brecht and Political Theatre: The Mother on Stage*. Oxford: OUP, 2006. Brecht

¹⁰¹⁸ Greenm, vivien (eds.) *Italian Futurism 1909 – 1944: Reconstructing the Universe*. New York: Guggenheim, 2014. One other

¹⁰¹⁹ conceptual art, criticald Wild'. In: Alberro, Alexander and Stimson, Blake (eds.) *Conceptual Art: A Critical Anthology*. Massachusetts: The MIT Press, 2000, pp. 136 – 141, p.140.

¹⁰²⁰ Giesen, Bernhard, 2006, p. 315.

¹⁰²¹ Krapow, Allan Jeff, 1993, p. xxiv.

¹⁰²² *Essays on The Blurring O*

¹⁰²³ Giesen, Bernhard, 2006, p. 316.

¹⁰²⁴ *Social performance 322*

¹⁰²⁵ Wolf, Werner, 2014.

world action¹⁰²⁶¹⁰²⁷ or to comment upon the social context in which it was created¹⁰²⁸. It *can* do these things; indeed, Koenitz does consider Brechtian practice as a model for computational narrative design¹⁰²⁹, and as Chapter 1 of this thesis explored, some of my objectives for *knole* could well be consider ‘metaleptical’.

While works produced autocosmically are interested in the ‘tradition-smashing’¹⁰³⁰ philosophy at the heart of the ‘decontainment’ of art¹⁰³¹, and how a move away from the ‘residues of a European past’¹⁰³² and a strict Formalism might inform narrative practice, its objectives are still most definitely aesthetic and artisanal. An autocosmic narrative is still primarily a narrative designed for aesthetic reception, concerned with the imaginative evocation of non-actual worlds and places *for their own sake*, or rather for the objectives and stances of the artists and audiences that co-produce them. It seeks to reconsider the ‘conventions of presentation and display of art’, and the role of the audience’s reception, through a ‘disciplined effort to observe, engage and interpret the processes of living’¹⁰³³, for aesthetic rather than social ends. Whether this is a betrayal of such movements’ philosophies – to study ‘decontainment’ solely to produce better ‘contained’ art - is a matter of personal opinion.

As a methodology, it is arguably a manifestation, concretisation and extension of all those instances, throughout the history of aesthetic narrative, when artists have sought ‘analogues of art in nonart experience’¹⁰³⁴, whether consciously or not, whether in the early development of artforms, when natural faculties becoming increasingly aestheticised, or in later reconsideration of

¹⁰²⁶ Flanagan, Mary, 2009.

¹⁰²⁷ Decontainment again Gies. 322.

¹⁰²⁸ Krapow, AKrapow, Alla and Jeff, 1993, p. xx.

¹⁰²⁹ Koenitz, Hartmut, 2015, p. 58.

¹⁰³⁰ (social performamnce book 316.

¹⁰³¹ Turl, Adam ‘Interrupting Disbelief: Narrative Conceptualism and Anti-Capitalist Studio Art’, *Red Wedge*, 2015 [Online]. Available at: <https://www.redwedgemagazine.com/essays/interrupting-disbelief-ilya-kabakov-narrative-conceptualism-and-anti-capitalist-studio-art> [Accessed: 20th December 2019].

¹⁰³² Krapow, Allan and Kelley, Jeff, 1993, p. xxvii. xxvii

¹⁰³³ Ibid, p. xii.

¹⁰³⁴ Ibid, p. xvi.

their tenets. Such instances can be found in the direct excitation of physiological traits for 'jump scares' in horror films¹⁰³⁵; in the manner of Impression and other movements to investigate different conceptions of human visual traits. The pseudepigraphical and epistolary forms which `knole` co-opts used the format of everyday narrative forms and receptions to structure artificial narratives to certain 'resonant' ends¹⁰³⁶, and find their natural evolution in today's multiform transmedia works¹⁰³⁷¹⁰³⁸ and alternate reality games¹⁰³⁹, which use the structure and experience of navigating modern communication networks as the basis for narrative experiences of a particular 'resonance'. The 'autocosmic' is a way to frame and consider such examples, and to delineate their methodological techniques, in order to follow their implicit model into other, productive realms in one's own practice.

* * * * *

The nominal term 'autocosmic' is one which I feel best encompasses this method, and distinguishes it from these other practices above described as its own 'generalizable convention'¹⁰⁴⁰, and a convenient summary of the methodological application of 'broader conception[s] of narrativity'¹⁰⁴¹. Other, related terms proved inadequate as I developed this theory over the course of my work. 'Illusion', whether aesthetic or mundane, is problematic, as it has connotations of falsehood that are unhelpful: similarly 'imagination', 'hallucination' and 'mental simulation' have both general and specific meanings in a variety of disciplines, and are too entrenched, 'too heterogenous

¹⁰³⁵ Bruckbauer, John *et al.* 'Physiological Responses in the Anticipation of an Auditory and Visual Stimulus', 2018 [Online]. Available at: http://jass.neuro.wisc.edu/2018/01/601_14.pdf [Accessed: 18th August, 2018].

¹⁰³⁶ cBeebee, Thomas O. 'Introduction: letters, genealogy, power'. In: Beebee. Thomas O. (eds.) *Epistolary Fiction in Europe, 1500 – 1850*. Cambridge: CUP, 1999, pp. 1 – 17, p. 8.

¹⁰³⁷ Suleman, Muhammad Babar 'Like life itself: blurring the distinction between fiction and reality in the *Four Broken Hearts* transmedia storyworld'. *Journal of Media Practice* 15 (3), 2014, pp. 228 – 241. Like life itself: blurring

¹⁰³⁸ Another citationJenkins, storytelling' *Volume 1* (1), 2009, p. 56.

¹⁰³⁹ Labuzke, Nicole 'Alternate Reality Gaming'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 4 – 7.

¹⁰⁴⁰ Koenitz, Hartmut, 2015.

¹⁰⁴¹ Herman, David, 2018.

and ill-understood¹⁰⁴² to represent something more precise. 'Narrative', in the general sense of 'mental representation'¹⁰⁴³ that narratologists mean it, is again too controversial in application¹⁰⁴⁴¹⁰⁴⁵, and, as this chapter has shown, may contain within it associations which are unhelpful.

The term 'autocosmic' translates as 'self-worlds', and is designed to refer to the undifferentiated range of faculties, forms and apparatus that produce and sustain imaginative engagement with all manner of artefacts and phenomena, and the production of embodied mental 'cosmoses'¹⁰⁴⁶; both aesthetic and otherwise. Unlike other terms in narratology, it has no prior associations and 'is not part of everyday speech[,] and thus more suitable as a technical term with a specialized meaning'¹⁰⁴⁷. It makes no implicit distinction between the types, origins and qualities of the 'cosms' that it refers to, allowing itself to 'comprise many more things than we would normally subsume'¹⁰⁴⁸ under the label of 'aesthetic' illusion. I have adapted it from another pleasing term, 'paracosm', used extensively (but not coined¹⁰⁴⁹) by the developmental psychologist Marjorie Taylor¹⁰⁵⁰. In her work, it specifically describes the intricate fictional worlds invented by children, the mentally ill and artists alike. Taylor makes no judgement between these three self-expressive uses of the imagination, but finds interest in all of them; an approach which I can only hope to emulate.

¹⁰⁴² Moran, Richard, 1994

¹⁰⁴³ Sternberg, Meir 'Universals of Narrative and Their Cognitivist Fortunes'. *Poetics Today* 24 (3), 2003, pp. 517 – 638, p. 555.

¹⁰⁴⁴ Ryan, Marie-Laure Ryan, p. 528.

¹⁰⁴⁵ Sternberg, Meir, 2003.

¹⁰⁴⁶ Nash, Christopher, 1987, p.8.

¹⁰⁴⁷ Niederhoff, Burkhard, 'Focalization', *the living handbook of narratology*, 2013 [Online]. Available at: <https://www.lhn.uni-hamburg.de/node/18.html> [Accessed: 20th December 2019].

¹⁰⁴⁸ Mellmann, Katja 2013, p. 82.

¹⁰⁴⁹ Cohen, David and Mackeith, Stephen *The Development of Imagination: The Private Worlds of Childhood*. London: Routledge, 1992.

¹⁰⁵⁰ Taylor, Marjorie *et al.* 'Imaginary Worlds in Middle Childhood: A Qualitative Study of Two Pairs of Coordinated Paracosms'. *Creativity Research Journal* 27 (2), 2015, pp.167-174.

Section 2.3: An Autocosmic Approach To The Challenges Of Computational Character

It is in the ‘autocosmic’ stance towards artistic development – the seeking of models for constructing aesthetic narrative experiences *outside* the bounds of aesthetic artifice – that most concerns me in my investigation into the creation of ‘resonant’ computational character. While I believe it is a stance that could benefit *any* artist, working in any form (see Conclusion), I feel that it has a particular relevance to narrative comp-art.

This is because conventional methodologies in this form do not only tend towards the established conventions of that form; indeed, they often pursue the ‘emotional residue of previous narrative experiences’¹⁰⁵¹ as a template for their own efforts. Often, solutions to the challenges of comp-art (like those laid out in Chapter 1) are ‘imported from other media’¹⁰⁵², constructed and evaluated by the standards, and working practices, of books, films¹⁰⁵³¹⁰⁵⁴, radio¹⁰⁵⁵, theatre¹⁰⁵⁶ and the ‘love stories and intimate dramas’¹⁰⁵⁷ of other, traditional aesthetic sources of ‘non-actual’ personhood¹⁰⁵⁸¹⁰⁵⁹¹⁰⁶⁰.

While it would be wrong to state that such models of characterisation are entirely ‘irrelevant’¹⁰⁶¹, their influence avoidable¹⁰⁶²¹⁰⁶³, or the efforts of ‘artists... working to understand [personhood] for millennia’¹⁰⁶⁴ of no use to the comp-artist, there is agreement that the ‘particular’¹⁰⁶⁵ formal qualities of comp-art have been under-considered when such traditional

¹⁰⁵¹ Jenkins, Henry, 2006, p. 671.

¹⁰⁵² Murray, Janet, 1999, p. 58.

¹⁰⁵³ Koster, Raph *et al.*, 2018.

¹⁰⁵⁴ Bogost, Ian, 2017.

¹⁰⁵⁵ Pratt, Charles *In: Klepek, Patrick*, 2017.

¹⁰⁵⁶ Laurel, Brenda, 1993.

¹⁰⁵⁷ Spector, Warren, 2013

¹⁰⁵⁸ Lankoski, Petri and Bjork, Staffan, 2007.

¹⁰⁵⁹ Loyall, A. Bryan, 1997.

¹⁰⁶⁰ Ryan, Marie-Laure, 2001.

¹⁰⁶¹ Calleja, Gordon, 2011, p.2.

¹⁰⁶² Tavinor, Grant, 2007, p.2.

¹⁰⁶³ Keogh, Brendan, 2015.

¹⁰⁶⁴ Loyall, A. Bryan, 1997, p.169.

¹⁰⁶⁵ Keogh, Brendan, 2015.

models are applied¹⁰⁶⁶¹⁰⁶⁷¹⁰⁶⁸¹⁰⁶⁹. As Koenitz asserts, the nature of such models as 'the Aristotelian arc', which is often cited as a major foundation for comp-art narratives, has been misunderstood entirely¹⁰⁷⁰.

Chapter 1 of this thesis began with a consideration of the universal similarities between all characters, and the 'particular'¹⁰⁷¹ differences of those mediated computationally; and it appears that often computational characters have not attempted to balance these two considerations, but rather have mistaken the specific qualities of other narrative media for universal prescriptions.

Ryan and Bogost both critique Murray's 'holodeck'¹⁰⁷² – her concept of narrative comp-art as an uncomplicated procedural recreation of the existing canon – as a 'myth' and a 'dream'¹⁰⁷³¹⁰⁷⁴ which has little chance of being realised using computational technologies. Others consider the adoption of 'classical notions of narrative'¹⁰⁷⁵ in comp-art to be a 'fraught practice'¹⁰⁷⁶, both 'useful and dangerous'¹⁰⁷⁷. Such 'legacy theoretical frameworks'¹⁰⁷⁸ were not designed to respond to the 'alternative aesthetic principles'¹⁰⁷⁹ – the different resonances and 'systemic model[s]'¹⁰⁸⁰ – that arise from computational

¹⁰⁶⁶ Madej, Krystina "'Traditional Narrative Structure': not traditional so why the norm?". *Proceedings of NILE 2008*, 2008.

¹⁰⁶⁷ Koenitz, Harmut 'Beyond "Walking Simulators": Games as the Narrative Avant-Garde'. *Proceedings of the DiGRA Conference 2017*, 2017.

¹⁰⁶⁸ Koenitz, Hartmut *et al.*, 2015, p.152.

¹⁰⁶⁹ Aarseth, Espen. 'A Narrative Theory of Games' *Foundation of Digital Games 2015*, 2015, pp. 1–5.

¹⁰⁷⁰ Koenitz, Hartmut *et al.*, 2018.

¹⁰⁷¹ Keogh, Brendan, 2015.

¹⁰⁷² Murray, Janet, 1997.

¹⁰⁷³ Bogost, Ian, 2017.

¹⁰⁷⁴ Ryan, Marie-Laure, 2001.

¹⁰⁷⁵ Calleja, Gordon 'Experiential Narrative In Game Environments'. *Proceedings of the DiGRA 2009 Conference*. DiGRA, 2009, p. 1.

¹⁰⁷⁶ Ciccoricco, David 'Games as Art/Literature'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 220 -224, p. 223.

¹⁰⁷⁷ Wright, Will 'Introduction' In: Freeman, David *Creating Emotion In Games*. Berkeley: New Riders, 2004.

¹⁰⁷⁸ Koenitz, Hartmut *et al.*, 2015, p. 96.

¹⁰⁷⁹ Jenkins, Henry, 2006, p. 671.

¹⁰⁸⁰ Short, Tanya X. *Writing Modular Characters for System-Driven Games*, 2018 [Online]. Available at: <https://www.gdcvault.com/play/1025017/Writing-Modular-Characters-for->

practice. Many of the struggles to produce resonant characters may derive directly from attempts to "interactivize" traditionally static structures instead of exploring dynamic models¹⁰⁸¹; 'map[ping] traditional narrative structures'¹⁰⁸² to decidedly different procedural structures in comp-art¹⁰⁸³¹⁰⁸⁴¹⁰⁸⁵.

In counselling a move away from traditional narrative models, I do not capitulate to a strictly Formalist, or ludological position¹⁰⁸⁶ that debates the importance of narrativity and 'worldness'¹⁰⁸⁷ to videogames and other comp-art entirely; indeed, former supposed proponents of this position, such as Frasca and Eskenlinen, have struggled to shake off their ludological albatrosses and to counsel a more integrative 'narrativist simulation', or 'functional ludo-narrativism'¹⁰⁸⁸ that privileges the 'complex interplay between these two modes of representation'¹⁰⁸⁹¹⁰⁹⁰. In this spirit, new models must be sought which provide 'more suitable... narrative modes and themes'¹⁰⁹¹; narrative forms that may well be found outside of *any* self-consciously aesthetic practice, in the 'everyday aesthetics'¹⁰⁹² of our embodied imagination.

Scholars and practitioners have written extensively on the need for comp-art's narrative models that cleave 'closer to life experience'¹⁰⁹³ and 'the individual's phenomenal relation to the world'¹⁰⁹⁴, as an 'experience... distinct from artefact or object'¹⁰⁹⁵. They have recognised that the

System [Accessed 8th August 2018].

¹⁰⁸¹ Koenitz, Hartmut, 2015, p. 3.

¹⁰⁸² Jenkins, Henry, 2006, p. 671.

¹⁰⁸³ Koenitz, Hartmut *et al.*, 2015, p. 72.

¹⁰⁸⁴ Thon, Jan-Noel, 2014, p. 351.

¹⁰⁸⁵ Calleja, Gordon, 2011, p. 120.

¹⁰⁸⁶ Koenitz, Hartmut *et al.* 'Introduction: The Evolution of Interactive Digital Narrative Theory'. In: Koenitz, Hartmut *et al.* (eds.), 2015, pp. 67 – 76.

¹⁰⁸⁷ Ryan, Marie-Laure 'On The Worldness Of Narrative Representation' *Expanding Universes: Exploring Transmedial and Transfictional Ways of World-building International Conference*. Krakow, 2016.

¹⁰⁸⁸ Ryan, Marie-Laure *Avatars Of Story*. Minneapolis: UMP, 2006, p. 203.

Avatars of story

¹⁰⁸⁹ Koenitz, Hartmut, 2015, p. 56.

¹⁰⁹⁰ Felix Schröter and Jan-Noël Thon Video Game Characters

¹⁰⁹¹ Ryan, Marie-Laure, 2001.

¹⁰⁹² Light, Andrew and Smith, Jonathan, 2005.

¹⁰⁹³ Ryan, Marie-Laure, 2014, p. 11.

¹⁰⁹⁴ Vella, Daniel, 2015.

¹⁰⁹⁵ Candy, Linda and Ferguson, Sam (eds.) 2014, p. 2.

computational's ability to represent functionality through 'procedural combinatorics'¹⁰⁹⁶ has more in common with our 'experiential'¹⁰⁹⁷, systemic, social, interactive, 'sensorimotor'¹⁰⁹⁸ engagement with worlds directly than other modes of mimesis¹⁰⁹⁹. There is promising work on the creation of new approaches which explore in detail the variety of narrative experiences that are created when the 'system-modeling medium'¹¹⁰⁰¹¹⁰¹ of the embodied human mind works in concert with the material systems of the world. These range from the reconsideration of the 'story arc' as a model for narrative progress in comp-art¹¹⁰², to the study of non-Western narrative structures and characterisations¹¹⁰³. The 'autocosmic' is a way to frame the methodological spirit that lies behind such work: a conceptual and practical framework for seeking a wider set of exemplars of *process*, beyond the traditionally 'aesthetic', in order to inspire new processes of 'resonant' narrative construction within comp-art. My work on Project *knole* is a specific implementation of this general methodology.

An autocosmic approach to creating 'resonant' computational characters, then, requires methodological access to the full spectrum of human experience of 'narrative' (or, in Ryan's rubric, 'narrativist'¹¹⁰⁴) forms, including, in the words of Allan Krapow, 'whatever has not yet been accepted as art, but has caught an artist's attention with that possibility in mind'¹¹⁰⁵. Such forms must be interrogated to understand how they 'resonate', according to the universal principles of narrative response. They must, finally, stand as object lessons for overcoming the challenges, and harnessing the opportunities, of computational narratives. Specifically in the case of this thesis, this means

¹⁰⁹⁶ Koenitz, Hartmut, 2015, p. 53.

¹⁰⁹⁷ Calleja, Gordon, 2011, p. 119.

¹⁰⁹⁸ Penny, Simon *What Is Artful Cognition?*, 2003 [Online]. Available at: <https://pdfs.semanticscholar.org/2bc3/85604c2870c61c861966093cd4fdb615fb0.pdf> [Accessed 8th August 2018], p. 5.

¹⁰⁹⁹ Szilas, Nicolas 'Reconsidering the Role of AI in Interactive Digital Narrative. In: Koenitz, Hartmut *et al.* (eds.), 2015, pp. 136 - 149, p. 145.

¹¹⁰⁰ Murray, Janet, 1997, p.111.

¹¹⁰¹ Koenig, Nikolaus, 2016.

¹¹⁰² Koenitz, Hartmut 'The 'Story Arc' – a Ghost of Narrative Game Design'. Melbourne: DiGRA Conference, 2017.

¹¹⁰³ Koenitz, Hartmut, 2017.

¹¹⁰⁴ Ibid. p. 525.

¹¹⁰⁵ Krapow, Allan and Kelley, Jeff (eds.) *Essays on the Blurring of Art and Life*. Berkeley: UCP, 1993.

representing personhood in a way that is both meaningfully computational and ‘resonant’.

For some, this challenge is a lost cause: in his provocative article *Video Games Are Better Without Characters*, theorist Ian Bogost asks why the ‘representation of individuals, as opposed to systems and circumstances’, should be the focus of comp-art at all. To Bogost, the pursuit of computational characterisation ignores the fundamental representative power of the form: to ‘experience a model of some aspect of the world, in a role that forces [us] to see that model in a different light, and in a context that’s bigger than [our] individual actions’¹¹⁰⁶. This is what Bogost means by his term ‘procedural rhetoric’ - the heart of comp-art’s ability to resonate – and it is, in his view, decoupled from the ‘person-first’ frameworks of traditional narrative. Fundamentally, I agree with Bogost upon the idea of the dynamic model, or the simulatory system, as a primary representative structure of comp-art: yet I disagree that such systems fundamentally exclude ‘the representation of individuals’.

Characters – ‘non-actual’ persons, and indeed real people – can be constituted as systemic; as parts of larger systems, and as systems themselves. The answer to the challenge that Bogost (rightly) points out in his article is not to pursue other types of system – ones that avoid the fundamentals of characterisation – but to find new ways to represent systemic personhood, characters-as-systems – ‘personified systems’ – resonantly. It is clear that traditional models of character do not suffice in this regard; and as Chapter 1 demonstrated, attempts to directly and meaningfully represent persons-as-systems (particularly by directly modelling psychological models¹¹⁰⁷) remains a challenging prospect, especially for individual artists. Therefore, the main query of my ‘autocosmic’ model is as to precisely where else, in the gamut of human mental experience, models of meaningful, narrative, social interaction with personified systems can be found which can be applied metaphorically – in response and as stimuli – to the paradigms of comp-art.

¹¹⁰⁶ Bogost, Ian, 2017.

¹¹⁰⁷ Schonbrodt, Felix and Asendorpf, Jens ‘The Challenge of Constructing Psychologically Believable Agents’. *Journal of Media Psychology* 23 (2), 2011, pp. 100 – 107.

In Chapter 3, the final chapter of this thesis, I will detail how Project knole has, as an example of an autocosmic methodology, sought models of human narrative response to 'personified systems' outside of traditional models provided by the 'aesthetic' arts; in some unlikely, but highly resonant, places. As an approach to creating computational character autocosmically, in a way that 'take[s] into account the[ir] cybernetic nature'¹¹⁰⁸, it seeks neither technical excellence, nor adherence to strict formal precepts: rather, it requires a reconsideration of what character – of what a person – can be.

¹¹⁰⁸ Calleja, Gordon 2011, p. 135.

"This Foetid And Un-kept Place"

Applying The Autocosmic Method To Computational Character

Section 3.1: The Autocosmic In kno1e

The 'autocosmic' is not a methodology in and of itself, but is rather a philosophy; a 'stance', in Dennett's sense of the word, towards an artist's own creative procedure¹¹⁰⁹. In short, it gives artists a set of guidelines by which to seek out a wider gamut of exemplars, from across human experience, deliberately distant from the precepts of their own aestheticised discipline. This promiscuity is not advisable merely in terms of subject matter, theme or material aesthetic: backed by interdisciplinary research, the autocosmic considers the manners in which other human experiences are received – the way they are made, refined and understood – as equally instructive to constructing 'resonant' artworks.

For my own project, this procedure was primarily concerned with the construction and reception of 'persons', and so I have sought other discourses – beyond the fictive and the aesthetic – where the human imagination resonantly engages with 'persons', either real or imaginary; particularly when that engagement is systemic in some manner.

An artist's touchstones are not always (or ever) exhaustively delineated, and their presence may be barely felt in the final work, despite their importance to its development. In my case, such touchstones included subjects

¹¹⁰⁹ Dennett, Daniel *The Intentional Stance*. Massachusetts: The MIT Press, 1998.

as disparate as human-animal relationships¹¹⁰¹¹¹¹¹¹¹²¹¹³¹¹⁴¹¹⁵¹¹⁶, ethology¹¹¹⁷, euthanasia studies¹¹¹⁸¹¹¹⁹¹¹²⁰, toy studies¹¹²¹¹¹²²¹¹²³ (particularly electronic toys and other 'relational artefacts'¹¹²⁴¹¹²⁵¹¹²⁶¹¹²⁷¹¹²⁸), human-robot interaction across many domains¹¹²⁹¹¹³⁰¹¹³¹¹¹³²¹¹³³ and use cases¹¹³⁴¹¹³⁵¹¹³⁶¹¹³⁷¹¹³⁸¹¹³⁹¹¹⁴⁰, chatbots¹¹⁴¹¹¹⁴²¹¹⁴³, imaginary friends¹¹⁴⁴¹¹⁴⁵, videogame 'bots'¹¹⁴⁶¹¹⁴⁷¹¹⁴⁸, automata and early animatronics¹¹⁴⁹¹¹⁵⁰¹¹⁵¹, dehumanisation studies¹¹⁵², mechanomorphism¹¹⁵³¹¹⁵⁴ and

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- ¹¹¹⁰ Derrida, Jacques *et al.* (eds.) *The Animal That Therefore I Am*. New York: Fordham University, 2008.
- ¹¹¹¹ Sherman, Robert *Yoki*, 2016 [Online]. Available at: <http://bonfiredog.co.uk/bonfog/2016/07/15/1739/> [Accessed 25/04/19].
- ¹¹¹² Herman, David *Narratology Beyond The Human: Storytelling and Animal Life*. Oxford: Oxford University Press, 2018.
- ¹¹¹³ Hediger, H., Sircom, G. (trans.) *Wild Animals In Captivity*. New York: Dover, 1964.
- ¹¹¹⁴ Etchells, Pete *Our complicated relationship with cats*, 2013 [Online]. Available at: <http://www.theguardian.com/science/head-quarters/2013/sep/12/neuroscience-psychology> [Accessed 18th August 2018].
- ¹¹¹⁵ Gjersoe, Nathalia *Dogs: An Uncomplicated Relationship*, 2013 [Online]. Available at: <http://www.theguardian.com/science/head-quarters/2013/sep/23/dogs-uncomplicated-relationship-research> [Accessed 18th August 2018].
- ¹¹¹⁶ Sherman, Robert *A Talk Given To The Bath Spa Empathy Research Group, 29th February 2016*, 2016 [Online]. Available at: <http://bonfiredog.co.uk/bonfog/2016/03/25/a-talk-given-to-the-bath-spa-empathyresearch-group-29th-february-2016/> [Accessed 8th August 2018].
- ¹¹¹⁷ McFarland, David *Animal Behaviour*. London: Longman, 1993.
- ¹¹¹⁸ Villalobos, Alice *Quality Of Life Scale*, 2004 [Online]. Available at: http://www.aplb.org/resources/quality-of-life_scale.php [Accessed: 8th August 2018]
- ¹¹¹⁹ Jones-Fairnie, Helen 'Book Review: Compassion Fatigue in the Animal Care Community'. *Australian Veterinary Journal* 86 (5), 2008.
- ¹¹²⁰ Bride, Brian E. 'Book Review: Compassion Fatigue in the Animal-Care Community' *Traumatology* 14 (1), 2008.
- ¹¹²¹ Cook, Ian, and Tara Woodyer. 'Lives of things.' In: *Wiley-Blackwell Companion to Economic Geography*. Oxford: Wiley-Blackwell, 2012, pp. 226-241.
- ¹¹²² Francis, Andrea P. and Mishra, Punya 'Differences in Children's Verbal Responses and Behavioral Interactions with Anthropomorphic Artifacts', 2008.
- ¹¹²³ Watson, Rachel 'Little girl's fear of 'evil' lurking in cute Furby'. *Daily Mail*, 10/02/14.
- ¹¹²⁴ Turkle, Sherry, 2005.
- ¹¹²⁵ Marenko, Betti 'Neo-Animism and Design: A New Paradigm in Object Theory' *Design And Culture* 6 (2), 2014, pp. 219 – 242.
- ¹¹²⁶ Harley. David, *Watching The Furby Fly*, 2015 [Online]. Available at: <http://itsecurity.co.uk/2015/09/watching-the-furby-fly/> [Accessed 8th August

compassion fatigue¹¹⁵⁵¹¹⁵⁶¹¹⁵⁷, amongst many others. All of these discourses provided alternative, sometimes-surprising insights into the way human beings engage with other people, imaginary beings, constructed entities and experiences; often stretching the definition of what might be considered 'interpersonal interaction'.

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- 2018].
- ¹¹²⁷ Batchelor Warnke, Melissa *Why We Were Addicted to Our Tamagotchis*, 2015 [Online]. Available at: https://www.vice.com/en_uk/read/in-praise-of-tamagotchi-683 [Accessed 18th August 2018].
- ¹¹²⁸ Sherman, Robert *Empathy Machines: Love, Guilt and Paracosmics in Interactive Characters*, 2016 [Online]. Available at: <http://bonfiredog.co.uk/bonfog/2016/05/20/empathy-machines-love-guilt-and-paracosmics-in-interactive-characters/> [Accessed 8th August 2018].
- ¹¹²⁹ Canamero, Lola and Lewis, Matthew 'Making New "New AI" Friends: Designing a Social Robot for Diabetic Children from an Embodied AI Perspective'. *International Journal Of Social Robotics* 8 (4), 2016, pp. 523 - 537
- ¹¹³⁰ Lee, Vivien *Feeling lonely and isolated? Can a virtual pet companion help? - GeriJoy*, 2015 [Online]. Available at: <http://www.gerijoy.com/feeling-lonely-and-isolated-can-a-virtual-pet-companion-help/> [Accessed 18th August 2018].
- ¹¹³¹ Waytz, Adam and Norton, Michael *How to Make Robots Seem Less Creepy*, 2014 [Online]. Available at: <http://www.wsj.com/articles/how-to-make-robots-seem-less-creepy-1401473812?tesla=y&mg=reno64-wsj&url=http://online.wsj.com/article/SB10001424052702303627504579557683237189354.html> [Accessed 11th August 2018].
- ¹¹³² Rosenthal von der Putten, Astrid and Kramer, Nicole C. 'How design characteristics of robots determine evaluation and uncanny valley related responses'. *Computers In Human Behaviour* 36 (1), 2014, pp. 422 – 439.
- ¹¹³³ Fink, J. *et al.* 'Anthropomorphic Language in Online Forums about Roomba, AIBO and the iPad'. In: *Proceedings of the 2012 IEEE International Workshop on Advanced Robotics and its Social Impacts* Munich: IEEE, 2012.
- ¹¹³⁴ Hendrick, Bram *et al.* 'Robot Vacuum Cleaner Personality and Behavior'. *International Journal of Social Robotics*. 3 (1), 2011, pp. 187 – 195.
- ¹¹³⁵ *Paro Robots*, 2014 [Online]. Available at: <http://www.parorobots.com/> [Accessed 18th August 2018].
- ¹¹³⁶ Brazeal, Cynthia *Designing Sociable Robots*. Massachusetts: The MIT Press, 2004.
- ¹¹³⁷ Wiseman John *Braitenberg Vehicles: Simulator Runs*, 1998 [Online]. Available at: <http://people.cs.uchicago.edu/~wiseman/vehicles/test-run.html> [Accessed: 18th August 2018].
- ¹¹³⁸ Herath, Damith *et al. (eds.) Robots and Art: Exploring an Unlikely Symbiosis*. Germany: Springer, 2016.
- ¹¹³⁹ **The Stem**
- ¹¹⁴⁰ Novikova, Jekaterina *et al.* 'Emotionally expressive robot behavior improves human-robot collaboration' 24th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), 2015.
- ¹¹⁴¹ Weizenbaum, Joseph 'ELIZA - A Computer Program For The Study of Natural Language Communication Between Man And Machine' *Communications Of The ACM* 9 (1), 1966,

However, my most productive line of enquiry, which has most indelibly coloured development and construction of Project `knole` as a work of resonant computational characterisation, is that of the imaginative relationship between human beings and *environments*. 'Environment', here, is 'broadly conceived'¹¹⁵⁸, subsuming a wide range of concepts, from the most general ideas of 'space' to more specific definitions of 'place', 'worlds'¹¹⁵⁹, 'locales' and 'surroundings'. It includes aesthetic environments, 'landscapes', as well as more systemic, relational conceptions, from the scientific definitions of

pp. 36 – 45.

- ¹¹⁴² Humphrys, Mark *How my program passed the Turing Test*, 2008 [Online]. Available at: <http://computing.dcu.ie/~humphrys/Turing.Test/08.chapter.html> [Accessed 8th August 2018].
- ¹¹⁴³ Sherman, Robert *A Lifetime With Dom*, 2016 [Online]. Available at: <http://bonfiredog.co.uk/bonfog/2016/06/07/a-lifetime-with-dom/> [Accessed 8th August 2018].
- ¹¹⁴⁴ Taylor, Marjorie 'Children's Imaginary Companions: What is it Like to Have an Invisible Friend?' In: *Handbook of Imagination and Mental Simulation*. London: Routledge, 2008.
- ¹¹⁴⁵ Hoff, Eva V. 'Imaginary Companions, Creativity and Self-Image in Middle Childhood'. *Creativity Research Journal* 17 (2-3), pp. 167 – 180.
- ¹¹⁴⁶ Khoo, Aaron and Zubek, Robert, 2002.
- ¹¹⁴⁷ Partington, Samuel J. and Bryson, Joanna J. 'The Behavior-Oriented Design of an Unreal Tournament Character'. University of Bath.
- ¹¹⁴⁸ Hingston, Philip (eds.) *Believable Bots: Can Computers Play Like People?* Heidelberg: Springer, 2012.
- ¹¹⁴⁹ Riskin, Jessica *Frolicsome Engines: The Long Prehistory of Artificial Intelligence*, 2016 [Online]. Available at: <http://publicdomainreview.com/2016/05/04/frolicsome-engines-the-long-prehistory-of-artificial-intelligence/> [Accessed: 18th August 2018].
- ¹¹⁵⁰ Groeneveld, Leanne 'A Theatrical Miracle: The Boxley Rood of Grace as Puppet'. *Early Theatre* 10 (2), 2007, pp.1 – 40.
- ¹¹⁵¹ McCorduck, Pamela, 1979
- ¹¹⁵² Haque, Omar Sultan and Waytz, Adam 'Dehumanization in Medicine: Causes, Solutions and Functions'. *Perspectives on Psychological Science* 7 (2), 2012, pp. 176-186
- ¹¹⁵³ Karlsson, F. 'Anthropomorphism and mechanomorphism'. *Humanimalia* 3 (2), 2012, pp. 107 – 122.
- ¹¹⁵⁴ Sherman, Robert *February 12th, 2016*, 2016 [Online]. Available at: <http://bonfiredog.co.uk/bonfog/2016/02/12/1532/> [Accessed 8th August 2018].
- ¹¹⁵⁵ Kolthoff, Kay L. And Hickman, Susan E. 'Compassion fatigue among nurses working with older adults'. *Geriatric Nursing* 20 (1), 2016, pp. 1 -4.
- ¹¹⁵⁶ LeDoux, Kathleen 'Understanding compassion fatigue: understanding compassion' *Journal of Advanced Nursing* 71 (9), 2015, pp. 2041 – 2050.
- ¹¹⁵⁷ Najjar, Nadine *et al.* 'Compassion Fatigue: A Review of the Research to Date and Relevance to Cancer-care Providers'. *Journal of Health Psychology* 14 (2), 2009, pp. 267 – 277.

'ecosystem' to the object-oriented narrative landscapes of the Russian school¹¹⁶⁰.

A study of the human relationship with space and place has often seemed an odd template for designing interrelationships between persons. The almost-inviolable distinction between places and beings – agents and environments, characters and settings – has historically transcended any one discipline¹¹⁶¹¹¹⁶²¹¹⁶³. Despite their importance as 'one of the most powerful affective devices' in our species' history¹¹⁶⁴, the spaces in which our narratives – of any sort – take place have often been categorically distinguishable from the beings that inhabited and enacted within them. My autocosmic research, however, has revealed an interdisciplinary and cross-generational tangle of

¹¹⁵⁸ Tally Jr, Robert and Battista, Christina M. 'Introduction: Ecocritical Geographies, Geocritical Ecologies, and the Spaces of Modernity'. In Tally Jr, R and Battista, CM (eds.) *Ecocriticism and Geocriticism: Overlapping Territories in Environmental and Spatial Literary Studies*. Basingstoke: Palgrave Macmillan, 2016, p. 2.

¹¹⁵⁹ Ryan, Marie Laure, 2001, p.91.

¹¹⁶⁰ Chatman, Seymour *Story And Discourse: Narrative Structure in Fiction and Film*. London: Cornell University Press, 1980, p. 139.

¹¹⁶¹ Schneider, Ralph 'Towards a Cognitive Theory of Literary Character: The Dynamics of Mental-Model Construction'. *Style* 35 (1), pp. 607 – 640.

¹¹⁶² Ryan, Marie-Laure 'Space', *the living handbook of narratology*, 2014 [Online]. Available at: <https://www.lhn.uni-hamburg.de/node/55.html> [Accessed: 12th October 2019].

¹¹⁶³ Hones, Sheila 'Literary Geography: setting and narrative space'. *Social & Cultural Geography* 12 (7), 2011, pp.685 – 699, p. 687.

¹¹⁶⁴ Martin, Gareth Damian, 2016.

ideas and theses, from the arts and sciences¹¹⁶⁵¹¹⁶⁶¹¹⁶⁷¹¹⁶⁸¹¹⁶⁹¹¹⁷⁰¹¹⁷¹¹⁷²¹¹⁷³¹¹⁷⁴¹¹⁷⁵¹¹⁷⁶¹¹⁷⁷¹¹⁷⁸¹¹⁷⁹¹¹⁸⁰¹¹⁸¹, which circumscribe a new, more complex ontology full of surprising fusions. This 'spatial' or 'spatiotemporal turn'¹¹⁸²¹¹⁸³¹¹⁸⁴¹¹⁸⁵ enlarges environments, spaces and places beyond the role of 'empty container'¹¹⁸⁶¹¹⁸⁷ into livelier, more troublesome objects of study. In such a light, comparing persons and environments (whether real or imagined) does not seem so strange. Both appear rich in

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- ¹¹⁶⁵ Alexander, Neil. 'On Literary Geography'. *Literary Geographies* 1 (1), 2015.
- ¹¹⁶⁶ Tally Jr, Robert and Battista, Christina M, 2016.
- ¹¹⁶⁷ Moscardo, Gianna 'Interpretation, Culture and the Creation of Place'. *Tourism Recreation Research* 32 (3), 2007, pp. 57 – 64.
- ¹¹⁶⁸ Allen, Casey D. 'On Actor-Network Theory and Landscape'. *Area* 43 (3), 2011, pp. 274-280.
- ¹¹⁶⁹ Latour, Bruno *Reassembling The Social.: An Introduction To Actor-Network Theory*. Oxford: OUP, 2005.
- ¹¹⁷⁰ Wolf, Mark J., 2016.
- ¹¹⁷¹ Von Bertalanffy, Ludwig *General System Theory: Foundations, Development, Applications*. New York: George Braziller, 1976.
- ¹¹⁷² Kull, Kalevi *et al.*, 2009, pp.167–173.
- ¹¹⁷³ Rose, Deborah Bird *et al.* 'Thinking Through The Environment, Unsettling The Humanities'. *Environmental Humanities* 1 (1), 2012, pp. 1 – 5.
- ¹¹⁷⁴ Caracciolo, Marco 'The Reader's Virtual Body: Narrative Space and its Reconstruction'. *Storyworlds* 3, 2011, pp. 117 – 138.
- ¹¹⁷⁵ Reinhard, Andrew 'Landscape Archaeology in *Skyrim VR*'. In: Champion, Erik M (eds.) *The Phenomenology of Real and Virtual Places*. UK: Routledge, 2018, pp.
- ¹¹⁷⁶ Tilley, Christopher. *A Phenomenology of Landscape: Places, Paths and Monuments*. Berg, 1994.
- ¹¹⁷⁷ Lioi, Anthony 'Of Swamp Dragons: Mud, Megalopolis and a Future for Ecocriticism'. In: Ingram, Annie M. et al (eds.) *Coming into Contact: Explorations in Ecocritical Theory and Practice*. Georgia: University of Georgia Press, 2007, pp. 17 – 38.
- ¹¹⁷⁸ Heylighen, Francis 'Cybernetics and Second-Order Cybernetics'. In: Meyers, R A (eds.) *Encyclopedia of Physical Science and Technology*. New York: Academic Press, 2001, pp. 1 – 24.
- ¹¹⁷⁹ Wilson, Margaret 'Six views of embodied cognition'. *Psychonomic Bulletin & Review* 9 (4), 2002, pp. 625 – 636.
- ¹¹⁸⁰ Tuan, Yi-Fu *Space and Place: The Perspective Of Experience*. Minnesota: University of Minnesota Press, 2001.
- ¹¹⁸¹ Ewalt, Joshua. 'Mapping And Spatial Studies', *Oxford Research Encyclopedias*, 2017 [Online]. Available at: <https://oxfordre.com/communication/view/10.1093/acrefore/9780190228613.001.0001/acrefore-9780190228613-e-651> [Accessed 27th November 2019].
- ¹¹⁸² Jameson, Fredric *Postmodernism, or the Cultural Logic of Late Capitalism*. USA: Duke University Press, 1991, p. 154.

systemic complexity, resonant 'embodied, emotional... engagements'¹¹⁸⁸, intersubjective agency, individuality and relationality. The evidence for such connections stretches back to the very foundations of our species, and forward to the present day. My character Anne Latch, and the period of which she is a part, occupy a curious fulcrum in this timeline: one of several points throughout human history (certainly Western history) where the idea of place-as-person – as a form of *systemic personhood* – was being renegotiated.

¹¹⁸³ Westphal, Bertrand, Tally Jr, Robert (*trans.*) *Geocriticism: Real & Fictional Spaces*. New York: Palgrave Macmillan, 2007.

¹¹⁸⁴ Guldi, Jo *What is the Spatial Turn?* [Online] Available at: <http://spatial.scholarslab.org/spatial-turn/what-is-the-spatial-turn/> [Accessed: 25th August 2019].

¹¹⁸⁵ Withers, Charles W J. 'Place and the "Spatial Turn" in Geography and in History. *Journal Of The History Of Ideas* 70 (4), 2009, pp. 637-658.

¹¹⁸⁶ Rao, Eleanora 'Mapping The Imagination: Literary Geography'. *Literary Geographies* 3 (2), 2017, pp. 115-124, p. 119.

¹¹⁸⁷ Caracciolo, Marco 'Narrative Space and Reader's Responses To Stories'. *Style* 47 (4), 2013, pp. 425-444.

¹¹⁸⁸ *Ibid.* pg. 425.

Section 3.2: The Enlightenment, And The History Of ‘Place-As-Person’

It is no accident that I chose the tumultuous years of 1759 and 1760 as the ‘focalisation’¹¹⁸⁹ for Project knole’s narrative; a period of two years in which Anne Latch transforms from millworker to influential parvenus. In the development of knole’s artistic components (see Chapter 3.5 and 3.6) these years became a natural choice, given the interests of the project as a whole. Even Anne, in her rural backwater, and doubly excluded from the historic record by her class and her gender, is aware that she lives in ‘Turning’ times, the start of a ‘Newly Age’; even if, as she notes, ‘we be no-place neer a Century’. 1759 and 1760 are two of the high summers of the European Enlightenment, often boldly proclaimed as one of the most ‘significant historical breaks’¹¹⁹⁰ in Western civilisation, fed by the discoveries and discourses of the previous century¹¹⁹¹¹¹⁹²¹¹⁹³¹¹⁹⁴¹¹⁹⁵, in how human beings imagine, interact with and think about the environment around them¹¹⁹⁶¹¹⁹⁷¹¹⁹⁸. Her life, the people she associates with, and the conflicts that lie at the heart of the work, are emblematic of this change.

¹¹⁸⁹ Niederhoff, Burkhard, 2013.

¹¹⁹⁰ Josephson- Storm, Jason A. *The Myth Of Disenchantment: Magic, Modernity and the Birth of the Human Sciences*. London: University of Chicago Press, 2017, p. 7. Disenchantment book

¹¹⁹¹ Soll, Jacob ‘The Culture of Criticism: What do we owe the Enlightenment?’, *The New Republic*, 2015 [Online]. Available at: <https://newrepublic.com/article/121837/what-do-we-owe-enlightenment> [Accessed: 20th December 2019]. *What do we owe the en*

¹¹⁹² Hankins, Thomas L. *Science and the Enlightenment*. Cambridge: CUP, 2003, p. 9. cite

¹¹⁹³ Byrne, Patrick ‘The Figure of Galileo’. *Lonergan Workshop* 22 (1), 2011, pp. 1 – 38. cite

¹¹⁹⁴ Bristow, William ‘The Enlightenment’, *Stanford Encyclopedia of Philosophy*, 2017 [Online]. Available at: <https://plato.stanford.edu/entries/enlightenment/> [Accessed: 12th March 2020].

¹¹⁹⁵ Haraway, Donna ‘Tentacular Thinking: Anthropocene, Capitalocene, Chthulucene’. *E-flux* 75 (1), 2016.e

¹¹⁹⁶ Josephson-Storm, Jason A., 2017, p. 7.

¹¹⁹⁷ Bristow, William, 2017.

¹¹⁹⁸ Kent, John ‘The Enlightenment’. In: Byrne, Peter *et al. (eds.) Companion Encyclopedia of Theology*. London: routledge, 1995, pp. 251 – 271, p. 252.

For Anne Latch, the changes wrought by the Enlightenment cannot come soon enough. In her writing, there is a sense of her desperation to see this change arrive in her lifetime, and to witness what has since become an accepted wisdom of transition - from faith to reason¹¹⁹⁹¹²⁰⁰¹²⁰¹, falsehood to 'Troth', magic to science¹²⁰², body to mind¹²⁰³, organic to artificial – for herself.

Anne's desires and beliefs, and her great 'Work' - the project of taming and working the creature living in the wall of her house – are in their essence a classic perspective both *of* the age and *about* the age. They have their roots in the authoritarian rule of her father over her early life; in the progressive, philanthropic, Romantic Methodism of Mr. Knole, and the proto-feminism in the sermons that his fellow travellers give to Anne and her co-workers at the mill¹²⁰⁴¹²⁰⁵. It has been mapped by her years of service at that mill; its 'changling stations' representing the beginnings of the mechanisation to come¹²⁰⁶. It is nurtured by the paternalistic altruism of the 'gentleman scholar' Mr. Wainscote, who sees Anne first as curiosity, and latterly as a Pygmalionesque project. In the fragments of scientific knowledge that he provides her – glimpses through crude microscopes, the untranslated *Principia* of Isaac Newton and its theories of 'GRAVITAS' - he confirms in her the importance of 'correlationism'¹²⁰⁷ and empiricism: of 'Viewing' things as they truly are.

¹¹⁹⁹ Adorno, Theodore and Horkheimer, Max, *Dialectic of Enlightenment*. London: Verso, 1997, p. 5.

¹²⁰⁰ Harari hariHara, NoaYuva.

¹²⁰¹ 'Prospect the tuble trouble with the Enlightenment'. *Prospect*, 2013 [Online]. Available at: <https://www.prospectmagazine.co.uk/magazine/the-enlightenment-and-why-it-still-matters-anthony-pagden-review> [Accessed: 12th March 2020].

¹²⁰² Josephson-Storm, Jason A., 2017. Magic and science boo

¹²⁰³ Stang, Nicholas. 'Kant's Transcendental Idealism', *Stanford Encyclopedia of Philosophy*, 2016 [Online]. Available at: <https://plato.stanford.edu/entries/kant-transcendental-idealism/> [Accessed 3rd December 2017].

¹²⁰⁴ English, John C. "Dear Sister:" John Wesley and the Women of Early Methodism'. *Methodist History* 33 (1), 1994, pp. 26 – 34. cite

¹²⁰⁵ Mack, Phyllis 'Does gender matter? Suffering and salvation in eighteenth-century Methodism'. *Bulletins of the John Rylands Library* 85 (2-3), 2003, pp. 157 – 176.

¹²⁰⁶ cite Dean, Phyllis *Tst Industrial Revolution*. Cambridge: CUP, 2000.

¹²⁰⁷ Mackay, Robin 'Editorial Introduction'. *Collapse* 2 (1), 2012, pp. 3- 14, p.4.

From these scraps of influence, and with the arrival of the ‘Beest’ in her home, Anne constructs a sophisticated natural and social philosophy that is recognisable, in part, as stereotypical of the age. She is a proud advocate of the ‘doctrine of historical progress’ (as Immanuel Kant has it) ‘toward improvement’¹²⁰⁸, and away from the weaknesses and ‘addlings’ of previous eras. For Anne, such weaknesses are manifold: she has lived amongst the ‘innertainments’ and superstitions¹²⁰⁹, everyday discomforts and primitive gender relations¹²¹⁰ that have, for her (and still for us, often, today) characterised pre-Enlightenment life.

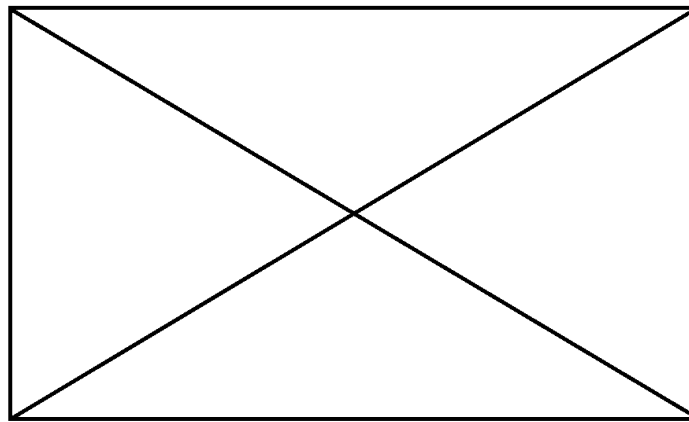


Figure 6: The moor itself: a photograph of the Derbyshire moorland between Redmires and Stanage Edge, where Anne’s story (and the fictional hamlet of Nighthead) is situated¹²¹¹.

Of all these coming changes, however, Anne most anticipates a new relationship between mankind and what she calls ‘the out-of-doors’. Even today, the Enlightenment is often seen as the beginning of mankind’s disjuncture from its natural environment: the urbanising and industrialising

¹²⁰⁸ Rotenstreich, Nathan ‘The Idea of Historical Progress and Its Assumptions’. *History and Theory* 10 (2), 1971, pp. 197 – 221.

¹²⁰⁹ separation of art and A., 2017, p. 53.

¹²¹⁰ Rose-Millar, Charlotte ‘Over-Familiar Spirits: The Bonds between English Witches and Their Devils’. In: Kounine, Laura and Ostling, Michael (eds.) *Emotions in the History of Witchcraft*. London: Palgrave Macmillan, 2016, pp. 173 – 189.

¹²¹¹ See Appendix 9, Figure 20.

‘disenchantment’ of Max Weber’s philosophy¹²¹²¹²¹³¹²¹⁴. For Anne, the barren moorland on which she lives, the ‘verie Scullery of the World’, stands as evidence of the necessity of this disjuncture. It is ‘Foetid’, putrid, full of diseases and ‘animal Liquids’ that cause people (particularly women) illness and misfortune. It is the home of unpredictable, slothful and ‘ornery’ beasts; the source of the ‘addling Ayrs’ that ‘sikken’ and fuel the numerous superstitions of her fellow moorlanders. She can barely contain her contempt for those who see ‘Spriggets’, ‘Defils’ and ‘Feyries’ wherever they look: populating this dangerous and remote place with a raucous ‘social imaginary’¹²¹⁵.

For Anne, the moor represents what is commonly seen as a ‘pre-Enlightenment’ landscape¹²¹⁶¹²¹⁷¹²¹⁸: a place that is populated by demons and spirits, which exert such a force over the lives and bodies of those who live there, and whose workings are such a mystery, that it takes on theological power¹²¹⁹, answerable only to magic, ritual and religion¹²²⁰¹²²¹¹²²²¹²²³. To Anne, the most exciting developments of her ‘Age’ are those which strip such

¹²¹² Weber disenchantmentSchantment, re-enchantment, and enchantment’. *Modern Theology* 25 (3), 2009, pp. 369 – 386.

¹²¹³ Kim, Sung Ho 'Max Weber', *Stanford Encyclopedia of Philosophy*, 2017 [Online]. Available at: <https://plato.stanford.edu/entries/weber/> [Accessed 3rd December 2019].

¹²¹⁴ Jenkins, Richard 'Disenchantment, Enchantment and Re-Enchantment'. *Max Weber Studies* 11 (1), 2000.

¹²¹⁵ Hampton, Alexander, 2018.

¹²¹⁶ Need to cite this.Hernish landscape’ *Cornish Archaeology* 50 (1), 2011, pp. 161 – 174, p. 163.

¹²¹⁷ Tally Jr., Robert *et al. (eds.) Ecocriticism And Geocriticism: Overlapping Territories in Environmental and Spatial Literary Studies*.

¹²¹⁸ Soll, Jacob, 2015. What do we owe the en

¹²¹⁹ Harding, Roberta, 2016.

¹²²⁰ Dennett, Daniel, 2013., p.

¹²²¹ Elsner, John ‘Image and ritual: reflections on the religious appreciation of classical art’. *The Classical Quarterly* 46 (2), 1996, pp. 515-531.John Eisner "it is a c

¹²²² Hampton, Alexander. 'Post-secular Nature and the New Nature Writing'. *Christianity and Literature* 67 (3), 2018.

¹²²³ vision of the soul ch*The Vision Of The Soul*. Washington D.C.: The Catholic University of America Press, 2017, p. 163.

landscapes of their power: which reduce them to 'soulless mechanism'¹²²⁴¹²²⁵¹²²⁶¹²²⁷, put them to use, depopulate them of their menageries (both imagined and actual), remove any Divine presence¹²²⁸ and cancel their terrible agency over the lives of their human inhabitants¹²²⁹¹²³⁰. As far as she is concerned, the landscape can be left to the new, 'disinterested' aesthetic of the middle classes¹²³¹¹²³²¹²³³, divorced from any practical, socially-integrated relationship with place¹²³⁴¹²³⁵. In her more extreme moments, Anne wonders if there is any point to having an 'out-of-doors' at all. When the land is no longer farmed or foraged, and the only people who have use for it are pitiful relics like the cowherd Simon Awlbath; and when everything can be delivered to one's door on the back of a cart, what is the need for a relationship between humanity and landscape? One need never touch, inhabit or traverse such a place ever again: only 'View' it, bloodlessly, detachedly, from one's window.

At the heart of this pathologically intense vision of an 'Enlightened' future – sometimes, too intense for Anne to even articulate – sits the 'Beest' whose appearance inspired it. In Anne's 'View', this creature stands as 'Evidense' of this 'Newly Age's' imminent arrival: a 'Newly sort of Beest', with none of the unpredictabilities, corruptions or troublesome characteristics of living beings – persons – as they currently exist. In its compliance, stillness

¹²²⁴ Garrard, Greg *Ecocriticism*. London: Routledge, 2012, p. 69.

¹²²⁵ Stone, Alison 'Adorno and the disenchantment of nature'. *Philosophy and Social Criticism* 32 (2), 2006, pp. 231 – 253.

¹²²⁶ Bennett, Jane, 2010., p.

¹²²⁷ in lorraine daston - Nature Became the Other: Anthropomorphism and Anthropocentrism in Early Modern Natural Philosophy'. In: Maasen S. et al. (eds.) *Biology as Society, Society as Biology: Metaphors*. Dordrecht: Springer, 1995.

¹²²⁸ SollsWha, doe we owe e

¹²²⁹ Hitt, Christopher 'Ecocriticism and the Long 18th Century'. *College Literature* 31 (3), 2004, pp. 123 – 147.

¹²³⁰ Cussen, Ollie, 2013. rouble with the

¹²³¹ Grier, Michelle 'Kant's Critique of Metaphysics', *Stanford Encyclopedia of Philosophy*, 2018 [Online]. Available at: <https://plato.stanford.edu/entries/kant-metaphysics/> [Accessed: 3rd December 2019].

¹²³² Coleridge, Samuel Taylor, 1997.

¹²³³ Shusterman, Richard 'Art as a Substitute for Religion' [Lecture]. Helsinki: Tieteiden Talo Hall, June 8th 2009. has supplanted

¹²³⁴ Carlson, Allen 'Environmental aesthetics', *Stanford Encyclopedia of Philosophy*, 2019 [Online]. Available at: <https://plato.stanford.edu/entries/environmental-aesthetics/> [Accessed: 12th March 2020].nterestedness' "

¹²³⁵ Shelley, James, 'The Concept of the Aesthetic', *Stanford Encyclopedia of Philosophy*, 2017 [Online]. Available at: <https://plato.stanford.edu/entries/aesthetic-concept/> [Accessed: 12th March 2020].
oduced into phil

and faithfulness, in its floating detachment from the world around it, it represents what Anne hopes all living things will come to be in her imagined future – a ‘Beest’ without ‘Beestliness’, a person without personality, and a character without character.

Of course, the ‘Beest’ is not just a symbol of the approaching, denatured, sterilised ‘iron cage’¹²³⁶: it is a tool for realising it. Anne combines her patchwork education and personal sensibilities with the creature’s behaviours and features to construct her ‘Method’ - a series of almost algorithmic sequences, ‘Receipts’ that allow her to, through the creature, manipulate the mechanical ‘Forses’ behind the World to a variety of ends: comfort, long life, female emancipation and ‘Powre’ over all the world. Through her ‘goodly Work’, nobody will remain subject to Nature’s caprice. Instead, (wo)mankind will master its mechanics, as swiftly and completely as Anne mastered her ‘station’ at Mr. Knole’s mill.

* * * * *

Anne, and others like her then and now, are not incorrect in their circumscription of an intensely imaginative, embodied and (at times) social relationship between humankind and its environment, stretching back into recorded history. Indeed, all evidence points to that relationship being far older still. As Chapter 2 of this thesis delineates, evolutionary processes have privileged a high level of sensory engagement with humanity’s complex, systemic ‘surround’¹²³⁷¹²³⁸¹²³⁹¹²⁴⁰¹²⁴¹, generating further ‘cognised’¹²⁴²

¹²³⁶ Mitzman, Arthur *The Iron Cage: Historical Interpretation of Max Weber*. London: Transaction, 1984. again

¹²³⁷ Emmeche, Claus, 2001, p. 653.

¹²³⁸ McFarland, David. *Animal Behavior: Psychobiology, Ethology and Evolution*. USA: Longman, 1999, p. 35.

¹²³⁹ Bird-David, Nurit. "'Animism" Revisited: Personhood, Environment and Relational Epistemology'. *Current Anthropology* 40 (1), 1999, pp. 67 – 91.

¹²⁴⁰ Latour, Bruno, 2005.

¹²⁴¹ Rappaport, Roy, 1999, p. 100.

¹²⁴² Rappaport, Roy, 1999, p. 19.

simulations¹²⁴³, 'relational epistemologies'¹²⁴⁴, mental models¹²⁴⁵¹²⁴⁶¹²⁴⁷ and extrapolations¹²⁴⁸; embodied processes that, in turn, drive responsive action¹²⁴⁹¹²⁵⁰¹²⁵¹. This basic circuit of environmental engagement takes narrative (or 'narrativist'¹²⁵²) form¹²⁵³¹²⁵⁴; and it is these adaptive patterns of attention, deduction, and embodied response that form the baseplate of later cultural engagement with spaces, places and ecosystems; the telling of stories which impregnate them with meaning¹²⁵⁵¹²⁵⁶.

In Chapter 2, I further outlined how the human narrative tendency is adapted to privilege certain features of that 'surround': that is, any perceived intelligent agents in the environment. Such 'hyperactive agency detect[ion]'¹²⁵⁷ often overcompensates¹²⁵⁸¹²⁵⁹¹²⁶⁰¹²⁶¹¹²⁶², a 'heuristic sensitivity'¹²⁶³ that causes human beings to frequently detect other agents in the world even where none

¹²⁴³ Kitchin, Rob and Freundschuh, Scott. 'Cognitive mapping'. In: Kitchin, Rob and Freundschuh, Scott (eds.). *Cognitive Mapping: Past, Present and Future*. London: Routledge, 2000, pp.

¹²⁴⁴ Bird-David, Nurit, 1999.

¹²⁴⁵ Herman, David, 2002.

¹²⁴⁶ Shepard, Paul and Shepard, Florence. *Coming Home To The Pleistocene*. Washington D.C.: Island Press, 1998.

¹²⁴⁷ Downs, Roger and Stea, David. *Image & environment: Cognitive mapping and spatial behavior*. New York: Routledge, 1973.

¹²⁴⁸ Morriss-Kay, Gilliam M. 'The evolution of human artistic creativity'. *Journal of Anatomy* 216 (2), 2010, pp. 158 – 176.

¹²⁴⁹ Rappaport, Roy. *Ritual and Religion in the Making of Humanity*. Cambridge: Cambridge University Press, 1999, p. 19.

¹²⁵⁰ Sharov, Alexei A., 2010, p. 1050.

¹²⁵¹ Ibid.

¹²⁵² Ryan, Marie-Laure, 2017, p. 528.

¹²⁵³ Kull, Kalevi *et al.*, 2011, p.34.

¹²⁵⁴ Nash, Christopher, 1987, p.8.

¹²⁵⁵ Gieryn, Thomas F. *Truth-Spots: How Places Make People Believe*. Chicago: University of Chicago Press, 2018

¹²⁵⁶ Foote, Kenneth and Azaryahu, Maoz. 'Toward A Geography of Memory: Geographical Dimensions of Public Memory and Commemoration'. *Journal of Political And Military Sociology* 35 (1), 2007, pp. 125 – 146.

¹²⁵⁷ Barrett, Justin *Why Would Anyone Believe In God?* Altamira: Walnut Creek, 2004, p.31.

¹²⁵⁸ Scheele, Dirk *et al.* 'A human tendency to anthropomorphize is enhanced by oxytocin'. *European Neuropsychopharmacology* 25 (10), 2015, pp. 1817 – 1823.

¹²⁵⁹ Guthrie, Stewart. *Faces In The Clouds: A New Theory Of Religion*. New York: OUP, 1993.

¹²⁶⁰ Farah, Martha and Heberlein, Andrea. 'Personhood and Neuroscience: Naturalizing or Nihilating?' *The American Journal of Bioethics* 7 (1), 2007, pp. 37 – 48.

are present¹²⁶⁴¹²⁶⁵. This fosters what Daniel Dennett calls an 'intentional stance'¹²⁶⁶ towards our environment: a predisposition to see environmental features and systems as governed by intentional, intelligent beings like ourselves. For many thinkers, including cultural geographer Yi-Fu Tuan, these tendencies – manifesting as animism¹²⁶⁷, anthropomorphism¹²⁶⁸, pareidolia¹²⁶⁹ and other phenomena¹²⁷⁰¹²⁷¹¹²⁷²¹²⁷³ - 'lie at the foundation of all human culture'¹²⁷⁴.

All of those superstitious practices, religious survivals and 'irrational' engagements with place that Anne identifies in her writings have their source in such evolved tendencies. They are the seed of the earliest 'protoreligions'¹²⁷⁵, and thus later, established theologies¹²⁷⁶. They have proved advantageous to our species in the extreme, even though such 'Addling', as

¹²⁶¹ Boyer, Pascal 'Religious Thought and Behaviour as By-Products of brain function'. *Trends in Cognitive Sciences* 7, 2003, pp. 119 – 124.

¹²⁶² Shermer, Michael *Why People Believe Weird Things*. USA: Henry Holt, 1997.

¹²⁶³ Blom, Jan Dirk, 2010, p. 48.

¹²⁶⁴ Fodor, Jerry 'Chapter 44: The Modularity of Mind: An Essay on Faculty Psychology' In: Adler, Jonathan and Rips, Lance (eds.) *Reasoning: Studies of Human Inference and Its Foundations*. Cambridge: CUP, 1983, p. 893.

¹²⁶⁵ Subbotsky, Eugene 'The Belief In Magic In The Age Of Science'. *SAGE Open* 4 (1), 2014.

¹²⁶⁶ Dennett, Daniel *The Intentional Stance*. Massachusetts: The MIT Press, 1987.

¹²⁶⁷ Heider, Fritz and Simmel, Marianne 'An Experimental Study of Apparent Behaviour'. *The American Journal of Psychology* 57 (2), 1944, pp. 243 – 259.

¹²⁶⁸ Guthrie, Stewart, 1993.

¹²⁶⁹ Blom, Jan Dirk, 2010, p. 48.

¹²⁷⁰ Gao, Tao and Scholl, Brian. 'Chasing vs. Stalking: Interrupting the perception of animacy'. *Journal of Experimental Psychology* 37 (3), 2011, pp. 669 – 684.

¹²⁷¹ Gao, Tao *et al.* 'The psychophysics of chasing: A case study in the perception of animacy'. *Cognitive Psychology* 59 (2), pp. 154 – 159.

¹²⁷² LeDoux, Joseph 'The Emotional Brain: From Soul To Synapses' *Biological Psychiatry* 55, 2004., pp.

¹²⁷³ Barrett, Justin 'Cognitive Science of Religion: What Is It & Why Is It?' *Religion Compass* 1 (1), 2007.

¹²⁷⁴ Tuan, Yi-Fu 'Escapism', *Archis*, 2002 [Online]. Available at: <http://volumeproject.org/escapism/> [Accessed 3rd December 2019].

¹²⁷⁵ Dennett, Daniel *Breaking The Spell: Religion as a Natural Phenomenon*. London: Penguin, 2006, p. 107.

¹²⁷⁶ Morris, Desmond *The Artistic Ape: Three Million Years Of Art*. Chichester: Red Lemon, 2013.

Anne calls it, is often factually mistaken. They give us a structure for creating 'mnemonic... encod[ings]' of the environment's' ferocious structural complexity¹²⁷⁷. Using the comparable complexities of human social life as a functional metaphor for how the non-human world functioned¹²⁷⁸, early human societies struck upon codes of behaviour and systems of knowledge that served well enough to be continually selected for. The act of rationalising opaque environmental systems as the presence and society of human-like beings, acting in human-like ways with dynamic agency, provided a schematic for not just surviving, but flourishing on a dangerous planet. Such rationalisations were helpful for finding food and avoiding danger, as well as categorising and mapping numinous, 'transcendant or higher truths'¹²⁷⁹¹²⁸⁰¹²⁸¹¹²⁸².

The resultant narrative framework was not just a tool for organising knowledge: it facilitated the action *towards* the world that is necessary for our survival. The perceived supernatural agency of the environment – its ability to, unavoidably and emergently, act upon us, and to be acted upon in turn¹²⁸³¹²⁸⁴¹²⁸⁵ - facilitated a further 'intentional stance'. If landscapes, their denizens and their abstract processes were perceived, in some manner, as persons, they could be acted upon in ways that are appropriate to interpersonal relations; a suite of actions which human beings are intimately qualified to undertake. Such social interactions between humans and places-as-persons took (and still take) the form of ritual, magical practice and ceremony: 'the performance of

¹²⁷⁷ Sagan, Carl. *The Demon-Haunted World*. USA: Random House, 1997.

¹²⁷⁸ Layton, Robert, 1991, p. 37.

¹²⁷⁹ Messer, Ellen 'Rappaport, Roy A', *Encyclopedia of Religion*, 2000 [Online]. Available at: <https://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/rappaport-roy> [Accessed: 12th March 2000]. Rappaport, Roy, 1999,

¹²⁸⁰ Levi-Strauss, Claude, Needham, Rodney (*trans.*). *Totemism*. London: Random House, 1971., p.

¹²⁸¹ Harari, Noah Yuval. *Sapiens: A Brief History Of Humankind*. London: Harper, 2014, p.

¹²⁸² Robinson, Margaret 'Animal Personhood in Mi'kmaq Perspective'. *Societies* 4 (4), 2014, pp.672-688.

¹²⁸³ Ryan, Marie-Laure 'Beyond Myth And Metaphor* - The Case of Narrative in Digital Media'. *Game Studies* 1 (1), 2001. worlds – can 'reac

¹²⁸⁴ Tilley, Christopher *Interpreting Landscapes*. London: Routledge, 2016, p. 26.

¹²⁸⁵ Latour, Bruno, 2005.

more or less invariant formal acts and utterances', designed to effect a certain end¹²⁸⁶¹²⁸⁷¹²⁸⁸.

Anne's life and times sit at the head of a long, cycling chain of human cultural practice defined by this continuing evolutionary experiment. The 'relational personhoods' and zoomorphic, therianthropic practices of hunter-gatherer societies¹²⁸⁹¹²⁹⁰¹²⁹¹¹²⁹² frame hunting as a social interaction and 'psycho-emotional interdependency'¹²⁹³¹²⁹⁴¹²⁹⁵¹²⁹⁶¹²⁹⁷¹²⁹⁸. Across human culture, we have consistently witnessed the deification of entire landscapes, ecologies,

¹²⁸⁶ Rappaport, Roy, 1999, p. 24.

¹²⁸⁷ Horton, Robin 'A definition of religion and its uses'. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 90 (2), 1960, pp. 201- 226.

¹²⁸⁸ Bird-David, Nurit, 1999, p.

¹²⁸⁹ Bird-David, Nurit "'Animism" Revisited: Personhood, Environment and Relational Epistemology'. *Current Anthropology* 40 (1), 199, pp.67 – 91, p. 67.

¹²⁹⁰ Anti-Weiser, Walpurga. 'Beyond hides and bones – Animals, animal representations and therianthropic figurines in palaeolithic art'. *Annalen* 120 (1), 2018, pp. 51 – 70.

¹²⁹¹ Serpell, James 'Animal-assisted interventions in historical perspective'. In: Fine, Aubrey (eds.) *Handbook on Animal-Assisted Therapy*. London: Elsevier, 2010, pp. 17 – 32.

¹²⁹² Morris, Desmond, 2013., p

¹²⁹³ Hodgson, Derek 'Closely Observed Animals, Hunter-Gatherers, and Visual Imagery in Upper Paleolithic Art'. *Evolutionary Studies in Imaginative Culture* 1 (2), 2017, pp. 59 – 72.

¹²⁹⁴ Nadadsy, Paul, 2007.

¹²⁹⁵ Levi Strauss, Claude, 1971, p. 67.

¹²⁹⁶ Westling, Louise "'Darwin in Arcadia: The Human Animal Dance from Gilgamesh to Virginia Woolf'. *Anglia* 124 (1), 2006, pp. 11 – 43.

¹²⁹⁷ Harvey, Graham *Animism: Respecting The Living World*. Australia: Wakefield Press, 2005, p. 117.

¹²⁹⁸ Fritz, Carole and Tosello, Gilles. 'From gestures to myth: artist's techniques on the walls of Chauvet cave'. *Paleoethnology* 7 (1), 2015, pp.208 – 314.

and even abstract processes¹²⁹⁹¹³⁰⁰¹³⁰¹¹³⁰²¹³⁰³¹³⁰⁴¹³⁰⁵ such as the weather and the seasons¹³⁰⁶¹³⁰⁷¹³⁰⁸¹³⁰⁹¹³¹⁰¹³¹¹. In each case, the systemic environment is seen in terms of another system: that of complex personhood. Features of environments, and entire environments themselves, become 'siblings and persons'¹³¹²¹³¹³, human-adjacent 'vitalities'¹³¹⁴, and 'supernatural agents'¹³¹⁵; part of a vast ecological drama that serves to 'symbolize, dramatize, and illuminate aspects of humans' experience and fantasy'¹³¹⁶. Through ritual, humans can engage with these agents on interpersonal terms: through threats, flattery,

¹²⁹⁹ Alexander, Neal, 2015.

¹³⁰⁰ Petzet, Michael 'Genius Loci – The Spirits of Monuments and Sites'. *16th ICOMOS General Assembly and International Symposium: 'Finding the spirit of place – between the tangible and the intangible'*, 2008.

¹³⁰¹ Machek, Vaclav, 'Origin Of The God Vishnu', *Archiv Orientalni* 28 (1), 1960, pp. 103 – 126.

¹³⁰² Quirke, Stephen *The Cult of Ra: Sun-Worship In Ancient Egypt*. London: Thames & Hudson, 2001.

¹³⁰³ Payment, Simone *Greek Mythology*. New York: Rosen, 2006, p. 33.

¹³⁰⁴ Macdonald, James 'The Festival Of The Flayed God', *JSTOR Daily*, 2019 [Online]. Available at: <https://daily.jstor.org/the-festival-of-the-flayed-god/> [Accessed 3rd December 2019].

¹³⁰⁵ Apokryltaros *et al.* (eds.), 'Chaac', *Wikipedia*, 2019 [Online]. Available at: <https://en.wikipedia.org/wiki/Chaac> [Accessed 3rd December 2019].

¹³⁰⁶ Haraway, Donna, 2016. *uluscene* (potnia t

¹³⁰⁷ Glob, Peter Vilhelm 'The Bog People: Iron-Age Man Preserved'. London: Faber and Faber, 1969., p.

¹³⁰⁸ Morris, Desmond, 2013., p

¹³⁰⁹ Hubbs, Joanna *Mother Russia: The Feminine Myth in Russian Culture*. Indiana: Indiana University Press, 1993., p

¹³¹⁰ Morris, Desmond, 2013., p

¹³¹¹ Ono, Sokyō *Shinto: The Kami Way*. USA: Tuttle, 1962

¹³¹² Robinson, Margaret, 2014., p.

¹³¹³ Nadasdy, Paul 'The gift in the animal: The ontology of hunting and human-animal sociality'. *American Ethologist* 34 (1), 2007, pp.25 – 43.

¹³¹⁴ Bennett, Jane *Vibrant Matter: A Political Ecology Of Things* North Carolina: Duke University Press, 2010.

¹³¹⁵ Dennett, Daniel, 2013., p.

¹³¹⁶ Daston, Lorraine and Mitman, Gregg. *Thinking With Animals: New Perspectives on Anthropomorphism*. Columbia: Columbia University Press, 2005.

torture, gifts and sacrifices¹³¹⁷¹³¹⁸¹³¹⁹¹³²⁰, to which the agent may respond in their own particular 'sign language'¹³²¹.

By the 18th century, much contemporary thought rested on the foundations of an older 'natural philosophy' and 'high magic'¹³²²¹³²³¹³²⁴: discourses which themselves relied upon a mixture of such ancient scholarship¹³²⁵¹³²⁶, evolved sensibilities, and Christian teaching¹³²⁷¹³²⁸. Through literature and experimental 'applied science'¹³²⁹¹³³⁰, and despite the constant internal struggles of the tradition¹³³¹¹³³², scholars were describing and manipulating a systemic environment that was scarcely less personified or possessed of agency than those encountered by 'primitive' societies. These proto-scientists and contemporary 'rationalists' sought to 'scrutinise nature' and master its 'secret forces'¹³³³¹³³⁴¹³³⁵. These were often not mechanical forces,

¹³¹⁷ Rochberg, Francesca 'Ina Lumun attali Sin: On Evil and Lunar Eclipses'. In: Van Buylaere, Greta *et al.* (eds.) *Sources of Evil: Studies in Mesopotamian Exorcistic Lore*. Leiden: Brill, 2018, p. 303.

¹³¹⁸ Glob, Peter Vilhelm, 1969., p

¹³¹⁹ Nasdasdy, Paul, 2007., p

¹³²⁰ Desjarlais, Robert 'Healing Through Images: The Magical Flight and Healing Geography of Nepali Shamans'. *Ethos* 17 (3), 1989, pp. 289 – 307.

¹³²¹ Alexander, Lily 'Fictional World-Building As Ritual, Drama, And Medium'. In: Wolf, Mark J. (eds.) *Revisiting Imaginary Worlds: A Subcreation Studies Anthology*. London: Routledge, 2017, pp. 14 – 45, p. 23.

¹³²² Clark, Stuart, 1999.

¹³²³ Davies, Owen, 2009, p. 54.in?

¹³²⁴ Valley, Paul 'Religion vs science: can the divide between God and rationality be reconciled?', Independent, 2008 [Online]. Available at: <https://www.independent.co.uk/news/science/religion-vs-science-can-the-divide-between-god-and-rationality-be-reconciled-955321.html> [Accessed: 12th December 2019].Independent

¹³²⁵ Josephson-Storason A., 2017, p. 79. e

¹³²⁶ Davies, Owen, 2009, p. 127 ation for this.

¹³²⁷ Aune, David Edward *Apocalypticism, prophecy and magic in early Christianity*. Tübingen: Mohr Siebeck, 2006. e

¹³²⁸ Davies, Owen, 1999, p. x. e

¹³²⁹ Grant, Edward *Foundations of Modern Science in the Middle Ages*. Cambridge: CUP, 1996.

¹³³⁰ Henry, John, 1999. and the rise of

¹³³¹ Ibid. the leadin

¹³³² Josephson-Storason A., 2017, p. 56. dhantment book p

¹³³³ Williams, Jeffrey H 'Science, science fiction and science fantasy'. In: Williams, Jeffrey H. *Order From Force*. London: IOP, 2015, pp. 1 – 7. ite

¹³³⁴ Clark, Stuart, 1999.

¹³³⁵ Davies, Owen, 2009. ires

but 'the incomprehensible yet present activity of... higher power[s]'¹³³⁶: witches and demons¹³³⁷¹³³⁸, spirits and angels¹³³⁹, God and the Devil¹³⁴⁰.

Anne's own polemic is, in a way, an invective against these hidebound features of human culture: and a utopian optimism that they might finally, in her own rational 'Age', be done away with. She looks forward to the time when the 'Aysrs' of the 'Devilled Moor' no longer 'addle' the minds of her fellow countryfolk, causing an 'en-thusiasma' to see things that are not there: a liminal stageset¹³⁴¹ 'resonant' with malevolences and characterful horrors, from 'blacks doggs and Hands flying' to 'blackamoors' and 'Kobolds'¹³⁴². She envisions a world where people do not part with good money for the spells, potions and 'low magic'¹³⁴³ of healers, 'nigromancers', cunning folk and what are locally termed 'soilwarps'¹³⁴⁴. For centuries such individuals had been important members of many communities¹³⁴⁵, whose internally-consistent, highly narrativist explications of a personified world called for interpersonal, ritual action¹³⁴⁶ in order to make that world 'safer [and] less hostile'¹³⁴⁷¹³⁴⁸¹³⁴⁹.

¹³³⁶ Burkert, Walter. *Greek Religion*. Cambridge: Harvard UP, 1985, p. 180. Davies

¹³³⁷ Thinking With Demrt, . 151.

¹³³⁸ Mollmann, Bradley J. 'Healing with Demons? Preternatural Philosophy and Superstitious Cures in Spanish Inquisitorial Courts'. In: Bhayro, Siam and Rider, Catherine (eds.) *Demons and Illness from Antiquity to the Early-Modern Period. and illnessP in17*, pp. 396 – 411, p.399.

¹³³⁹ Davies, Owen, 2009, p. 14. davies grimoire

¹³⁴⁰ Jobe, Thomas Harmon 'The Devil in Restoration Science: The Glanvill-Webster Witchcraft Debate' *Isis* 72 (3), 1981, pp. 343.perrault

¹³⁴¹ Lioi Swa dragonL ,Aamp Dragons: Mud, Megalopolis, and a Future for Eco-criticism' *Journal of Nanyang Normal University*, 2011, [Online]. Available at: http://en.cnki.com.cn/Article_en/CJFDTotal-NYSF201102019.htm [Accessed: 12th March 2020].

¹³⁴² Wilby - Wilby notng

¹³⁴³ Davies, Owen, 2003, p. x.

¹³⁴⁴ Ibid.iesIbid

¹³⁴⁵ Ibid, p. 75.s

¹³⁴⁶ Clark, Stuart, 1999, p. 315.

¹³⁴⁷ Wilson, Duncan 'Public Asked To Help Hunt For Witches' Marks', *Historic England*, 2016 [Online]. Available at: <https://historicengland.org.uk/whats-new/news/help-hunt-for-witches-marks> [Accessed: 12th March 2020].

¹³⁴⁸ Luck, Georg *Arcana Mundi: Magic and the Occult in the Greek and Roman Worlds*. Baltimore: The Johns Hopkins University Press, 2006, p. 11.agic was

¹³⁴⁹ Harding, Roberta, 2016.

For Anne Latch, however – and for many of her ‘elite’ contemporaries¹³⁵⁰¹³⁵¹ – the work of cunning folk in placating unquiet spirits, punishing witches and protecting clients from supernatural influence¹³⁵²¹³⁵³ was, at its very best, the manipulation of the credulous, impoverished and ignorant. For Anne, her own ‘Work’ is a way to move past such backward, theatrical, ‘popular belief[s] and custom[s]’¹³⁵⁴. In her ‘coming Age’, never again will her husband John hear voices in the night air accusing him of doing unspeakable things with the neighbour’s girl. Never again will innocent children, out mushroom-picking, be murdered by fearful men who think the ‘Holy Ghoast’ has come to take them to Hell. Never again will a woman have to leave out gifts for ‘brown litle Fellow[s]’ to keep unwanted babies from their wombs. By her ‘goodly Work’ - and the efforts of her obedient servant – Anne seeks to provide an alternative, ‘moderne’ solution to the problems that underlie such imaginings of landscapes filled with malevolent vitality.

* * * * *

Near the end of her letter to her successor – the young woman who will come to take over this important ‘Work’ – there is a sense that Anne harbours many uncertainties about what this coming ‘Age’ might look like or, indeed, whether she will live to see it. By many measures – particularly in light of more-recent scholarship that deconstructs the conventional views of the

¹³⁵⁰ Davies, Owen, 2003, p. 1.1

¹³⁵¹ De Blecourt, Willem, ‘Witch doctors, soothsayers and priests. On cunning folk in European historiography and tradition’. *Social History* 19 (3), 1994, pp. 285 – 303. Cite 2

¹³⁵² Davies, Owen, 2003.

¹³⁵³ Hoggard, Bri6.Bilet *al.* (eds.) *Transactions of the Hidden Charms Conference*. Norwich: Northern Earth Books, 2017.

¹³⁵⁴ Hutton, Ronald *The Triumph of the Moon: A History of Modern Pagan Witchcraft*. New York: OUP, 1999, p. 84.

period¹³⁵⁵¹³⁵⁶¹³⁵⁷¹³⁵⁸ – it is arguable whether the ‘Age’ ever did arrive at all. Many scholars assert that the very foundations upon which the Enlightenment rested were suspect: that the arguments that Anne embodies are a provably oversimplistic ‘View’ of a far more ‘diverse phenomenon’¹³⁵⁹; one that represented fluctuations, rather than a distinct break, in a continuous spectrum of the ‘psychic claims that human beings have made on nature’¹³⁶⁰¹³⁶¹¹³⁶²¹³⁶³¹³⁶⁴¹³⁶⁵¹³⁶⁶.

As Anne Latch’s writings reveal, the supposedly clear divide between the older, undistanced spiritual beliefs of the poor and the newly rational, distanced, depersonified position of the rich and educated, was rather murkier. Both demographics used cunning folk¹³⁶⁷¹³⁶⁸, and while Anne seemingly believes that her clients share her progressive, ‘moderne’ view of her ‘Beest’s’ work, evidence abounds that she is categorised alongside the county’s other infamous magic-users: just another ‘soilwarp’, whose ‘familiar’¹³⁶⁹ will solve their

¹³⁵⁵ Davies, Owen and de Bleacourt, Willem 'Introduction: beyond the witch trials.' In: Ibid. (eds.) *Beyond the Witch Trials: Witchcraft and Magic in Enlightenment Europe*. Manchester: Manchester University Press, 2004.

¹³⁵⁶ Wilby, Emma. *Cunning-Folk and Familiar Spirits: Shamanistic Visionary Traditions in Early Modern British Witchcraft and Magic*.

¹³⁵⁷ De Bleacourt, Willem 'Evil People': A Late Eighteenth-Century Dutch Witch Doctor and His Clients'. In: Davies, Owen and de Bleacourt, Willem (eds.), 2004, pp. 144 – 166.

¹³⁵⁸ Cussen, Ollie, 2013.

¹³⁵⁹ Lloyd, Henry Martin ‘Why the Enlightenment was not the age of reason’, Aeon, 2018 [Online]. Available at: <https://aeon.co/ideas/why-the-enlightenment-was-not-the-age-of-reason> [Accessed: 12th March 2020]. Why the enlightenm

¹³⁶⁰ Schama, Simon *Landscape And Memory*. London: Vintage, 1995.cite

¹³⁶¹ Borck, Cornelius ‘Animism in the Sciences Then and Now’. *E-flux* 36 (1), 2012. "Classifying alte

¹³⁶² Steinfels, Peter S. ‘Exploring Religion, Shaped by the Enlightenment’, *The New York Times*, 2008 [Online]. Available at: <https://www.nytimes.com/2008/10/11/us/11beliefs.html> [Accessed: 12th March 2020]. "the ideological

¹³⁶³ LI"Generalising abn, ‘Why intellectuals need to stop reminiscing about the Enlightenment as a golden ‘age of reason’’, *Scroll*, 2019 [Online]. Available at: <https://scroll.in/article/902708/why-intellectuals-need-to-stop-reminiscing-about-the-enlightenment-as-a-golden-age-of-reason> [Accessed: 12th March 2020].

¹³⁶⁴ Bristow, William, 2017. tanford enlighte

¹³⁶⁵ Josephson-Storm, Jason A., 2017, p. 16.senchantment "a

¹³⁶⁶ Aeon disenchantmentmeason A. ‘Against disenchantment’, *Aeon*, 2019 [Online]. Available at: <https://aeon.co/essays/enlightenment-does-not-demand-disenchantment-with-the-world> [Accessed: 20th March 2018].

¹³⁶⁷ Davies, Owen, 2003.nning folk book.

¹³⁶⁸ Wilby, Emma, 2000.

¹³⁶⁹ Roamiliar referencotte, ‘Familiars’. In: Broomhall, Susan (eds.) *Early Modern Emotions: An Introduction*. London: Routledge, 2017, pp. 340 –

problems in the old, reliable manner. Indeed, much of Anne's income derives from her wealthier clients: Mr. Wainscote, the kindly gentleman scholar, comes to Anne to relieve his gout, even as he educates her about the new rationalist sciences. Many educated people like him in this period held such seemingly-incongruous beliefs simultaneously, an imaginative state between belief and non-belief that is increasingly well-recognised across human society¹³⁷⁰¹³⁷¹¹³⁷²¹³⁷³¹³⁷⁴¹³⁷⁵¹³⁷⁶ and history¹³⁷⁷¹³⁷⁸¹³⁷⁹¹³⁸⁰¹³⁸¹¹³⁸².

During Anne's vaunted 'Age Of Reason', the presence of non-human agencies in the environment – the treatment of place as person – was rarely fully believed or disbelieved, neither fully engaged nor 'disinterested'. Instead, it was subject to constant 'tactical improvisation [and] opportunist reinvention'¹³⁸³ along an autocosmic 'continuum'¹³⁸⁴ which made it difficult to distinguish (in Anne's words) between the 'addled' and the 'sober'.

In the first case, it is arguable whether the scientific and social foundations of the Enlightenment truly *did* seek to depersonify nature. Isaac

343.

- ¹³⁷⁰ Sugarman, Hannah *et al.* 'Astrology Beliefs among Undergraduate Students'. *Astronomy Education Review* 10 (1), 2011.garman et al, 20
- ¹³⁷¹ Vámos, Marina 'Organ Transplantation and Magical Thinking'. *Australian and New Zealand Journal of Psychiatry* 44 (10), 2010, pp. 883 – 887.
- ¹³⁷² Boardman, Charles and Sonnenberg, Amnon, 'Magical Thinking', *Clinical and Translational Gastroenterology* 5 (11), 2014.
- ¹³⁷³ Joeon enlightenmenason A, 2019.
- ¹³⁷⁴ Joyth of disenchanason A., 2017.
- ¹³⁷⁵ Vallely, Paul, 2008. the vast majorit
- ¹³⁷⁶ Boyer, Pascal 'Why "belief is hard work: implications of Tanya Luhmann's When God talks back'. *Journal of Ethnographic Theory* 3 (3), 2013, pp. 349 – 357. oyer, 2013
- ¹³⁷⁷ Groenveld, Leanne 'A Theatrical Mirvale: The Boxley Rood of Grace as Puppet'. *Early Theatre* 10 (2), 2007.
- ¹³⁷⁸ Desmond Morris p2013, p. 8.
- ¹³⁷⁹ Harvey, Graham 'Introduction'. In: Harvey, Graham (eds.) *The Handbook of Contemporary Animism*. London: Routledge, 2013, pp. 1 – 15, p. 4. arvey "how does
- ¹³⁸⁰ Tamar Gendler 20008.
- ¹³⁸¹ Mellman, Katja, 2012.
- ¹³⁸² Clark, Stuart, 1999, p. 5.
- ¹³⁸³ Whitmarsh, Tim 'Mythology In Bits', *London Review Of Books*, 2018 [Online]. Available at: <https://www.lrb.co.uk/the-paper/v40/n24/tim-whitmarsh/mythology-in-bits> [Accessed: 20th March 2020].B
- ¹³⁸⁴ Liao, Shen-yi and Gendler, Tamar, 2019. tanford imaginat

Newton, forefather of the Enlightenment (and the navel of Anne's new worldview), was particularly problematic in such matters¹³⁸⁵, participating fully in the 'common epistemic basis'¹³⁸⁶ of magic and science^{1387,1388,1389,1390}. Scientific advances led to discoveries (particularly in microbiology and ethology) that strained simplistic conceptions of a mechanistic, lifeless natural world beyond the human scale, and do so to this day^{1391,1392,1393,1394}; discoveries that would resonate for many centuries afterwards. Even in the Newtonian, Deist position¹³⁹⁵, the world remained subject to the designs of a deliberating, personified agent, even if he was not involved in its day-to-day operations. Many supposedly rational, educated members of 'Enlightened' society held far less Cartesian beliefs: adopting vibrant 'theosophical and spiritualist'¹³⁹⁶ positions which (quite literally) 'Viewed' the world as teeming with angelic or spiritual presences, possessed of secret knowledge or power. Even organised religion was itself not immune: Rector Whitbread, the parish priest who reads

¹³⁸⁵ Snobelen, Stephen David 'Lust, Pride and Ambition: Isaac Newton and the Devil'. In: Force, James E. and Hutton, Sarah (eds.) *Newton and Newtonianism*. London: Springer, 2004, pp. 155 – 181. ite

¹³⁸⁶ Josephson-Storm, Jason A., 2017, p. 14. rison demonst

¹³⁸⁷ Heagic and the ori

¹³⁸⁸ Williams, Rowan 'Magical thinking: the history of science, sorcery and the spiritual', *NewStatesman*, 2016 [Online]. Available at: <https://www.newstatesman.com/culture/books/2016/01/magical-thinking-history-science-sorcery-and-spiritual> [Accessed: 20th June 2020]. [ttps://www.newst](https://www.newst)

¹³⁸⁹ Cahan, David, (eds.) ed. (2003). *From Nsophy to the Sciences: Writing the History of Nineteenth-Century Science*. Chicago: University of Chicago Press, 2003.. ISBN 0226089282.

¹³⁹⁰ Llewellyn, Nigel and Riding, Christine 'British Art and the Sublime', *Tate*, 2013 [Online]. Available at: <https://www.tate.org.uk/art/research-publications/the-sublime/christine-riding-and-nigel-llewellyn-british-art-and-the-sublime-r1109418> [Accessed: 20th March 2020]. Riding and llewel

¹³⁹¹ Herrera, Cesar E Giraldo *Microbes and Other Shamanic Beings*. London: Palgrave Macmillan, 2018. ite 1

¹³⁹² Hofmeyr, Murray 'From hauntology to a new animism? Nature and culture in Heinz Kimmerle's intercultural philosophy'. *The Journal For Transdisciplinary Research in Southern Africa* 3 (1), 2007, pp. 1 – 38. ite 2

¹³⁹³ Kimmerle, Heinz 'The world of spirits and the respect for nature: towards a new appreciation of animism'. *The Journal For Transdisciplinary Research in Southern Africa* 2 (2), 2006. te 3 (Heinz Kimm

¹³⁹⁴ Reill, Peter Hanns *Vitalizing Nature in the Enlightenment*. London: UCP, 2005.

¹³⁹⁵ Wigelsworth, Jeffrey R. *Deism in Enlightenment England*. Manchester: MUP, 2013. Deist citation

¹³⁹⁶ Josephson-Storm, Jason A., 2017, p. 119. he myth of disen

horoscopes and ‘consult[s] the Lace’, is not unrepresentative of the historical record¹³⁹⁷.

In the arts, which had supposedly placed personified and interpersonal responses towards nature into a new, aestheticised sandbox¹³⁹⁸, further complications arise. Anne herself sees these complications second-hand, through the reports of mill-owner Elijah Knole’s behaviour, made by his daughter during her visit to Anne’s house. Rather than a paragon of ‘moderne’ rationality and industry, Knole himself becomes just as ‘addled’ in the face of nature’s power. We are left with the image of Knole and his ‘elite’ companions stood huddled, shivering on the moortop awaiting a glimpse of the ‘dignif[ied], incorruptible’ cowherd Simon Awlbath, a ‘spyrit’ of the moor in his own right. For Knole, and men like him, the moor is his ‘Temple’ - in both the Methodist and Classical sense of that term – and its fast-disappearing purity in the ‘moderne’ age – represented by the dwindling fortunes of Simon Awlbath in the face of enclosures – must be protected at all costs. The behaviour of Knole and his fellow aesthete Rector Whitbread during the Marchand’s trial, revealed in the *Housekeeping* (see Chapter 3.6) stand as a symbol of how aesthetic practices towards environment in the 18th century were anything but ‘disinterested’, depersonified, or distanced¹³⁹⁹; in this particular case, it arguably cost Sarah and Matthew Marchand, Anne’s adoptive parents, their lives.

Several elements of the *Housekeeping*, including the ballad *The Warmth Without The Fyre*, reveal the first stirrings of the new aesthetic responses of the Enlightenment: a trifecta of the picturesque¹⁴⁰⁰, the sublime¹⁴⁰¹ and the beautiful¹⁴⁰² which were, in retrospect, anything but distanced from

¹³⁹⁷ Davies, Owen, 2007, p. 119.

¹³⁹⁸ Shelley, James, 2017. story of aesthet

¹³⁹⁹ History of aesth

¹⁴⁰⁰ Townsend, Dabeny ‘The picturesque’. *Journal of Aesthetics and Art Criticism* 55 (4), 1997, pp. 365 – 376.

¹⁴⁰¹ Ginsborg, Hannah ‘Kant’s Aesthetics and Teleology’, *Stanford Encyclopedia of Philosophy*, 2013 [Online]. Available at: <https://plato.stanford.edu/entries/kant-aesthetics/> [Accessed: 20th March 2020].ilpin originally

¹⁴⁰² Shelley, James, 2017. eautiful, Sublime

their ritualised and religious antecedents¹⁴⁰³. Evidence abounds in the continuing personification of nature along female or feminine parameters, in order to justify continued exploitation of its resources¹⁴⁰⁴: in the burgeoning tourism industries, that provided ritualised 'engagement[s] with landscape'¹⁴⁰⁵ that were frequently framed in characterful narratives of communion or adversity towards natural forms¹⁴⁰⁶¹⁴⁰⁷; in the dualism of humanity and nature charted by the sublime, and the imaginative relationship between the two that challenged human triumphalism¹⁴⁰⁸ and agency¹⁴⁰⁹¹⁴¹⁰ in ways both similar and different to earlier religious beliefs¹⁴¹¹¹⁴¹²; in the Romanticism and subsequent counter-rational movements that appeared in subsequent decades¹⁴¹³¹⁴¹⁴¹⁴¹⁵¹⁴¹⁶; the belief that the arts lay in some 'improved' territory beyond action, beyond personification, beyond the everyday 'real', seems now woefully simplistic¹⁴¹⁷.

Even Anne herself is not immune to such overreachings, misunderstandings and contaminations of older, deeper connections with environment. She betrays a myopia in her supposedly-expansive, unimpeded 'View' of the world, through her misreading of Isaac Newton's *Principia*

¹⁴⁰³ Trott, Nicola 'The Picturesque, the Beautiful and the Sublime'. In: Wu, Duncan (eds.) *A Companion to Romanticism*. New York: Wiley, 2017, pp. 79 – 98.

¹⁴⁰⁴ Curran, Emma 'Faces of nature: personification in women's romantic-age poetry'. [PhD Thesis]. University of Surrey, 2017. [mma curran paper](#)

¹⁴⁰⁵ Riding, Christine and Nigel, Llewellyn, 2013 "On the s

¹⁴⁰⁶ Macfarlane, Robert *Mountains of the Mind: A History of a Fascination*. London: Granta, 2003, p. 177. [ountains of the](#)

¹⁴⁰⁷ Fulford, Tim et al. (eds.) *Literature, Science and Exploration in the Romantic Era*. Cambridge: CUP, 2010. Literature, scien

¹⁴⁰⁸ Ginsborg, Hannah, 2013. [ayar](#)

¹⁴⁰⁹ Macfarlane, Robert, 2003, p. 74. [te](#)

¹⁴¹⁰ Nicolson, Marjorie Hope *Mountain Gloom and Mountain Glory: The Development of the Aesthetics of the Infinite*. London: University of Washington Press, 1997. Majorie

¹⁴¹¹ Hitt, Christopher 'Toward an Ecological Sublime'. *New Literary History* 30 (3), 1999, pp. 603 – 623. [tt again](#)

¹⁴¹² Smethurst, Paul 'Natural Sublime and Feminine Sublime'. In: Smethurst, Paul *Travel Writing and the Natural World, 1768 – 1840*. London: Springer, 2012, pp. 153 – 170. [atural sublime a](#)

¹⁴¹³ Wallace, R 'The lie of the land': Ruskin and the English landscape tradition.', 1994. ". In [overturning](#)

¹⁴¹⁴ Gorodeisky, Keren '19th Century Romantic Aesthetics', *The Stanford Encyclopedia of Philosophy*, 2016 [Online]. Available at: <https://plato.stanford.edu/entries/aesthetics-19th-romantic/> [Accessed: 20th March 2019]. [ite](#)

¹⁴¹⁵ Gray, John 'Split Religion', *Literary Review*, October 2007. [eter conrad spli](#)

¹⁴¹⁶ Lloyd, Henry Martin, 2018. [hy the enlightne](#)

¹⁴¹⁷ Shelley, James, 2017. 'this fact prompt

*Mathematica*¹⁴¹⁸, given to her by her patron Mr. Wainscote. Anne's conception of the world is no less personified: while it is not demons or spirits, or even God, who manipulates the lives of mortals, in her 'View', it is instead the anthropomorphised 'Forse' of 'GRAVITAS': not a mechanical, disembodied physical phenomenon as Newton intended it, but a being as full of caprice and agency as any god or 'spyrit'. Anne's rituals and 'receipts', performed on her 'Beest', have the trappings of a mechanistic, detached rationalism: but one can see that they are just as oriented towards socialised manipulation, in their own way, as any practice of 'low magic'¹⁴¹⁹ (see Chapter 3.7).

* * * * *

While much of my research focuses on the personification of landscape contemporary to my characters, as Owen Davies states, 'reason has not ended our relationship with magic'¹⁴²⁰: from the 'Counter-Enlightenment' of Romantic thought, already finding its first footholds in Anne's time, to Horkheimer and Adorno's vision of modernism in the early twentieth century¹⁴²¹¹⁴²², there is still much ambiguity around how humanity conceives and interacts with its environments as complex individuals with whom one can have a social relationship. Such ambiguity is debated in the new¹⁴²³ or 'critical'¹⁴²⁴ modes of anthropomorphism and animism across a variety of

¹⁴¹⁸ Smith, George, 'Newton's *Philosophiae Naturalis Principia Mathematica*', *Stanford Encyclopedia of Philosophy*, 2007 [Online]. Available at: <https://plato.stanford.edu/entries/newton-principia/> [Accessed: 20th March 2020]. cite

¹⁴¹⁹ Davies, Owen, 2003, p. x.

¹⁴²⁰ Davies, Owen, 2009, p. 282.

¹⁴²¹ Brnlightnment sta2017

¹⁴²² Cussen, Ollie, 2013. he trouble with

¹⁴²³ Graham harvey int13.

¹⁴²⁴ Burghardt, Gordon 'Critical Anthropomorphism, Uncritical Anthropocentrism, and Naive Nominalism'. *Comparative Cognition and Behaviour Reviews* 2 (1), 2007, pp. 136 – 138. ritical and naïv

disciplines¹⁴²⁵¹⁴²⁶¹⁴²⁷¹⁴²⁸¹⁴²⁹¹⁴³⁰¹⁴³¹; the 'post-Darwinian' turn in many fields of study¹⁴³²¹⁴³³¹⁴³⁴¹⁴³⁵¹⁴³⁶¹⁴³⁷¹⁴³⁸¹⁴³⁹¹⁴⁴⁰¹⁴⁴¹¹⁴⁴²; the rise of new legalistic concepts of 'environmental personhood'¹⁴⁴³¹⁴⁴⁴¹⁴⁴⁵; the persistent ascent of psychogeography¹⁴⁴⁶, nature writing¹⁴⁴⁷, econarratology¹⁴⁴⁸, the 'literature of place'¹⁴⁴⁹ and their neighbouring genres¹⁴⁵⁰¹⁴⁵¹¹⁴⁵²¹⁴⁵³¹⁴⁵⁴¹⁴⁵⁵¹⁴⁵⁶¹⁴⁵⁷; the sophistication of fictional world studies in literary theory¹⁴⁵⁸¹⁴⁵⁹¹⁴⁶⁰¹⁴⁶¹¹⁴⁶²¹⁴⁶³¹⁴⁶⁴¹⁴⁶⁵¹⁴⁶⁶¹⁴⁶⁷¹⁴⁶⁸; the rise of climate literature and the

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- ¹⁴²⁵ Poole, Steven 'Is Our love of nature writing bourgeois escapism?' ,*The Guardian* , 2013 [Online]. Available at: <https://www.theguardian.com/books/2013/jul/06/nature-writing-revival> [Accessed: 20th March 2019]. os Smith - (Jos
- ¹⁴²⁶ Microanimism websanimism, 2019 [Online]. Available at: <https://www.microanimism.com/> [Accessed: 18th June 2020].
- ¹⁴²⁷ Nadasdy, Paul, 2007.
- ¹⁴²⁸ Povinelli, Elizabeth A. 'Do Rocks Listen? The Cultural Politics of Apprehending Australian Aboriginal Labor'. *American Anthropologist* 97 [3], 1995, pp. 505 – 518. Povinellio 1995
- ¹⁴²⁹ Borck, Cornelius, 2012. nimism in the sc
- ¹⁴³⁰ Berenguer, Jaime 'The Effect of Empathy in Proenvironmental Attitudes and Behaviors'. *Environment and Behavior* 39 (2), 2007, pp. 269 – 283. Berenguer, 2007
- ¹⁴³¹ Tam, Kim-Pong *et al.* 'Saving Mr. Nature: Anthropomorphism enhances connectedness to and protectiveness toward nature'. *Journal of Experimental Social Psychology* 49 (3), 2013, pp. 514 – 521. ving mr nature
- ¹⁴³² Herman, David *Narratology Beyond The Human: Storytelling and Animal Life*. Oxford: OUP, 2018.
- ¹⁴³³ Derrida, Jacques, 2002.
- ¹⁴³⁴ Sober, Elliot 'Comparative Psychology Meets Evolutionary Biology'. In: Daston, Lorraine and Mitman, Gregg (eds.) *Thinking With Animals: New Perspectives on Anthropomorphism*. Columbia: CUP, 2006, pp. 85 – 90. ober, 2005
- ¹⁴³⁵ Sanders, Clinton and Hirschman, Elizabeth C. 'Guest Editor's Introduction: Involvement with Animals as Consumer Experience'. *Society and Animals* 4 (2), 1996, pp. 111 – 119. anders 1995
- ¹⁴³⁶ Robinson, Margaret 'Animal Personhood in Mi'kmaq Perspective'. *Societies* 4 (4), 2014, pp. 672 – 688. obinson Mikmaq
- ¹⁴³⁷ Taylor, Nicola '“Never An It”: Intersubjectivity and the creation of animal personhood in animal shelters'. *Qualitative Sociology Review* 3 (1), 2007, pp. 59 – 73. ever an it
- ¹⁴³⁸ Object network tho-Animism and Design: A New Paradigm in Object Theory'. *Design and Culture* 6 (2), 2015, pp. 219 – 241.
- ¹⁴³⁹ DeMello, Margo *Speaking for Animals: Animal Autobiographical Writing*. London: Routledge, 2013. DeMello
- ¹⁴⁴⁰ Derrida, Jacques 'The Animal That Therefore I Am (More To Follow)'. *Critical Inquiry* 28 (1), 2002. Immense symbolic
- ¹⁴⁴¹ Bernaerts, Lars *et al.* 'The Storied Lives of Non-Human Narrators'. *Narrative* 22 (1), 2014, pp. 69 – 93. " the conceptual
- ¹⁴⁴² Herman, David 'Storyworld/Unwelt: Nonhuman Experiences in Graphic Narratives'. *SubStance* 40 (1), 2011, pp. 156 – 181. toryworld/Um

'literature of the Anthropocene'¹⁴⁶⁹¹⁴⁷⁰; and in the interdisciplinary turn toward the 'post-human' and the 'post-humanist'¹⁴⁷¹¹⁴⁷²¹⁴⁷³¹⁴⁷⁴¹⁴⁷⁵¹⁴⁷⁶.

This is only a cursory, longitudinal (and admittedly Westernised) sample of the arguable futility of Anne's 'Dreem'. Despiritualisation of the world has always been relative¹⁴⁷⁷: the 'intentional stance' has been enhanced

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- ¹⁴⁴³ Gordon, Gwendolyn J. 'Environmental Personhood' *Colum. J. Envtl. L.* 43 (1), 2018, p. 49. Gwendolyn Gordon
- ¹⁴⁴⁴ Ohlin, Jens David, 'Is the Concept of the Person Necessary for Human Rights?', 2005, *Cornell Law* [Online]. Available at: <https://scholarship.law.cornell.edu/facpub/434/> [Accessed: 12th July 2019].
hlin Miqmaq pape
- ¹⁴⁴⁵ Farah, Martha J. and Heberlein, Andrea S. 'Personhood and Neuroscience: Naturalizing or Nihilating?' *The American Journal of Bioethics* 7 (1), 2007, pp. 37 – 48.ersonhood and ne
- ¹⁴⁴⁶ Coverley, Merlin *Psychogeography*. UK: Oldcastle Books, 2018.flanagan
- ¹⁴⁴⁷ Moran, Joe *A Cultural History of the New Nature Writing*, 2015 [Online] . Available at: <https://joemoran.net/academic-articles/a-cultural-history-of-the-new-nature-writing/> [Accessed: 20th March 2020]. Nature writing
- ¹⁴⁴⁸ Ccaracciolo, Maro 'Notes for an econarratological theory of character'. *Frontiers of Narrative Studies* 4 (1), 2018, pp. 172 – 189.
- ¹⁴⁴⁹ The "litos *the New Nature Writing: Rethinking The Literature Of Place*. London: Bloomsbury, 2017.
- ¹⁴⁵⁰ Hampton, Alexander J. B. 'Post-secular Nature and the New Nature Writing'. *Christianity and Literature* 67 (3), 2018, pp. 454 – 471. Hampton - A post-
- ¹⁴⁵¹ From new naechn7 – Nature Writing and the Environmental Imagination'. In: James, David *The Cambridge Companion to British Fiction since 1945*. Cambridge: CUP, 2015, pp. 110 – 126.
- ¹⁴⁵² Gibson Gibson -lliam *A Reenchanted World: The Quest For A New Kinship With Nature*. New York: Henry Holt, 2009, p.
- ¹⁴⁵³ H Is For HawkMa *H Is For Hawk*. London: Vintage, 2014.
- ¹⁴⁵⁴ Baker, J.A. *The Peregrine: The Hill Of Summer & Diaries*. London: Harper Collins, 2011. The PEregrine
- ¹⁴⁵⁵ Macfarlane, Robert, 2003. ountains Of The
- ¹⁴⁵⁶ Nan Shepherdhehe *Living Mountain*. London: Canongate, 2011.
- ¹⁴⁵⁷ mabey, Richard *The Cabaret Of Plants*. London: Profile, 2015.
- ¹⁴⁵⁸ Mark j. wolfWol012.
- ¹⁴⁵⁹ Ryan, Marie-Laure, 2013.
- ¹⁴⁶⁰ Routledge encyccheories Of Fiction'. In: Herman, David *et al. (eds.) The Routledge Encyclopedia of Narrative Theory*. London: Routledge, 2010, pp. 163 – 167.
- ¹⁴⁶¹ Ryan, Marie-Laure 'Why Worlds Now?' In: Wolf, Mark J., 2017, pp. 3 – 13. "our pr
- ¹⁴⁶² Lawrence Durrele *Landscape and Character*. New York: E.P. Dutton, 1971.
- ¹⁴⁶³ Handbook of nare 'Space', *the living handbook of narratology*, 2014 [Online]. Available at: <https://www.lhn.uni-hamburg.de/node/55.html>

by the advances of knowledge¹⁴⁷⁸, becoming 'reconcile[d]... with a certain protomodernity'¹⁴⁷⁹. There has been constant re-evaluation of what 'personhood' can truly mean, regardless of truth-status¹⁴⁸⁰¹⁴⁸¹, social function¹⁴⁸²¹⁴⁸³, or deterministic prescriptions of belief or non-belief¹⁴⁸⁴; within the 'arts', as definitively as they can be defined, and beyond them. Humanity has always engaged with places and spaces as if they were complex, systemic individuals, possessed of agency and volition, and continue to do so. Environments have always, and will always, to some extent be 'resonant'

[Accessed: 20th March 2020].

- 1464 Fludernik, Monika 'How Natural Is 'Unnatural Narratology'; or, 'What Is Unnatural About Unnatural Narratology?' *Narrative* 20 (3), 2012, pp. 357 – 370. 1996 'anthropom
- 1465 Ryan, Marie-Laure, 2013, p. 34. "Lotman views t
- 1466 James, Erin *The Storyworld Accord: Econarratology and Postcolonial Narratives*. Nebraska: UNP, 2015. Erin James (201
- 1467 Weik von Mossner, Alexa *Affective ecologies: Empathy, emotion, and environmental narrative*. Ohio: OSUP, 2017. Alexa Weik von
- 1468 Muller, Timo 'The Benefits of Bringing Cognitive Sciences into Ecocriticism'. *Literary Theory*, 2018 [Online]. Available at: <http://www.jltonline.de/index.php/reviews/article/view/959/2246> [Accessed: 20th March 2020]. The beenfits of
- 1469 Eco and geo boo. and Cordle, D. 'Introduction: The Literature of the Anthropocene'. *Journal of 21st Century Writings* 6 (1), 2018, pp. 1 – 6.
- 1470 GaiaSchneidr-Maon, Matthew 'The Influcence of Climate Fiction: An Empirical Survey of Readers'. *Environmental Humanities* 10 (2), 2018, pp. 473 – 500.
- 1471 Grusin, Richard *The Non-Human Turn*. Minneapolis: UMP, 2015.The 'non-human'
- 1472 Bogost, Ian *Alien Phenomenology: or, What It's Like To Be A Thing*. Minneapolis: UMP, 2012. Alien phenomono
- 1473 Latour, Bruno, 2005. latour
- 1474 Deleuze and guatark, Hannah (eds.) *Deleuze and the Non/Human*. London: Palgrave Macmillan, 2015.
- 1475 Cary Wolfe 2010 *is Posthumanism?* Minneapolis: UMP, 2010.
- 1476 Nayar, Pradmod, *Posthumanism*. Cambridge: Polity Press, 2014.
- 1477 Disenchantment EJason A., 2017.
- 1478 Harvey, Graham, 2014, p. 6. "cognitive echa
- 1479 Westphal, Bertrand, Tally Jr, Robert, (trans.), 2007, p. 2. Westphal
- 1480 Kapogiannis, Dimitrios *et al.* 'Cognitive and Neural Foundations of Religious Belief'. *Proceedings of the National Academy of Sciences* 106 (12), 2009. pp. 4876 – 4881.
- 1481 Ryan on ritual e, 2014.
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- 1483 Suddaby, Roy *et al.* 'Craft, magic and the re-enchantment of the world'. *European Management Journal* 35 (3), 2017, pp. 285 – 296. "the institutions

characters in our ongoing, 'autocosmic' narrative engagement with the worlds around us.

¹⁴⁸⁴ Gaskill, Malcolm 'In Pursuit Of Reality: Recent Research into the History of Witchcraft'. *The Historical Journal* 51 (4), 2008, pp. 1069 – 1088. 2017

Section 3.3: Computational Spaces, & Character-As-Environment

In the computational mode, historical human engagement with environment and landscape finds only its most recent manifestation: modern computation is intrinsically spatial and ecosystemic. It is beyond the scope of this thesis to determine whether the form's spatial qualities are intrinsic, at the conceptual level, or whether it is merely humanity's best framework for manipulating information, because of our evolved and enculturated sensibilities¹⁴⁸⁵. Answering such a question would require a deeper analysis of mathematics¹⁴⁸⁶, cybernetics¹⁴⁸⁷ and systems theory¹⁴⁸⁸, amongst other disciplines. It is enough to state, as Lev Manovich has it in *The Language of New Media*, that the history of computation - from electromechanical to digital form, from military to civilian application - has seen 'navigable space' become a 'cultural form in its own right... a new tool of labor... a common way to visualize and work with... data'.¹⁴⁸⁹

The language and mechanics of computing are riddled with dimensional terms and concepts: the 'network' of the Internet and its related concept of the hypertext, flowing between hypothetical and geographical space¹⁴⁹⁰¹⁴⁹¹; the 'architectures' of AI systems, and the programmers and engineers who stand as 'architects' of these intermeshed physical and virtual topologies¹⁴⁹²¹⁴⁹³; the manner in which users, in cybernetic feedback with the machine, 'navigate' and 'search' their way through environments composed of

¹⁴⁸⁵ Manovich, Lev, 2001, p.823.

¹⁴⁸⁶ Jammer, Max *Concepts of Space: The History of Theories of Space in Physics*. US: Dover, 1993.

¹⁴⁸⁷ Martin, Reinhold 'The Organizational Complex: Cybernetics, Space, Discourse'. *Assemblage* 37 (1), 1998, pp. 102 – 127.

¹⁴⁸⁸ Helton, J. W. 'Systems with infinite-dimensional state space': The Hilbert space approach'. *Proceedings of the IEEE* 64 (1), 1976, pp.145 – 160.e

¹⁴⁸⁹ Manovich, Lev, 2001, p.45.

¹⁴⁹⁰ Wertheim, Margaret. *The Pearly Gates Of Cyberspace: A History of Space from Dante to the Internet*. London: W.W. Norton & Company, 2000, p. 229.

¹⁴⁹¹ Kim, Hanhwe and Hirtle, Stephen. 'Spatial metaphors and disorientation in hypertext browsing'. *Behaviour & Information Technology* 14 (4), 1995, pp. 239 – 250.

¹⁴⁹² Koenitz, Hartmut *et al.* 'IDN for Change: Education Approaches and Challenges in a Project Focused on Migration'. In: Koenitz, Hartmut *et al.* (eds.), 2018, p. 591.

¹⁴⁹³ Shaw, Mary and Garlan, David. *Software architecture*. Englewood: Prentice Hall, 1996.

information¹⁴⁹⁴. Computers remain, primarily, a tool for the construction of environments of information, from the representation of the relationships within 'abstract information spaces'¹⁴⁹⁵ and systems¹⁴⁹⁶, to the simulation of 'physical spaces' both real and fictional¹⁴⁹⁷¹⁴⁹⁸¹⁴⁹⁹¹⁵⁰⁰.

Computational art, as a specific subset of computation, is a natural home for this environmental engagement: particularly at those points where the spatial and the narrative interpenetrate¹⁵⁰¹. In videogames we interact with 'simulated, rule-governed worlds'¹⁵⁰²¹⁵⁰³¹⁵⁰⁴ as 'graphic realms' of a particular narrativity¹⁵⁰⁵¹⁵⁰⁶¹⁵⁰⁷¹⁵⁰⁸¹⁵⁰⁹¹⁵¹⁰. In interactive fiction, narrative text becomes a spatial mechanism, a simulated world, to be navigated as a topography of 'twisty little passages' representing the gamut of human experiences¹⁵¹¹. Real and virtual spaces are entwined and interpolated in MR and XR artwork¹⁵¹², the

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- ¹⁴⁹⁴ Boechler, Patricia. 'How Spatial Is Hyperspace? Interacting with Hypertext Documents: Cognitive Processes and Concepts'. *Cyberpsychology & Behavior* 4 (1), 2001, pp. 23 – 48.
- ¹⁴⁹⁵ Manovich, Lev, 2001, p. 157.
- ¹⁴⁹⁶ Paul, Christiane, 2014.
- ¹⁴⁹⁷ Manovich, Lev, 2001, p.147. technology s si
- ¹⁴⁹⁸ Norman, Donald, 2007. l analogy' onal
- ¹⁴⁹⁹ Ryan, Marie-Laure, 2014.
- ¹⁵⁰⁰ Nitsche, Michael *Video Game Spaces: Image, Play and Structure in 3D Game Worlds*. Massachusetts: The MIT Press, 2008.
- ¹⁵⁰¹ Ryan, Marie-Laure, 2014. worlds and space.
- ¹⁵⁰² Turkle, Sherry 'Video Games and Computer Holding Power' *The New Media Reader* (2003), pp. 499 – 513, p.508.
- ¹⁵⁰³ Ryan, Marie-Laure 'From Playfields to Fictional Worlds: A Second Life for Ariosto'. *New Literary Hustory* 40 (1), 2009, PP.159 – 177.
- ¹⁵⁰⁴ Hayot, Eric and Wesp, Edward 'Towards a Critical Aesthetic of Virtual-World Geographies'. *Game Studies* 9 (1), 2009. Wesp - "virtual world geographies",
- ¹⁵⁰⁵ Gazzard, Alison 'Unlocking the Gameworld: The Rewards of Space and Time in Videogames'. *Game Studies* 11 (1), 2011.
- ¹⁵⁰⁶ Newman, James 2004, p. 108.
- ¹⁵⁰⁷ Miller, Kiri 'The Accidental Carjack: Ethnography, Gameworld Tourism, and Grand Theft Auto'. *Game Studies* (8) 1, 2008.meworld functions as a meaningful place" (Miller)
- ¹⁵⁰⁸ Barton, Matt 'How's The Weather: Simulating Weather in Virtual Environments'. *Game Studies* 8 (1), 2008.e history of videogames reveals an almost linear trajectory of inc
- ¹⁵⁰⁹ Jenkins, Henry, 2004, p. 690.
- ¹⁵¹⁰ Fernandez-Vara, Clara *et al.* 'Evolution of Spatial Configurations in Videogames'. In: De Castell, Suzanne and Jenson, Jennifer (eds.) *Worlds in Play: International Perspectives on Digital Games Research*. New York: Peter Lang, 2007.
- ¹⁵¹¹ Montfort, Nick *Twist Little Passages: An Approach To Interactive Fiction*. Massachusetts: The MIT Press, 2005.
- ¹⁵¹² Benford, Steve and Giannachi, Gabriella, 2011.

traversal between them, and the manipulation of each, a key driver of a still-emerging form of storytelling. In virtual and digital heritage interpretation, we undertake 'virtual... travel'¹⁵¹³ to preserved or long-gone cultural spaces, in order to understand them in manners different from the study of relics or the reading of texts¹⁵¹⁴¹⁵¹⁵¹⁵¹⁶¹⁵¹⁷. In each case, the architects of these 'procedural... participatory... spatial [and]... encyclopedic'¹⁵¹⁸ worlds, 'ripe with narrative possibility'¹⁵¹⁹, deliberately use their audience's evolved and enculturated capacity for environmental engagement as a driver of resonance. Ancient (and not so ancient) 'reservoirs of emotional, intellectual and physical experience'¹⁵²⁰ with place provide the foundations for narrative 'involvement'¹⁵²¹¹⁵²²¹⁵²³¹⁵²⁴¹⁵²⁵.

As the previous section remarked, the historical connections between environment and narrative are well-established. However, it can be argued that, in narrative comp-art, this connection is particularly important to creating resonance¹⁵²⁶¹⁵²⁷¹⁵²⁸¹⁵²⁹. Much of what is termed 'narrative design' in the

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- ¹⁵¹³ Devine, Kit 'testing times: Virtual heritage, 'time travel' and the user experience of museum visitors: a case study of an enriched time-based virtual heritage world'. [PhD Thesis]. The Australian National University, 2016.
- ¹⁵¹⁴ Champion, Erik, 2003.
- ¹⁵¹⁵ Fernandez-Vara, Clara 'Game Spaces Speak Volumes: Indexical Storytelling' *Proceedings of DiGRA 2011 Conference: Think Design Play* (2011).
- ¹⁵¹⁶ LaMotta, V. 'Behavioural Archaeology' In: Hodder, I (eds.) *Archaeological Theory Today*. Cambridge: Polity, 2012, pp. 62 – 92.)
- ¹⁵¹⁷ Ellenberge, Kate 'Virtual and Augmented Reality in Public Archaeology Teaching'. *Advances in Archaeological Practice* 5 (3), 2017, pp.305- 309.
- ¹⁵¹⁸ Murray, Janet, 1997, p. 87.ray
- ¹⁵¹⁹ Jenkins, Henry, 2006, p. 671.
- ¹⁵²⁰ Moralde, Oscar, 2014.ic landscape.
- ¹⁵²¹ Calleja, Gordon, 2011.leja
- ¹⁵²² W nilliamso Alan and Tremblay, Ktlin *Escape to Na Pali: A Journey to the Unreal*. USA: Five out of Ten Books, 2014.nments' ar
- ¹⁵²³ Makai, Peter Kristof 'Taming the Gaming imagination: The Hidden Lexicon of Video Gaming'. In: Limpar, Ildiko (eds.) *Displacing the Anxieties of Our World: Spaces of the Imagination*. Cambridge: Cambridge Scholars, 2017, pp. 26 - 43, p. 27. to provide players w
- ¹⁵²⁴ Moralde, Oscar, 2014. a game we conti sen
- ¹⁵²⁵ Bogdanovych, Anton 'What makes virtual agents believable?' *Connection Science* 28 (1), 2016, pp. 83 – 108, p.83.
- ¹⁵²⁶ Smith, Harvey and Worch, 2010. th and worch
- ¹⁵²⁷ Nitsche, Michael, 2008.
- ¹⁵²⁸ Calleja, Gordon, 2013, pg. 4. er - "The spatiflue
- ¹⁵²⁹ Ryan, Marie-Laure 'Spatiality Of Digital Media'. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 470 – 473. e immersive quality of these games lies as much in the respons

field is, at its best, a form of environment design¹⁵³⁰¹⁵³¹¹⁵³²; in which practitioners transform topography and ecologies into what Henry Jenkins calls a ‘narrative architecture’¹⁵³³. Fifteen years ago, Jenkins identified four main ways in which environmental design in comp-art facilitated resonant narrative experiences: fifteen years later, his taxonomy of embeddedness, enactment and evocation still stands¹⁵³⁴. Narratives remain wedded to the topologies of gameworlds, their traversal, ‘environmental storytelling’¹⁵³⁵ and ‘epistemological’ explorations¹⁵³⁶ mapping closely to both *fabula* and *syuzhet*¹⁵³⁷¹⁵³⁸¹⁵³⁹¹⁵⁴⁰¹⁵⁴¹¹⁵⁴²¹⁵⁴³¹⁵⁴⁴¹⁵⁴⁵. The navigation of systemic space is sometimes used more metaphorically, an interactive allegory for other, more

¹⁵³⁰ Fernandez-Vara, Clara, 2011. es designers seuild

¹⁵³¹ Barton, Matt, 2008.

¹⁵³² Zakowski, Samuel ‘Environmental storytelling, ideologies and quantum physics: narrative space and the BioShock games’. *Proceedings of the 1st International Joint Conference of DiGRA and FDG*, 1, 2016.

¹⁵³³ Jenkins, Henry, 2006.

¹⁵³⁴ Ibid.kins again.

¹⁵³⁵ Zakowski, Samuel, 2016.e

¹⁵³⁶ Chiapello, Laureline ‘Epistemological Underpinnings in Game Design Research’. In: Lankoski, Peter and Holopainen, J. (eds.) *Game Design Research: An Introduction to Theory & Practice*. USA: Carnegie Mellon University ETC Press, 2017, pp.16 -33.

¹⁵³⁷ Ryan, Marie-Laure ‘Interactive Narrative, Plot Types, and Interpersonal Relations’. *Proceedings of the Joint International Conference on Interactive Digital Storytelling*. Erfurt: ICIDS, 2008, pp. 6 – 13.

¹⁵³⁸ Salen, Katie and Zimmerman, Eric, 2004, p. 390.erman & Salen)

¹⁵³⁹ Short, Emily ‘Tightening the World-Plot Interface: or, Why I Am Obsessed With Conversation Models’, *Emily Short’s Interactive Storytelling*, 2015 [Online]. Available at: <https://emshort.blog/2015/05/24/framed-invisible-parties-and-the-world-plot-interface/> [Accessed: 18th October 2019].htening the world-plot interface.

¹⁵⁴⁰ Manovich, Lev, 2001, p. 214.ovich navigable

¹⁵⁴¹ William, Alan and Tremblay, Kaitlin, 2014.ali

¹⁵⁴² Smith, Harvey and Worch, 2010.h and worch

¹⁵⁴³ Fernandez-Vara, Clara, 2011. again

¹⁵⁴⁴ Bogost, Ian, 2017. Videogames are bette

¹⁵⁴⁵ Miller, Kiri, 2008.

complex phenomena¹⁵⁴⁶¹⁵⁴⁷¹⁵⁴⁸¹⁵⁴⁹¹⁵⁵⁰¹⁵⁵¹¹⁵⁵². When the 'simulation model' is more complex, dynamic and less rigidly controlled, narrative scenarios are generated emergently from the simulated environment¹⁵⁵³¹⁵⁵⁴¹⁵⁵⁵¹⁵⁵⁶¹⁵⁵⁷¹⁵⁵⁸.

In my gameplay study for this thesis (see Appendix 2), the inextricable link between environment and narrative in comp-art was plain to see in my participants' play, and their own comments on that play. Their attention, their actions, their emotions and their cognition were captivated by the worlds they found themselves in: most of their strategy, curiosity and narrative engagement co-opted into the navigation and manipulation of worlds both fantastical and familiar. After playing *Everybody's Gone To The Rapture*, one player struggled to remember any of the (deliberately) insubstantial characters he had encountered, or their stories: it was the village, the winding network of hedgerows, the empty houses and discarded objects that the characters that had left behind, which most captivated him. Another

¹⁵⁴⁶ Jenkins, Hannah, 2019. My boyfriend came

¹⁵⁴⁷ Giner- Sorolla, Roger *Crimes Against Mimesis*, 2005 [Online]. Available at: https://web.archive.org/web/20050619081931/http://www.geocities.com/aetus_kane/writing/cam.html [Accessed: 11th November 2016]. ological maze - diff

¹⁵⁴⁸ Riendeau, Danielle 'A game that explores abusive relationships', *Polygon*, 2014 [Online]. Available at: <https://www.polygon.com/2014/9/12/6136433/curtain-indie-game-abuse> [Accessed: 20th July 2020].

¹⁵⁴⁹ Bosman, Frank G. 'I Have Faith in Thee, Lord: Criticism of Religion and Child Abuse in the Video Game the Binding of Isaac'. *Religions* 9 (4), 2018, p. 133. The binding of isaac

¹⁵⁵⁰ Scenocosme, 2015. La maison sensible

¹⁵⁵¹ Bozdog, Mona and Galloway, Dayna 'Performing walking sims: From *Dear Esther* to *Inchcolm Project*'. *Jounral of Gaming & Virtual Worlds* 12 (1), 2020, pp. 23 – 47.

¹⁵⁵² Dias, Bruno, 2016. "architecbsti

¹⁵⁵³ Bogost, Ian, 2017. bogost

¹⁵⁵⁴ Miller, Kiri, 2008.idental carjac

¹⁵⁵⁵ Youngblood, G. Michael *et al.*, 2011.

¹⁵⁵⁶ Ali, Umran 'Red Dead Redemption 2: Virtual ecology is making game worlds eerily like our own', *The Conversation*, 2018 [Online]. Available at: <https://theconversation.com/red-dead-redemption-2-virtual-ecology-is-making-game-worlds-eerily-like-our-own-107068> [Accessed: 20th October 2019].

¹⁵⁵⁷ Keogh, Brendan, 'My Own 2014', *Brendan Keogh*, 2014 [Online]. Available at: <https://brkeogh.com/2014/12/28/my-own-2014/> [Accessed: 15th June, 2019].

¹⁵⁵⁸ Barton, Matt, 2008. ar

participant, making his way through the ‘beautifully-realised’, misty hills of *The Elder Scrolls V: Skyrim*, crystallised this bias. To him, his narrative experience was *with* the environment, rather than any other element within it: in its systemic complexity, representational wealth and its reactive stance towards the player, it was the most important element of that experience, beyond the characters or plotlines vying for his attention. The province of Skyrim became the ‘principal actor’¹⁵⁵⁹ of the game’s drama: an environmental entity that ‘demands our attention’, that impels us to interact, to ‘know [it]... intimately’, with far more persuasiveness than any other entity within it¹⁵⁶⁰¹⁵⁶¹.

This is not an uncommon reaction to works of narrative comp-art: perhaps, considering the arguments advanced in Chapter 1 of this thesis, it is also not unsurprising. The weaknesses of character design in narrative comp-art are, in part, linked to the strengths of environmental design. If the key potential of narrative comp-art is to represent something of the *functionality* of the narrative scenario, it is clear that the form is ‘structurally predisposed’ to represent the *functionality* of space, ecologies, environments¹⁵⁶², rather than the *functionality* of personhood.

It is arguable (see Conclusion) whether or not space is represented more meaningfully in comp-art; whether we merely tolerate a lower semiotic resolution, and a greater mechanomorphism, from perceived environments than we do from perceived persons¹⁵⁶³¹⁵⁶⁴; or whether, as Newman advances, we intrinsically experience such works as complete systems rather than individuated, identifying characters¹⁵⁶⁵. The answers to this question may lie in

¹⁵⁵⁹ Berry, Noah, 2015. h

¹⁵⁶⁰ Martin, Paul, 2011.

¹⁵⁶¹ Newman, James, 2013, p. 133.ing on Friedman 2002

¹⁵⁶² Chang, Alenda Y. ‘Playing Nature: The Virtual Ecology of Game Environments’ [PhD Thesis]. California: University of California, Berkeley, 2013.

¹⁵⁶³ VanOrd, Kevin ‘The Elder Scrolls V: Skyrim’, *GameSpot*, 2011 [Online]. Available at: <https://www.gamespot.com/reviews/the-elder-scrolls-v-skyrim-review/1900-6344618/> [Accessed: 18th October 2019].e its individual ele

¹⁵⁶⁴ Relph, Edward ‘The Inconspicuous Familiarity of Landscape’. In: Champion, Erik (eds.) *The Phenomenology of Real and Virtual Places*. London: Routledge, 2018.

¹⁵⁶⁵ Newman, James ‘Playing the system: Videogames/players/characters’ *Semiotica* 173 (1), 2009, pp. 509 – 524.

the subtleties of human evolution. Whatever the case, it is certainly true that, as Bruno Dias has it, ‘palaces are cheap, and kings are expensive’¹⁵⁶⁶: the ‘stock affordances’¹⁵⁶⁷ of computational time and space are easier to implement than computational character.

As such, practitioners – from risk-averse commercial markets to academic AI developers¹⁵⁶⁸ and cash-strapped solo creatives¹⁵⁶⁹ - explore the path of least resistance and greatest available resonance: the disparity between environment and character becoming wider as resources and creative effort are ploughed into the former rather than the latter. Characters are neglected as ‘animatronic’¹⁵⁷⁰ caricatures within a far more resonant, systemic world. Non-human protagonists and deuteragonists prevail, their role as ‘pets, companions, enemies [and] tools’¹⁵⁷¹ often suiting a historically-reductive, ‘coldly mechanical’ conception of animal life that has its roots in Enlightenment thought^{1572,1573}. In works as diverse as *Walden*¹⁵⁷⁴ and Lawrence Lek’s *Dalston, Mon Amour*¹⁵⁷⁵, characters are made deliberately absent or

¹⁵⁶⁶ Dias, Bruno ‘Guest Colum: A Garden of Bodies’, *GiantBomb*, 2016 [Online]. Available at: <https://www.giantbomb.com/articles/guest-column-a-garden-of-bodies/1100-5428/> [Accessed: 20th July 2019].

¹⁵⁶⁷ Bogost, Ian *How To Talk About Videogames*. Minneasota: University of Minneasota Press, 2015.

¹⁵⁶⁸ Brooks, Rodney A. ‘Intelligence without representation’, *Artificial Intelligence* 47 (1-3), 1991, pp. 139 – 159.s over agents.

¹⁵⁶⁹ Dias, Bruno, 2016.uno dias

¹⁵⁷⁰ Bogost, Ian, 2015.

¹⁵⁷¹ Baldwin, Kai ‘Animal Representation in Video Games’, *Animal Instances*, 2019 [Online]. Available at: <https://animalinstances.com/?p=6527> [Accessed: 20th July 2019].

¹⁵⁷² Joho, Jess ‘Video games are creating smarter animals’, *Polygon*, 2017 [Online]. Available at: <https://www.polygon.com/features/2017/5/17/15442666/videogame-animals-smarter> [Accessed: 17th June 2019].

¹⁵⁷³ Inderwildi, Andreas, ‘The Secret Lives of Video Game Animals’, *Kotaku UK*, 2019 [Online]. Available at: <https://web.archive.org/web/20180914212304/https://www.kotaku.co.uk/2018/02/23/the-secret-lives-of-video-game-animals> [Accessed: 20th June 2020].

¹⁵⁷⁴ Fullerton, Tracy *et al. Walden: A Game*, 2018 [Online]. Available at: <https://www.waldengame.com/> [Accessed: 20th November 2019].

¹⁵⁷⁵ Lek, Lawrence ‘Dalston, Mon Amour’, *Bonus Levels*, 2012 [Online]. Available at: <http://www.bonuslevels.net/dalston-mon-amour.html> [Accessed: 20th July 2019].cite

firmly preterite¹⁵⁷⁶, the ‘empty... world’¹⁵⁷⁷ becoming narrativised as an interlocutor, an ‘orthogonal’ access to ‘virtual pasts’¹⁵⁷⁸, or virtual elsewhere¹⁵⁷⁹¹⁵⁸⁰¹⁵⁸¹. In other works, characters are simplified into massed crowds, whose humanity is only expressible through their manipulation of, and by, their environment¹⁵⁸²¹⁵⁸³¹⁵⁸⁴¹⁵⁸⁵. In each case, it is arguable that the simulated environment itself functions as a ‘compelling, albeit unconventional, character’¹⁵⁸⁶ in its own right. In narrative tradition (both aesthetic and mundane) this is nothing new: but what is perhaps novel is the resonance of that environment-as-character compared to the narrative’s other, more conventional characters¹⁵⁸⁷¹⁵⁸⁸¹⁵⁸⁹. Often in comp-art, by this thesis’ measure of ‘resonance’, the environment has far more to offer than the beings which inhabit it.

It is at this juncture that I believe applying an autocosmic mindset to the central problem of computational character yields a novel perspective. In this thesis, I have defined an autocosmic methodology as one by which an artist draws on human engagement with objects, experiences and situations

¹⁵⁷⁶ Short, Emily, ‘Inform 7 For The Fiction Author’, *Emily Short’s Interactive Storytelling*, 2007 [Online]. Available at: <https://emshort.blog/2007/06/11/inform-7-for-the-fiction-author/> [Accessed: 20th August 2019].

¹⁵⁷⁷ Bogost, Ian, 2017.st

¹⁵⁷⁸ LaMotta, V, 2012 mota, V.

¹⁵⁷⁹ Dias, Bruno, 2016.

¹⁵⁸⁰ Martin, Paul, 2011. l martin

¹⁵⁸¹ Meredith, Ben, 2014. M

¹⁵⁸² Tronstad, Ragnhild ‘Emergence’. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp.179 – 182, p. 180.pkins

¹⁵⁸³ Reinhard, Andrew ‘Landscape Archaeology in *Skyrim VR*’. In: Champion, Erik M (eds.) *The Phenomenology of Real and Vvirtual Places*. London: Routledge, 2019.

¹⁵⁸⁴ Smith, Alex ‘Living Worlds: The Joy of NPC Schedules’, *Rock Paper Shotgun*, 2016 [Online]. Available at: <https://www.rockpapershotgun.com/2016/01/06/the-joy-of-npc-schedules/> [Accessed: 20th July 2019].

¹⁵⁸⁵ Meredith, Ben ‘Minecraft, No Man’s Sky, and the Hunt for a True Archaeology Sim’, *Kill Screen*, 2014 [Online]. Available at: <https://killscreen.com/previously/articles/minecraft-no-mans-sky-and-hunt-true-archaeology-sim/> [Accessed: 20th July 2019].craft-no-mans-sk

¹⁵⁸⁶ Martin, Paul, 2011.ra

¹⁵⁸⁷ Carbo-Mascarell, Rosa, 2016.

¹⁵⁸⁸ Martin, Paul, 2011.Marstoon

¹⁵⁸⁹ Dias, Bruno, 2016. bodies

beyond the bounds of their aesthetic remit – beyond the bounds of aesthetics entirely - as models for how their own audiences might engage with their work. In my particular case, I propose that an understanding of how human beings engage with environments as complex, interactive, systemic realities – often, as complex individuals in their own right – across a range of contexts, has lessons to teach the comp-artist. It teaches not just why computational environments resonate with audiences, but in how such resonance can be co-opted for the creation of another narrative element: that is, computational character.

By drawing agnostically upon research that demonstrates how human beings consistently, throughout history, engage with environment beyond ‘the boundary between subjectivity and materiality, agency and passivity’, between ‘spatial... [and] social reasoning’^{1590/1591}, even between ‘characters and settings’¹⁵⁹², I believe a direction for character design that is both computational and resonant emerges. Computational character design can draw on the principles of computational environment design both practically and philosophically. When both environments and characters are considered as examples of ‘systemic personhood’, whose functionality and structure is intrinsic to their narrative significance, a path through the challenges of computational characterisation may be charted. This functional metaphor (in Caracciolo’s sense of the phrase¹⁵⁹³) of ‘character-as-environment’ steps away from systemic, functional models of personhood grounded in human psychology, or biology, or information science. It does not rely on the unsuitable exemplars of other artistic forms. Instead, it has provided me with a new, autocosmic model for the characters of Project *knole*: characters who partake of the wider, more resonant history of human engagement with place and space.

¹⁵⁹⁰ Crraawford, Chris *hisCrawford on Interactive Storytelling*, UA: New Riders, 2012.

¹⁵⁹¹ Crawford, Chris *Chris Crawford: don't die, 2015* [Online]. Available at: <http://www.nodontdie.com/chris-crawford/> [Accessed: 8th August 2018].

¹⁵⁹² Eskenlinen, Markku, 2001.

¹⁵⁹³ Caracciolo, Marco. ‘Notes for an econarratological theory of character’. *Frontiers of Narrative Studies* 4 (1), 2018, pp.172 – 189.

Section 3.4: Three Approaches To ‘Character-As-Environment’ in Project knole

There are many ways of building upon the previous section’s autocosmic intersections, marrying the design of computational character and computational environment. Some of these are already part of the design lexicon of computational practice, arising wherever the systemic, spatial nature of computational design influences the creation of person-led experiences. For example, the concept of ‘architecture’ - of parts arranged hierarchically within a conceptual space - is intrinsic to the development of many forms of AI: from ‘multi-agent systems’¹⁵⁹⁴ and subsumption architectures, to colony architectures¹⁵⁹⁵ and distributed AI¹⁵⁹⁶. AI designers often conceive of and build their agents in ecosystemic terms, as an interconnected topography of separate, semi-autonomous or fully autonomous parts experienced as a single ‘entity’¹⁵⁹⁷. Merely by using the BOD methodology, itself a synthesis of several of these approaches¹⁵⁹⁸, the simulated ‘Beest’ is already a spatially-realised collection of computational systems, conceived as a character; the naturalised result of decades of animist design thinking¹⁵⁹⁹.

Such baseline ecosystemic and spatial paradigms have, of course, filtered in the computational arts more widely. Many digital artworks use topographical and ecosystemic techniques and representations to encourage

¹⁵⁹⁴ Wooldridge, Michael *An Introduction to MultiAgent Systems*. Chichester: Wiley, 2009.

¹⁵⁹⁵ Connell, Jonathan ‘A colony architecture for an artificial creature’. Technical Report. MIT, 1989.

¹⁵⁹⁶ Vlassis, Nikos *A Concise Introduction to Multiagent Systems and Distributed AI*. Paper. Informatics Institute, University of Amsterdam, 2003.

¹⁵⁹⁷ Russell, Stuart and Norvig, Peter, 2009, p. 43.

¹⁵⁹⁸ Bryson, Joanna J. ‘The Impact of Durative State on Action Selection’. *Proceedings of the AAAI 2008 Spring Symposia*. AAAI, 2008.

¹⁵⁹⁹ Welsh, Noel ‘Animism: An Essential Concept in Programming’, *Lambda The Ultimate*, 2002 [Online]. Available at: <http://lambda-the-ultimate.org/classic/message3659.html> [Accessed 20th October 2019]. <http://lambda-the-ultimate.org/classic/message3659.html>

interpersonal interaction, including Scenocosme's *La maison sensible*¹⁶⁰⁰, Petra Gemeinboeck *et al*'s *UZUME*¹⁶⁰¹ and Ian Cheng's *B.O.B.*¹⁶⁰².

In consumer 'comp-art' (in particular videogames), the methodological 'shortcuts' that character-as-environment allows for designers has led to a variety of approaches, with differing degrees of 'resonance'. The archetype of the 'videogame boss'¹⁶⁰³¹⁶⁰⁴, both implicitly and explicitly fuses character and environmental design to create both 'character [and] mechanism'¹⁶⁰⁵, drawing and hold the player's narrative and strategic attentions through intimate, subtle spatial and interpersonal interaction. Either sewn into their own bounded arenas and 'self-contained space[s]'¹⁶⁰⁶, configured as extensions of their beings, personalities and abilities¹⁶⁰⁷¹⁶⁰⁸¹⁶⁰⁹, or created as 'living levels'¹⁶¹⁰¹⁶¹¹ to be traversed themselves, in a literal sense; bosses are characters to be engaged mostly through the 'spatial reasoning', and

¹⁶⁰⁰ Scenocosme, *La maison sensible*, 2015 [Online]. Available at: http://www.scenocosme.com/maison_sensible.htm [Accessed 20th March 2019].ite

¹⁶⁰¹ Gemeinboeck, Petra *et al.* 'Uzume', EVL, 2000 [Online]. Available at: <https://www.evl.uic.edu/core.php?mod=4&type=1&indi=194> [Accessed: 19th March 2019].

¹⁶⁰² Cheng, Ian *BOB (Bag Of Beliefs)*, 2020 [Online]. Available at: <http://iancheng.com/BOB> [Accessed 19th March 2020].

¹⁶⁰³ Suttner, Nick *Shadow of the Colossus: Boss Fight Books #10*. Los Angeles: Boss Fight Books, 2016.

¹⁶⁰⁴ Smith, Ed 'Surviving Sevastopol' In: Williamson, Alan (eds.) *five out of ten: Future*. Five out of Ten, 2015, pp. 87 – 96.

¹⁶⁰⁵ Newman, James *Videogames*. Oxon: Routledge, 2013, p.78.

¹⁶⁰⁶ Ibid.newman

¹⁶⁰⁷ Batchelor, James 'Like a boss: The secrets behind great boss design', *gamesindustry.biz*, 2019 [Online]. Available at: <https://www.gamesindustry.biz/articles/2019-08-13-like-a-boss-the-secrets-behind-great-boss-design> [Accessed 20th July 2020].amesindustry.biz

¹⁶⁰⁸ Lee, Tyler 'An Annotated History Of Video Game Boss Battles', *Polygon*, 2015 [Online]. Available at: <https://www.polygon.com/features/2015/9/28/9333685/annotated-history-boss-battles> [Accessed 20th July 2020].ayers to have a foca

¹⁶⁰⁹ Lind, Stephanie 'Active Interfaces and Thematic Events in *The Legend of Zelda: Ocarina of Time*'. In: Austin, Michael (eds.) *Music Video Games: Performance, Politics and Play*. London: Bloomsbury, 2016, pp. 83 – 106.

¹⁶¹⁰ Henaghan, Lee 'Shadow of the Colossus puts the awe back into awesome', *stuff.nz*, 20198 [Online]. Available at: <https://www.stuff.co.nz/entertainment/games/101556383/shadow-of-the-colossus-puts-the-awe-back-into-awesome> [Accessed: 20th July 2020].
'living levels'

environmental exploration, that define the mechanics of the traditional videogame¹⁶¹²; a person who becomes a ‘puzzle’, in Newman’s view¹⁶¹³.

As explored in previous chapters, other computational artworks provide their own perspective on the ‘character-as-environment’ methodology, both explicitly and implicitly. The Chinese Room’s *Dear Esther* projects the guilt-ridden psyche of the protagonist onto an island landscape¹⁶¹⁴. Kitty Horrorshow’s *Anatomy* uses the traversal of a suburban house to draw parallels with body-horror conventions of transformation and psychosis¹⁶¹⁵. Robert Yang often foregrounds the spatialised male body as a site of all sorts of sociopolitical interactions and representations¹⁶¹⁶. In David O’Reilly’s *Everything*, the artist uses simple environmental design techniques to explore a philosophy of life’s interconnectedness, derived from that of Alan Watts¹⁶¹⁷; conceiving every object in the (simulated) universe as a member of its *dramatis personae*.

These extant approaches, and others, have certainly influenced the production of Project *knole*. They form perhaps-unavoidable touchstones for any working in this field. However, in *knole* I have looked beyond these exemplars, to seek original approaches to the ‘autocosmic’ precept of ‘character-as-environment’, across all of the project’s narrative modalities.

In the final three sections of this chapter, I explore these approaches towards character ‘resonance’ under three broad headings:

¹⁶¹¹ Cassar, Robert ‘God of War: A Narrative Analysis’. *Eludamos* 7 (1), 2013, pp. 81-99.

¹⁶¹² Batchelor, James, 2019. *Gameindustry.bif wh*

¹⁶¹³ Newman, James, 2013, p. 78.

¹⁶¹⁴ Moralde, Oscar ‘Haptic Landscapes: *Dear Esther* and Embodied Video Game Space’. *Media Fields Journal* 8 (1), 2014.

¹⁶¹⁵ Douglas, Dante ‘A House of Teeth: On ANATOMY’, 2016 [Online]. Available at: <https://medium.com/@videodante/a-house-of-teeth-on-anatomy-b5139ed2f6a0> [Accessed: 20th July 2020].

¹⁶¹⁶ Yang, Robert and Lantz, Frank ‘Gay Science’, *Open Transcripts*, 2017 [Online]. Available at: <http://opentranscripts.org/transcript/gay-science/> [Accessed: 20th July 2020].

¹⁶¹⁷ O’Reilly, David *Everything*, 2020 [Online]. Available at: <https://www.davidoreilly.com/everything> [Accessed: 20th July 2020].

- The design of the simulated 'Beest' as a personified computational landscape, both generically and in the specific context of Anne's narrative;
- The *Housekeeping* as a narrative companion to this landscape, in the tradition of both topographical, systemic and computational paratexts;
- The interaction of these two elements, and the audience's engagement, in the context of ritualised performance with both ceremonial other and ritual landscape.

Section 3.5: The ‘Beest’ As Computational, Personified Landscape

When an audience member approaches *knole*’s installation, there can be little doubt where their attentions, and their interactions, are supposed to be directed. The darkened space, a recreation of Anne Latch’s gritstone-built house in the village of Nighthead, is almost devoid of any indication that these rooms were once a home. As Anne describes in the *Housekeeping*, in leaving behind her practice she has packed up and carted away almost every scrap of furniture, every hard-won luxury and comfort; every prize of her new-found wealth and fame.

All that remain are the accoutrements and apparatus of her ‘Work’ with the creature; a chalked ‘circlet’, a few guttering candles, a collection of glass phials, and a dusty Book of Common Prayer, all arranged most carefully, placed in reference to, the ‘Fissure’ in the wall where the ‘Beest’ resides. Apart from the dim light of the candles, and the echo of the audience member’s feet on the stone floor, this long crack is the only source of light and sound in the entire space. It is the navel of the entire experience, and the ‘referent’ for which the entire mixed-reality dynamic of the work is provided¹⁶¹⁸¹⁶¹⁹. Most properly, the whole analogue space is in continuum¹⁶²⁰ with the virtual space rendered on-screen; an almost-empty territory, inhabited by a lone denizen.

The sparse design of the installation space, and the emptiness of the creature’s virtual environment, were deliberate creative decisions. The analogue components of *knole* are not designed to be traversed, or explored, outside of the permitted contexts and contingent interactions defined by Anne’s ritualised relationship with the ‘Beest’ itself. Even within this relationship, the creature has little ability to influence this physical space in

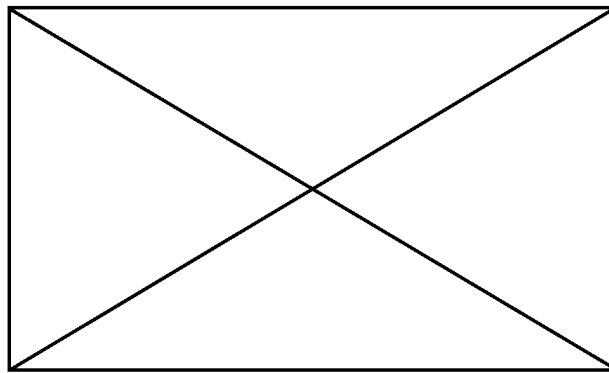
¹⁶¹⁸ Ryan, Marie-Laure, ‘Space’, *the living handbook of narratology*, 214 [Online]. Available at: <http://www.lhn.uni-hamburg.de/node/55.html> [Accessed 20th June 2020].

¹⁶¹⁹ Cses, Llogari *et al.* ‘Multi-reality games: an experience across the entire reality-virtuality continuum’. *Proceedings of the 16th ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Applications in Industry*, 2018, pp. 1 – 4.

¹⁶²⁰ Russell, Stuart and Norvig, Peter, 2009, p. 44.

any meaningful way. The ‘seams’ between Anne’s world, and the Beest’s, are deliberately emphasised, their negotiation always pointed and narratively meaningful; even in these cases, however, the nature of these negotiations are deeply suspect (see Section 3.7)¹⁶²¹.

However, even within its own ‘Relm’, the ‘Beest’ has few of the navigational abilities that are commonly expected in virtual agents; abilities that so often help to define that agency within a containing environment¹⁶²². The Beest’s floats and bobs, almost stationery most of the time; when it does move, it is only in reference to the audience member sat in front of it. It can move closer to them, or it can disappear into the shadows, on its obscure missions, without friction, effort or visible means of propulsion. The ‘Beest’s’ only navigational lodestone is the audience, or rather Anne herself, and its duties therein. All else is undifferentiated void, except for occasional squalls of weather, and the distant, untouchable moon hanging in the clouds behind the ‘Beest’s’ head.



*Figure 7: The ‘Beest’ in its ‘relm’: the lack of contextualising environment draws the audience’s attention to the physicality of the Beest itself.*¹⁶²³

It is this ‘tidyness’, this lack of territory or camouflage, that in part attracted Anne to the ‘Beest’ in the first place. For me as a practitioner, its

¹⁶²¹ Chalmers, M *et al.* ‘Seamful design: showing the seams in wearable computing’. *IEE Eurowearable*, 2003, pp. 11 – 16. h

¹⁶²² Russell, Stuart and Norvig, Peter, 2009, p. 40. C

¹⁶²³ See Appendix 9, Figure 21.2

design was a conscious decision to narrow the ‘scale of analysis’¹⁶²⁴, and the narrative ‘focalisation’¹⁶²⁵, away from any computational context beyond the ‘Beest’ itself. In lacking almost any containing environment, the ‘Beest’ most properly becomes its own environmental context. Unlike many other computational characters (see Chapter 2.2), there is no referential counterpoint, nothing to distract or obfuscate. While the ‘Beest’ may be the inhabitant of small, pathological ecosystem, defined by its relationship to Anne and its work, in its presentation it becomes ecosystem and landscape itself; a ‘microworld with human significance’¹⁶²⁶.

In this short section, I will explore some of the other ways in which I have constructed the simulation of the ‘Beest’ to function, and be perceived as functioning, in ways as much akin to a computational environment as to a computational character. This was not achieved by pursuing new technological approaches to character design, or attempting to devise new system architectures for artificial intelligence. As I have described elsewhere in this thesis, the ‘Beest’ is, in many ways, barely distinguishable in its construction from any typical computational ‘agent’¹⁶²⁷ in any number of works of narrative comp-art. Using Joanna Bryson’s well-established BOD framework as an instructive base, I pursued a conventional object-oriented approach to agent design; creating each component of the ‘Beest’s’ physical features, and potential reactive and deliberative behaviours, as components in a non-hierarchical network, able to communicate, trigger and influence each other according to a central plan-based control schema¹⁶²⁸. I slightly bastardised Bryson’s model to include a few hierarchical control structures¹⁶²⁹, found in other AI architectures (see Introduction and Section 2.1) to provide some

¹⁶²⁴ Tilley, Christopher *Interpreting Landscapes*. London: Routledge, 2016, p. 27. T

¹⁶²⁵ Niederhoff, Burkhard, 2013.ci

¹⁶²⁶ Mateas, Michael, *Expressive AI* [Paper], 2000 [Online]. Available at: <https://users.soe.ucsc.edu/~michaelm/publications/mateas-siggraph2000.pdf> [Accessed 19th June 2020].ci

¹⁶²⁷ Russell, Stuart and Norvig, Peter, 2009, p.34. C

¹⁶²⁸ Bryson, Joanna J, *Behavior Oriented Design (BOD)*, 2013 [Online]. Available at: <http://www.cs.bath.ac.uk/~jjb/web/bod.html> [Accessed 19th June 2020].Ci

¹⁶²⁹ Bryson, Joanna ‘The Use of State in Intelligent Control’, 2006 [Online]. Available at: <http://www.cs.bath.ac.uk/%7Ejjb/ftp/sab96.pdf> [Accessed 19th June 2020]

higher-level organisation of the Beest's emotions, conceptual models and *gestalt* physical state.

My 'autocosmic' approach to character design did not involve much modification of these effective exemplars. Instead, I tried to reframe the philosophy and process of their use; using them to produce a computational character whose algorithmic workings may seem familiar, at the boilerplate, but whose audiences would *perceive* those workings in quite a different way. It was an extension of the logical architectures of object-oriented programming into a perceived, personified topography. These architectures are characterised by the ecosystemic interactions of atomised components, nevertheless designed to produce an overall 'entity'¹⁶³⁰. In the design of the Beest's biology, the mapping of its form and psyche, and in the modes by which an audience navigates them, the Beest – and Anne herself - may be perceived environmentally, as well as interpersonally.

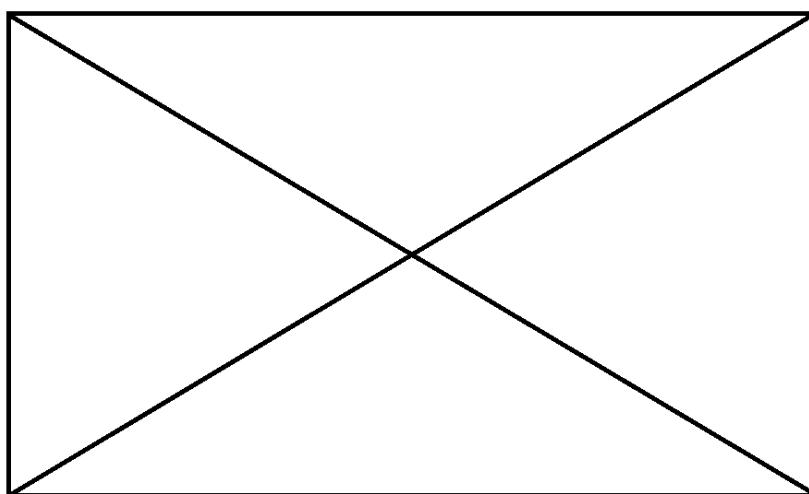


Figure 8: The simulation's 'debug' screen, showing some of the 'Beest's' hierarchical control structures¹⁶³¹.

In the first instance, both the Beest, Anne and their containing narrative world were constructed using a distributed, 'bottom-up approach'¹⁶³²

¹⁶³⁰ Russell, Stuart and Norvig, Peter, 2009, p. 43. c

¹⁶³¹ See Appendix 9, Figure 21.

¹⁶³² Koenitz, Harmut and Louchart, Sandy 'Practicalities and Ideologies: (Re)-Considering the Interactive Digital Narrative Authoring Paradigm'. FDG, 2015.*ci*

Rather than dictating the design of my characters using a ‘top-down’¹⁶³³ narrative or computational schema, I instead slowly extruded them from various experimentations, juxtapositions and combinations of atomic code tests. Beginning with the smooth, undifferentiated cylinder of the Beast’s underlying form – to some akin to a ‘sperpent’, to Anne more like a perfectly-milled industrial component – the ‘Beest’ slowly grew from a loose collection of individual elements to become a ‘punctualized’¹⁶³⁴ identity in aggregate. In designing its form – in developing its body parts, their placement, and their interconnection – I was not only building a biology, but that biology’s narrative context. In the ‘Beest’s’ form, the entire ‘storyworld’¹⁶³⁵ of *knole* can be mapped; the significant topographies of its setting, the relationships between its characters, and the events and actions which define them.

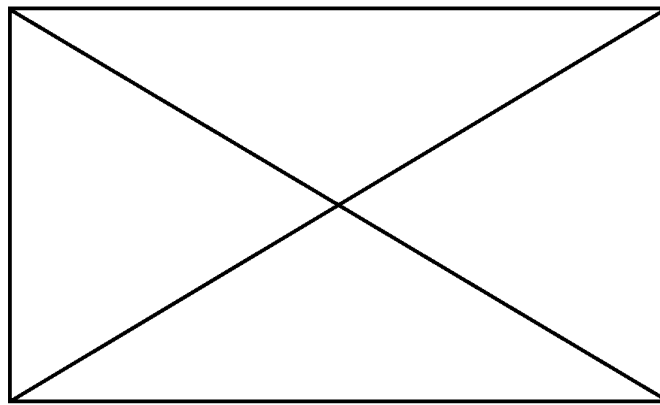


Figure 9: One of the early experiments in creating parasitic sub-agents on the creature’s flesh. Preserved now in the creature’s population of moles, this simulation led directly to the development of the character Simon Awlbach, the ‘addled’ cowherd upon whom Anne swears revenge¹⁶³⁶.

Through this process, the character of the ‘Beest’, inextricable from these wider narrative concerns, grew into a simulated, topographical model;

¹⁶³³ Ibid. c

¹⁶³⁴ Cressman, Darryl ‘A Brief Overview of Actor-Network Theory: Punctualization, Heterogeneous Engineering and Translation’. [Research Paper]. ACT Lab/CPROST, Simon Fraser University, 2009. c

¹⁶³⁵ Ryan, Marie-Laure, 2014.

¹⁶³⁶ See Appendix 9, Figure 23.1

not only to be navigated by the traditional markers of personhood – what Calleja calls ‘social involvement’ – but also by the waypoints of a narrative environment with which an audience is ‘spatially involved’¹⁶³⁷.

The ‘Beest’, of course, has a face; a collection of brows, a mouth, eyes, and nose, arranged more or less anthropomorphically close to the top edges of the creature’s cylinder-form. My ‘autocosmic’ research (outlined in Chapter 2.2) certainly indicates that such recognisable features serve as important markers for person-oriented engagement with an object, or collection of objects¹⁶³⁸¹⁶³⁹. However, the features of the face are only an arbitrary collection within a flat hierarchy of features arranged across the entire length and breadth of the ‘Beest’s’ body. As Section 3.7 explores, Anne’s instructions and characterisation of the Beest have little anthropomorphic bias; she encourages the audience member to perceive the creature as a wider topography of useful and significant elements rather than a ‘person’ in any conventional sense. This space is to be navigated in two main ways; either by prodding and dragging the ‘Beest’ – and thus their field of ‘View’ – back and forth with an outstretched finger, in a control schema more often encountered in real-time strategy videogames¹⁶⁴⁰¹⁶⁴¹; or, alternatively, with simple barked commands. They can even order the ‘Beest’ to come closer to the ‘Fissure’, revealing a myopic-yet-microscopic perspective which reveals segments of the creature’s ‘Fleche’ in depersonified, almost-clinical detail. As the audience roams further and further from the face, noting a range of biological features both familiar and strange, they begin to perceive this higher-level ‘entity’ through new, and conflicting, intimacies.

¹⁶³⁷ Calleja, Gordon, 2011, p. 83.

¹⁶³⁸ Liu, Jiangang *et al.* ‘Seeing Jesus in toast: Neural and behavioral correlates of face pareidolia’. *Cortex* 53 (1), 2014, pp. 60 – 77. c

¹⁶³⁹ Bednarik, Robert G. ‘Rock art and pareidolia’. *AURA* 33 (2), 2016, pp. 167 – 181. c

¹⁶⁴⁰ Wan, Marie Laure ‘7 Emotional and Strategic Conceptions of Space in Digital Narratives’. In: Koenitz, Harmut *et al.* (eds.), 2015.

¹⁶⁴¹ Moss, Richard ‘Build, gather, brawl, repeat: The history of real-time strategy games’, *Ars Technica*, 2017 [Online]. Available at: <https://arstechnica.com/gaming/2017/09/build-gather-brawl-repeat-the-history-of-real-time-strategy-games/> [Accessed: 19th June 2020].

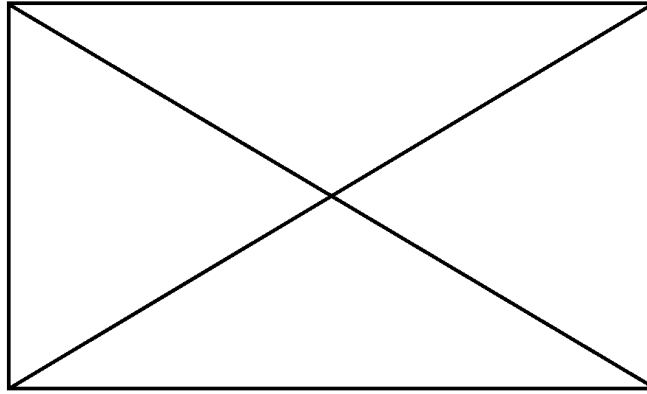


Figure 10: A still from a short animation, showing an audience member calling the 'Beest' to come closer to them, revealing details on the surface of its skin that bear closer inspection¹⁶⁴².

Through this 'active' traversal, as indeed through their more 'passive' observation¹⁶⁴³¹⁶⁴⁴¹⁶⁴⁵, the interconnected ecologies that underlie the Beest's body as a simple 'locator of objects'¹⁶⁴⁶ start to become more apparent. Cycles, patterns and interconnections emerge; audience members will begin to note them, and to incorporate them into their emerging models of this space and its narrative context. They may witness herds of moles roaming across the 'Beest's' surface, only brave enough to leave the shelter of its body hair after dark; drinking at the ducts of the creature's eyes, or nibbling at the edges of the wounds caused by the audience member's ritual attentions¹⁶⁴⁷. They may track the spread of strange cankers across its skin like an invasive mould¹⁶⁴⁸, or seek the source of the strange, ghostly sounds which seem to emanate from places other than the creature's mouth. An observant player, in concert with the other components of the *knole* experience, may begin to see the correlations

¹⁶⁴² See Appendix 9, Figure 24.

¹⁶⁴³ Keogh, Brendan 'Notes on No Man's Sky', *Brendan Keogh*, 2016 [Online]. Available at: <https://brkeogh.com/2016/08/21/notes-on-no-mans-sky/> [Accessed: 30th June 2019].

¹⁶⁴⁴ Keogh, Brendan, 2014. c

¹⁶⁴⁵ Champion, Erik 'Applying game design theory to virtual heritage environments'. *Proceedings of the 1st international conference on Computer graphics and interactive techniques in Australasia and South East Asia*, 2003, pp. 273 – 274, p. 273.A

¹⁶⁴⁶ Slater, Mel and Wilbur, Sylvia 'A Framework for Immersive Virtual Environments (FIVE): Speculations on the Role of Presence in Virtual Environments'. *Presence* 6 (6), 1997, pp. 603 – 616. h

¹⁶⁴⁷ See Appendix 9, Figure 25.

¹⁶⁴⁸ Ibid. Figure 26.

between the Beast's' geography, its simulated ecosystems, and the moorland setting within which the wider *knole* narrative takes place. The moonlit horns at the top of the creature's head, often wreathed in cloud and mist, connote the 'two great Stones' which form the focus of so many of the story's events¹⁶⁴⁹. Its eyes become the millponds in which Simon Awlbath whiles away his afternoons fishing, filled with fish-like *muscae volitans* that shiver and react to both environmental conditions and the audience's looming presence¹⁶⁵⁰. The patches of fur becomes the stunted woods where Mr. Awlbath's cows shelter on rainy nights, and where strange lights glint and flash. The seemingly auspicious arrangements of warts and other blemishes akin to mushroom rings and stone avenues¹⁶⁵¹¹⁶⁵², material indicators of the moor's influence on the superstitious minds of its inhabitants. Across, above and through it all hangs the moon, in its carousel of phases, the wind in its strength, the weather in all its moods; all of these features controlled by live API data to match exactly the current environmental conditions of the moors above Sheffield¹⁶⁵³¹⁶⁵⁴.

Beneath these visible, 'transparent' ecosystems are the buried, arguably-inaccessible landscapes to which they are connected; the creature's desires, emotions and conceptual models. Every one of the creature's body parts and ecological features – in their location, operation and systemic function – are connected in a web of influence and effect to these central controls. The operation and navigation of the 'Beest's' physical landscape thus becomes an interface for the traversal of this invisible underworld; two layers of environment which are intricately interconnected. Certain touches and actions, in certain places, elicit certain emotional and conceptual changes, at a global level, which in turn affect the physical structure of the creature in

¹⁶⁴⁹ *Iid.* Figure 27.

¹⁶⁵⁰ *Iid.* Figure 28.

¹⁶⁵¹ Shantz, HL and Piemeisel, RL 'Fungus fairy rings in eastern Colorado and their effects on vegetation'. *Journal of Agricultural Research* 6 (5), 1917, pp. 191 – 245.

¹⁶⁵² Thomas, Charles 'Folklore from a Northern Henge Monument'. *Folklore* 64 (3), 1953, pp. 427 – 429.

¹⁶⁵³ The United States Naval Observatory APIs, *Naval Oceanography Portal*, 2020 [Online]. Available at: <https://www.usno.navy.mil/USNO/> [Accessed: 19th June 2020].

¹⁶⁵⁴ Met Office APIs, *Met Office*, 2020 [Online]. Available at: <https://www.metoffice.gov.uk/services/data> [Accessed: 20th June 2020].

granular, localised manners. Even passive observation is no longer a neutral practice; the gaze of the audience, tracked with constantly-active webcams built into the installation, can cause the ‘Beest’ everything from discomfort and shame to pleasure and excitement, depending on its current mental and emotional state. Some areas of the creature are forbidden, taboo, inaccessible; not mediated by any physical lock, but by the refusal of the ‘Beest’ to show them. To open these locks, keys of a more abstract nature are required; trust, kindness, or intimidation (see Section 3.7).

Of course, it is not only the creature’s agency that is present in its simulated body/landscape; Anne has indelibly curated and marked this person/place herself, according to her own character. At every point in an audience member’s exploration, the ‘formal and associational traces’¹⁶⁵⁵ of past uses and past presences can be witnessed and excavated¹⁶⁵⁶; scars, bruises, curious remnants hidden beneath regrown fur; even inked markings which Anne used to help her navigate the entirety of the creature’s complex length. Often, however, these traces are not physical, but witnessed only as fleeting emergences of the underlying systems. In the ‘Beest’s’ emotions, reactions and behaviours, Anne’s vanished influence is apparent.

Many of the ideas in this Chapter are explored in more depth in Section 3.7, but it was important for me to delineate the fundamental constructions and conceptions at work in *knole*’s simulation. In constructing and contextualising the ‘Beest’ both as landscape and character – a space filled with animist vitality and dynamic agency – a curious mix of ‘resonant’ intimacies and ‘emotional bonds’ arise¹⁶⁵⁷¹⁶⁵⁸. The inherently attractive and engaging modalities of environmental manipulation, traversal and mastery mean that the Beest is able to function according to many of the ‘resonant’ principles of environmental storytelling¹⁶⁵⁹; to become an audience’s focus as

¹⁶⁵⁵ Champion, Erik Malcolm ‘Evaluating Cultural Learning in Virtual Environments’. [*PhD Thesis*]. The University of Melbourne, 2006, p. 57.ci

¹⁶⁵⁶ Meredith, Ben, 2014. Meredith - videogame archaeology - going down into the worlds of videogames, exploring them (the mystery plot)

¹⁶⁵⁷ Spence, Jocelyn, 2016, p. 54.

¹⁶⁵⁸ Ryan, Marie-Laure, 2014, p. 107.

¹⁶⁵⁹ Fernandez-Vara, Clara, 2011.

an ‘environment of information’¹⁶⁶⁰, a collection of ‘embedded’ and ‘evoked’ elements, referring to an established narrative, over whose revelation the audience has both manual and interpretative agency¹⁶⁶¹¹⁶⁶².

However, this agency is not merely co-opted in order to reveal a long-inert corpus¹⁶⁶³. The narrative events to which the creature’s body refers are not yet deactivated; they are ‘enacted’, and modified, by the audience’s environmental manipulation. In concert with the ‘Beest’s’ own dynamic agency, a mode of virtual exploration is created which involves not merely a lop-sided exploitation of a fixed resource, but an ongoing, environmental dialogue between two participants in a ‘storyworld’¹⁶⁶⁴ that is still unfolding¹⁶⁶⁵. The oscillation between these two states – between the navigation of the living sensitivities of a ‘punctualized’¹⁶⁶⁶ character, and the act of traversing a ‘depunctualized’¹⁶⁶⁷ environment that is not indifferent to that traversal – comes to form the central narrative tension, and a key source of ‘resonance’, for the project.

¹⁶⁶⁰ Jenkins, Henry, 2004.

¹⁶⁶¹ Muscat, Alexander ‘First-Person Walkers: Understanding the Walker Experience through Four Design Themes’ .*Proceedings of the 1st International Joint Conference if DiGRA and FDG*, 2016.

¹⁶⁶² Schweizer, Bobby ‘Moving Through Videogame Cities’, *Mindscape*, 2013.

¹⁶⁶³ Das, Bruno, 2016.

¹⁶⁶⁴ Ryan, Marie-Laure, 2014.

¹⁶⁶⁵ Sobchack, Vivian ‘Breadcrumbs in the Forest: Three Meditations on Being Lost in Space’. In: Sobchack, Vivian *Carnal Thoughts: Embodiment and Moving Image Culture*. Berkeley: UCP, 2004.

¹⁶⁶⁶ Cressman, Darryl, 2009.

¹⁶⁶⁷ Latour, Bruno, 2005.

Section 3.6: The *Housekeeping* As Computational Paratext & Intertext

The previous section explored how the simulation at the heart of Project *knole*'s installation was constructed according to principles of virtual environment design. It can thus be interpreted and conceived as a characterised personified, topography or ecosystem, to be navigated according to a mixture of interpersonal and spatial paradigms.

However, such a place, and such a person, is not designed to be approached without any preparation, or to be explored according to random whim. While it is possible to visit the installation alone, and still experience something 'resonant' concerning what is encountered there (see Appendix 1), much of the narrative significance 'embedded' in, and 'evoked' by, the systemic spaces of the 'Beest'¹⁶⁶⁸ are made legible and oriented¹⁶⁶⁹ through the context of the *Housekeeping*: the compendium of fragmentary texts relating to Anne Latch and her 'Beest', whose reading is designed to precede and accompany an audience's engagement with the installation. Like many who travel to unfamiliar places, and engage in unfamiliar customs with unfamiliar natives, the project's audiences have at their disposal a collection of textual support, to instruct them in their engagements with the computational environs of the 'Beest'; and, ultimately, to help those environs 'resonate' as intended.

Supposedly published in the same year as Anne Latch's 'vanishment', by the Sheffield 'stationer' William Cryer, the *Housekeeping* is in actuality a variety of texts, by various authors, relating to Anne, her public persona and the 'Famed' circumstances of her life. These texts include broadside ballads¹⁶⁷⁰, assize proceedings¹⁶⁷¹ and almanacs¹⁶⁷² as well as (nominally) 'paratextual' material by the publisher; all supporting a central

¹⁶⁶⁸ Jenkins, Henry, 2004.

¹⁶⁶⁹ Moralde, Oscar, 2014.

¹⁶⁷⁰ McDowell, Paula "'The Manufacture and Lingua-facture of Ballad-Making": Broadside Ballads in Long Eighteenth-Century Ballad Discourse'. *The Eighteenth Century* 47 (2), 2006, pp. 151 – 178.

¹⁶⁷¹ Cockburn, J.S. 'Early-modern assize records as historical evidence'. *Jounral of the Society of Archivists* 5 (4), 1975, pp. 215 – 231.

core of writings by Anne herself. The role of the *Housekeeping* in the project was inspired by a close, ‘autocosmic’ reading of how similar ‘paratexts’¹⁶⁷³ and ‘intertexts’¹⁶⁷⁴ have functioned, across an interdisciplinary sample of human culture, to enliven, contextualise and enframe human interaction with complex, otherwise-opaque systems; particularly when those systems have become personified, and narrativised, through the influence of those texts.

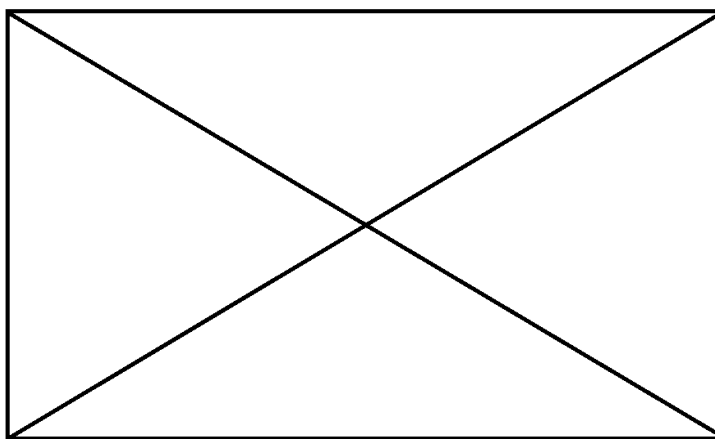


Figure 11: Examples of paratextual and intertextual forms in the *Housekeeping*¹⁶⁷⁵.

The interrelated concepts of ‘paratext’ and ‘intertext’ are structuralist and post-structuralist discourses which attempt to explain how ‘texts’ - in the most general sense of the term¹⁶⁷⁶ – relate to and explain each other. A ‘paratext’ was originally defined by Gerard Genette as ‘[a text] “beside” the text’¹⁶⁷⁷; material included that was supplementary to the main text but which ‘suggest[ed]... specific ways of... interpreting’ and navigating it¹⁶⁷⁸. Genette used this term most narrowly to refer to the various front and back

¹⁶⁷² Smyth, Adam ‘Almanacas, Annotators and Life-Writing in Early Modern England’. *English Literary Renaissance* 38 (2), 2008, pp. 200 – 244.

¹⁶⁷³ Genette, Gerard *Paratexts: Thresholds of Interpretation*. Cambridge: CUP, 1997.

¹⁶⁷⁴ Kristeva, Julia *Desire in language: A semiotic approach to literature and art*. New York: Columbia University Press, 1980.

¹⁶⁷⁵ See Appendix 9, Figure 25.

¹⁶⁷⁶ Lotman, Yuri, 1977.

¹⁶⁷⁷ Mirenayat, Ali and Soofastaei, Elaleh ‘Gerard Genette and the Categorization of Textual Transcendence’. *Mediterranean Journal of Social Sciences* 6 (5), 2015.

¹⁶⁷⁸ Birke, Dorothee and Christ, Birte ‘Paratext and Digitized Narrative: Mapping the Field’. *Narrative* 21 (1), 2013, pp. 65 – 87, p. 68.

matter in codical books - indices, contents pages, and the like – but the term has become complicated to encompass ‘accompanying productions’¹⁶⁷⁹ in books and other media forms that are not entirely supplementary, nor stand completely outside the ‘storyworld’ or ‘significance’¹⁶⁸⁰, of the originating ‘text’¹⁶⁸¹. The term now can incorporate the detailed chronologies and maps often included in fantasy novels¹⁶⁸², material generated by a participatory audience that is later incorporated into the ‘canon’ of a narrative¹⁶⁸³, and even those transmedial works where the line between ‘paratext’ and ‘text’ is truly blurred: works which ‘tell... tales across multiple media’¹⁶⁸⁴ with only a ‘fuzzy threshold between the diegetic and non-diegetic worlds’ of the ‘text’ proper and its supplements¹⁶⁸⁵¹⁶⁸⁶. The related term ‘intertext’, first used by Julie Kristeva¹⁶⁸⁷, and often related to Genette’s work¹⁶⁸⁸, considers how separate texts (and, in the work of later scholars, separate elements of the same text¹⁶⁸⁹) explain and contextualise each other, and how the true significance of any work may only be sited in how texts are present (either explicitly or implicitly) *within* each other¹⁶⁹⁰¹⁶⁹¹.

¹⁶⁷⁹ Genette, Gerard, 1997, p.1.

¹⁶⁸⁰ Ibid.

¹⁶⁸¹ Consalvo, Mia ‘When paratexts become texts: de-centering the game-as-text’. *Critical Studies in Media Communication* 34 (1), 2017, pp. 177 – 183.

¹⁶⁸² Konzack, Lars ‘The subcreation of J.R.R. Tolkien’s Middle-earth and How It Became Transmedial Culture’. In: Wolf, Mark J. (eds.), 2017, pp. 69 – 82.

¹⁶⁸³ McCain, Katherine Elizabeth ‘Canon vs. ‘Fanon’: Genre Devices in Contemporary Fanfiction’. [Masters Thesis]. Georgetown University, 2015.

¹⁶⁸⁴ Jenkins, Henry 2017.

¹⁶⁸⁵ Rodriguez-Ferrandiz, Raul ‘Paratextual Activity: Updating the Genettian approach within the transmedia turn’. *Communication and Society* 30 (1), 2017, pp. 165-182.

¹⁶⁸⁶ Freeman, Matthew and Rempazzi Gambarato, Renira (eds.) *The Routledge Companion to Transmedia Studies*. London: Routledge, 2018.

¹⁶⁸⁷ Kristeva, Julie, 1980.

¹⁶⁸⁸ Mirenayat, Ali and Soofastaei, Elaleh, 2015.

¹⁶⁸⁹ Fairclough, Norman *Discourse and Social Change*. Cambridge: Polity Press, 1992.

¹⁶⁹⁰ Navarrete-Cardero, Luis ‘The Poetics of Videogames: The Logic of Sense and Meaning in Videoludic Discourse’. In: Hernandez-Santaolalla, Victor and Barrientos-Bueno, Monica (eds.) *Handbook of Research on Transmedia Storytelling, Audience Engagement and Business Strategies*. Spain: IGI Global, 2020, pp. 103 – 114, p. 103.

¹⁶⁹¹ Haberer, Adolphe ‘Intertextuality in Theory and Practice’. *Literatura* 49 (5), 2007, pp. 54 – 67.

In my ‘autocosmic’ research into relationships between the human imagination and place (see Section 3.2), I continually encountered examples of paratextual and intertextual relations between these spaces and the artefacts that human beings had created to accompany them. I realised that these exemplars would pair well with my own ‘character-as-environment’ methodology, by demonstrating that complex systemic experiences could be made legible, actionable and significant through a comparative ‘intertext’ or ‘paratext’, external in some way to the systemic experience itself.

As such, the *Housekeeping* evolved as a method for exploring and representing these paratextual and intertextual traditions in my own work, as a means of supporting the narrative contexts and significances of my computational characters. In its form, the work is a bricolage of many of the ‘paratexts’ and ‘intertexts’ that I studied, often from outside the narrow band of the literary canon. These included magical grimoires and spellbooks, exploring the populated geographies of the supernatural; their spiritual cousin the recipe book, unveiling the people, places and systems of gastronomical practice; travel guides and videogame instruction manuals, helping their readers to understand the customs of strange places and peoples, both real and virtual. As a consolidated artefact, however, the *Housekeeping* draws on these disparate techniques to help audiences ‘resonantly’ operate the simulation as a narrative experience; relying explicitly on the ‘particular’¹⁶⁹² strengths of the textual form to enhance and support those of the computational.

* * * * *

The *Housekeeping* is a work that attempts to ‘formally imitate’ many of the media forms, ‘text types’¹⁶⁹³ and rhetorical devices of 18th century print culture through ‘intermedial transposition’¹⁶⁹⁴. These ‘text types’, pressed into a

¹⁶⁹² Keogh, Brendan, 2015.

¹⁶⁹³ Aumuller, Matthias ‘Text Types’, *the living handbook of narratology*, 2014 [Online]. Available at: <http://www.lhn.uni-hamburg.de/node/121.html> [Accessed: 3rd November 2020].

¹⁶⁹⁴ Ryan, Marie-Laure, 2014.

cramped and ‘polyphonic’¹⁶⁹⁵ context, work intertextually¹⁶⁹⁶ with and upon each other, other texts external to the project, and with the simulation of the ‘Beest’ itself. While these various ‘sujets’ vie for rhetorical dominance over the audience’s perception of the ‘fabula’¹⁶⁹⁷ of Anne’s storyworld, attempting to colour the specific ‘resonance’ that the audience brings to their future interactions, they necessarily form a multi-layered narrative discourse, ‘articulat[ing] different sociological, economic or political modes of thought depending on the writers aims’¹⁶⁹⁸ - as well as inadvertently revealing more than each writer intended¹⁶⁹⁹¹⁷⁰⁰.

The work total variously harnesses the social and political contexts of the broadside ballad¹⁷⁰¹, the historiographic value of printed court proceedings¹⁷⁰², and the narrative strengths of the epistolary form, which had already migrated from everyday correspondence to literary practice partway through the century¹⁷⁰³¹⁷⁰⁴. Anne writes just such a letter; not as a literary device, but as a mundane form of introduction. It is an address to the young woman, known only by her initials stitched in monogram on a handkerchief, of which Anne has been ‘Dreeming’ for months, and to whom she leaves her home, practice and title (see Appendix 4). Along with Anne’s ‘receipts’ and ‘Instrucktions’, it is this letter which arguably forms the main organising structure of the *Housekeeping* as a narrative document, and the starting point for any divination of its ‘significance’¹⁷⁰⁵.

¹⁶⁹⁵ Steinby, Liisa ‘Concepts of Novelistic Polyphony: Person-related and Compositional-Thematic’. In: Steinby, Liisa and Klapuri, Tintti (eds.) *Bakhtin and His Others: (Inter)subjectivity, Chronotope, Dialogism*. London: Anthem, 2013.

¹⁶⁹⁶ Navarrete-Cardero, Luis, 2020, p. 104.

¹⁶⁹⁷ Scheffel, Michael ‘Narrative Constitution’, *the living handbook of narratology*, 2013 [Online]. Available at: <https://www.lhn.uni-hamburg.de/node/57.html> [Accessed: 3rd June 2020].

¹⁶⁹⁸ **Handbook of narratology?**

¹⁶⁹⁹ Farrell, Joseph, 2005.

¹⁷⁰⁰ Harberer, Adolphe, 2007, p. 66.

¹⁷⁰¹ McDowell, Paula, 2006.

¹⁷⁰² Cockburn, J.S., 1975.

¹⁷⁰³ Beebee, Thomas O. *Epistolary Fiction in Europe 1500 – 1850*. Cambridge: CUP, 1999, p. 15.

¹⁷⁰⁴ Gilroy, Amanda and Verhoeven, W.M., ‘Introduction’. In: Gilroy, Amanda and Verhoeven, W.M. (eds.) *Epistolary Histories: Letters, Fiction, Culture*. London: University Press of Virginia, 2000, p. 1.

¹⁷⁰⁵ Genette, Gerard, 1997, p. 1..

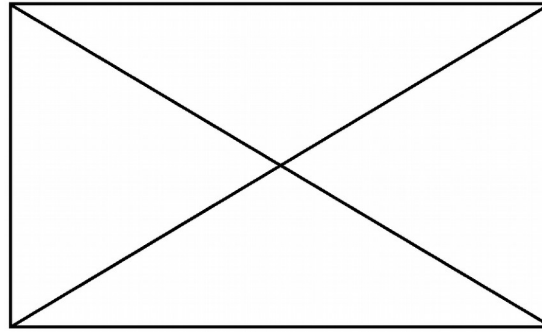


Figure 12: A sketch, in Anne's letter, depicting the monogrammed handkerchief; a 'Dreem' of which prompted her attempt to contact the young woman in question¹⁷⁰⁶.

Through her letters, her drafting of her working 'Scedule' and her collection of magical recipes, Anne fulfils several rhetorical and utilitarian objectives. She seeks to prepare her chosen successor for the 'Work' ahead, to explain the theory behind her 'Method' and – perhaps unintentionally – to provide a robust defence of her own character. Even in her chosen 'text types', there is evidence of a curious mix of traditionally masculine and feminine traits which provide an insight into her worldview, and the performative practices which the installation's audience will emulate.

As a manuscript of what amount to spells, the *Housekeeping* fits into the overwhelmingly male tradition of the grimoires, magical manuscripts and charms which dominated magical print culture at the time, and which Anne – as a woman seeking emancipation from the strictures of the past – defiantly adopts¹⁷⁰⁷¹⁷⁰⁸¹⁷⁰⁹. Of course, such magical 'receipts' were closely related to the recording of recipes, both herbal and culinary, which had been a traditional

¹⁷⁰⁶ See Appendix 9, Figure 26.

¹⁷⁰⁷ Davies, Owen, 2009.

¹⁷⁰⁸ 'John Harries' Book of Incantations', *The National Library of Wales*, 2020 [Online]. Available at: <https://www.library.wales/discover/digital-gallery/manuscripts/modern-period/john-harries-book-of-incantations/#?c=&m=&s=&cv=&xywh=-2344%2C0%2C5355%2C3615> [Accessed: 20th June 2020].

¹⁷⁰⁹ Hutton, Ronald, 1999, p. 95.

preserve of literate women for centuries¹⁷¹⁰¹⁷¹¹, and which today is increasingly seen as significant narrative practice¹⁷¹²¹⁷¹³¹⁷¹⁴¹⁷¹⁵. The form has been described as one of the only ways for literate women to communicate with each other, record their intellect or ‘gain economic independence and authority’¹⁷¹⁶¹⁷¹⁷. There is also the flavour of other literary forms in Anne’s work – from the sex manual to the book of conduct – which have their own connotations in the gender politics and rhetorical ‘resonances’ of the day¹⁷¹⁸¹⁷¹⁹. In (perhaps unwittingly) adopting a pastiche of these interrelated forms, Anne’s narrative – while ostensibly serving as a simple piece of instructional literature, to be ‘used’ by the audience – reveals much more than it intends to about its author’s context.

Beyond the formal properties of Anne’s writing, the content and style also reveal much more than she, as its author, may have intended. Elsewhere in this thesis I have written at length about the revelations in Anne’s

¹⁷¹⁰ Leong, Elaine and Pennell, Sara ‘Recipe Collections and the Currency of Medical Knowledge in the Early Modern ‘Medical Marketplace’’. In: Jenner, Mark S. R. and Wallis, Patrick (eds.) *Medicine and the Market in England and its Colonies c. 1450 – c. 1850*. London: Palgrave Macmillan, 2007, pp. 133 – 152.

¹⁷¹¹ Field, Catherine. “‘Many hands hands’: Writing the Self in Early Modern Women’s Recipe Books.’ In: *Genre and Women’s Life Writing in Early Modern England*. London, Routledge, 2016, pp. 49-63.

¹⁷¹² Theophano, Janet ‘Eat My Words: Reading Women’s Lives Through the Cookbooks They Wrote’. London: Palgrave Macmillan, 2003, p. 5.

¹⁷¹³ Forbes, Paula ‘Linton Hopkins on How to Read Cookbooks, Literary Criticism, and Mayonnaise’, *Eater*, 2012 [Online]. Available at: <https://www.eater.com/2012/9/10/6547753/linton-hopkins-on-how-to-read-cookbooks-literary-criticism-and> [Accessed: 12th June 2020].

¹⁷¹⁴ Igra, Alma ‘Leftovers: Cooking, Blogging, and Studying History from Old Recipes’, *The Recipes Project*, 2015 [Online]. Available at: <https://recipes.hypotheses.org/6946> [Accessed: 20th June 2020].

¹⁷¹⁵ Cernau, Teodora ‘Who’s Afraid of Kafka’s Soup?’ *The Scientific Journal of Humanistic Studies* 8 (15), 41 – 46, 2014.

¹⁷¹⁶ Igra, Alma, 2015.

¹⁷¹⁷ Ezell, MJ “‘Invisible Books’”. In: Rogers, Pat and Runge, Laura (eds.) *Producing the Eighteenth-Century Book: Writers and Publishers in England 1650 – 1800*. Delaware: UDP, 2009, pp. 53 – 69.

¹⁷¹⁸ Jaffe, Catherine ‘18th Century Spanish Conduct Literature for Women’. [Research Report], *Texas State University*, 2006 [Online]. Available at: <https://digital.library.txstate.edu/handle/10877/2830> [Accessed: 20th June 2020].

¹⁷¹⁹ Breen, Benjamin “‘This Misterie of Fucking’: A Sex Manual From 1680’, *Jezebel*, 2013 [Online]. Available at: <https://jezebel.com/this-misterie-of-fucking-a-sex-manual-from-1680-575810241> [Accessed: 20th June 2020].

writing, and cannot offer more than a handful of further examples here. In the ‘Scedule’ of her working week with the Beest, the audience can imaginatively simulate the painstakingly-delineated cycles of activity by which Anne’s new life is triangulated. The form of her working week is indelibly influenced by her many years working in Mr. Knole’s mill. Each morning she reads a psalm to her ‘Beest’, as the pious Mr. Knole does to his employees, and the hourly Bell continues to provide a new demarcation of time for a community wholly defined by its industrial purpose¹⁷²⁰. Even the days of the week have been re-labelled (and unthinkingly reproduced by Anne) to reflect the unceasing subdivisions of the Knole mill’s production. In Anne’s list of regular ‘subscribers’ in her ‘Scedule’, there are scores of small, self-contained ‘mini-narratives’¹⁷²¹; hints of the lives of clients from across many different strata of society whose wants and desires, seeking remedy from Anne’s practice, are inscribed onto the ‘Beest’s’ body (see Section 3.7).

In every aspect, while seemingly providing a document with only referential significance, Anne’s words are impregnated with a deeper narrative significance which invariably colours *how* an audience approaches it and other elements of the project. That significance is present in Anne’s choice and spelling of words, the prices she assigns to her ‘receipts’, the ailments that those ‘receipts’ are designed to cure, her seemingly-cursory mentions of people, and events, long since past, and her obsessive focus on Simon Awlbath, the man she blames for the death of her adoptive parents; both deliberately and incidentally, her text provides a multitude of ‘resonant’ ‘gateways’¹⁷²² into the storyworld.

While Anne entrusted her writing to her publisher Mr. Cryer, to be printed without addition or modification and delivered only to her chosen successor, hers is not the only voice which Mr. Cryer included in the final document. Surrounding and interpenetrated with Anne’s writings are the voices of others, raising their own particular perspectives on the ‘Wyfe of Nighthead’, her Beest and their joint practices. The form of the included ballad,

¹⁷²⁰ **Demarcation of time**

¹⁷²¹ Beebee, Thomas O., 1999, p. 6.

¹⁷²² Gray, Jonathan *Show Sold Separately: Promos, Spoilers and Other Media Paratexts*. London: New York University Press, 2010, p. 18.

‘The Warmth Without The Fyre’, shows the extent of prurient popular interest in Anne’s story across the county, and perhaps even further afield¹⁷²³. Its writer, a ‘goodly Christian’ shepherd who bears a striking resemblance to Anne’s nemesis Simon Awlbach, takes a proto-Romantic and somewhat patriarchal stance on her activities: imprisoning her within an established superstitious canon of foolish, lustful young women corrupted by the ‘false virtual’ of demonic forces, threatening the honest ‘Toyl’ of god-fearing folk, and the reproductive sanctity of ‘modern wyves’.

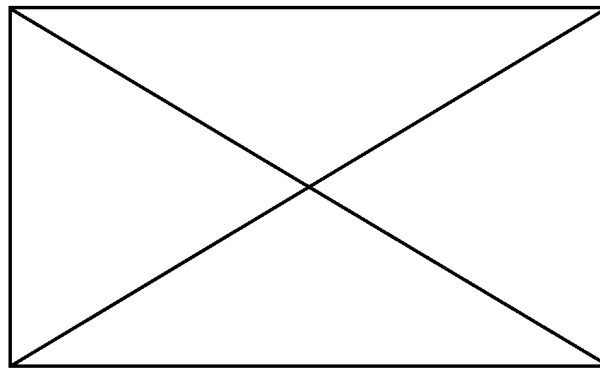


Figure 13: The first page of the ballad included in the Housekeeping. The visual assets have been taken from authentic, contemporary ballads available in the Bodleian Ballad Archive¹⁷²⁴¹⁷²⁵.

In the assize proceedings, Anne’s protestations about her role in the death of Sarah and Matthew Marchand are placed beneath a forensic, authoritarian lens. After the solipsistic intensity, and almost-hallucinatory confidences, of Anne’s own writing, it is striking to see her made peripheral to the legal conflicts between the Marchands and Simon Awlbach; a ‘simple, trembling girl’ accompanied by a sickly ‘Hound’, of no interest to a judicial system that has reduced the crime of witchcraft to a matter of fraud¹⁷²⁶, and which has many tens of cases to deal with even on this one, rainy August day.

¹⁷²³ Williams, Sarah F. *Damnable Practises: Witches, Dangerous Women, and Music in Seventeenth-Century English Broadside Ballads*. Surrey: Askgate, 2015.

¹⁷²⁴ See Appendix 9, Figure 27.

¹⁷²⁵ *Broadside Ballads Online*, 2020 [Online]. Available at: <http://ballads.bodleian.ox.ac.uk/> [Accessed: 20th May 2018].

¹⁷²⁶ Davies, Owen, 1999, p. 61.

In its long, exacting detail, the document provides insights into many of the other themes that define the historical context in which Anne was operating, and which overwhelmingly colour the audience's interpretation of the work entire. Mr. Knole and Rector Whitbread wax lyrical, with a burgeoning Romanticism, about Simon Awlbach's pastoral virtues, under threat from enclosure and other reconfigurations of the English countryside¹⁷²⁷. The harsh sentencing of the Marchands reflects changing attitudes towards property laws initiated by the 'Black Act' of 1723¹⁷²⁸. Of course, the proceedings are not only a particular narrative vector, appropriate to a facsimile, pseudepigraphical work such as the *Housekeeping*; they have been converted into something far more instrumental. Overlain on the words of the court clerk are a series of square boxes, filled with gibberish; the 'amulotts' which form a key part of Anne's practice, and which Mr. Cryer promised to include in his printing.

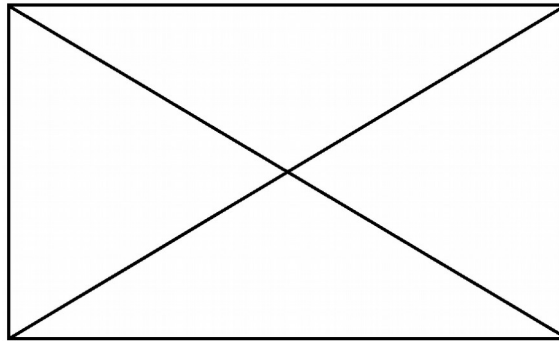


Figure 14: One of the pages of the assizes proceedings included in the *Housekeeping*, showing Anne's 'amulotts' overlain over the original text. The form and rhetoric of this 'text type'¹⁷²⁹ was inspired by extensive research in the Old Bailey digital archives^{1730 1731}.

¹⁷²⁷ Fairlie, Simon 'A Short History of Enclosure In Britain', *Hampton*, 2020 [Online]. Available at: <https://www.hamptonthink.org/read/a-short-history-of-enclosure-in-britain> [Accessed: 20th June 2020].

¹⁷²⁸ Thompson, Edward *Whigs and hunters: the origin of the black act*. New York: Pantheon, 1975.

¹⁷²⁹ Aumuller, Matthias, 2014.

¹⁷³⁰ *The Proceedings of the Old Bailey*, 2018 [Online]. Available at: <https://www.oldbaileyonline.org/> [Accessed: 20th June 2020].

¹⁷³¹ See Appendix 9, Figure 27.

In choosing to overlay these ‘amulotts’ onto a legal document, full of jargon and specialist, almost-mysterious vocabulary – a text which Anne had no desire to include – Mr. Cryer is exploiting a continuing sensationalist and superstitious correlation between literate documentation and magical practice¹⁷³². This is only one example of Cryer’s modifications of Anne’s original manuscript. Even in reading the title page of the document itself (an insertion entirely of Mr. Cryer’s devising), it is plain that he has no intention of honouring his promises to Anne. Her private writings, intended for an audience of one, have been repackaged, edited and bastardised into a work of entertainment, available to purchase by any ‘Young Miss Con-descending’ for a few shillings.

In Cryer, the indistinction of text and paratext becomes blurrier still. Anne’s three hundred receipts are trimmed to around thirty, their value as a complete and operable transcript of her ‘Method’ lost. Despite her desire to write the whole ‘Troth’ of the world as a piece of visionary amateur science, and to vindicate her reputation, Cryer has reduced her to just another curiosity to be touted to a public eager for scandal or ‘novele’ diversion. As the audience makes their plans to attend the installation, they must concede that it is Cryer who has proved the ultimate author of the *Housekeeping*. They are invited to imagine all those other ‘Young Misses’, clutching their own copies of Anne’s bequeathment, travelling to visit the ‘Beest’ expectant of a new ‘Mistress’.

* * * * *

Through its form, content and ‘function’¹⁷³³, the *Housekeeping* provides a ‘polyphonic’¹⁷³⁴ avenue for exploring and contextualising Anne’s storyworld in ways that appropriately support the computational form to which it is allied; offloading some of the narrative burden from the procedural experience itself.

¹⁷³² Cambers, Andrew ‘Demonic Possession, Literacy and ‘Superstition’ in Early Modern England. *Pas & Present* 202 (1), 2009, pp. 3 – 35.

¹⁷³³ Beebee, Thomas O., 1999, p. 8.

¹⁷³⁴ Steinby, Liisa, 2013.

Ideally, an audience will read the *Housekeeping*, downloaded from the project's website, before they visit the installation, and will thus be primed and prepared to parse and interpret the simulation through a particular set of narrative lenses. However, I believe it would be a mistake to think of the *Housekeeping* as a static companion to a dynamic work of comp-art: instead, drawing on the work of Newman, Richardson and Keogh, I would argue that it forms only a distinct, 'offline'¹⁷³⁵ 'segment'¹⁷³⁶ of a larger experience, as well as standing as an 'extensive intertextual system'¹⁷³⁷ in its own right. Drawing on principles from transmedia and 'pseudepigraphical' fiction, the work uses 'multiple platforms [with]... manifold entry and exit points'¹⁷³⁸ to promote a non-linear textual exploration of the project's storyworld.

As 'active readers'¹⁷³⁹, even before they visit the installation, audiences are required to traverse Anne's narrative landscape; to choose their paths carefully through an ecosystem of competing authorships, 'focalisations'¹⁷⁴⁰ and intertexts, excavating their own particular interpretation of its qualities. When audiences have undertaken this active engagement with the text, they are prepared to use their own interpretations to 'resonantly' guide their encounter with the computational systems which I have built, and to help them overcome the 'interpretative challenges' of the work¹⁷⁴¹. An engaged reader of the *Housekeeping* will possess a personal literacy in how the interpolated agencies which the *Housekeeping* encodes have affected what they are about to encounter. They are aware that their engagement with the simulated 'Beest' sits at the end of a rich and complex chronology of prior

¹⁷³⁵ Richardson, Ingrid and Keogh, Brendan 'Mobile Media Matters: The Ethnography and Phenomenology of Itinerant Interfaces'. In: Hjorth, Larissa et al. (eds.) *The Routledge Companion To Digital Ethnography*. London: Routledge, 2017, pp. 211 – 220, p. 212.

¹⁷³⁶ cite

¹⁷³⁷ Farrell, Joseph, 2005, p. 108.

¹⁷³⁸ Fleming, Laura 'Expanding Learning Opportunities with Transmedia Practices: *Inanimate Alice* as an Exemplar'. *JMLE* 5 (2), 2013, pp. 370 – 378, p. 370.

¹⁷³⁹ Bower, Anne L. 'Dear -----: In Search of New (Old) Forms of Critical Address'. In: Gilroy, Amanda and Verhoeven, W. M., 2000, p. 156.

¹⁷⁴⁰ Niederhoff, Burkhard

¹⁷⁴¹ Jonne, Arjoranta 'Interpretive Challenges In Games'. *Proceedings of the 2018 DiGRA International Conference: The Game is the Message*, DiGRA, 2018 [Online]. Available at: <http://www.digra.org/digital-library/publications/interpretive-challenges-in-games/> [Accessed: 20th June 2020].

engagements, of battles both ideological and actual fought over its significance; which will, undoubtedly, shape their own encounter.

* * * * *

Of course, there may be audiences who will choose not to visit the installation at all, or be unable to attend one of its outings. Instead, a reading of the *Housekeeping* will form the totality of their encounter with my work. Even in such a scenario, I trust that the *Housekeeping* stands as its own cohesive textual landscape; referring to a systemic experience that is always experienced in negative, *in absentia*, but which does not entirely fail to ‘resonate’ in that absence.

This role of paratexts to substitute, and suggest, the systems they supposedly support is nothing new. In grimoires and magical texts, the evocations of fabulous costumes, strange genuflections, obscure glyphs¹⁷⁴² and alien proclamations¹⁷⁴³ - as well as the intertextual cachet of other magical works (often entirely fictional) to which they allude¹⁷⁴⁴ - help to instil a particular narrative ‘resonance’ in the reader, an animist conception of the world around them, even if they never intend to actually perform the rituals described¹⁷⁴⁵¹⁷⁴⁶. ‘Armchair sorcerers’ imaginatively project themselves into the role of active participant in these rituals, guided by detailed prompts, even actual scripts, of how their encounters with supernatural beings would play out. That such readings only allowed a vicarious mental performance of forbidden acts, and an exploration of forbidden cultures, did not dent their ‘resonance’ - or their saleability¹⁷⁴⁷¹⁷⁴⁸.

¹⁷⁴² Peterson, Joseph (eds.) *Arbatel: Concerning the Magic of the Ancients*. London: Ibis Press, 2009.

¹⁷⁴³ Rankine, David and Barron, Paul Harry (eds.) *The Complete Grimoire of Pope Honorius*. London: Avalonia, 2013.

¹⁷⁴⁴ Otto, Bernd-Christian [Personal Correspondence], 2016.

¹⁷⁴⁵ Davies, Owen, 2009, p. 272.

¹⁷⁴⁶ Clore, Dan, 2012.

¹⁷⁴⁷ Crowley, Aleister, *The Book Of The Law*. London: Red Wheel, 1977.

¹⁷⁴⁸ Davies, Owen, 2009.

Other forms of paratext have long exploited the intrinsic narrative value that they possess, apart from their role as referential tools. The concept of the ‘armchair traveller’ is a well-worn one¹⁷⁴⁹¹⁷⁵⁰, as is the concept of the ‘literary recipe book’ which is less a reference for cooking than a source of narrative enjoyment¹⁷⁵¹¹⁷⁵². In defiance of Manovich’s proclamation that book and computer interfaces are fundamentally incompatible¹⁷⁵³, instruction manuals for electronic toys and video games have long proved excellent storehouses of suggestive narrative content, often critiqued on their own merits, rather than as mere referents, by using narrative techniques best suited to the written form¹⁷⁵⁴. Indeed, some practitioners and scholars explore the legitimacy of consuming an interactive experience *purely* through the paratexts which describe it, and never experiencing the system first-hand¹⁷⁵⁵¹⁷⁵⁶. Such readings remain legitimate, if unconventional, engagements with computational or systemic experiences.

* * * * *

Despite the *Housekeeping*’s independence as a narrative document, it remains the case that it was primarily conceived to augment my installation work. Like a videogame manual¹⁷⁵⁷, its primary reason to exist is to instruct an experience with a dynamic system¹⁷⁵⁸. While the manual-as-paratext has dwindled in popularity, as videogames have become more capable of doing

¹⁷⁴⁹ Sweet, Rosemary *Cities and the Grand Tour: The British in Italy, c. 1690 – 1820*. Cambridge: CUP, 2012, p. 63.

¹⁷⁵⁰ Mansfield, Deb ‘The Armchair Traveller: Littoral Zones and the Domestic Environment’. [Masters Thesis]. UNSW, March 2013.

¹⁷⁵¹ Harde, Roxanne and Wesselius, Janet (eds.) *Consumption and the Literary Cookbook*. London: Routledge, 2021.

¹⁷⁵² Notaker, Henry *A History of Cookbooks: From Kitchen to Page over Seven Centuries*. Berkeley: UCP, 2017.

¹⁷⁵³ Manovich, Lev, 2001, p.

¹⁷⁵⁴

¹⁷⁵⁵ Brenda Laurel

¹⁷⁵⁶ Mattie Brice

¹⁷⁵⁷ Code books

¹⁷⁵⁸ Hancock, Michael, 2015, p. 63.

representational and procedural justice to the storyworlds they simulate¹⁷⁵⁹¹⁷⁶⁰¹⁷⁶¹¹⁷⁶², the form remains an object lesson in how paratextual and intertextual material can support, and enhance, the experience of a central procedural system, and ‘present... a solution to cultural, economic and technological videogame issues’¹⁷⁶³¹⁷⁶⁴. As Consalvo writes, videogame manuals thus transcend their roles as explanatory paratexts and became integral parts of a total narrative experience¹⁷⁶⁵. Their reading influences the audience’s imaginative tendencies¹⁷⁶⁶¹⁷⁶⁷, often by adopting the rhetorical and formal techniques of other, older narrative media¹⁷⁶⁸. Manuals have been developed to resemble tourist guidebooks for the simulated worlds of videogames¹⁷⁶⁹, facsimiles of the personal effects of videogame characters¹⁷⁷⁰, or as

¹⁷⁵⁹ The heavy-handed exposition that opens many games serves a useful function in orienting spectators to the core premises"

¹⁷⁶⁰ Hancock, 2015 - Early Atari manuals presented the narrative component in the manual as it was easier to do than in the game itself.

¹⁷⁶¹ “they were created to help players come to terms with this new media form, they changed and evolved to reflect the technological sophistication of the games, and when the games’ sophistication reached a point where they could do anything the manual did, the manual faded away, its task complete. Rendered obsolete, the video game manual is a dead media form. This may not have changed when it comes to characters.

¹⁷⁶² “the manual can offer a glimpse into a fiction much broader than the game itself.”

¹⁷⁶³ Cite? Hancock?

¹⁷⁶⁴

Joe Koller #2: Dark Souls being a place of mystery that is mainly understood in paratexts outside the game

¹⁷⁶⁵ In videogames: The boundary between paratext and text has been subverted in videogames before. Paratext should not be dismissed as simply the setting up... of a video game, but rather should be broadened to be both the system, as well as part of the video game text (encompassing the notion of gameplay and narrative)."

¹⁷⁶⁶ Oatley, Keith ‘Meeting of minds: Dialogue, sympathy and identification, in reading fiction’. *Poetics* 26 (1), 1999, p. 439 – 454, p. 443.

¹⁷⁶⁷ Hancock, Michael, 2015, p. 75.

¹⁷⁶⁸ Ibid, p. iii.

¹⁷⁶⁹ Miller, Kiri, 2008.

¹⁷⁷⁰ cite

encyclopedias of the monsters or social groups that a player will encounter¹⁷⁷¹¹⁷⁷²¹⁷⁷³.

For a certain generation of players, these manuals exert a ‘certain magic’¹⁷⁷⁴; a tactile, anticipatory experience that was integral to their enjoyment of the game. One of the participants in my gameplay study fondly remembered reading the manual of a game he had just bought ‘cover to cover’ on the bus home. This seems an excellent model for the careful use of legacy media to situate an audience intellectually, emotionally and imaginatively in a comp-art space, even before they have booted up a computer. Some videogame manuals, as in the case of *Wonderbook’s* book of spells¹⁷⁷⁵, or the bomb defusing manual in *Keep Talking and Nobody Explodes*¹⁷⁷⁶, go further, becoming integral parts of the systemic experience itself; textual interfaces of mechanical control, quite apart from being merely ‘texts that must be read in the presence of their referent’¹⁷⁷⁷¹⁷⁷⁸.

* * * * *

¹⁷⁷¹ Khaw, Cassandra, ‘What Are The Best Game Manuals?’, *Roch Paper Shotgun*, 2015 [Online]. Available at: <https://www.rockpapershotgun.com/2015/09/11/what-are-the-best-game-manuals/> [Accessed: 20th June 2020].

¹⁷⁷² " Videogame manuals often describe the history, the past, what has happened up until that point, dropping you in media res. It delineates the space that you will be occupying by giving it context. In the original Prince of Persia, you have been imprisoned by Jaffar, therefore your escape has meaning; not just to save the princess, but to save the princess in time.. "

¹⁷⁷³ Strik - "In earlier days, manuals in particular contained lots of information about the game world, and even short stories and vignettes."

¹⁷⁷⁴ Carroll, Nilson Thomas ‘The Lost Art of the Video Game Instruction Manual’. *The Artifice*, 2014 [Online]. Available at: <https://the-artifice.com/lost-art-of-video-game-instruction-manual/> [Accessed: 20th June 2020].

¹⁷⁷⁵ *Wonderbook™: Book of Spells*, Playstation, 2020 [Online]. Available at: <https://www.playstation.com/en-gb/games/wonderbook-book-of-spells-ps3/> [Accessed: 20th November 2020].

¹⁷⁷⁶ Steel Crate Games, *Keep Talking And Nobody Explodes*, 2018 [Online]. Available at: <https://keeptalkinggame.com/> [Accessed: 20th November 2020].

¹⁷⁷⁷ Ryan, Marie-Laure, 2014.

¹⁷⁷⁸ Some “asking players to act not just in the game, but directly on the manual itself”

Even if Mr. Cryer never envisaged anybody actually travelling to the village of Nighthead to claim Anne's home, and her creature, for themselves, this invitation is both implicit and explicit to knole's audience. As a form of paratextual 'vestibule'¹⁷⁷⁹, the *Housekeeping* prepares and encourages the audience to make a similar sort of journey – to come to the installation, wherever it might be found, in order to assume their role as the 'Wyfe of Nighthead', and operator of the 'Beest'. Once they have arrived, the *Housekeeping* takes on a simpler, utilitarian role: a set of instructions, arrived at through 'deducktion... inescapable', which show its audience how to manipulate the world's 'Forses' to heal the sick, bring luck to the unfortunate, and control the fortunes of anybody willing to pay for the privilege. Thus, the *Housekeeping* transcends its role as paratext, and fully becomes part of knole's entire mixed reality dynamic, 'integrat[ing] diverse forms of interface into a single experience'¹⁷⁸⁰¹⁷⁸¹. It becomes an enabler of ritual.

In Section 3.2 of this thesis, I briefly discussed ritual as 'an example of a participatory activity that presents a narrative structure'¹⁷⁸²; a set of 'resonant' actions that provide a schemata for interacting with, and regulating a relationship with, complex, often-personified environments¹⁷⁸³¹⁷⁸⁴. The study

¹⁷⁷⁹ Genette, Gerard, 1997, p. 1.

¹⁷⁸⁰ Benford, Steve and Gabriella, Giannachi, 2012.

¹⁷⁸¹ Ibid.

¹⁷⁸² Ryan, Marie-Laure, 2013.

¹⁷⁸³ Hodder, Ian and Hutson, Scott *Reading the Past: Current Approaches to Interpretation in Archaeology*. Cambridge: CUP, 2003, p. 25.

¹⁷⁸⁴ Champion, Erik, 2015.

of ritual has a growing heritage in interactive art¹⁷⁸⁵¹⁷⁸⁶ and videogames¹⁷⁸⁷¹⁷⁸⁸¹⁷⁸⁹¹⁷⁹⁰¹⁷⁹¹; in Project knole, it represents the apotheosis of my 'autocosmic' approach. The *Housekeeping* becomes the context, and prompt, for the audience's ritual performances towards the 'Beest'-as-environment; a way for the work to 'not only say something, [but to] do something'¹⁷⁹². Ritual, and the performative experience of that ritual, becomes a method of 'understanding and designing for the emotionally and aesthetically powerful interactions that involve... perceptions of engagement with digital technology'¹⁷⁹³; to use an audience's embodied interactions¹⁷⁹⁴ within a 'dense multimedia information space'¹⁷⁹⁵ to orient behaviour¹⁷⁹⁶¹⁷⁹⁷, provide 'cultural

¹⁷⁸⁵

¹⁷⁸⁶ "Immersive virtual environments, imbued with meaning, are opportunities for post ritual formulations, created by the shamanistic efforts of the modern, technologically savvy artist. The VE experience itself must precede and inform any narrative retelling of it."

¹⁷⁸⁷ Some citations, please! "I present it as a model for the problematic combination of narrative, immersivity, and interactivity. "

¹⁷⁸⁸ "These patterns of spatial use are present in reality, unremarkable within their quotidian context. In videogames these same patterns are emphasized and repeated."

¹⁷⁸⁹ Ritual use in other comp-art: "a strong example of what has been termed digital Games' 'reenchantment', introducing gods and magic – safely, within the boundaries of a culturalproduct – to atheist consumers who actually 'want to believe' (Aupers, 2013)."

¹⁷⁹⁰ As spatial constructs videogames present us with situations of play from which we learn patterns of spatial use."

¹⁷⁹¹ "Space and architecture in reality express simple patterns of use that underlie a range of sophisticated activities that occur there."

¹⁷⁹² Tilley noted (1999, 29): 'Rituals not only say something, they do something.'

¹⁷⁹³ "installations can reference their audiences' social and cultural contexts, foster physical and emotional engagement, and influence critical thinking"

¹⁷⁹⁴ http://dwig.lmc.gatech.edu/download/Nam_InteractiveInstallation_14.pdf

¹⁷⁹⁵ cite

¹⁷⁹⁶ ryan

¹⁷⁹⁷ Champion, Erik 'Cultural Interaction and a Sense Of Place In A Digital Environment'. [Research Paper], 2002, [Online]. Available at: <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.2.5132&rep=rep1&type=pdf> [Accessed: 20th June 2020].

presence'¹⁷⁹⁸¹⁷⁹⁹, and give those interactions towards a personified environment a connective narrative meaning and 'resonant', socialised context¹⁸⁰⁰.

In the final section of this final chapter, I will explore how I used the paradigm of ritual engagements with landscape to bring together all of the project's separate elements into an 'enactive'¹⁸⁰¹, 'resonant', character-led experience: the *Housekeeping* as a 'privileged place of pragmatics and a strategy'¹⁸⁰², the topographical/ecosystemic design of the simulation, and the performance of the audience between and across them.

¹⁷⁹⁸ Champion, Erik, 2007.

¹⁷⁹⁹ Pryor, Francis 'Ritual Landscapes', *The London Magazine*, 2015 [Online]. Available at: <https://www.thelondonmagazine.org/ritual-landscapes/> [Accessed: 20th June, 2020].

¹⁸⁰⁰ Champion, Erik, 2015.

¹⁸⁰¹ Jenkins, Henry, 2004.

¹⁸⁰² Genette, Gerard, 1997, p. 1.

Section 3.7: The Use Of Ritualistic, Environmental Performance In The Audience Experience Of knowledge

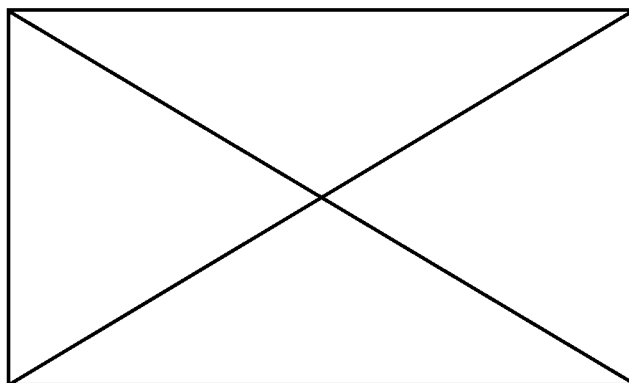


Figure 15: The design of the installation space, with the Beast's 'crack' and Anne's ritual accoutrements clearly visible¹⁸⁰³.

As an audience member approaches the installation, 'separate from the world at large'¹⁸⁰⁴, the space - in its 'corporeal, technological and virtual component[s]'¹⁸⁰⁵ - unmistakably broadcasts itself as ritualistic in nature. Anne Latch's material comforts, the usual furniture of an 18th century kitchen, have been bundled up and taken away by cart (see Conclusion). All that remains in the cold, stone-lined space are the bare, deliberated apparatuses of her 'goodly Work'. A few candles have been left burning, in the hope that the 'subscriber', to whom her letter is addressed, will not be tardy in her arrival. A chalked circle, with the word MARIA repeated in tall letters around its edge, holds a handful of strange, almost-innocuous instruments: a Book of Common Prayer, a few phials full of indistinct fluids, a set of small horseshoes – almost too small for any ordinary horse – strung with red cotton.

Every element of the space is oriented towards, and stands in reference to, the large crack in a facsimile wall, within which the 'Beest' lurks. It has grown from the tiny peephole that Anne describes in her letter; now it is nearly a meter tall, seemingly ripping the fabric of the house itself apart. A

¹⁸⁰³ 29

¹⁸⁰⁴ "Creating a space very separate from the world at large, that takes effort to get to, with a longer duration that encourages attention to the work and discussion between visitors"

¹⁸⁰⁵ Keogh, Brendan, 2018.

visitor who has read the *Housekeeping* knows something of its significance; knows what it contains. Anybody else will still be drawn forward: it is the major source of light, sound and movement in the room, and full of the sound of the whistling wind, the furtive rustlings of the 'Beest', and an electronic warmth radiating off the touchscreen. As they audience member kneels, crouches or sits in the centre of the 'circlet', in front of the crack, their hands passing over Anne's ceremonial possessions in the darkness, they are drawn into an enactment, a performance, that inculcates a particular cultural view; a tiny, personal and pathological culture, devised between two beings at 'Work'.

The audience's engagements with the installation, guided both by the context of the *Housekeeping* and their own curiosities, represent a 'site-specific performance'¹⁸⁰⁶ that unavoidably reconstructs the moral, intellectual and physical universe of *knole*'s storyworld through 'ceremonial purposes'¹⁸⁰⁷. Through ritual practice¹⁸⁰⁸, and experimentation around these ritual strictures, the work strives to generate character-led 'resonance' within a bounded-yet-detailed remit, away from the 'wide and deep' character simulations that are so common in comp-art¹⁸⁰⁹. This remit, and the extent of its 'resonance', is influenced by the audience's propiocentric, embodied sensitivities¹⁸¹⁰¹⁸¹¹, the 'naturalness' of the 'ecology of interfaces'^{1812 181318141815}, the 'seamful'¹⁸¹⁶ crossing

¹⁸⁰⁶ John hopkins quote

¹⁸⁰⁷ Cite - It becomes a ritual landscape - "non-utilitarian"" - "dedicated to ceremonial purposes"

¹⁸⁰⁸ May and mckissack disciplinary architecture.

¹⁸⁰⁹ In 'wide and deep' simulations, "player expectations are raised to unrealistic levels". Ritual landscape is bounded, directed.

¹⁸¹⁰ Keogh, Brendan, 2018 [Online]. Available at: <https://mitpress.mit.edu/books/play-bodies> [Accessed: 8th August 2018].

¹⁸¹¹ "human action in context, as well as the process of making meaning between the performers and the audience"

¹⁸¹² Benford, Steve and Giannachi, Gabriella, 2011, p. 163.

¹⁸¹³ Newman 2002 p 416.

¹⁸¹⁴ Alisi, Thomas *et al.* 'Natural Interfaces To Enhance Visitor's Experiences'. *IEEE Multimedia* 12 (3), 2005, pp. 80 – 85.

¹⁸¹⁵ newman 2002 p416.

¹⁸¹⁶ Cite this

and re-crossing of the real/virtual divide¹⁸¹⁷, and the systemic nature of the simulation¹⁸¹⁸.

There has been increasing consideration of the significance of ritualistic and religious practices in comp-art in recent years¹⁸¹⁹¹⁸²⁰. This is unavoidably led by conceptual concerns in interactive and digital art¹⁸²¹ mixed-reality installations¹⁸²² and 'immersive, site-specific and multi-media theatre'¹⁸²³¹⁸²⁴, perhaps owing to the debt of such works to the interests of the modernist and postmodernist art which preceded them¹⁸²⁵. Such discourses have, however, reached the explicitly consumerist field of

¹⁸¹⁷ "the full-body interaction that shifts focus to the physical space and embodied experiences."

¹⁸¹⁸ Systems affecting resonance

¹⁸¹⁹ <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.875.6819&rep=rep1&type=pdf>

¹⁸²⁰ Not-So-Sacred Quests: Religion, Intertextuality, and Ethics in Video games

¹⁸²¹ cite

¹⁸²² cite

¹⁸²³ <https://www.tandfonline.com/doi/abs/10.1080/14794713.2014.946292?journalCode=rpdm20>

¹⁸²⁴ cite

¹⁸²⁵ Cite

videogames¹⁸²⁶¹⁸²⁷¹⁸²⁸¹⁸²⁹¹⁸³⁰¹⁸³¹¹⁸³²¹⁸³³¹⁸³⁴¹⁸³⁵¹⁸³⁶, via liminal cultures such as interactive fiction and independently-produced auteur works¹⁸³⁷¹⁸³⁸¹⁸³⁹.

knole has both referenced, and contributes to, this body of knowledge. It explores how the performance of ritual as a modality for systemic engagement with character-led comp-art can add to such works' 'expressive potential'¹⁸⁴⁰. The modality instructs audiences to 'symbolically enact the patterns that give meaning to... lives'¹⁸⁴¹, which in turn creates a 'social' and 'cultural' presence in a work. It uses the interactive, systemic paradigm to 'allow [visitors] to see through the eyes of the original inhabitants... [and] pass on cultural knowledge'¹⁸⁴²¹⁸⁴³. It can provide the 'resonant' link between the manipulation of the base simulation and the narrative contexts within which that manipulation is designed to be sited. At its best, it can make a visceral link to the complex lives of those who inhabit that

¹⁸²⁶ Greg Perreault - videogames problematise religion, focus on violence and divisive elements.

¹⁸²⁷ Playing the Other: Role-playing religion in videogames

¹⁸²⁸ cite

¹⁸²⁹ <https://ir.uiowa.edu/cgi/viewcontent.cgi?article=1439&context=ijcs>

¹⁸³⁰ <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199935420.001.0001/oxfordhb-9780199935420-e-8>

¹⁸³¹ <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.875.6819&rep=rep1&type=pdf>

¹⁸³² Not-So-Sacred Quests: Religion, Intertextuality, and Ethics in Video games

¹⁸³³ <https://heiup.uni-heidelberg.de/journals/index.php/religions/article/view/18518>

¹⁸³⁴ <https://www.popmatters.com/180290-journey-as-ritual-2495672787.html>

¹⁸³⁵ Love on religion in games? Heidelberg Journal for more?

¹⁸³⁶ Locke, Vince 'The Power of Ludonarrativity: Halo as Participatory Myth'. In: Kapell, Matthew Wilhelm (eds.) *The Play Versus Story Divide in Game Studies: Critical Essays*. North Carolina: McFarland and Company, 2016, pp. 86 – 100, p. 87.

¹⁸³⁷ cite

¹⁸³⁸ Ritual in interactive fiction

¹⁸³⁹ Witches and IF

¹⁸⁴⁰ cite

¹⁸⁴¹ Murray <https://studylib.net/doc/12703359/play-s-the-thing—a-framework-to-study-videogames-as-perf...>

¹⁸⁴² <https://www.academia.edu/36268927/>

Worldfulness_Role_enrichment_and_Moving_Rituals_Design_Ideas_for_C
RPGs

¹⁸⁴³ <https://www.academia.edu/12426445/>

Role_playing_and_Rituals_for_Cultural_Heritage_Oriented_Games

narrative context through thoughtful, invested performance¹⁸⁴⁴¹⁸⁴⁵¹⁸⁴⁶¹⁸⁴⁷. In choosing to approach *knowledge*, and engage with its intertextual ramifications through concrete actions as a hybrid operator, performer and spectator¹⁸⁴⁸, the audience enters into an intimate and specific narrative modality that is both systemic and interactive; coming to devote 'heightened attention'¹⁸⁴⁹ to, and thus to understand, the characters at the heart of my storyworld through the tensions between the 'Beest' as person, and as 'sacred architecture'¹⁸⁵⁰.

* * * * *

The assumed dynamic of the installation experience is the performance of Anne's 'Instructions' in the *Housekeeping*; the 'receipts' and

¹⁸⁴⁴ "people engaging with PED put something of themselves on the line in front of others when they interact with the technologies we have created. It is that sense of display, or performance, that is the ultimate object of design: the technology is the fulcrum for exploration."

¹⁸⁴⁵ Ryan paper.

¹⁸⁴⁶ (Dornan 2007).

¹⁸⁴⁷ [https://books.google.co.uk/books?id=MUK1CwAAQBAJ&pg=PT121&lpg=PT121&dq=%22%22Culture+can+be+viewed+as+a+material+embodiment+of+social+structure,+mediating+the+relation+between+the+individual+and+the+community+and+expressing+\(as+well+as+protecting\)+the+sacred+from+the+profane.%22&ots=Hjmi6MPpoj&sig=ACfU3U0XMKcFODwzYUVC4_87LEFEk7t4Lw&hl=en#v=onepage&q=%22%22Culture%20can%20be%20viewed%20as%20a%20material%20embodiment%20of%20social%20structure%20mediating%20the%20relation%20between%20the%20individual%20and%20the%20community%20and%20expressing%20\(as%20well%20as%20protecting\)%20the%20sacred%20from%20the%20profane.%22&f=false](https://books.google.co.uk/books?id=MUK1CwAAQBAJ&pg=PT121&lpg=PT121&dq=%22%22Culture+can+be+viewed+as+a+material+embodiment+of+social+structure,+mediating+the+relation+between+the+individual+and+the+community+and+expressing+(as+well+as+protecting)+the+sacred+from+the+profane.%22&ots=Hjmi6MPpoj&sig=ACfU3U0XMKcFODwzYUVC4_87LEFEk7t4Lw&hl=en#v=onepage&q=%22%22Culture%20can%20be%20viewed%20as%20a%20material%20embodiment%20of%20social%20structure%20mediating%20the%20relation%20between%20the%20individual%20and%20the%20community%20and%20expressing%20(as%20well%20as%20protecting)%20the%20sacred%20from%20the%20profane.%22&f=false)

¹⁸⁴⁸ "Dalsgaard and Hansen (2008), the authors of the fourth work, distinguish between the participant roles played by a single user of an interactive system: the operator of the interactive system, the performer, and the spectator perceiving her surroundings as well as herself performing for others (2008 , p. 20). Their insight into how performers project the spectators view of their ongoing performance in their own minds requires an understanding of performance as three simultaneous acts of interacting with the technology, perceiving the context of that interaction, and performing while conscious of how the performance may be viewed by others (2008 , pp. 910)."

¹⁸⁴⁹ Fischer-Lichte's 'heightened attention' during performance - awareness of objects, structure and people in the event.

¹⁸⁵⁰ "To clearly demarcate differences between sacred / ritual space and profane or mundane space, we can transfer the lessons developed in building sacred architecture."

other painstaking delineations which form the basis of an implied professional practice¹⁸⁵¹. It is in the performance of these prompts which represent the most straightforward enactment of the ‘character-as-environment’ methodology, as it is realised in Anne’s guiding philosophy. Following Anne’s words reveal, in procedural action, her working relationship with the Beast, and the principles of her philosophy, in their most obvious manifestation.

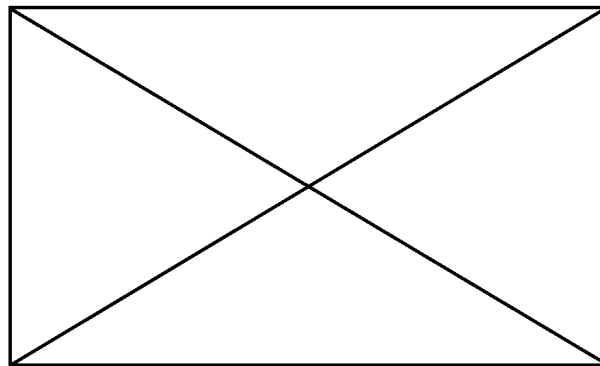


Figure 30: Details from the daily ‘scedule’ for the ‘Beest’s’ work, which forms an implied, authorial backbone to the audience’s interactions with the creature. This was based on research into the traditions of printed almanacks and ‘intelligences’ - tabulations of the unpredictable natural systems governing a pre-digital world^{1852,1853}.

Anne’s directions take the definition of rituals as ‘routines... [and] stylized acts which are adhered to rigidly’ to its logical extreme¹⁸⁵⁴. The ‘Beest’s’ ‘Working Week’ - mirroring that of Mr. Knole’s mill, where most of Anne’s neighbours (and customers) work – is bounded, mediated and explicitly delineated, measured by the dim sounding of the Mill’s bells beyond the walls of Anne’s house¹⁸⁵⁵. Every feature of its ‘Relm’, and the transactions between that space and the real world, are ‘structured, regulated’ and unchanging¹⁸⁵⁶, mapped in full and cyclical detail. There are ‘scedules’ for every activity, from

¹⁸⁵¹ Cunning folk

¹⁸⁵² almanacks

¹⁸⁵³ Appendix 9 Figure 30

¹⁸⁵⁴

https://www.google.co.uk/books/edition/Critical_Gaming_Interactive_History_and/Ibm1CwAAQBAJ?hl=en&gbpv=1&dq=%E2%80%99Critical+consists+of+sacred+ceremonies+and+their+routines,+with+the+routines+being+seen+as+consecrated+acts+which+contain+great+mystical+powers.+He+added+that+rituals+contain+stylized+acts%22&pg=PA145&printsec=frontcover

¹⁸⁵⁵ Demarcation of time

‘fettling’ and cleaning the Beast, to feeding it ‘Luncheon [and] Suppre’, to ‘starting it up’ to each of the rituals that it is required to perform. This is a short sequence of actions that place the ‘Beest’ into a fugue-like, mechanistic state, bound to its current task, and entirely subservient to the Anne’s (or the audience’s) ministrations¹⁸⁵⁷.

No single interaction during these rituals is left to chance. Every touch, genuflection, posture, and gaze is ‘controlled, directed and time-regulated’¹⁸⁵⁸. Anne sternly counsels against any sort of engagement that is not deliberate; not in aid of some specific activity. The audience is led through the permitted interactions step by ‘numbred’ step, with precise measurements and genuflections laid out in painstaking detail. Anne prescribes the use of particular fingertips to touch the ‘Beest’s’ flesh at any one time, and only the most homeopathic ‘droppings’ of the tinctures which are used both as ritual component and as ingredient in the ‘Beest’s’ meals. Like the magical grimoires which Anne professes to despise, the verbal interactions between the audience and the Beast are predetermined, scripted in each instance¹⁸⁵⁹. Any frivolous or impromptu conversation reduced to the ‘performative utterances’¹⁸⁶⁰ of talismanic ‘Greecke’, and the Beast’s measured, almost-robotic responses, ‘in a high and clere Voyce’.

In the first instance, this restrictive, ritualistic approach to character-led interaction had certain practical purposes. As well as providing a sustainable approach to the technical challenges of providing fully-systemic conversational agents¹⁸⁶¹, the behavioural constraints imposed by Anne’s writing, and by the physical design of the installation itself (the boundary and liminal devices of the crack and the ‘circlet’, for example), are designed to help to mediate and control an audience member’s otherwise-unfettered access to the simulated character. It provides a narratively-appropriate context for ‘orchestrat[ing]... their trajectories within certain bounds’¹⁸⁶², and managing

¹⁸⁵⁶ Performance as a "structured, regulated experience" (like ritual),
unchanging, she says.

¹⁸⁵⁷ Placing it into ritual state figure 31

¹⁸⁵⁸ cite

¹⁸⁵⁹ Davie grimoires

¹⁸⁶⁰ Was it Joyce who talked about this?

¹⁸⁶¹ Cite this point

¹⁸⁶² (2011 , p. 194)."

the unpredictability and complexity of social interaction¹⁸⁶³. As in other works that use ritual as an interpersonal interface, it slows interaction, mediates paidic experimentation by players desperate to test the boundaries of the experience¹⁸⁶⁴, and promotes a respect for the fictive context that should be reflected in the audience's performance¹⁸⁶⁵¹⁸⁶⁶¹⁸⁶⁷.

However, this reductive, machinistic modality is also a demonstration of Anne's own character, 'embedded' within the ritual context and 'evoked' by an audience's 'enactment'¹⁸⁶⁸. In every manner, it broadcasts her beliefs, her physicality, and her personal desires. It is the material and performative evidence of her interactions with the Beast over two years of co-habitation; a set of practices not only designed to mitigate the influence of the unseen 'Forses' of the natural world, but to provide Anne with a distinct form of agency in a patriarchal world. It is a primer for the 'Newly' world that Anne is assured is coming, and a manual of conduct for beings living in that world. It is a counselling of interpersonal relations free of ambiguity, accident, or characterful chaos.

As Chapter 3.2 of this thesis explored, Anne is a dilettante footsoldier of a particular conception of Enlightenment thinking – one that places an emphasis on 'Tidyness', 'Exactitude' and 'Troth'. These rituals are the result of her experiments with this conception; a conjuring of its principles into the material world. By these principles, an intercourse between two living things has become bounded, 'digitised', in the most general sense of that term¹⁸⁶⁹. All the sensuousness of touch has been evacuated, in favour of the depersonalised operation of biological interfaces. All the incriminating ambiguities of speech reduced to simple, repeatable commands. For Anne, this is not an intellectual exercise; this precision is important because it allows her

¹⁸⁶³ Cite this point

¹⁸⁶⁴ Who talks about this

¹⁸⁶⁵ Cite interact

¹⁸⁶⁶ Cite one more.

¹⁸⁶⁷ 'demanding a deep personal commitment, reducing the risk of trivialisation, and in turn, promoting empathy and respect' (2012 , p. 2006)."

¹⁸⁶⁸ Jenkins 2004

¹⁸⁶⁹ cite

to protect herself, and other people (especially other women) from the contaminations – and ruinations – that ambiguity brings¹⁸⁷⁰¹⁸⁷¹.

Through these fears, and frustrations, her ritual interactions with the 'Beest', performed by the work's audience, become a form of 'reality laundering' - a prophylactic against the uncontrollable ravages of the analogue universe. The symbolic essences of objects, of physical states, are passed between the analogue world of the installation and the 'tidy... relm' of the 'Beest', 'an area' of accountable, predictable, comforting digitality 'that belongs neither to the inside nor to the outside'¹⁸⁷². Here, they are neutered, dissipated, sympathetically transferred, through a form of ritualised 'traversable interface'¹⁸⁷³. Of course, these stipulations and 'liminal' ceremonies are not only to protect Anne's customers¹⁸⁷⁴; they also serve to mediate her own relationship with the outside world. Through her operations with the 'Beest', she is able to earn an independent living without ever stepping outside her front door; safe, within her father's thick walls, from the contaminations of the 'out-of-doors'. Even if those contaminations were to enter her home, carried unwittingly by one of her customers, she is prepared; her 'Instrucktions' always insist that any physical contact with her 'subscriber's' is done through the contraceptive barrier of a kerchief wrapped around a finger.

* * * * *

This core dynamic - the performance of Anne Latch's rituals in order to actualise her plan for the coming 'Newly Age' of the world - is, quite deliberately, of limited engagement for a modern audience. Anne's Grand

¹⁸⁷⁰ cite

¹⁸⁷¹ Cite 2

¹⁸⁷² "the importance in many cultures of the threshold and of the liminal, an area that belongs neither to the inside nor to the outside"

¹⁸⁷³ Kolva, Borianana et al. 'Traversable Interfaces Between Real and Virtual Worlds' Proceedings of the Computer-Human Interaction Conference 2000. ACM, 2000.

¹⁸⁷⁴ "The borders themselves are liminal areas and their crossing, allowed only at certain points, requires the performance of elaborate rituals"

Theory concerning the malign influence of Gravity falls into many of the same ‘addled’, animist patterns of superstition that she despises in the beliefs of others. Her instructions for addressing this theory are long, painfully exact, and sometimes idiosyncratically obscure. Though she defiantly notes that ‘the Troth shall not fit a handbill’ in her letter, she rather pointedly does not reveal anything of the mechanics of *how* the creature’s powers work; she merely instructs the ‘subscriber’ to repeat her algorithmic instructions on something approaching faith.

If an audience actually does try to perform the rituals – whether enlisting members of their party to act as customer, or merely following the instructions for their own amusement – the instructions are decidedly fiddly and puritanical. They forbid far more than they permit, and their completion produces little positive reinforcement for an audience expecting such feedback from their previous encounters with works of comp-art¹⁸⁷⁵. Their self-contained performances give little sense of progression. Instead, they are part of a cyclic drudgery, an ‘endlessly repeatable algorithm’¹⁸⁷⁶; working week after working week stretching out before them, bounded by the same tolling bells, the same dreary busywork, and the same, predictable, restrictive engagements with both the ‘Beest’ and the outside world. To Anne, this work is necessary, its boundedness and repetition a source of comfort. For the audience, it becomes an uninteresting, even an unpleasant, experience.

Perhaps the biggest and most obvious issue arises in how the ‘Beest’ itself is characterised. In using Anne’s instructions as a way to precipitate experience, the portrait of the creature that is both connoted and enacted is limited, almost robotic, and sometimes entirely ‘depunctualis[ed]’¹⁸⁷⁷. Anne’s words deliberately atomise and reduce the creature to something beneath agency, beneath personhood; they draw the audience on mapped routes from individual waypoint to waypoint across its body, never referring to it in *gestalt* at all¹⁸⁷⁸. The names for each of these body parts, and the actions that the

¹⁸⁷⁵ cite

¹⁸⁷⁶ Ryan on recipes as narrative.

¹⁸⁷⁷ cite

¹⁸⁷⁸ Fuller associates mastery with a type of mapping aimed at overview, whereas Jenkins, drawing on Michel de Certeau, associates mastery with mapping aimed at the production of

audience is directed to undertake with them, rely on mechanical and transactional vocabulary that obscure their true nature. The important ritual interface of touch is shorn of its sensual connotations, to become a verb of mechanistic operation. Every possible output that the 'Beest' could provide, in speech, biology or behaviour, is seemingly tabulated in advance. Every part of it has been triangulated, mastered and mapped¹⁸⁷⁹, so that Anne knows it 'as well as my own Hands, evry Parte'. Despite this, many of the most base markers of individuality – emotion, volition, intentionality, even a recognisable set of features – make no appearance in her rhetoric.

In Anne's writings, the 'Beest' becomes the most reductive realisation of 'character-as-environment'. It cleaves to the overt, contemporary rationalism which Anne takes as her inspiration¹⁸⁸⁰; the distillation of complex place, and person, to a series of isolated utilitarian markers, or nodes in a deadened network. Every ambiguity or about the 'Beest' is transformed into 'something manageable, comprehensible and even pedestrian'¹⁸⁸¹¹⁸⁸². It is a tendency mirrored in many of the least-'resonant' examples of computational environment design, which encourage players to 'strip... worlds of interestingness and exoticness, to mine them of resources and 'newness''¹⁸⁸³¹⁸⁸⁴. While for Anne the reification of the 'Beest' may be the start of something 'Newly', for the work's audience – for anybody who may have come to take up her 'Work', high on the moors – her schematics possess a certain sterility. Rather than an encounter with a person, with all their unpredictable 'resonance', Anne's words prepare them for an experience as mechanical as the operation of the primitive machines that she learnt to use when she worked at Mr. Knole's mill.

routes.

¹⁸⁷⁹ Fuller associates mastery with a type of mapping aimed at overview, whereas Jenkins, drawing on Michel de Certeau, associates mastery with mapping aimed at the production of routes.

¹⁸⁸⁰ Cite this enlightenment

¹⁸⁸¹ cite

¹⁸⁸² Cite again

¹⁸⁸³ keogh

¹⁸⁸⁴ Mary Fuller and Henry Jenkins (1994)

Of course, any visitor to the installation will quickly see that the ‘Beest’ is far from the compliant, denatured and deadened topography that Anne describes. In combinations with the weaknesses of Anne’s proposed activities – their repetitiveness, their contingency, their lack of flair or rigour – audiences are compelled to move beyond them into a wider, more free-form interactive model¹⁸⁸⁵. Anne is no longer physically present, in her kitchen; without her ‘authority’¹⁸⁸⁶, the audience is free to experiment, to play, and to move into the fuller, more ‘ambiguous’¹⁸⁸⁷ space of the work’s ‘simulation boundaries’¹⁸⁸⁸. This experimentation deviates from the ludic rigour of ‘fully [taught] ritual practice’¹⁸⁸⁹ in order to explore a richer set of interactions, and personhoods. As well as revealing the ‘Beest’ as possessed of a more personified, dynamic agency, it also deepens our understanding of the creature as a ritual landscape; a landscape that reveals unintentional ‘Troths’ about the ‘life-worlds’ of its ‘originators’¹⁸⁹⁰.

* * * * *

In Chapter 3.6 of this thesis, I discussed the intertextuality of the *Housekeeping*, and how it provided ‘resonant’ context for the audience’s installation experience. However, intertextuality is of course not unilateral; texts support, betray and reveal each other in constant exchange, both intentionally and unintentionally¹⁸⁹¹. In their ritual engagement with the ‘Beest’, in combination with Anne’s most explicit rhetoric, ambiguities and inconsistencies are tantalisingly revealed in increasing numbers.

¹⁸⁸⁵ Free-form play vs. restricted ref

¹⁸⁸⁶ Cite same as 1889

¹⁸⁸⁷ Eleanor Sandry ambiguity with robots.

¹⁸⁸⁸ Smith and Worch

¹⁸⁸⁹ Digital environments typically lack an in-world social authority or audience to ensure rituals are practiced correctly; participants are not fully physiologically immersed in the digital space; they lack the means to fully teach ritualistic practice; they also lack reasons and incentives to develop and refine rituals through long-term practice."

¹⁸⁹⁰ (Tringham 1994, 172) and we can entertain the prospect that there may also be more than one group of originators. Their interactions could have left cultural traces of their ‘microscale’ (to paraphrase Ruth Tringham) life-worlds in the game environment"

¹⁸⁹¹ Cite this again from 3.6

More and more questions are begged. To what do the cryptic labels on the three phials in the installation space refer?¹⁸⁹² Why does the provided roughspun cloak, which the audience is invited to wrap themselves in if they become cold, smell so strongly of herbs? Why does Anne draw the 'Beest's' 'consoal' - a cluster of moles on its forehead that serves as one of its major ritual instruments - as a 'tidy' square of dots, when in the simulation it is far more chaotic, shaped like a lopsided star¹⁸⁹³? Why does the Beest make no other noise than a strangled rasp, despite Anne frequently stating that it will 'spake... in a high and clerely Voyce... verie Exackt'? The *Housekeeping*, as the initial narrative 'gateway'¹⁸⁹⁴ into Anne's storyworld, is complicated, even undermined, by the systemic realities of engaging with the simulated 'Beest' in the installation. Anne's confident, overwrought manifesto concerning her 'personal' or 'private religion'¹⁸⁹⁵¹⁸⁹⁶, and her self-characterisation as being above the petty, 'untidy' concerns of the analogue world, become far more ambiguous.

The simulated 'Beest' is deliberately designed to be so ambiguous. It is the exploration of these inconsistencies and ambiguities, 'where the rules are not necessarily quite as clear'¹⁸⁹⁷, and where the full 'observability' of the simulated object/person is pointedly partial, or ergodic¹⁸⁹⁸, that drives the work's dramatic and narrative power¹⁸⁹⁹. In the intriguing possibilities of dissecting, sidestepping or even entirely ignoring Anne's ritual instructions in favour of 'improvisation based on the system'¹⁹⁰⁰, a powerful, performative version of the 'epistemological'¹⁹⁰¹ interactions that often define environment design in comp-art is enacted. Through such explorations, a series of tensions are revealed; between the Beest as strategic, 'depunctualized' space, and as an

¹⁸⁹² Phials labels fig 32

¹⁸⁹³ Using the consoal figure 33

¹⁸⁹⁴ Jonathan gray

¹⁸⁹⁵ Dennett

¹⁸⁹⁶ Gerard Hynes - "private to the individual in the first place"

¹⁸⁹⁷ [https://www.tandfonline.com/doi/abs/10.1080/14794713.2014.946292?](https://www.tandfonline.com/doi/abs/10.1080/14794713.2014.946292?journalCode=rpdm20)
journalCode=rpdm20

¹⁸⁹⁸ Cite ergodic

¹⁸⁹⁹ Costikyan (check zotero?)

¹⁹⁰⁰ <http://www.digra.org/wp-content/uploads/digital-library/09287.52457.pdf>

¹⁹⁰¹ ryan

emotive, personified landscape¹⁹⁰²¹⁹⁰³; between Anne as confident mistress of a world transformed, and a victim of trauma burdened by guilt, fear, love and all the buried particularities of a human life; and between a working relationship considered purely transactional, and that relationship as exploitative and pathological, yet curiously intimate.

Thus the audience's performance with the 'Beest', both within the strictures of Anne's rituals and without, serve to archaeologically uncover a micro-culture; a 'spatial text'¹⁹⁰⁴ that has buried within it 'thematically related events, evidence of social autonomy[,...] focal points of artefactual possession'¹⁹⁰⁵, 'roles, group behaviors [sic] and places'¹⁹⁰⁶. This 'text' can only be understood in the 'activation' of the intertextual relations between the 'Beest's' systems, its redolent topography, and the intertexts which reveal those redolences.

However, in performing this 'epistemological' activation¹⁹⁰⁷, the audience is not only revealing a static of information, or parsing data from an unusual yet still-inert form of database. Their exploration of this information also changes it 'ontological[ly]'¹⁹⁰⁸; in using the creature's body as a 'loci of

¹⁹⁰² "the space of computer games can be experienced both strategically and emotionally"

¹⁹⁰³ Depunctualized again

¹⁹⁰⁴

"Archaeology can be viewed as a 'kind of spatial text that varies from reader to reader' - "

¹⁹⁰⁵ <https://books.google.co.uk/books?id=hC1zDwAAQBAJ&pg=PT279&lpg=PT279&dq=%22ideas+of+thematically+related+events,+evidence+of+social+autonomy,+notions+of+territorial+possession+and+shelter,+and+focal+points+of+artefactual+possession.%22&ots=27fuNVw2RZ&sig=ACfU3U1WjQN1DGD80eoWAvfzc4mvKNpeAQ&hl=en#v=onepage&q=%22ideas%20of%20thematically%20related%20events%2C%20evidence%20of%20social%20autonomy%2C%20notions%20of%20territorial%20possession%20and%20shelter%2C%20and%20focal%20points%20of%20artefactual%20possession.%22&f=false>

¹⁹⁰⁶ are interchangeable, inhabitation becomes merely personal; it can never be deeply cultural."

¹⁹⁰⁷ Cite ryan

¹⁹⁰⁸ Cite ryan

intimacy and particularity'¹⁹⁰⁹, as an interface for their explorations, the audience engages in interpersonal, systemic sociality. The story of the 'Beest', and Anne, a pair of characters 'whose inner lives are rarely easily discerned but warrant exploration'¹⁹¹⁰, is not only revealed by the player's actions; as they navigate the Beest's embodied self, it is modified, as well.

* * * * *

The most obvious discrepancy between Anne's writings and a visitor's experience of the 'Beest' in simulation is the apparent nature of the creature's personhood. Anne's 'Instrucktions' in the *Housekeeping* make no direct reference to any emotion, any volition beyond blind compliance, or any personality. However, when sitting down in the installation space, even without 'direct access to the game's algorithm under the surface'¹⁹¹¹, it is quickly evident that the 'Beest' is, in actuality, far less mechanistic a presence than Anne has implied.

Though it will perform the rituals as instructed, and seems wedded to its various routines and 'schedules', there is always an apparent impression of resistance and agency; of emotion, wants and mentalities roiling across its features¹⁹¹². The Beest is almost overwhelmingly *biological*. It secretes blood, sputum and other effluvia¹⁹¹³: its skin blushes and marks in response to emotional changes and the ministrations of the audience¹⁹¹⁴. It coughs and twitches with a lithe energy; it hates to be left dirty or soiled from the audience's ritual attentions, growing shameful and angry if it is not quickly 'fettled'. It shys from loud noises, and as its mealtimes approach it grows more insistent, and less obedient. It shivers in the cold and the rain, hugging close to the crack and the dry comforts of Anne's kitchen. When it is angry, it bucks at the audience's attentions ineffectually¹⁹¹⁵. When it grows tired, its skin grows

¹⁹⁰⁹ Susan Bredlau

¹⁹¹⁰ Kidd, David Comer and Castano, Emanuele 'Reading Literary Fiction Improves Theory Of Mind'. *Science* 342 (6156), 2013, pp.377 – 380, p. 377.

¹⁹¹¹ (Arsenault and Perron)

¹⁹¹² Figure 34

¹⁹¹³ Figure 35

¹⁹¹⁴ Bruises figure 36

¹⁹¹⁵ bucking/butting figure 37

pinched, its eyes heavy; and, despite Anne's insistence that it requires no rest from its labours, it thus sleeps, twitching and fitful¹⁹¹⁶. Not all of its responses are negative; it will smile and almost purr at the audience, if it likes them; thrusting different body parts towards the crack, as if willing the audience to touch or operate them. While Anne insists that the 'Beest' has no 'Lust', or 'Instruments of Union', there is certainly something faintly reproductive about some of its biology¹⁹¹⁷. Seen in this light, Anne's instructions to 'service' the Beest's 'grail' once a week takes on new, possibly-disturbing connotations.

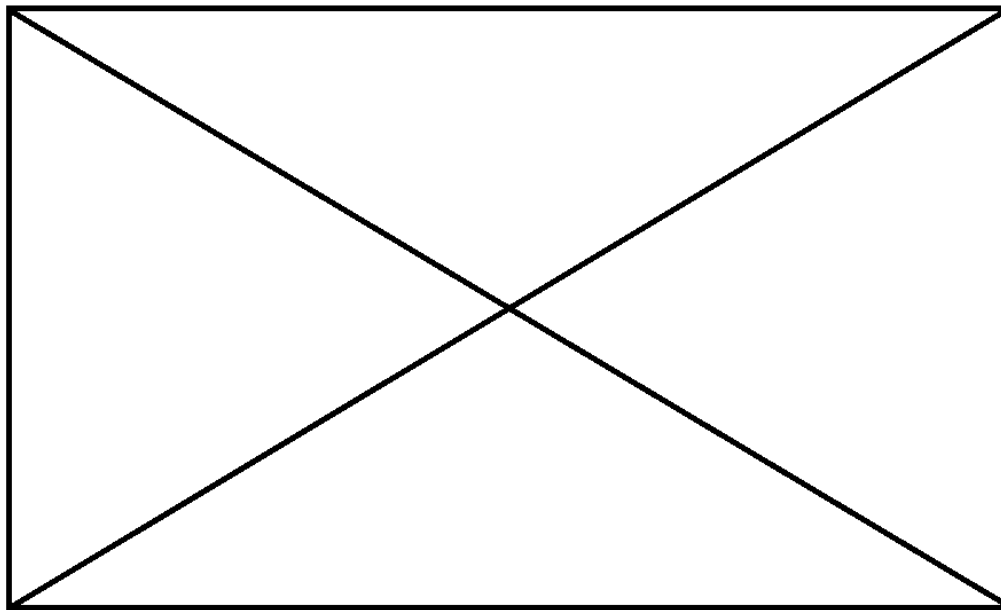


Figure 16 – The 'grail', a sort of fleshy cauldron on the creature's body that is often used for the making of liquid mixtures that can then be passed into the analogue world and given to a 'subscriber'¹⁹¹⁸.

Beneath these more-visible markers of the Beest's personhood lie the mental, emotional and deliberative models that drive the Beest's behaviour. Every body part is connected to, influenced by and influences in turn a simple-yet-powerful emotional and cognitive model. Each of the creature's emotions is constantly present to differing degrees and in differing combinations, in interchange with its physical state, its cognitive models and its reactive and deliberative behaviours¹⁹¹⁹. This cognitive model is uncomplicated, even rather

¹⁹¹⁶ Figure 38

¹⁹¹⁷ Figure 39 picture of the grail.

¹⁹¹⁸ Figure 39

¹⁹¹⁹ Figure 40.

barren; perhaps an appropriate choice, considering the creature's isolated and restricted existence. In essence, the 'Beest' has two measures of the state of the outside world, beyond simple bodily indicators such as fuzzy measures of tiredness, pain and other physical states. It represents its opinion of Anne, and its opinion of the audience (in cumulative total), on two fuzzy scales, ranging from negative to positive; a third scale determines how close these two conceptions are to each other; in short, how closely an audience is mimicking Anne's own actions and temperament¹⁹²⁰.

These models, indicators and emotional scales are in constant, interrelated flux, influence by each other and other sensory stimuli¹⁹²¹ as diverse as the current phase of the moon, the state of the weather, and the perceived actions of the audience, no matter how 'small... and... private'. The Beest will even quietly read the emotions on the face of an audience member, using the Microsoft Azure machine learning APIs¹⁹²², in order to try and divine their intentions towards it. All of these systems serve to create an impression of the beest that is far more 'punctualized', far more possessed of a dynamic agency, than Anne is willing to admit; even if that agency is bound in service to another, as a form of Stockholm-Syndrome-esque 'social control'¹⁹²³.

Like many examples of 'artistic AI'¹⁹²⁴, and of simulated environments in works of comp-art, this inner complexity is anything but transparent¹⁹²⁵¹⁹²⁶¹⁹²⁷¹⁹²⁸¹⁹²⁹. A more complete exploration, beyond the most obvious evidences of the 'Beest's' personality, requires a deliberate performative choice. To a lesser or greater degree, the audience must decide

¹⁹²⁰ Figure 41

¹⁹²¹ "interfaces and computers capture, manage and give back signals emitted by the body."

¹⁹²² cite

¹⁹²³ erik worldfullness

¹⁹²⁴ Cite this term.

¹⁹²⁵ Cublime and dark souls

¹⁹²⁶ William gaver

¹⁹²⁷ Beaver and Benford 2003

¹⁹²⁸ Wortham paper

¹⁹²⁹ the partiality of understanding that is important to artistic and educational engagement with character-led narrative (Kidd, 2017)

whether, and to what degree, they will deviate from Anne's prescriptions. An audience member may choose to continue following Anne's instructions – the only thing close to a manual for explaining the Beast's idiosyncrasies – and attempt to reconcile their actions with the Beast's insistent and obvious personhood. They may try to focus on the distancing, utilitarian language that Anne uses to describe the actions that rituals require; actions which, when performed, reveal themselves to be unkind, unfeeling, even abusive and violent. These actions – from slaps, and prods to cuts, bruises and slaps¹⁹³⁰¹⁹³¹ – do cause the 'Beast' pain, and trauma, and force it to more closely associate the audience member with its memories of Anne. This 'calbricating' of its disobedience, in Anne's words, does have the effect of making the 'Beast' more fearful, more subservient and compliant; causing it to act more like the machine that Anne so desperately wishes it would be.

Alternatively, an audience member may decide to renege on Anne's impositions and strictures; to rely instead on the other, tantalising intertextual elements of the *Housekeeping*, in combination with the simulation itself as well as their own curiosities, to engage with the creature as a person more fully. They can refuse to perform the coercive and unkind actions of Anne's practice, and instead approach the 'Beast' with gentleness and respect. A close reading of the *Housekeeping*, for example, will reveal that it likes to have the words of the ballad sung to it, or have its nose stroked. These are actions that Anne discouraged, but audiences can experiment for themselves, resulting in the creature's self-evident pleasure. Other visitors may experiment with other attempts at gaining the creature's trust: the provision of food, tender (almost intimate touches), playful winks, or the avoidance of areas of its body that seem to cause it shame, or pain to touch – or even to look upon.

In treating with the 'Beast' as they would any animal – any person – in need of aid, companionship or intimacy, they discover that beyond its institutionalisation, the creature is no different from any person. It has the same basic desires and drives: to be fed, to be warm and sheltered, to be rested and well, and to have physical contact on its own terms. The distanced, clinically utilitarian modalities that Anne prescribes – shouted commands,

¹⁹³⁰ Figure 42

¹⁹³¹ Figure 43

prodded fingers – become transfigured into tools of intimacy, consciously-chosen acts of kindness, gentleness and restraint. Through this treatment, the creature becomes more individualistic. This, of course, makes it harder to control; released from its physical and mental imprisonment, it will disappear into the darkness more often, refuse to show parts of itself when commanded, even shrug off or bark truculently when the audience does something that it does not like. The ‘Beest’, in becoming more of a person, becomes less of a landscape. This becomes a sort of epistemological tax, such that an audience that shows too much kindness will struggle to operate the creature as a ‘body of information’ to be revealed.

There are many potential strategies for engaging with the ‘Beest’, between these two extremes; the effect of an audience member’s actions are granular, cumulatively in concert with all those who have visited before them¹⁹³². The exact nature of their joint performance is, as such, difficult to chart. Whatever a visitor’s level of engagement¹⁹³³, or understanding of the narrative context of their actions, their interactions with the Beest follow a particular and unpredictable ‘trajectory’¹⁹³⁴, defined by their own socialised stance towards what they encounter. It is an encounter that is not quite human-to-human, but is not entirely distant from this, either.

Whatever the case, ambiguities persist: ‘the actual meaning’ of the Beest, its relationship to Anne, and the unresolved tensions of their shared narrative, are ‘never revealed, never completely decoded, never fully confirmed’¹⁹³⁵. For the most part, this form of narrative resolution – of exploring the ‘resonances’ ‘embedded’ in and ‘evoked’ by this ‘body of information’¹⁹³⁶ - requires an engagement with the ‘Beest’ that is both depersonalised and topographic, and more pointedly social. While Anne is not

¹⁹³² Cite this practice.

¹⁹³³ "designers are becoming more careful to ensure that players do not need to engage with the full level of narrative to experience and complete the game" – different levels of engagement.

¹⁹³⁴ Benford

¹⁹³⁵ Bown et al - “Communicating with Uzume is similar to pursuing a dialogue without knowing the language of the other: all we can do is explore the other’s gestural language but the actual meaning is never revealed, never completely decoded, never fully confirmed.

¹⁹³⁶ Jenkins 2004

physically present in the simulation, every iota of it is coloured by her living influence. To understand Anne as a character, an audience member must to a certain extent triangulate and excavate the 'Beest', no matter how resentful, recalcitrant or distressed it may become. Their engagement with the 'Beest's' is, in pursuit of narrative enlightenment, unavoidably exploitative; a nexus of guilts that must be navigated according to the audience's own conscience. If an audience member wishes to fully understand those niggling questions, and inconsistencies, between the 'storyworld' as Anne describes it and as it is simulated in the 'Beest', they must, to some extent, pursue these 'uncomfortable interactions'¹⁹³⁷ which 'move people out of their everyday comfort zone'¹⁹³⁸. They must constantly oscillate between the Beest as atomised, strategic archive, and sensitive, emotional space¹⁹³⁹.

* * * * *

What elements of Anne Latch, the architect of this pathological little universe, are revealed in the nexus between *Housekeeping*, simulation and the audience's 'playful performance'¹⁹⁴⁰? It might be argued that the Beest is a mirror, a portrait, of Anne's own traumas, obsessions and 'mundane horrors', as much as it is its own, autonomous being. Of course, like all artefactual representation, digital space is always carefully designed and choreographed, even if it is designed to appear otherwise¹⁹⁴¹¹⁹⁴²; but at times, given the confluences between the 'Beest' and Anne's cultural and geographical contexts, it is tempting to wonder whether this creature merely 'apparated' into her life one day, or whether some more deliberative process took place. It is otherwise difficult to explain the topographical correlations between the form of the

¹⁹³⁷ Steve Benford et al.'

¹⁹³⁸ "opportunities move people out of their everyday comfort zone and into the risky space of the aesthetic by making their actions, words, and even their presence conspicuous to themselves and others"

¹⁹³⁹ While the emotional conception of space constructs the self as a relation to its environment (or as the failure to establish such a relation), the strategic conception constructs the self as possibilities of action. - tension between these two in the creature.

¹⁹⁴⁰ cite

¹⁹⁴¹ The Numinosity Of A Designed Enviro: Calleja paper

¹⁹⁴² Cite one more

Beest and the moor, as Anne 'Views' it, outside her front door; Otherwise, it seems difficult to explain the correlations between the Beest and the moor, as Anne 'Views' it; hard to countenance the revelations, mostly unintentional, of Anne's character with which it is impregnated, and which can only be glimpsed in negative. Across the creature's form and personality – in its bald patches, its darkening systems, its tender patches – there is a 'distinctly situated sense of inhabitation, of social values and behaviors preserved and transmitted through ritual, artefact and inscription'¹⁹⁴³.

There is Anne's relationship with her father to consider: a mason by trade who, in his own way, 'manufactured' Anne's sensibilities through his style of parenting. Anne's love of hard Work – indeed, the intensity of her 'industry' with the Beest – grows from her father's own philosophies. In her 'Instrucktions' to shave the Beest every day before work begins, there are performative echoes of her own father's ablutions. In the stroking of the Beest's nose – often referenced as a mechanistic action, in pursuit of some specific ritual goal – an intertextually curious audience may recognise Anne's own bedtime rituals as a young girl, when her father would 'stroke my Nose to have me Sleep - & tolt me that I were the best thyng he eer mede; and would I go out then lyke the Dead -'

In Anne's writing, of course, there are also hints of her father's explosive tempers, as well as his kindnesses; traumatic memories of her father 'raysing such a fingre to her', reconfigured into her own fingers lain against the creature's flesh; a form of disciplinary control, of 'calbrication', that does not rely on physical strength, but only deliberate application.

The question of Anne's mother is dealt with cursorily in the *Housekeeping*, and the wider project; clues and fragments emerge intertextually, preventing the audience arriving at a 'stable cosmic understanding'¹⁹⁴⁴. Anne professes herself born out of her father's own 'manufacture', unlike other women who must brave the dangerous and 'untidy'

¹⁹⁴³ This quote.

¹⁹⁴⁴ Dark souls game studies.

"deploying a range of formal techniques and mechanisms designed to arrest the player's judgment and prevent her from arriving at a stable cosmic understanding"

business of childbirth. But clues of a buried ‘Troth’ abound, across the project’s different texts; her father’s relationship with his long dead horse, Mary, and her burial under the house; the creature’s evident shame whenever it returns from feasting on this horse’s bones; the word MARIA, used throughout the rituals (and chalked around the ‘circlet’) as a talisman of restraint; the Marchands’ evident loathing of Anne’s father, and the mention of a ‘Misfortune with her Mother’ in the assize proceedings; the rumours and gossip of Anne’s family life in the sensationalist ballad, including claims of a ‘mother’s life bodged’. Hints of a long-forgotten, or long-suppressed, crime abound. It is never explicitly confirmed – perhaps not even recognised by Anne herself in any conscious sense – but it is woven into the very fabric of the storyworld, and its ritual activations.

Similarly, Anne’s complicated relationship with the Marchands, her adoptive parents after her father died, is evident across the project’s various enacted texts. Though she makes little deliberate mention of it in her writing, Anne clearly was deeply attached to, and influenced by, her upbringing by the Marchands; an attachment that extends beyond her words in the *Housekeeping*. In the provision of Matthew’s Marchand’s cloke’ in the installation space, smelling strongly of thyme, we are provided almost-Proustian access to Anne’s memories of being carried, as a small girl, up onto the moor to identify flowers both poisonous and medicinal. In the creature’s playful fondness for winking, we see a survival of Matthew’s playful habits, despite his wife’s worries that the Beest would ‘come out from my Walls then & Folow them homeward’.

Of course, the event that most overshadows Anne’s practice is the trial, and execution, of the Marchands for their supposed involvement in the ‘butchery’ of Simon Awlbath’s prize bull; supposedly in retaliation for his role in the death of their son, Robin. As the judge in the assize documents states, there are many ‘shadows and darkneses about the business’. It is unclear how the bull was killed; whether the Marchands butchered it with Matthew’s knife, whether they paid Anne to send the ‘Beest’ to do the work, or whether it was some other cause entirely. The ‘polyphonic’¹⁹⁴⁵ representations of the project

¹⁹⁴⁵ Cite again

make it difficult to determine a complete explanation, but assumptions and interpretations can be made.

While Anne suggests, defiantly, that she feels no guilt or responsibility for the Marchand's death, leaving the blame squarely at the feet of the courts, Mr. Knole and Simon Awlbach themselves, her ritualistic behaviours, preserved in the simulation, seem to suggest otherwise. The 'Decoction of Guinea' which the audience member is instructed to administer, drip by drip, as part of more than one ritual, has redolent connections to the guinea which the Marchands were supposed to have paid Anne for her criminal services; indeed, in the *Housekeeping* it is listed as the exact price for the ritual of 'moggrifying' - transforming or processing – a man to death. Even the ecosystemic processes of the creature's body, from the flashes of light amongst its fur, the furtive, crepuscular movements of moles, seem dimly to represent a sanitised, archetypal replay of these indistinct events. Anne's ritualistic obsession with revelation, illumination and clarity, transform the Beest's body into an endless replay of the events of that night. Her 'Work' becomes an attempt to pathologically determine the 'Troth' of what occurred, and to rationalise the guilt of her involvement in the deaths of the only people who loved her for who she was.

Other evidences for Anne's emotional connection to these events can be only be divined through performances, or observations, of curious visitors to the installation; they are never explicitly mentioned in any part of the *Housekeeping*. Hidden in a 'clearing' of the creature's pelt is a strange, reddened lump which, when cut open, reveals a curious, shriveled object. This object can be lifted out of the cut in the creature's skin on the tip of an audience member's finger; it sheds a fine black powder, like a pepper pot, as it is swung back and forth. If the audience member looks closely, the faces of two people – possibly of the executed Marchands - can be seen, swaddled in a shroud; and when this object is passed across the 'Beest's' features, it shrinks back with a look of anguish, even guilt¹⁹⁴⁶; a buried reminder of the consequences of Anne's ambitions.

¹⁹⁴⁶ Figure

Other audience members may, upon cutting out the small ‘amulotts’ that are printed on top of the assize proceedings, begin to rearrange them so that their gibberish begins to coalesce into sense. This rearrangement may begin to reveal snippets of recognisable speech – the last words of Sarah Marchand upon the gallows¹⁹⁴⁷. In the ballad, the narrator has nothing for contempt for those who ‘buy a scrap of Rag’, holding the last words of the dead, as an apotropaic charm or healing tincture¹⁹⁴⁸. Despite her claims of Reason and ‘Troth’, Anne is no less prey to such superstitions. The last words of the closest thing to a mother she ever had – words that reveal all manner of intriguing narrative details – are integral to her ritual practice; a practice that is constituted by obfuscated guilt and sorrow.

* * * * *

One thing that is clear in the *Housekeeping* is her pity – or perhaps her hatred – of Simon Awlbath, the superstitious cowherd who is perceived as the engine of so many of the dramas in Anne’s life. The various texts of the work delineate his role in the deaths of Sarah and Matthew, and his continuing ‘calumny’ against Anne, and (perhaps most enduringly) what his existence symbolises; the old, ‘untidy’ world, conducted ‘Abroad’ in the open air by the arrogant ‘confidences’ of men in simpering, wretched betrothal to the land.

Anne insists that she has no grudge to bear against Awlbath; however, her behaviours, as preserved in the dynamic of the simulation, do not match her words. Two paired ‘receipts’ in the *Housekeeping* point to Anne’s involvement in a failed attempt on Awlbath’s life by the Marchands; an failed attempt that resulted in the death of Awlbath’s bull, rather than the man himself. One ‘receipt’ offers to ‘moggrify’ a man, and the other a bull; the witness’ description, in the assize proceeding, provides a fitting description of what such ‘moggrifying’ might entail. The two ‘receipts’ differ in only one ingredient; the colour of the mole that must be plucked, in sympathetic correlation, from the top of the creature’s head; an area that shares many qualities with the heights of the moor, where Mr. Awlbath’s bull was found¹⁹⁴⁹.

¹⁹⁴⁷ Figure 46

¹⁹⁴⁸ Cite this (Davies)

¹⁹⁴⁹ Plucking the red mole (Figure 47)

The court rejects Mr. Awlbatch's claims that his life is in danger; that he has been followed and 'overlooked' by a great bird, hanging in the sky. In a rationalist age that has moved beyond condemnation of witchcraft as true sorcery, Anne poses little threat in this regard. Following the Marchand's execution, Simon Awlbatch thus returns to his weekly rounds, up and down the moor; movements that are painstakingly, forensically scheduled by Anne. If she does seek revenge against Awlbatch through this particular receipt, Anne is careful not to counsel it too openly; but she is confident, she writes, that there are 'no more Mistekings in the Method'.

* * * * *

Simon Awlbatch is, however, not Anne's most pressing intention in her practice. Much of her work, understandably, concerns the support and emancipation of her fellow woman; in her own personal cosmology, those most vulnerable to Gravity's misogynistic influence. In reading the *Housekeeping*, an audience member can see delineated the range and number of women who visit Anne to gain some form of reproductive agency. Through her 'receipts', these women find quick, safe and convenient methods for controlling the lust of men, for detecting pregnancy in the earliest instance, and for stopping that pregnancy if it is unwanted. Anne's customer base is no different from the clients of other, contemporary cunning folk in this regard¹⁹⁵⁰¹⁹⁵¹.

However, any audience member who attempts to *perform* some of these rituals will be quickly frustrated. They almost all involve performing actions that take place some distance down the creature's body, in a region that the 'Beest' is hesitant, even distressed, to reveal. Anne herself makes a passing comment that, in the weeks before her departure, the Beest has come a little 'headshy' to perform some of these duties.

There are many ways for an audience member to reveal this part of the creature's body; through intimidation, kindness, brute force, or a combination of the three. If they manage to gain access to this part of the creature's body, they quickly learn the reason for the creature's hesitance and

¹⁹⁵⁰ Cite this cunning folk 1

¹⁹⁵¹ Cite this cunning folk 2

head-shyness. While Anne describes the creature's body as almost impossibly long – spreading beneath the entirety of the county, by some reckonings – here the 'Beest's' 'length' abruptly ends in a tattered, bloody stump, floating in the blackness, dripping blood and viscera¹⁹⁵².

Looking at the lateral scars that surround the stump, and Anne's 'Instrucktions' for several of her pregnancy-related rituals – calling for small incisions to be made in this location, on the creature's flesh - the audience member may realise the awful burden of Anne's prophylactic practice. So many women have come to claim this new form of emancipatory agency, that these small incisions have accumulated into what, in effect, is a decapitation. It is now clear why the Beest now struggles to speak in its 'high and clerely Voyce'. Whether Anne knew about this effect of her attentions, or whether it affected her decision to leave, is never established. But she does leave, abandoning the creature to a slow death, and implicitly 'instruckting' her successor to decide what to do next.

The creature does die, slowly, in real time, as the simulation runs, in between the ebb and flow of visitors to the installation. It is an inevitable death, measured in coded variables. As the creature fades, its topography, ecology and represented behaviours begin to change. It sheds more fur, and more of the small, 'untidy' clusters of cankers and wens grow across its flesh. It starts to uncontrollably twitch, like a malfunctioning machine, and becomes more tired and lethargic¹⁹⁵³. Its emotional states fade to almost microscopic levels, and it stops resisting the audience's interferences; in effect, it allows itself to be worked without complaint or personality. An audience who perceives this change – even if they do not fully understand it – is faced with a further complication of their 'trajectory' through the work¹⁹⁵⁴. Do they continue with their explorations of the 'Beest's' secrets, or do they attempt, instead, to provide a sort of palliative care; narratively unsatisfying, but perhaps the kindest approach to a person in distress?

¹⁹⁵² Figure 48

¹⁹⁵³ Figure 49

¹⁹⁵⁴ Trajectory again.

No amount of kindness can save the creature. With a final, scheduled flurry of twitches and ineffectual pining, its ‘Work’ comes to an end, and its body sinks down, irretrievably, into the depths of its ‘realm’ - suddenly subject to the patient, constant pull of gravity once again¹⁹⁵⁵.

* * * * *

There is no prescription of how long any one audience member should spend with the installation, nor when they should decide to get up and leave. The installation was designed as a persistent, emergent computational representation¹⁹⁵⁶; to adapt to any number of interruptions or audience engagements, but to continue operating with narrative consistency even if nobody is there to operate it, in theoretically-endless cycles of ‘Working Weeks’¹⁹⁵⁷¹⁹⁵⁸.

Most audience members will leave because of the pressures of time¹⁹⁵⁹, a natural feeling of completion or (perhaps inevitably) an eventual fading of their engagement¹⁹⁶⁰. None of them will perform Anne’s tasks unceasingly, as she desires. It is decidedly uncomfortable to sit cross-legged on a stone floor for long periods of time, and individual audience members may find the ‘Beest’ becomes too ornery to operate effectively, or too mechanistic to draw a satisfying, personified response.

The installation – indeed, the whole of *knole* – does not provide much else in the way of catharsis or resolution¹⁹⁶¹. Audience members are left with their individual responses to the ‘Beest’ and, in a form of topographical correspondence, with the vanished Anne herself. They are characters in narrative situations that invite multiple, perhaps-conflicting, perspectives and

¹⁹⁵⁵ Figure 50.

¹⁹⁵⁶ Cite this

¹⁹⁵⁷ “Metroid Prime makes the player feel he or she is making a concrete impression on the world while also implying that such world will continue to exist whether or not the player’s character is there [13].”

¹⁹⁵⁸ cite

¹⁹⁵⁹ cite

¹⁹⁶⁰ cite

¹⁹⁶¹ cite

readings. Some audiences may focus on the defiance against male power structures which Anne's practice represents, and her emancipation from the conformities which her society demands. Some might focus on her evident abuse of a complex individual; one whom she has procedurally gaslit, through her practice, as surely as her father through his own abuses. In final review, they may decide that Anne was as 'addled' as those she sought to educate through her 'Work'; as reliant on the old principles of sympathetic magic¹⁹⁶²¹⁹⁶³, placebo and confirmation bias as any of the other 'skryers' from whom she seeks to differentiate herself.

There are others who will take quite a different 'View', as they stand, stretching their backs and necks, and leave the installation behind. Looking again at the sad, bare little space when they have been sitting, it is a 'View' that is more complex, less resolute. It is a 'View' that pities Anne as a woman who, in trying to control the ongoing traumas and injustices which trapped her in her old life, merely served to trap her again in another form of drudgery, of 'housekeeping'; a self-inflicted and bloodless form of modernity. Even though I have never rendered her visually, in any aspect of the project, they may see Anne, in their imaginations, sat before them; as bound by the chalked circle as her creature, her back as bent and aching as their own; a pathologically agoraphobic recluse, with all her worldly needs delivered by cart - obsessed with the glowing 'View' before her so that everything else – the outside world, her friends, even her husband – are seen 'as weekly as if I were tasting Broth -'.

Anne mentions a small, high window in her father's kitchen, through which she can look out onto the moor; but there is no such window represented in the installation. The exhibition is dark, and enclosed, apart from the creature's crack, glowing with artificial light, radiating a 'warmth without [a] fyre'. In final consideration, Anne needed no window; she believed that the creature was her window, her 'View', onto the world. In her cosmology and practice, Anne believed that she had discovered a way to divorce herself from the unpredictabilities of the world, beyond her father's thick, stone-built walls, without sacrificed her agency. With the creature's assistance, she can operate the world like a gigantic machine, for which only she has the schematic. She

¹⁹⁶² Bever, Edward *The Realities Of Witchcraft & Popular Magic in Early Modern Europe*. Basingstoke: Palgrave Macmillan, 2008, p. 290.

¹⁹⁶³ Davies, Owen 2007, p. 110.

need never touch it, or cross its wet, dreary landscapes; only to range her finger across its simulation, as free as a bird gliding.

"This goodly Work"

*Concluding, And Continuing, Project *knole**

Anne signs off her letter to her long-dreamt 'young Miss' with a blotted signature, the ink drawn inexorably down the page by the 'Forse' of gravity's pull. It is the last part to be written before her manuscript is Packett[ed]' and sent down to Mr. Cryer in the city below, and Anne's tone is measured, even sanguine. She has nearly finished packing away the 'moderne' trappings of her late career, and is ready to leave Nighthead, and her father's beloved home, behind. Despite all her careful ministrations, and her supposed prophylactic powers, there is a child growing inside her; her enemy 'Gravitas' has defeated her at last, jealous of her work to control him.

She can already sense the 'regard of the County' shifting against her. Paired with her notoriety after the trial of the Marchands, and the ballads 'on the lipps of the boys like calentures', she has grown weary of the disapproval of others. Her husband, John, has left the marital home, convinced that after six years of marriage and no issue, the child must belong to another; either the ever-present Mr. Wainscote, some other opportunistic 'subscriber', or even the 'Beest' itself. Soon Anne will become what she has always hated the most; a patriarchal caricature of a woman, reduced to her treacherous and unpredictable biology, and subject to the idle whims of the 'Forses' that govern the world.

Anne, of course, defiantly insists that she feels no shame, or fear, at this new 'station' in her life. Her anger, guilt, sorrow and traumas are cosseted and stifled in a cloak of superciliousness, weary superiority and, ultimately, blind confidence. She leaves Nighthead more convinced than ever of the value and 'Troth' of her 'Work'. With the help of 'Mr. Cryer', the procedures that she has developed with the 'Beest' will continue to be available to those who need it; especially for her fellow woman, who has 'had... no salary but a screaming babby, & has moggifried nought but Milk unto Buttre'.

She is still uncertain about where she will go. Perhaps, she concedes with not a little defeatist flair, she shall 'go where Gravitass may whim me, alyke a Stane upon the Brook'. Of course, for Anne all that matters is that the young woman from her 'Dreems', her supposed 'subscriber', will climb the 'Auld Road' to Nighthed, take up their unexpected inheritance, and continue Anne's 'goodly Work'. How, in the light of what she has 'Viewed', could they refuse?

* * * * *

As I come to the end of my own work on this project, I find myself slightly more self-reflective (and hopefully less deluded) than my own character. I present Project `knole` – as a work of fiction, as practice-based research and as an 'inspirational artistic probe for human-computer interaction'¹⁹⁶⁴ – as an approach to a specific and long-standing challenge in narrative computational art: the challenge of balancing the 'particular'¹⁹⁶⁵ potential for a functioning, systemic representation of personhood and its attendant dynamic agency, and the 'resonances' which lie at the heart of all representations of character, whatever their form.

In researching this specific issue, and developing practices to address it, I have derived a 'generalizable convention'¹⁹⁶⁶ that I call the 'autocosmic'. Drawing on the tectonic shifts in narrative theory in recent decades as to 'the nexus of narrative and mind'¹⁹⁶⁷, it deliberately considers the human narrative response as a spectrum of typically-related experiences that include both the aesthetic and non-aesthetic, an 'autocosmic' methodology counsels artists to 'produce new ways of looking at things... [and] ways of framing the questions'¹⁹⁶⁸ that arise from the challenges of their practice. Specifically, it encourages those artists to look for new models for constructing

¹⁹⁶⁴ Nam, Hye Yeon and Nitsche, Michael 'Interactive installations as performance: Inspiration for HCI'. *Proceedings of the 8th International Conference on Tangible, Embedded and Embodied Interaction*, 2014, pp. 189 – 196.

¹⁹⁶⁵ Keogh, Brendan, 2015.

¹⁹⁶⁶ Koenitz, Hartmut, 2015.

¹⁹⁶⁷ Herman, David 'The Nexus Of Narrative And Mind' *In*: Herman, David *Basic Elements Of Narrative*. London: Wiley, 2009. D

¹⁹⁶⁸ Dennett, Daniel, 1987, p. 4.

their artworks, for courting an audience's 'resonant' reception, outside of any narrow prescriptions of their discipline; indeed, outside of the 'aesthetic' at all.

In Project *knole*, I used this methodology to reconsider the question of computational characterisation. In conceiving it as a 'resonant', narrativist encounter between a human audience and a representation of *functioning* systemic personhood, I chose to move away from the exemplars of literature, film and other static modes to seek more appropriate models elsewhere. I found such models in the human relationship with place, space and environment across our species' history; a relationship that is often narrative, interactive, systemic and (para)social. This prompted me to re-frame the relationships between audiences and computational characters as somehow environmental, ecological and topographical themselves; to mitigate some of the issues of computational characterisation through the relatively 'resonant' modalities of virtual environment design. In this methodology, 'character-as-environment' combines topographical, 'encyclopedic'¹⁹⁶⁹ interfaces with the dynamic agency that speaks to the potential of computational characters.

As this thesis has explored, this initial metaphor of 'character-as-environment' led me into several distinct practices for the construction of the *knole*'s characters. I explored its ramifications through the construction and navigation of a character as a topographical and ecosystemic space; through the use of paratexts and intertexts to contextualise and enhance those interactions; and through the ritualistic, space-oriented negotiation of these two modalities to fully explore the complexities of the characters, and the narrative beneath them.

As outlined in Chapter 1, whether these approaches have achieved a balance of 'resonance' and meaningful computational characterisation is a question of subjective degree. It is a question whose answer involves the interpenetrated judgements of myself as the artist and the work's audience. While I did not have the opportunity to conduct extensive formal tests of *knole* during its development, visitors to test installations displayed a variety

¹⁹⁶⁹ Murray, Janet, 1997, p. 87.

of complex, and overwhelmingly positive, responses; intellectual, physical, emotional, socially-oriented engagements through the modalities of environment design, prompted by the paratextual and intertextual material to participate in a ‘functioning... social world’¹⁹⁷⁰ with true cultural depth¹⁹⁷¹ (see Appendix 1). What is more, it helped these visitors to question and enhance their understanding of the historical era in which the narrative was situated, ‘understand[ing] the ‘embedded’ meaning of local cultural activity based on [an] artifact’¹⁹⁷².

From my own, self-reflexive position, I do feel that the work has been a success. The work provides a ‘hermeneutic rich[ness]’¹⁹⁷³ and character-led narrative ‘resonance’ by reframing some of the established principles of agent and environment design. The installation experience is one of complexity, empathetic interest, emotional engagement, corporeal activation, historical and contemporary context and interpersonal connection. I have used the systemic, interactive qualities of computation to stimulate, inform and entertain, drawing on my audience's intrinsic historical knowledge, evolved interpersonal sensibilities, and a capacity for critical consideration and insight¹⁹⁷⁴¹⁹⁷⁵. My work has inspired pleasure and delight, sympathy and regret, play and experimentation¹⁹⁷⁶, deep intellectual discussion and technical appreciation. While the most obvious credit for this goes to the live simulation of the ‘Beest’, I do not believe that it is the only ‘resonant’ computational character that I have created. The influence and ‘dynamic agency’ of Anne Latch is present in every aspect of the evoked narrative world; not merely as

¹⁹⁷⁰ Champion, Erik *Critical Gaming: Interactive History and Virtual Heritage*. London: Routledge, 2016.

¹⁹⁷¹ Granstom, Helena ‘Elements in Games for Virtual Heritage Applications’ [Master Degree Thesis]. University of Skovde, 2013, p. 34. h

¹⁹⁷² Champion, Erik, 2003, p. 273.

¹⁹⁷³ Champion, Erik, 2015.

¹⁹⁷⁴ Rahamna, Hafizur and Kiang, Tan Beg ‘Digital Heritage Interpretation: Learning from the Realm of Real-World’. *Journal of Interpretation Research* 22 (2), 2017. h

¹⁹⁷⁵ Dubbelman, Teun *et al.* ‘Interactive Digital Narratives (IDN) for Change’. *Proceedings of the ICIDS 2018*, 2018, pp. 591 – 602. I

¹⁹⁷⁶ Copplestone, Tara, 2017. c

static assets within a simulatory environment, but as an active ‘presence’¹⁹⁷⁷ and ‘social authority’¹⁹⁷⁸ that continues to make its mark¹⁹⁷⁹.

* * * * *

While I do believe that *knole* has been a successful and original approach to the problems of computational character, in its current form, like my character Anne I too am looking to the future of my ‘Work’, and where it might take me. As stated in the Introduction of this thesis, any methodology borne out of audience reception theory relies, to a certain extent, on empirical and practical evidence of that audience’s reception. My measures of *knole*’s success have been hampered by the simple fact that public testing and evaluation of the project has been limited by logistical and practical issues. While the work has been informally tested and engaged with by a wide range of peers and potential audiences throughout its development, my residency at the MWM has been the only major public outing of the project prior to completing my PhD (see Appendix 1). At this point in development, the *Housekeeping* was not complete, and so the visitors to the Museum had to rely on contextual labels, and extensive samples of final *Housekeeping* content, to frame their experiences with the simulation.

I do not feel that these limitations undermine my findings. I have had a good variety of audience feedback on a version of the work that was substantially developed, augmented by my own ‘bottom-up... self-examination’¹⁹⁸⁰ of the work throughout the entire development period. It is also important not to over-emphasise the necessity of extensive experimental study; Marie-Laure Ryan writes about the comparative value of both ‘speculative’ and ‘experimental’ work with interactive narratives¹⁹⁸¹, and the

¹⁹⁷⁷ Champion, Erik, 2007.

¹⁹⁷⁸ Champion, oik, 2015.

¹⁹⁷⁹ Hid.

¹⁹⁸⁰ Ryan, Marie-Laure ‘My Narratology: An Interview with Marie-Laure Ryan’. *Diegesis* 3 (1), 2014 [Online]. Available at: <https://www.diegesis.uni-wuppertal.de/index.php/diegesis/article/view/148/191> [Accessed 19th June 2020]. R

¹⁹⁸¹ Ryan, Marie-Laure, ‘Narratology and Cognitive Science: A Problematic Relation’. *Style* 44 (4), 2010, pp. 469 – 495.

comments of Mattie Brice on ‘the death of the player’ call into question over-reliance on audience feedback¹⁹⁸².

Despite this, I am keen to further test my work through public displays in other venues and exhibitionary spaces, accompanied by evaluative surveys, questionnaires and other qualitative data capture techniques, to more fully support my theories and practice. Beyond general observations on the ‘resonance’ of the work, and the viability of my approach to computational character design, there are several outstanding investigations that I wish to pursue:

- 1) To what extent does a full or partial investigation of the *Housekeeping* before an audience’s visit affect their appreciation of the systemic experience? How do different ‘reading strategies’ affect their ‘trajectory’ through the work¹⁹⁸³¹⁹⁸⁴?
- 2) Can the variety of ‘player journeys’¹⁹⁸⁵, and the exact nature of their oscillation between adherence to Anne’s instructions and a freer exploration of the ‘Beest’s’ more personified modalities, be successfully charted?
- 3) How do the unique pressures of the work’s context affect engagement with the work; the ‘cognitive loading’¹⁹⁸⁶ required to engage with a complex systemic space¹⁹⁸⁷, in combination with the ‘pressure of time’¹⁹⁸⁸, ‘dynamically interrupting participants’ and other specific limitations of a public installation? To what extent does prior engagement with the *Housekeeping*, in a private setting, ameliorate these problems? What modifications could be made to the

¹⁹⁸² Brice, Mattie, 2015.

¹⁹⁸³ Benford, Steve and Giannachi, Gabriella, 2011.

¹⁹⁸⁴ Schroder, Kim Christian ‘Audience reception’. In: Napoli, Philip (eds.) *Mediated Communication*. Boston: De Gruyter, 2018, pp. 105 – 128, p. 107.

¹⁹⁸⁵ Kim, Amy Jo ‘Gamification 101: Designing The Player Journey’, Google Tech Talks, 2011 [Online]. Available at: <https://www.youtube.com/watch?v=B0H3ASbnZmc> [Accessed: 19th June 2020].

¹⁹⁸⁶ Champion, Erik and Dekker, Andrew ‘Biofeedback and Virtual Environments’. *International Journal of Architectural Computing* 9 (4), 2011, pp. 377 – 395. h

¹⁹⁸⁷ Mscat, Alexander, 2016.

¹⁹⁸⁸ Champion, Erik, 2003. h

installation space to ameliorate them further¹⁹⁸⁹? How might ‘character-as-environment’ function in a version of *knole* that is released for private consumption on consumer devices¹⁹⁹⁰?

4) Correspondingly, how does the relatively short dwell-time¹⁹⁹¹¹⁹⁹², and shallow engagement¹⁹⁹³ of the average visitor to an installation, affect the ‘resonance’ of a more-complex experience like that of *knole*? Can I instead begin to plot a wider variety of engagement levels, across a range of potential visitor demographics; from cursory, fleeting interactions to fully-engaged performances, perhaps over multiple visits that allow that audience member ‘to engage and disengage with [it]... according to the circumstances of their everyday lives’¹⁹⁹⁴¹⁹⁹⁵? How does this relate to a conception of the ‘resonance-in-aggregate’ of the total audience, both engaged and unengaged, who through their asynchronous visits, and their palimpsest of interactions with the ‘Beest’, unwittingly take on the composite, asynchronous character of the entire 18th century public to whom Mr. Cryer addressed the *Housekeeping*?

5) To what extent will different visitors engage with Anne’s demands for physical, sympathetic performances with the Beest, realised through the mixed-reality dynamic of the work? To what extent is this mediated by shyness,

¹⁹⁸⁹ Marcault, Matheson ‘Exhibiting Difficult Games’, *Matheson Marcault*, 2017 [Online]. Available at: <http://mathesonmarcault.com/index.php/2017/11/16/exhibiting-difficult-games/> [Accessed: 20th June 2020].

¹⁹⁹⁰ Champion, Erik, 2015, p. 147.

¹⁹⁹¹ Gammon, Ben ‘Visitors’ Use of Computer Exhibits: Findings from 5 Grueling Years of Watching Visitors Getting It Wrong.’ *Informal Learning* 38 (1), pp. 10 – 13. B

¹⁹⁹² Marcault, Matheson, 2017. E

¹⁹⁹³ Hornecker, Eva “‘I don’t understand it either, but it is cool” - visitor interactions with a multi-touch table in a museum’. *2008 3rd IEEE International Workshop on Horizontal Interactive Human Computer Systems*, 2008, pp. 113 – 120. H

¹⁹⁹⁴ Benford, Steve and Giannachi, Gabriella, 2011, p. 93.

¹⁹⁹⁵ Frude, Neil and Jandric, Petar, 2015. In

self-consciousness and performance anxiety¹⁹⁹⁶¹⁹⁹⁷, and can such reluctances be mediated by creating a more sympathetic, supportive installation environment¹⁹⁹⁸? Finally, how does a reticence to perform fully with the 'Beest' affect the work's 'resonance'? Does the performance of embodied actions enhance its affective and intellectual power?

* * * * *

Beyond the immediate methodological and artistic concerns of *knole*, however, this project has opened intriguing avenues into my continuing professional and artistic practice. During the course of my PhD I have also been building a professional practice as a 'narrative experience designer'¹⁹⁹⁹ across the arts and in the cultural heritage sector, building on previous work as a resident artist in cultural institutions²⁰⁰⁰. While the focus of this thesis has been computational art most generally, these professional and personal interests undoubtedly influenced the development of *knole*. They cemented its historical context, its thematic foci, and my choice of a museum - whose archives had heavily influenced the narrative - as a useful testbed.

Arguably, *knole* already stands as an exemplar of two of the main avenues for computational narrative activity in this sector. On one hand, the project is an example of an "interactive... historical character-based event representation"²⁰⁰¹, increasingly used in works of 'digital' or 'virtual' heritage interpretation²⁰⁰²²⁰⁰³ to 'convey not just the appearance but also the meaning

¹⁹⁹⁶ Akpan, Imeh *et al.* 'Exploring the effects of space and place on engagement with an interactive installation'. *Proceedings of SIGCHI Conference on Human Factors in Computing Systems*, 2013, pp. 2213 – 2222.

¹⁹⁹⁷ Scott, Susie *et al.* 'Goffman in the Gallery: Interactive Art and Visitor Shyness'. *Symbolic Interaction* 36 (4), 2013, pp. 417 – 438.

¹⁹⁹⁸ Spence, Jocelyn, 2016, p. 54.

¹⁹⁹⁹ Cerman, Rob, *Bonfire Dog*, 2020 [Online]. Available at: <http://bonfiredog.co.uk> [Accessed: 20th June 2020].

²⁰⁰⁰ Aerman, Rob *Rob Sherman*, 2020 [Online]. Available at: <http://robsherman.co.uk> [Accessed: 20th June 2020].

²⁰⁰¹ Magnenat-Thalman, Nadia and Papagiannakis, George 'Recreating Daily Life In Pompeii'. *Virtual Archaeology Review* 1 (2), 2010, pp.16 – 20, p. 16.

²⁰⁰² Champion, Erik 'Defining Cultural Agents for Virtual Heritage Environments'. *Presence* 24 (5), 2015, pp.179 – 186.

²⁰⁰³ Champion, Erik 'Introduction to Virtual Heritage' *In: Gillam R. And Jacobson, J. (eds.) The Egyptian Oracle Project: Ancient Ceremony in*

and significance of cultural artefacts through the use of interactive and immersive digital media'²⁰⁰⁴, in order to 'reveal deeper meaning and truth'²⁰⁰⁵, 'provoke and 'forge emotional and intellectual connections'²⁰⁰⁶ between an audience and particular historical themes, concerns and experiences²⁰⁰⁷. On the other hand, it slips its purely factual, interpretative bounds to join other works of art that use the 'museum as a site of activity'²⁰⁰⁸ (Birchall gives a thorough overview²⁰⁰⁹), and that diverge from factual history²⁰¹⁰ to create 'self-reflexive exhibitions'²⁰¹¹, 'interventions'²⁰¹² and residencies, which 'play with... historical consciousness'²⁰¹³ and produce deliberately aesthetic work in academic or historical contexts; often using 'mixed-reality performances [to]... blur... the boundaries between the fictional and the real'²⁰¹⁴.

Augmented Reality. London, Bloomsbury, 2015, pp.

- ²⁰⁰⁴ Champion, Rik 'A 3D Pedagogical Heritage Tool Using Game Technology'. *Mediterranean Archaeology and Archaeometry* 16 (5), 2016, pp. 63 – 72, p. 64. c
- ²⁰⁰⁵ Beck, Larry and Cable, Ted T. *The Gifts Of Interpretation*. Illinois: Sagamore, 2011, pp. xxiii.
- ²⁰⁰⁶ *National Association For Interpretation: What Is Interpretation?* [Online], 2018. Available at: https://www.interpnet.com/NAI/interp/About/About_Interpretation/nai/_About/what_is_interp.aspx?hkey=53b0bfb4-74a6-4cfc-8379-1d55847c2cb9 [Accessed 18th August 2018].
- ²⁰⁰⁷ Champion, Erik, 2015, p. 149. h
- ²⁰⁰⁸ Crane, Susan A. 'Memory, Distortion and History in the Museum'. In: Carbonell, Bettina Messias *Museum Studies: An Anthology of Contexts*. Chichester: Wiley-Blackwell, 2012. p. 334
- ²⁰⁰⁹ Birchall, Danny *Institution and Intervention: Artists' Projects in Object-Based Museums*. [MA Dissertation]. Birkbeck College, University of London.
- ²⁰¹⁰ Morse, Donald E. 'The Rise of Counterfactual History and the Permeability of Disciplines'. In: Limpas, Ildiko (eds.) *Displacing the Anxieties of Our World: Spaces of the Imagination*. Cambridge: Cambridge Scholars, 2017, pp. 10 – 25.
- ²⁰¹¹ Carbonell, Bettina Messias 'Part IV: Histories and Identities in the Museum'. In: Carbonell, Bettina Messias, 2012, p. 300.Ib
- ²⁰¹² Perry, Grayson *The Tomb of the Unknown Craftsman*. London: AVA, 2011.To
- ²⁰¹³ Crane, Susan A., 2012, p. 308.Ib
- ²⁰¹⁴ Benford, Steve and Giannachi, Gabriella 'Interaction As Performance', *Interactions*, 2012 [Online]. Available at: <https://interactions.acm.org/archive/view/may-june-2012/interaction-as-performance1> [Accessed: 20th June 2020]. h

In the practice of interpretation, the line between provocation and education, art and exhibit, is often deliberately blurred²⁰¹⁵²⁰¹⁶²⁰¹⁷²⁰¹⁸; both impulses are united by a desire, and requirement to ‘spark... interest’, ‘broaden... horizons’ and ‘relate the subject to the lives of visitors’²⁰¹⁹; in other words, to ‘resonate’ something of the complex of ‘personal, social and cosmic environments’²⁰²⁰ of the past. Both practices will require consideration of many of the ideas developed in Project *knole*: the use of narrative and character, of mixed reality techniques, of systemic and procedural expression, and of environmental and interactive design, to name but a few²⁰²¹²⁰²². In both my artistic and professional work in the future, Project *knole*, and the theories that I have developed within it, provide multiple possibilities.

* * * * *

In the first instance, the specific ‘autocosmic’ methodology of ‘character-as-environment’ bears further consideration, both generally and particularly in the realm of ‘digital’ or ‘virtual’ heritage²⁰²³²⁰²⁴. The ramifications of conceiving of people as interpenetrated ecosystems, as redolent

²⁰¹⁵ White, Hayden 'Introduction: Historical Fiction, Fictional History, and Historical Reality'. *Rethinking History* 9 (2/3), 2005, pp.147 – 157, p. 149.

²⁰¹⁶ Goins, Elizabeth S. *et al.* 'Modding The Humanities: Experiments in Historic Narratives'. *Journal Of Interactive Humanities* 1 (1), 2013, pp.13-23.

²⁰¹⁷ Roussou, Maria. 'Learning by doing and learning through play: an exploration of interactivity in virtual environments for children'. *Computers In Entertainment* 2, pp. 1-10.

²⁰¹⁸ Matelic, Candace Tangorra. 'Re-imagining heritage interpretation: enchanting the past-future'. *Museum Management & Curatorship* 29 (5), 2014 pp. 519-522.

²⁰¹⁹ Beck, Larry and Cable, Ted *Interpretation for the 21st Century: Fifteen Guiding principles for Interpreting Nature and Culture*. US: Sports, 2002.

²⁰²⁰ ‘Histories From Within’, *Inner Lives*, 2015 [Online]. Available at: <https://innerlives.org/about/> [Accessed: 20th June 2020]. Ib

²⁰²¹ Champion, Erik, 2010, p. 2. "

²⁰²² Barton, Matt, 2008.-

²⁰²³ MacDonald, Lindsay *Digital Heritage*, Xoford: Butterworth-Heinemann, 2006.

²⁰²⁴ Kiang, Tan Beng, Rahaman, Hafizur ‘Virtual heritage: Reality and criticism’. In: Tidafti T. and Dorta, T. (eds.) *Joining Languages, Cultures and Visions: CAADFutures 2009*, 2009, pp. 143 – 156.

topographies – and using the computational paradigm to simulate and interactivise that conception – has many intriguing applications. It could be particularly applicable to cultural heritage contexts, where the built form, devoid of its previous inhabitants, often struggles to relay the significances of the complex cultures that led to its construction²⁰²⁵²⁰²⁶.

In the realms of artistic expression and entertainment where most consumer videogames reside, I feel that this methodology not only has more to offer in the pursuit of ‘resonant’ computational characterisation; it can also be used to improve environment design in and of itself. While I have drawn on the relative sophistication of virtual environment design to inform my own methodologies, it remains the case that many game worlds remain ‘visually rich but information poor’²⁰²⁷, a ‘non-interactive vessel for some other form of gameplay’²⁰²⁸²⁰²⁹²⁰³⁰. Despite increasing attempts at ecosystemic complexity²⁰³¹, design patterns still encourage the production of what Bogost calls ‘Potemkin villages’²⁰³² lacking true immersive quality²⁰³³ or ‘cultural presence’²⁰³⁴. As with characters, the ‘formality gap’²⁰³⁵ between the richness of environmental engagement across human culture and the often transactive, reductively

²⁰²⁵ Ibid.

²⁰²⁶ Machidon, Octavian *et al.*, 2018.

²⁰²⁷ Youngblood, G. Michael *et al.* ‘Embedding Information into Game Worlds to Improve Interactive Intelligence’. In: Gonzalez-Calero, Pedro Antonio and Gomez-Martó, Marco Antonio (eds.) *Artificial Intelligence for Computer Games*. London: Springer, 2011, pp. 31 – 53. e

²⁰²⁸ Berry, Noah, 2015.

²⁰²⁹ Barton, Matt, 2008.

²⁰³⁰ Chang, Alenda Y. ‘Playing The Environment: Games as Virtual Ecologies’. *UC Irvine: Digital Arts & Culture*, 2009 [Online]. Available at: <https://escholarship.org/uc/item/46h442ng#author> [Accessed: 20th June 2020]. V

²⁰³¹ Sheu, Sherri “‘Bring the Lake to Your Living Room’’: Video Game Nature and the Meanings of Digital Ecologies’. *Environmental History* 24 (4), 2019, pp. 793 – 804. D

²⁰³² Bogost, Ian, 2015. B

²⁰³³ Lindsey, Patrick ‘The Immersion Fallacy’. *Five Out of Ten* 8 (1), 2014. P

²⁰³⁴ Champion, Erik, 2007.

²⁰³⁵ Dix, Alan *et al.* 2004, p. 232.

strategic occupation of space in comp-art, needs to be addressed²⁰³⁶²⁰³⁷. Even without considering character design, environmental designers may find much of use in an ‘autocosmic’ reconsideration of how, and why, spaces ‘resonate’ with their occupants and audiences²⁰³⁸. This might involve stepping beyond the ‘immutable received wisdom’²⁰³⁹ of architectural theory and theme park design²⁰⁴⁰²⁰⁴¹ towards other, surprising avenues of enquiry.

Of course, I am most interested in how this methodological metaphor of ‘character-as-environment’ can continue to improve the development of works of character-led, computational narrative art. In some ways, *knole* is something of a special case: a rather contingent example in which the narrative is *about* the concept of character and the environment, and in which these conceptual concerns map naturally onto that narrative. Some might see it as a work that has abnegated its responsibility to represent character with a perceived human, or human-like, complexity; in favour of ‘clever trick[s]’ to make a non-human, animal-like character ‘seem more intelligent’²⁰⁴²²⁰⁴³. Quite apart from Anne Latch’s systemic representation in the work (see Chapter 3), I feel that this view may betray an issue which underlies the very question of characterisation; an issue of anthropocentrism. It implies

²⁰³⁶ Cross, Katherine ‘Opinion: Why does *Mass Effect: Andromeda*’s open world feel so closed?’, *Gamasutra*, 2017 [Online]. Available at: https://www.gamasutra.com/view/news/296319/Opinion_Why_does_Mass_Effect_Andromedas_open_world_feel_so_closed.php [Accessed: 20th June 2020].

²⁰³⁷ Cremin, Colin *Exploring Videogames with Deleuze and Guattari*. London: Routledge, 2016, p. 31.

²⁰³⁸ Berry, Noah, 2015.

²⁰³⁹ Dias, Bruno, 2016. S

²⁰⁴⁰ Brouchoud, Jon ‘The Importance of Architecture in Video Games and Virtual Worlds’, *Arch Virtual*, 2013 [Online]. Available at: <https://archvirtual.com/2013/02/09/the-importance-of-architecture-in-video-games-and-virtual-worlds/> [Accessed: 20th June, 2020]. Ci

²⁰⁴¹ Carson, Don ‘Environmental Storytelling: Creating Immersive 3D Worlds Using Lessons Learned from the Theme Park industry’, *Gamasutra*, 2000 [Online]. Available at: http://www.primitive-eye.com/pdf_files/Enviromental_storytelling_pt1.pdf [Accessed: 20th June 2020]. C

²⁰⁴² Samyn, Michael, *Drama Princess*, 2006 [Online]. Available at: http://tale-of-ales.com/DramaPrincess/wp/?page_id=2 [Accessed: 20th June 2020]. ht

²⁰⁴³ Koster, Raph, 2018.

a belief that computational animal characters are easier to create because they are less complex than human beings.

Instead, I would argue that animal characters are *perceived* as easier to create because a persistent Cartesian snobbery means that we tolerate mechanical parody more in animal characters than we do in human ones²⁰⁴⁴²⁰⁴⁵²⁰⁴⁶, particularly in interactive narratives where such characters have mechanical purpose as a ‘useful object’²⁰⁴⁷ or leitmotifs, rather than as complex beings in their own right. As I have asserted throughout this thesis, the question should be reframed; we should not ask how we can better represent human persons through comp-art, but instead take the opportunity to explore the many, interdisciplinary investigations into how the concept of ‘person’ - and thus of ‘character itself - might be extended and diversified.

Project `knole` was a natural result of my own investigations into these fields – from post-humanism²⁰⁴⁸ robotics²⁰⁴⁹ and systems biology²⁰⁵⁰, to the ‘new cybernetics’²⁰⁵¹, nature writing²⁰⁵² and econarratology²⁰⁵³. While I am certainly interested in how the ‘character-as-environment’ methodology can be used to explore the traditional human intercourses of narrative fiction (and I already have several projects to that effect in mind), these ideas may find their

²⁰⁴⁴ Bernaerts, Lars *et al.* ‘The Storied Lives of Non-Human Narrators’. *Narrative* 22 (1), 2014, pp. 68 – 93.

²⁰⁴⁵ Hrman, David, 2018, p. 8.

²⁰⁴⁶ Cadman, Sam ‘Reflections on Anthropocentrism, Anthropomorphism and Impossible Fiction: Towards a Typological Spectrum of Fictional Animals’. *Animal Studies* 5 (2), pp. 161 – 183, p. 170.

²⁰⁴⁷ oho, Jess, ‘Video games are creating smarter animals’, *Polygon* [Online]. Available at: <https://www.polygon.com/features/2017/5/17/15442666/videogame-animals-smarter> [Accessed: 20th June, 2020].

²⁰⁴⁸ Wife, Cary *What Is Posthumanism?* Minneapolis: UMP, 2010.

²⁰⁴⁹ Sandry, Eleanor ‘Re-evaluating the Form and Communication of Social Robots: The Benefits of Collaborating with Machinelike Robots’. *Social Robotics* 7 (1), 2015, pp. 335 – 346.

²⁰⁵⁰ Mingers, John ‘The cognitive theories of Maturana and Varela’. *Systems Practice* 4 (1), 1991, pp. 319 – 338. v

²⁰⁵¹ Heylighen, Francis *et al.* (eds.) *Self-Steering and Cognition in Complex Systems: Toward a New Cybernetics*. New York: Gordon and Breach, 1990.

c

²⁰⁵² Shepherd, Nan, 2011.

²⁰⁵³ Caracciolo, Marco, 2018. c

greatest application in narratives that ‘unsettle the metaphysical primacy of the human’²⁰⁵⁴, and instead consider the significance of the ‘overtly other’²⁰⁵⁵.

It is at this point that I feel my own conceptions of character – specifically computational character – begin to ally with those of scholars like Ian Bogost. In Chapter 1, I referenced Bogost’s argument that post-humanist and ‘flat’ ontologies²⁰⁵⁶ show that ‘videogames are better without characters’ or stories²⁰⁵⁷²⁰⁵⁸; that instead they should provide artistic representations of ‘systems larger than ourselves’ where ‘processes predominate’, rather than any semblance of a human-scale narrative²⁰⁵⁹.

In many ways, I share Bogost’s desire for realising the systemic potentials of computational art. However, I do not believe that this means discarding the traditional concepts of narrative and character altogether. I want to explore how the ‘character-as-environment’ methodology, arising out of the same post-humanist discourses as Bogost’s own, can explore an alternative conception of ‘human protagonists, psychological causality, and human-scale temporality and spatiality’ of narratives without necessarily ‘foreground[ing]’ them²⁰⁶⁰. While Bogost believes they have no place in comp-art, I believe they need a systemic reintegration.

Put bluntly, I feel that the deep, evolved narrative tendencies of human audience will always privilege the tenets that Bogost so dismisses. Changing the ‘focalization’²⁰⁶¹ of narrative entirely to larger, more abstract systems – even if they contain or involve human activity – may have more use as a philosophical exercise than a method for producing ‘resonant’ works of art.

²⁰⁵⁴ cid.

²⁰⁵⁵ Sandry, Eleanor ‘The Potential of Otherness in Robotic Art’ *In*: Herath, Damien *et al. (eds.)*, 2016, pp. 177 – 189.

²⁰⁵⁶ Bogost, Ian, 2012.

²⁰⁵⁷ Bogost, Ian, 2015.

²⁰⁵⁸ Bogost, Ian, 2017.

²⁰⁵⁹ Bogost, Ian, *Story vs. System*, Critical Path, 2016 [Online]. Available at: <https://www.criticalpathproject.com/video/story-vs-system/> [Accessed: 20th June 2020]. c

²⁰⁶⁰ Caracciolo, Marco, 2018. c

²⁰⁶¹ Nieferhoff, Burkhard, 2013.

Instead, I feel there is real potential in attempting to ‘extricate character from anthropomorphic conceptions’²⁰⁶² through systemic means - to repunctualise the protagonist, the character, not as a ‘sovereign, autonomous entities’²⁰⁶³ that is incontrovertible and separable, but as a part of an interpenetrated array of significant systems that contain complementary intentionalities and agencies; ideas that have an established place in fiction, and indeed are starting to make in-roads into comp-art itself. In exploring ideas such as symbiogenesis²⁰⁶⁴, actor-network theory²⁰⁶⁵, distributed cognition²⁰⁶⁶ and morphogenesis²⁰⁶⁷, perhaps new ways of approaching the same narrative concerns may reveal themselves, rather than requiring their disposal. In my own work, whether in my art or in the practice of interpreting heritage, I would like to not just consider systems ‘larger than ourselves’²⁰⁶⁸; but precisely as large, and as complex, as we are.

* * * * *

Of course, ‘character-as-environment’ is only one particular instance of the broader ‘autocosmic’ methodology. Even before the ‘character-as-environment’ method appeared, I was developing my conception of the ‘autocosmic’ in tandem with my work on `knole`; and it has been an energising experience, helping me to develop a much deeper and holistic understanding of the mechanics of narrative response, and to recognise a need for greater interdisciplinary exploration into how narratives might be constructed to elicit this response. The theory itself could bear further refinement, in order to manage any interdisciplinary miscommunications (particularly between the

²⁰⁶² Caracciolo, Marco, 2018.

²⁰⁶³ Nayar, Pramod, 2014, p. 43. b

²⁰⁶⁴ Margulis, Lynn ‘Symbiogenesis and Symbionticism’. In: Margulis, Lynn and Fester, Rene (eds.) *Symbiosis as a Source of Evolutionary Innovation: Speciation and Morphogenesis*. Massachusetts: The MIT Press, 1991, p. 1. M

²⁰⁶⁵ Latour, Bruno ‘On actor-network theory: A few clarifications’. *Soziale Welt* 47 (4), 1996, pp. 369 – 381.

²⁰⁶⁶ Cole, Michael and Engestrom, Yrjo ‘A cultural-historical approach to distributed cognition’. In: Salomon, Gavriel (eds.) *Distributed Cognitions: Psychological and Educational Considerations*. Cambridge: CUP, 2001, p. 1.

²⁰⁶⁷ Hofstadter, Douglas, 2000, p. 45

²⁰⁶⁸ Bogost, Ian, 2015. C

arts and the sciences²⁰⁶⁹²⁰⁷⁰²⁰⁷¹), to reconsider my tendency to focus on Western discourses²⁰⁷²²⁰⁷³, and to further bolster the model of narrative response upon which it relies²⁰⁷⁴²⁰⁷⁵.

However, in its current status as a personal methodology, ‘boundary object’²⁰⁷⁶ and functional metaphor, it does not strive for completionist rigour; but rather a fusion of academic consideration and artistic provocation. It is designed to galvanise new action in the ‘pragmatics’ of narrative²⁰⁷⁷, rather than to fully determine its theoretical nature. As such, as a creative impulse there are many routes I might take.

I do feel that narrative computational art, what Koenitz calls the current ‘narrative avant-garde’²⁰⁷⁸ at a time when numerous theories and practices are beginning to coalesce²⁰⁷⁹²⁰⁸⁰, is an excellent outlet for such ‘structural innovations’ as the ‘autocosmic’ provides²⁰⁸¹.

However, I feel that it has application beyond these modal boundaries. Every field, mode and medium of artistic practice – of craft most generally – has its developmental challenges, and as well as the constant,

²⁰⁶⁹ Torrisi, Vanna Savina and Hall, Ashley ‘Missing miscommunications in interdisciplinary design practice’. *Proceedings of E & PDE 2013*. Dublin, 2013, pp. 581 – 586.

²⁰⁷⁰ Lau, Lisa and Pasquini, Margaret ‘Meeting grounds: perceiving and defining interdisciplinarity across the arts, social sciences and sciences. *Interdisciplinary Science Reviews* 29 (1), 2004, pp. 49 – 64.

²⁰⁷¹ Chan, Janet *et al.* ‘Bridging the Two Cultures: The Fragility of Interdisciplinary Creative Collaboration’. In: Fischer, Gerhard and Vassen, Florian (eds.) *Collective Creativity*. Brill, 2011, pp. 159 – 176.

²⁰⁷² Poenitz, Hartmut, 2017.

²⁰⁷³ Caracciolo, Marco, 2018 c

²⁰⁷⁴ Kenitz, Hartmut, 2015.

²⁰⁷⁵ Ryan, Marie-Laure, 2010. M

²⁰⁷⁶ Bnford, Steve and Giannachi, Gabriella, 2012.

²⁰⁷⁷ Ryan, Marie-Laure ‘Semantics, Pragmatics and Narrativity: A Response to David Rudrum’. *Narrative* 14 (2), 2006, pp. 188 – 196.

²⁰⁷⁸ Koenitz, Hartmut ‘Beyond “Walking Simulators”’: Games as the Narrative Avant-Garde’. *Proceedings of DiGRA 2017*, 2017 [Online]. Available at: http://digra2017.com/static/Extended%20Abstracts/149_DIGRA2017_Koenitz_Walking_Simulators.pdf [Accessed: 20th June 2020].

²⁰⁷⁹ Murray, Janet, 2018. M

²⁰⁸⁰ Thon, Jan-Noel ‘Narrativity’. In: Ryan, Marie-Laure *et al.* (eds.), 2014, pp. 351 – 355.

²⁰⁸¹ Murray, Janet, 2018.

humming sense of innovation for its own sake. My work (and I hope, the work of others) benefits from a framework that asks for reconsideration not only of the subject of narrative work, or its metaphorical significant, but the concrete mechanics of its construction and reception. Backed by extensive and continuing research, this reconsideration opens the vaster realms of human imaginative engagement. However my career and artistic development continues – whatever ‘Venture’ I undertake, in Anne’s words – I feel that the ‘autocosmic’ will remain a continuing provocation; always compelling me to truly ‘View’ things afresh.

Appendix 1

Fieldwork Report #1: Pilot Study of Project `knole` at the Museum Of Witchcraft and Magic, Boscastle, Cornwall

In July 2018 I undertook an intensive three-day residency at the Museum of Witchcraft and Magic (MWM) in Boscastle, Cornwall, showcasing a prototype version of the installation, and the *Housekeeping*, to the museum's visitors. I had conducted several smaller, more informal tests and demonstrations of my practice throughout my PhD, but this was to be the main public user study of the work prior to submission.

The residency was designed to fulfil several objectives. It was to give my work exposure to a 'real', rather than an 'ideal'²⁰⁸² or self-oriented²⁰⁸³ audience; an audience from a wide variety of unpredictable demographics, backgrounds and perspectives, united only by their attendance at an institution whose historiographic remit had inspired and informed much of Project `knole` itself²⁰⁸⁴. The MWM has several permanent displays on cunning folk, familiar spirits and the rituals of popular magic²⁰⁸⁵, and I felt that it would be an apt testbed for observing how my theories on 'resonance', 'autocosmics' and computational character manifested *in situ*, as well as allowing for more mundane methodological testing of my practice, the technology employed and the installation dynamic at work.

The installation, in its prototype form, was set up in the Library space above the museum proper²⁰⁸⁶. Most of the physical and computational elements were fully implemented, including the darkened room, voice recognition software, webcams for motion and face detection, the LED candles,

²⁰⁸² DeMaria Jr., Robert 'The Ideal Reader: A Critical Fiction'. *PMLA* 93 (3), 1978, pp. 463-474.

²⁰⁸³ Murray, Donald, 1982.

²⁰⁸⁴ Museum of Witchcraft and Magic *Visit*, 2017 [Online], Available at: <https://museumofwitchcraftandmagic.co.uk/visit/> [Accessed: 8th August 2018].

²⁰⁸⁵ Ibid.

²⁰⁸⁶ See Appendix #9, Figure 13e.

the chalked circle and many of the props. The *Housekeeping* was not at that point sufficiently developed (nor were its ritual components sufficiently integrated into the masterbeast's codebase) to provide a full draft for download on the website. Instead, I created some supplementary materials specifically for the installation: these included samples from the *Housekeeping*, interpretative texts to introduce Anne's narrative, my research and its context within the museum itself, as well as some samples of Anne's ritual instructions to guide visitors' interactions with the installation.

For some months before and during the residency, both I and the museum's curators had been publicising the installation online^{2087,2088} and in the museum's marketing literature, and directing interested parties to the Project's website to learn more about the work and sign up for the mailing list. This tactic only garnered 10 new subscriptions to the mailing list prior to the start of July, though the curator reported that he had received much verbal expression of interest from regular visitors, volunteers and 'friends' of the museum²⁰⁸⁹. During the residency, visitors were also informed at reception about the installation (access to which was included in their ticket price), and through the use of billboards directing them to the usually-private Library entrance.

Once they had entered the Library, visitors were free to interact with the installation for as long as they wished, and to return as many times as they liked. The installation dominated the room (which could fit roughly 6 members of the public and myself), and to one side was a table containing the supplementary textual materials. I was present in the installation space at all

²⁰⁸⁷ Museum of Witchcraft and Magic @mwm *Meet a spirit familiar @witchmuseum this july* <http://museumofwitchcraftandmagic.co.uk/event/meet-the-spyrit-familiar-of-an-18th-century-cunning-woman/> ..., 25th April 2018 [Twitter] Available at: <https://twitter.com/witchmuseum/status/989052889447436288> [Accessed: 8th August 2018].

²⁰⁸⁸ Sherman, Robert *Museum Library Is Home To A 'Witch's Familiar' This Week*, 2018 [Online]. Available at: <https://museumofwitchcraftandmagic.co.uk/news/museum-library-is-home-to-a-witchs-familiar-this-week/> [Accessed: 8th August 2018].

²⁰⁸⁹ *Friends of the Museum of Witchcraft and Magic*, 2018 [Online]. Available at: <http://friendsofthewitchcraftmuseum.co.uk/> [Accessed: 8th August, 2018].

times during the three-day period: welcoming visitors, answering their questions if prompted, taking notes, and (with written permission) video-recording their interactions with the *masterbeast* for later analysis. Certain visitors (again subject to permission) were also asked a series of questions about their experience both during and immediately after their visit, including:

- Did you enjoy the experience?
- What were your initial impressions of the character portrayed in the installation?
- Can you describe their personality?
- How did you feel towards the character?
- How did it relate to what you experienced in the museum itself?

Over three days, the installation attracted roughly 80 visitors. Approximately 5% of these were self-identified magical practitioners or followers of pagan religions²⁰⁹⁰, a rather unique demographic in the museum's customer base who tend to be particularly engaged and regular visitors. Roughly 55% were deliberate yet first-time visitors to the museum for personal or academic reasons. The other 40% were curious (but otherwise uninitiated) day visitors to Boscastle who had decided to visit the Museum on a whim. Of all visitors, roughly 7% had engaged with the Museum's marketing materials directly and had cited the installation as at least part of the reason for their visit. Gender demographics were roughly equal. As for demographics of nationality, a large majority (around 80%) of visitors were British nationals, though other nationalities represented included Thailand, the Netherlands, Scotland, the United States and the Republic of Ireland. Age demographics skewed heavily towards the adult, with only five children under 18 attending: not surprising, considering that the residency took place in the working week outside of the standard UK school holiday period.

The responses to the installation were extremely varied, and pointedly individual, though certain patterns did emerge. Some found the creature 'terrifying', 'uncomfortable', 'unnerving' and 'like the Devil itself'. Some held back from entering the room because they were professedly 'scared',

²⁰⁹⁰ Hutton, Ronald *The Triumph Of The Moon: A History of Modern Pagan Witchcraft*. Oxford: OUP, 2001.

and I was told that dogs sitting with their owners in the courtyard below had started whining when the sound of the installation had drifted down through the open windows. A minority of visitors, both professed believers/'practitioners' and not, had strongly superstitious or seemingly 'undistanced' reactions (see Chapter 2). One woman refused to come into the room, darkly stating that she would 'never sit in that circle', and left extremely quickly. One man refused to recite the Lord's Prayer as part of a ritual with the 'Beest', though latterly explained that this was a tenet of his existing pagan beliefs. Another woman told me that she had always 'felt things', and that she got a 'bad feeling' from the room and the installation, refusing to engage with it at all.

Such visitors represented a minority of recorded responses: the majority had strong, positive and intriguing reactions to the work. Verbal judgements ranged from 'fascinating', 'beautiful' and 'amazing' to 'interesting' and 'excellent', with one man stating that he 'had never seen anything like it'²⁰⁹¹, and another reporting that the entire installation made him 'want to dive right in' to Anne's world. Many people stopped on the threshold of the installation when they saw the creature, standing open-mouthed, whispering, cooing, and watching the simulation from a distance until they felt ready to approach: such an interval ranging from a few seconds to three or four minutes.

Over three-quarters of the visitors chose to read the textual material before interacting with the installation, and spent an appreciable amount of time (some more than ten minutes) poring over it. Over half interacted directly with the creature, either sitting inside the chalked circle or standing outside it: in each case using their voice, movement and touch as inputs for interaction. Visitors' response to the creature's appearance and perceived personality was very diverse: several people said it looked like their pet cat or dog, three separate visitors compared it to a 'tree spirit', another to a horse, and another to a rabbit. A young girl of thirteen said that it 'doesn't look like any animal I know'. Depending on the state of the creature's emotional model and their interactions with it, they characterised the creature as 'apprehensive, but wanting to be stroked', 'happy', 'relaxed', 'scared', 'waiting for visitors', 'wanting

²⁰⁹¹ See Appendix #9, Figure 13u.

to commune, to communicate', 'pretending to be scary', 'strong', 'cheeky', 'playful' or 'gentle'.

Of those who did interact directly with the creature, a variety of approaches, techniques and self-narrations were in evidence²⁰⁹². When reading in the supplementary materials that the 'Beest' liked to have its nose rubbed many visitors chose to do so, some for many minutes on end. Numerous personal variations were in evidence: some stroked slowly, and others fast (with one woman remonstrating her partner to not 'muss him, be gentle'). Some experimented with different parts of their finger on the touchscreen, others shushed or spoke encouraging words to the 'spyrit'²⁰⁹³; many exclaimed that it demonstrably preferred one phrase or touch over another. Many visitors tried stroking the creature in other places to elicit different responses. One woman told me that, in stroking the creature and observing it initially shrinking away from her approaching hand, yet slowly becoming more confident, she was reminded most of her experiences with stray cats, and the process of gaining their trust. One man chose to sit in front of the creature for nearly ten minutes, eyes shut and legs crossed, matching his breathing to the simulated creature's own, slow breaths²⁰⁹⁴. When they left, many visitors would say goodbye to the simulation, and even (half-jokingly) admonish their partners for not doing so themselves. One woman, who saw the 'spyrit' move forward on the screen when she went to leave, remarked with evident delight that, because they had treated the simulation kindly, 'he [was] try[ing] to follow'²⁰⁹⁵.

Many visitors voluntarily used soft tones, and were visibly reluctant to use the sharp and authoritative voice encouraged in the sample ritual material. Some stated that they 'felt bad' when they pulled out the 'Beest's' horns or ears as part of the same ritual process; especially when observing the corresponding emotional change on screen. Several (both adults and children) verbally apologised to the creature several times, and used the nose-rubbing interaction as a means to calm and ameliorate the simulation after such woundings. When (upon occasion) the distressed creature retreated into the

²⁰⁹² See Appendix #9, Figures 13a – 13w.

²⁰⁹³ See Appendix #9, Figure 13d.

²⁰⁹⁴ See Appendix #9, Figure 13m.

²⁰⁹⁵ See Appendix #9, Figure 13b.

simulated darkness, almost all of these visitors stated that it was 'their fault' that this had occurred. Other visitors relished shouting at the 'spyrit' to command it to 'begone' and 'return', and laughed with surprise and disgust when hurting or disfiguring the 'spyrit'.

One of the most striking features of the residency was the number of visitors who related their visit to the installation to their own experiences and backgrounds, and their evident eagerness to discuss this with me. Visitors from Thailand and the Ukraine both engaged me in detailed, lengthy discussions about traditions of supernatural spirits, witches and healers from their own cultures, and how the simulation reminded them of those traditions. Those visitors who had a background in computer programming were eager to comment upon and learn more about the codebase behind the simulation, and offer suggestions and praise for the technical effort that had gone into designing the underlying systems. Many of those visitors who identified as pagan were keen to offer their own perspectives and opinions upon my interpretation of belief, ritual practice and magic, especially considering the computational elements of this interpretation. One particularly engaged Dutch visitor, a tarot reader, was interested to discuss the role of emotion and personal perspective in magical practice, and about the challenge of using such perspectives and emotions with a computational partner: a challenge which, in his view, I had gone some way to resolving²⁰⁹⁶.

I consider the MWM residency a tentative success, and an illustration-in-action of some of the concepts at the centre of this thesis: serving as an example of computational characterisation that was (at least by my own measures) 'resonant' with its audience. However, it was not without its issues. A minority of visitors to the installation did not engage with the experience: some would drift into, and then swiftly out of, the room, without engagement, and those who did stop for a few moments told me explicitly that the installation was 'not their kind of thing': others explicitly stated that it was the pressure of 'performing', whether observed or not, in a public exhibition that was the main deterrent²⁰⁹⁷. For others, the complexity of the simulation, the relative density of the storyworld and its related materials, and the

²⁰⁹⁶ See Appendix #9, Figure 13w.

²⁰⁹⁷ Spence, Jocelyn, 2016.

importance of prior engagement on the Project's website, meant that ultimately the installation was just too inaccessible for a casual visitor: one woman even turning to me and asking 'so, what is it we actually do?'

The variety of audience response in museums and galleries, and the difficulty of overcoming the reticence of visitors to participate in performative interpretations is well understood in the literature²⁰⁹⁸²⁰⁹⁹. Also at issue is the difficulty of delivering complex narrative experiences in museum environments where, outside the comfort of their own home and in a public arena, a visitor's engagement with installations is 'inevitably controlled, structured and brief'²¹⁰⁰; particularly experiences like *knole* where, (as game designer and installation artist Lea Schonfelder delineates) the complexity of the simulation, and the depth of the fiction, 'need[s] some time to understand them right'²¹⁰¹. Other, more mundane issues of accessibility arose, always of concern in art galleries and museums²¹⁰², but particularly at the MWM due to the cramped and narrow passages, small rooms and winding staircases that form part of the centuries-old facilities in which the museum is housed. Finally, there are questions about how my physical presence during the residency (a necessary evil due to technological issues and the evaluative objectives of the exercise) may have influenced audience response. This is a perennial topic in many branches of art, particularly performance art²¹⁰³, but in my work my presence was an artificiality that does not represent the designed 'typical' experience of the installation, whether for examination or future display.

²⁰⁹⁸ Scott, Susie *et al.* 'Goffman in the Gallery: Interactive Art and Visitor Shyness'. *Symbolic Interaction* 36 (4), 2013, pp.417 – 438.

²⁰⁹⁹ Scott, Susie. 'Shyness in interactive art galleries and museums: a symbolic interactionist account'. Nordic Sociological Association (NSA) Annual Conference, Oslo, Norway, 2011.

²¹⁰⁰ Parry, Ross, 2013, p. 260

²¹⁰¹ Jansson, Mathias *Interview: Lea Schonfelder Makes Games For Adults*, 2011 [Online]. Available at: <https://www.gamescenes.org/2011/10/page/3/> [Accessed: 8th August 2018].

²¹⁰² Zierbarth, Beth (eds.) *Smithsonian Guidelines For Accessible Exhibition Design*, undated [Online]. Available at: http://www.sifacilities.si.edu/ae_center/design-accessibility.html [Accessed: 8th August 2018].

²¹⁰³ Ward, Frazer *No Innocent Bystanders: Performance Art and Audience*. New England: Dartmouth College Press, 2012.

While I made the decision for *knole* to be a piece of installation art rather than an item of downloadable media for a number of good reasons (see Appendix 5, and Conclusion), such issues are perennial for similar works in museums, art galleries and other heritage institutions, and I will continue to explore how to overcome them in my work. Another productive comment may be made about the unavailability of the *Housekeeping* both prior to or during this prototype installation. This unavailability meant that much of the depth of Anne's fiction, and the importance of the instructive interaction between text and simulation (see Chapter 3), was not able to be adequately tested with audiences, and many of the features of the Project remained inaccessible. It was clear that the website and the *Housekeeping* are important, valuable and attractive factors for engaging visitors in the complex installation experience and ameliorating some of the problems mentioned above. Several visitors explicitly asked about the availability of the *Housekeeping*, professing to be eager to read it in the comfort of their own home after or before their visit to the installation: and those who had visited the installation after viewing the Project's website were demonstrably more engaged with the experience. They stayed for longer, experimented with the 'spyrit' more extensively, and derived more resonance than casual visitors. While this gives me confidence that this dynamic between *knole*'s components will work well when fully implemented, it will important to undertake further studies to test this, and to use these studies to provide more detailed conclusions on some of the more advanced theories of this thesis. These include Anne's role as a 'resonant' character, the function of instructional literature in computational narrative experiences, the 'character-as-environment' methodology specifically, and the semantic value of individual visitor experiences in aggregate during a persistent installation (see Appendix 4). An unexpected question arising from the installation was how the role of aesthetic distance (something which my autocosmic theory already questions) is complicated by the specific superstitions, beliefs and psychological phenomena of visitors to institutions which, like the MWM, deal specifically with questions of human spirituality. While this lies outside the remit of the project, it is certainly an intriguing prospect to investigate.

Despite these issues, the study did represent an encouraging and intriguing first pass on demonstrating the utility of my theories, practice and goals as delineated in this thesis' Introduction and first chapter. It is clear that

the majority of the visitors to the installation experienced a 'resonant', character-led experience through a balance of my systemic, computational authorship and their own imaginative engagement. Their experiences were deeply personal, informed by their own memories and drawing on established aesthetic and non-aesthetic imaginings and practices from their own lives. The 'Beest' was treated as a complex and coherent person; experienced as a characterful and arresting system both emotionally and intellectually, which visitors were curious to explore using their social faculties, augmented by the thematic environment of the museum, the supplementary materials, and the physical and environmental elements of the installation itself²¹⁰⁴. Visits to this relatively-small installation often consumed a large portion of the fifteen to thirty minute average of exhibition visit time currently agreed in the literature²¹⁰⁵²¹⁰⁶²¹⁰⁷, and seemed to also fulfil Tilden's classic definition of the 'provocation'²¹⁰⁸ that lies at the heart of good heritage interpretation. It prompted debate and reconsideration, incorporated and honoured personal perspective, and provided an arresting presentation of the themes that lie at the heart of the Museum's work and the project, both historical and academic. These themes included digital narrative and character, the nature of witchcraft and belief in the past and today, cunning folk and the history of magical practice, the nature of control and power in magic, and the emotional and 'intimate supernatural relationships' between cunning folk and their spirits, as one visitor had it. Many visitors explicitly commented on how the work naturally complemented, challenged and enlarged their considerations of the museum, and increased their 'context and understanding' of its materials. One visitor explicitly made a critical link between the interactive, systemic installation and the static 'tableaus' downstairs, arguing that a computational interpretation 'brought it all home to you'.

²¹⁰⁴ Mondloch, Kate, 2014., p.

²¹⁰⁵ Falk, John 'The use of time as a measure of visitor behaviour and exhibit effectiveness'. *Roundtable Reports* 7 (4), 1982, pp. 10 – 13.

²¹⁰⁶ Davey, Gareth 'What is Museum Fatigue?'. *Visitor Studies Today* 8 (3), 2005, pp. 17 – 21.

²¹⁰⁷ Hornecker, Eva and Stifter, Matthias 'Learning from interactive museum installations about interaction design for public settings'. *Proceedings of the 18th Australia Conference on Human-Computer Interaction*, Sydney, November 20th – 24th, 2006, pp. 135 – 142.

²¹⁰⁸ Tilden, Freeman, 1957.

The study was also useful for providing me with methodological feedback, and allowing me to tweak and modify the installation based on the responses of the audience: an important part of both exhibition and computational design²¹⁰⁹²¹¹⁰. The study came quite late in the development of *knole*, and so did not lead to any major structural modification of the work. However, I was able to tweak many elements, including the personality and emotional models, to accommodate my observations of what had resonated with audiences. It was an opportunity to observe what interested visitors (for example, the creature's voice, 'natural' interactions such as grooming, and the 'spirit's' complex emotional display) and what did not (the necessity to read large blocks of text while interacting with the simulation). Visitor's understandings of the creature's behaviour and personality, and how these understandings informed subsequent interactions, helped me to create a balance between a simulation that behaved unpredictably and opaquely, as a complex simulation of personhood reliant upon engagement with a fictive universe, and an accessible experience that avoided frustration and obfuscation. It also helped me to decide which features of Anne's storyworld it was necessary to materially simulate (in order to provide coherent, 'resonant' responses to the audience's interactions) and which were more productively left to the imagination. More mundanely, it helped me to test the voice recognition features with a range of pitches, voices and tones; observe the intuitiveness of the touch interface; think through how to instruct visitors in stance and posture during interaction; and devise technical solutions to the software bugs, performance and responsiveness issues and unhelpful affordances that inevitably arise during software development and artistic practice more generally.

²¹⁰⁹ Dean, David, 2004.

²¹¹⁰ Dix, Alan *et al.* 2004.

Appendix 2

Fieldwork #2: Observation Of Character-Reader Relationships Within A Reading Group

The theory of audience reception (which forms a key part of my 'autocosmic' framework) sites as much of the constructive reality of a work of art in the mind of that audience as in the skill of the artist.²¹¹¹ Correspondingly, direct, qualitative, sometimes-longitudinal study of that audience has often been used by scholars to demonstrate, in 'real' respondents, how such construction manifests. While many of these studies exist²¹¹²²¹¹³²¹¹⁴²¹¹⁵, I wanted to cement my co-option of the existing literature with a small piece of my own primary research, particularly as my research is concerned directly with the measure of a work's 'resonance' with its audience. It benefits me to see that resonance demonstrated by real audiences directly, rather than merely relying on scholarly accounts of it occurring.

The objective of this study was, through observation, to help delineate a general, Platonic baseline for character, outside of responses to specific media, against which I could later juxtapose the 'particular' responses to characters in computational art.²¹¹⁶ However, Platonic ideals aside, it is difficult to conceive of a character that is not mediated in some way: I therefore chose the fictional characters of novels, and their readers, as my subjects. Given the form's ubiquity and central position within narratology, literature seemed as good a window as any into 'typical' or 'universal' responses to fictional character.

Between September and December 2016, I shadowed a pre-existing reading group in the city of Derby in England; attending four meetings, one per month. The group was entirely female, and discussed a range of contemporary novels from *Kafka on the Shore*²¹¹⁷ to Rose Tremain's *The Road Home*²¹¹⁸. A different member hosted each meeting and provided a list of questions about

²¹¹¹ Wilson, Tony *Understanding Media Users: From Theory To Practice*. New Jersey: Wiley-Blackwell, 2009.

²¹¹² Holland, Norman N *The Nature Of Literary Response: 5 Readers Reading*. London: Transaction, 1975.

²¹¹³ Mar, Raymond A *et al.* 'Exploring the link between reading fiction and empathy: Ruling out individual differences and examining outcomes'. *Communications* 34 (1) 2009, pp. 407-428.

the work to anchor the discussion, though talk often ranged far from the source text into discussions of other novels, the lives of the group's members and sundry topics.

During these sessions I sat within the group and silently observed the discussion, taking notes on how the group both individually and collectively conceptualised the characters of the source texts and judged their mimetic and metaleptical qualities. In particular, I was interested in how their choice of language concerning these characters revealed the nature of their autocosmic relationship with these 'non-actual persons', and how their judgements and discussion marked the effectiveness (or not) of that character's ability to resonate with them.²¹¹⁹ At two of the meetings, I asked the group additional, direct questions about characters in prose fiction. The ensuing discussions ranged from identification of the important qualities of characters generally, to the discussion of characters from other works whom they disliked as narrative constructions: that is, characters who lacked 'resonance'.

In this group I found, as studies before mine confirm, a 'profound... meeting of minds'²¹²⁰ between readers and characters, 'troubled creatures' distinct and interrogable, as one group member called them. The participants may have begun their discussions in terms of the character's 'determined context'²¹²¹ of the novel, but soon they were dislodged and playfully entered into a new, subjunctive space by the group's collective and individual imaginations, 'escap[ing] the boundaries of the text itself'²¹²². Their discussion of Rose

²¹¹⁴ Bleich, David *Subjective Criticism*. Baltimore: The John Hopkins University Press, 1978.

²¹¹⁵ Slatoff, Walter J *With Respect to Readers: Dimensions of Literary Response*. New York: Cornell University, 1970.

²¹¹⁶ Keogh, Brendan, 2015.

²¹¹⁷ Murakami, Haruki *Kafka on the Shore*. London: Vintage, 2005.

²¹¹⁸ Tremain, Rose, 2009.

²¹¹⁹ Margolin, Uri 'Introducing & Sustaining Characters in Literary Narrative: A Set of Conditions'. p. 3

²¹²⁰ Mar, Raymond A. *et al.* 'Exploring the link between reading fiction and empathy: Ruling out individual differences and examining outcomes'. *Communications* 34, 2009, pp. 407-428, p. 3.

²¹²¹ Bradbury, Malcolm 'Character'. In: Childs, Peter and Fowler, Roger *The Routledge Dictionary Of Literary Terms*. London: Routledge, 2006, p.24, 2006

²¹²² Keen, Suzanne, 2011, p. 299.

Tremain's *The Road Home*²¹²³ took the Eastern European protagonist and placed him into alternate narratives, situations 'separate... from [their] surrounding fictional determinants'²¹²⁴. Disagreements flared about what characters looked like, the group burnishing their forms in debate and accord; whether 'Jasmina with the coloured glass' wore heavy, thick jewellery, or whether the protagonist's mother dressed all in black. For these readers, and for those in past studies, the pleasures of experiencing narrative art was the concretisation of the individual, interrogable persons who lay at their centres: each an 'entire self'²¹²⁵ who, through what Lewis calls 'perdurance'²¹²⁶, can be distinguished and discussed as 'itinerant individuals'²¹²⁷ above and beyond their 'text'.

While many studies exist which try to understand personal responses of real audiences to character, as a way to evince the theories of audience reception, my small study provided me with my own direct data, tailored to my particular enquiry. It has allowed me to develop an understanding of how audiences receive, extrapolate and help to construct characters into *persons* of their own, and how artists creating those characters might facilitate this process. Importantly, it also provided examples of the 'qualities [of]... more static art-forms', mentioned in my primary research question, which become an important point of comparison later in this thesis.

²¹²³ Tremain, Rose *The Road Home*. London: Vintage, 2009.

²¹²⁴ Bradbury, Malcolm, 2006, p.24

²¹²⁵ Gibson, Walker 'Authors, Speakers, Readers, and Mock Readers'. *College English* 11, 1950, pp. 265 -269.

²¹²⁶ Lewis, David Kellogg *Counterfactuals*. Harvard: Harvard University Press, 1986.

²¹²⁷ Margolin, Uri 'Individuals In Narrative Worlds: An Ontological Perspective'. *Poetics Today* 11 (4), 1990, pp. 843 – 871, p. 864.

Appendix 3

Fieldwork Report #3: Supervised, Self-Narrated Interaction With Computational Characters

While audience reception theory has been explicitly paralleled within computational art, in particular within game studies²¹²⁸²¹²⁹, critical observations of 'real' audiences undertaken within such a framework remain rare²¹³⁰. As a point of comparison to my reading group study outlined in Appendix 2, I wanted to use direct observation of videogame players to augment my theoretical outline of how 'autocosmic' responses to characters in computational art both cleave to, and differ from, the more general precepts of reception theory. In particular, I was interested in how such variations impact on concepts of imaginative engagement, character, narrative and discussions of quality and 'resonance'. I wanted to codify how an illustrative range of modern videogames, as prime examples of narrative computational art, approach the tensions that arise from these variations; tensions which form the central problem of this thesis.

Over the course of two days in March 2017 I invited self-selected participants, recruited through the Bath University message boards and the Computer Science Department internal mailing list, to participate in the study. Of the six participants, two were female and four were male. All had played videogames in the past, though some were far more active consumers than others, and they demonstrated a range of tastes, preferences and previous experiences with the form. The participants were invited to sit at a desktop PC and play one of four videogames for one and a half hours²¹³¹. The choice, in part pre-determined and in part shaped by the participant's own preferences, lay between fantasy roleplaying game *The Elder Scrolls V: Skyrim*²¹³², minimalist

²¹²⁸ Sanders, April *Parallels Between The Gaming Experience and Rosenblatt's Reader Response Theory*. Ph. D thesis. The University of North Texas, 2013.

²¹²⁹ Sanders, April 'Understanding The Video Game Experience Through Reader Response Theory'. *Read 2* (3). 2016, pp. 45-63.

²¹³⁰ Roth, Christian and Koenitz, Hartmut 'Evaluating the User Experience of Interactive Digital Narrative'. *Proceedings of the 1st International Workshop on Multimedia Alternate Realities* (2016), pp.31 -36.

²¹³¹ See Appendix #9, Figure 1..

²¹³² Bethesda Game Studios, 2011.

platformer *Thomas Was Alone*²¹³³, the narrative adventure game *Shelter*²¹³⁴ and the 'walking simulator'²¹³⁵ *Everybody's Gone To The Rapture*²¹³⁶.

While the participants were playing the game, I asked them to self-narrate their experience: a well-established technique in commercial videogames testing²¹³⁷. I sat beside and slightly behind the participant during their play session, taking notes both on my observation of their interactions with the game, its systems and environments, its characters and their narratives, and their self-narration of those interactions. The day after the study, I sent the participants an exit questionnaire²¹³⁸ which asked them to give more-considered answers to questions about the qualities of the characters they had experienced, both as constructed, procedural elements of a computational artwork and as 'non-actual persons'²¹³⁹²¹⁴⁰.

This study provided an interesting companion to my original reading group study. It demonstrated the similarities and differences between audience reception of characters in literary and computational art, revealing some of the apparently universal qualities of fictional characters and those which are 'particular' to comp-art.²¹⁴¹ Most importantly, it helped to directly demonstrate the problems of current characterisation practices in videogames and narrative computational art more generally, and provided clear, methodologically-relevant connections between the literature and 'real' audiences responding: a vital component of my own development of a 'resonant' computational character, similarly designed for the reception of 'real' audiences.

²¹³³ Bithell, Mike, 2012.

²¹³⁴ Might And Delight *Shelter* [PC Software] US: Might And Delight, 2013.

²¹³⁵ Carbo-Mascarell, Rosa 'Walking Simulators: The Digitisation of an Aesthetic Practice'. *Proceedings of the First International Joint Conference of DiGRA and FDG* 1 (13), 2016.

²¹³⁶ The Chinese Room *Everybody's Gone To The Rapture*. UK: Sony, 2015.

²¹³⁷ Hoonhout, Henriette 'Let The Game Tester Do The Talking: Think Aloud and Interviewing to Learn about the Game Experience'. In: *Game Usability: Advice from the Experts for Advancing the Player Experience*. Burlington: Morgan Kaufman, 2008, pp.65-77.

²¹³⁸ See Appendix 9, Figure 14.

²¹³⁹ Margolin, Uri 'Introducing & Sustaining Characters in Literary Narrative: A Set of Conditions'. p. 3.

²¹⁴⁰ See Appendix #9, Figure 14.

²¹⁴¹ Keogh, Brendan, 2015.

Appendix 4

A Discussion Of Player Characters (PCs), Non-Player Characters (NPCs), And Their Relevance To This Project

In this thesis, I have explicitly focussed on those 'distinct... entit[ies]'²¹⁴² in computational art whose perspective and personhood are distinct from that which the audience adopts as an interactant; characters over which the audience does not have any major, 'explicit'²¹⁴³ control, and who do not 'function... as a focus for... [the player's] agency'²¹⁴⁴ or as a 'digital prosthesis'²¹⁴⁵. Videogames provide the clearest definition of this distinction: between NPCs or 'non-player characters'²¹⁴⁶, and the player character, 'avatar' or PC. This is a definition which has transcended one particular industry and is now regularly employed in reference to other narrative, character-led computational artworks, including those within cultural heritage^{2147,2148}. While I would assert that both are examples of computational character, and both are capable of 'resonance' through autocosmic engagement, there remain complex, mode-specific differences between them which limit my ability to address the latter within this project.

The idea of player character is unquestionably tied up in the complex narratological concepts of protagonism, narration²¹⁴⁹, empathic identification,

²¹⁴² Banks, Jaime *et al.* *100 Greatest Video Game Characters*. Maryland: Rowman & Littlefield, 2017, pp. 47.

²¹⁴³ Salen, Katie and Zimmerman, Eric. *Rules Of Play: Game Design Fundamentals*. Cambridge: MIT Press, 2004, p.60.

²¹⁴⁴ Liboriussen, Bjarke *The Mechanics of Place: Landscape and Architecture in Virtual Worlds*. Ph.D. thesis, University of Southern Denmark, 2009, p.45.

²¹⁴⁵ Papale, Luca 'Beyond Identification: Defining The Relationships Between Player And Avatar'. *Journal Of Games Criticism* 1(2). 2014, pp. 1-12.

²¹⁴⁶ Tronstad, Ragnhild 'NPC (Nonplayer Character)'. In: *The John Hopkins Guide To Digital Media*. Baltimore: John Hopkins University Press, 2014 p.

²¹⁴⁷ Vosinakis, Spyros 'Digital Characters in Cultural Heritage Applications'. *International Journal Of Computational Methods in Heritage Science* (1), 2017.

²¹⁴⁸ Granstrom, Helena *Elements In Games For Virtual Heritage Applications*. Masters thesis, University of Skovde, 2013, p. 14.

²¹⁴⁹ Margolin, Uri *Narrator*, 2014. [Online] Available from: <http://www.lhn.uni-hamburg.de/article/narrator> [Accessed 18th August 2018].

'experience-taking'²¹⁵⁰ and the 'meeting of minds'²¹⁵¹ which form one of the 'basic psychological process[es]'²¹⁵² of engaging with fictional characters. However, a complication in this relationship arises from the fact that such characters are not merely observed and incorporated into the audience's experience autocosmically or empathetically, in the same manner as other (real and unreal) people, or even merely interacted *with* in computational art, but are materially and directly controlled by the audience themselves as an 'epistemic and behavioural proxy'.²¹⁵³ The approaches that computational artists take to this component of their work are numerous, as demonstrated by the games played by my study group (see Appendix 3). Some games, such as *Skyrim*²¹⁵⁴, are steeped in a tradition of providing the audience with the ability to almost completely define their protagonist's appearance, personality, actions and character, albeit from a large subset of predefined traits, races and classes²¹⁵⁵, all with their own authored affordances. Others, such as *Shelter*²¹⁵⁶, present you with an individual character already authored, set into a particular circumstance and wedded to a very specific sort of expressive control. Others, such as *Thomas Was Alone*²¹⁵⁷, maintains an ambiguity between NPC and PC, allowing you switch at will between several, well-defined characters who maintain relationships with each other, made explicit by the narration. Who the 'player character' is in this scenario is productively indistinct.

Alongside this range of approaches is a similarly diverse array of theoretical engagements with the autocosmic relationship between audience and player character. Scholars debate to what extent audiences 'adopt'²¹⁵⁸ pre-

²¹⁵⁰ Kaufman, Geoff and Libby, Lisa 'Changing Beliefs and Behavior Through Experience-Taking'. *Journal of Personality and Social Psychology*. 2012, p. 1.

²¹⁵¹ Oatley, Keith 'Meeting of minds: Dialogue, sympathy and identification, in reading fiction'. *Poetics* 26 (1), 1999, pp. 1.

²¹⁵² Bley, Edgar S 'Identification: A Key to Literature'. *The English Journal* 34 (1), 1945, p. 26.

²¹⁵³ Tavinor, Grant, 2007, p.84.

²¹⁵⁴ Bethesda Softworks, 2011.

²¹⁵⁵ Ashwell, Sam Kabo, 2014.

²¹⁵⁶ Might And Delight, 2013. *Iter*.

²¹⁵⁷ Bithell, Mike, 2012.

²¹⁵⁸ Hefner, Dorothee *et al.* 'Identification with the Player Character as Determinant of Video Game Enjoyment'. In: *Proceedings of ICEC 2007*. Shanghai: ICEC, 2007, pp. 39 – 67, p. 39.

existing characterisations as their own identity, or preserve an 'alterity'²¹⁵⁹ which allows that audience to conduct parasocial or social relationships with the PC as they take on their perspective²¹⁶⁰²¹⁶¹²¹⁶²²¹⁶³; some chart the audience's ability (or necessity) to 'introject'²¹⁶⁴, 'emplace'²¹⁶⁵ or 'self-insert'²¹⁶⁶, treating the characters-as-represented as objects²¹⁶⁷, tools or 'vehicular embodiment[s]'²¹⁶⁸ for their own self-determined characterisations. I certainly observed this range of autocosmic responses within my study group (see Appendix 3). Some participants verbally and behaviourally identified with the characters they controlled, treating them as extensions of their own body and mind, or as tools for interaction with the gameworld: others spoke about the characters on screen as persons in their own right, with whom they were conducting a relationship only partly based on control.

²¹⁵⁹ Seraphine, Frederic. *Ludonarrative Dissonance: Is Storytelling About Reaching Harmony?*, 2016 [Online]. Available at: <http://www.fredericseraphine.com/index.php/2016/09/02/ludonarrative-dissonance-is-storytelling-about-reaching-harmony/> [Accessed: 18th August 2018].

²¹⁶⁰ Banks, Jaime and Bowman, N.D. 'Avatars are (sometimes) people too: linguistic indicators and social ties in player-avatar relationships'. *New Media and Society* 18 (7), 2016, pp.1257 – 1276.

²¹⁶¹ Bartle, Richard 'Virtual worlds: Why people play'. In: Alexander, Thor (eds.) *Massively Multiplayer Game Development: v.2*. Massachusetts: Charles River Media, 2005. 4 'role-playing paradox'

²¹⁶² Vella, Daniel, 2015³

²¹⁶³ De Wildt, Lars *Enstranging Play: Distinguishing Playful Subjecthood from Governance*, 2014 [Online]. Available at: https://gamephilosophy.org/wp-content/uploads/confmanuscripts/pcg2014/de-Wildt-2014.-Enstranging-Play_-Distinguishing-Playful-Subjecthood-from-Governance.-PCG2014.pdf [Accessed: 12th December 2019].

²¹⁶⁴ Van Looy, Jan. *Understanding Computer Game Culture: The Cultural Shaping Of A New Medium*. Saarbrücken: Lambert Academic Publishing, 2010, p .117.

²¹⁶⁵ Morie, Jacquelyn Ford 'Performing in (virtual) spaces: Embodiment and being in virtual environments'. *International Journal of Performance Arts and Digital Media* 3: 2-3 (2007), pp.123 – 138, p. 127.

²¹⁶⁶ Ashwell, Sam Kabo *A Bestiary of Player Agency*, 2014 [Online]. Available at: <https://heterogenoustasks.wordpress.com/2014/09/22/a-bestiary-of-player-agency/> [Accessed: 18th August 2018].

²¹⁶⁷ Martin, Paul 'The Pastoral and the Sublime in Elder Scrolls IV: Oblivion'. *Game Studies* (11) 3, 2011.

²¹⁶⁸ Newman, James, 2002.

Project *knole* does not ignore the concept of player character. As one of 'the most important aspects of game storytelling'²¹⁶⁹, the perspective that the interacting audience takes affects almost every other part of the experience, including the 'resonance' of non-player characters. I chose to minimally define the audience's perspective, and the character that they must adopt, through their interaction, within *knole*'s storyworld: there is no particular, author-defined avatar, but instead a direct interaction with the physical and virtual elements of the installation using the audience's own bodies, postures, interactions and performances, facilitated by the natural interfaces of the work. As in many mixed-reality works, I designed for direct engagement with the 'Beest', with no explicit 'avatar bias'²¹⁷⁰ and an almost-complete 'motor convergence'²¹⁷¹ between audience and 'player character'. I did this for several reasons. Primarily, this design served to reduce the distance between the audience and the 'Beest'; allowing them to co-exist as characters within an ambiguously-delineated storyworld, and for the work to experiment with intimacy, direct manipulation and other mixed-reality concepts as facilitators of 'resonance'. The design also served to focus attention on the 'Beest', rather than splitting audience investment between the simulation and some 'present' protagonist (besides the preterite presence of Anne) whom the visitor would almost certainly prioritise (see Chapter 1.2).

While the characterisation I do provide is certainly subject to what Harvey Smith calls the Imago Effect²¹⁷², guiding the context of the visitor and encouraging certain behaviours and interactions with the 'Beest', I did not want to constrict or pre-define the audience's autocosmic engagement more than was necessary or appropriate within the fiction. This was particularly important because, as my installation at the Museum of Witchcraft and Magic demonstrated (see Appendix 1), audiences can be intimidated by the demands of interaction and performance within an installation space²¹⁷³; something which, it may be theorised, specific roleplaying requirements may exacerbate.

²¹⁶⁹ Lankoski, Petri 'Player Character Engagement In Computer Games'. *Games And Culture* 6 (4), 2011, pp. 291-311, p. 292.

²¹⁷⁰ Seraphine, Frederic 2016.

²¹⁷¹ Gregerson, A.L. and Grodal, T 'Embodiement and Interface'. In: *The Video Game Theory Reader 2*. London: Routledge, 2009.

²¹⁷² Smith, Harvey. *The Imago Effect: Avatar Psychology*. Game Developer's Conference, San Francisco, March 5th 2007.

²¹⁷³ Spence, Jocelyn, 2016.

Instead, the light-touch characterisation of the visitor, and the possibility for what de Wildt and Aupers call 'self-chosen identification'²¹⁷⁴, opened up several, non-prescriptive interpretations of their narrative role in the installation, responsive to the level of engagement they adopted. The *Housekeeping*, if closely read, encourages the reader to identify with the young woman to whom Anne Latch addresses her missive: a well-to-do young debutante of Sheffield's new middle classes, supposedly bored of her cosseted existence, and to whom Anne bequeaths her entire operation. Anne's almost-forensic dreams of the young woman, an account of which opens the *Housekeeping*, serve to facilitate adoption of this character's role, without explicit instruction, by the audience/reader: characterising the young 'Miss' as more accustomed to the comforts that twenty-first century life now affords (constant diversion, warm housing and exotic food) than the impoverishments that Anne's working-class contemporaries are forced to endure; conditions which Anne seeks to escape.

The written narrative also reveals, and facilitates, a much wider set of characterisations for the audience to adopt: as Anne's publisher William Cryer does not honour her wish to only print one copy of the *Housekeeping*, and instead publishes hundreds in order to capitalise on Anne's scandalous reputation, each visitor to the installation can potentially adopt the role of another, anonymous purchaser of the pamphlet, come to Anne's kitchen to claim the 'Beest' and Anne's estate for themselves. The cumulative effect of multiple visitors upon the 'Beest's' body and psychology, then (see Chapter 3), becomes a powerful representation of Mr. Cryer's greed, the power of the emerging mass media in the eighteenth century, the hubris of Anne's superstitious infamy, and the effects of instrumentality and mechanomorphism upon real and digital persons alike.

While questions persist as to whether 'anyone entering into a virtual world [is not] playing a role'²¹⁷⁵, the visitor may of course merely identify as themselves: twenty-first century visitors to Anne's kitchen, discovering a

²¹⁷⁴ De Wildt, Lars and Aupers, Stef. 'Playing the Other: Role-playing religion in videogames'. *European Journal of Cultural Studies* 22: 5-6 (August 2018), pp. 867 – 884, p. 878.

²¹⁷⁵ Morie, Jacquelyn Ford, 2007, p. 131.

creature who has been waiting nearly 250 years for its mistress to return. Each perspective is 'coherent' with the work, facilitates resonant engagement with the storyworld, and deals with different facets of the work's thematic concerns: allowing the reader to engage with the historicity and narratology of the work through lenses of gender, labour relations, social relations and others.

Whichever role is adopted, the simulated creature at the centre of the installation is concerned, behaviourally, with only one metric: how the visitor's actions and performances and chosen 'role' cleave, or do not cleave, to Anne's own actions and performances, as laid out in her *Housekeeping*. In performing her 'cunning' work with the 'Beest' for two years, Anne's relationship and presence has come to define, and structure, its entire existence (see Chapter 3). Mechanically, then, it may be Anne herself which the visitor is perhaps most invited to identify with, or against; and her role and presence which they are most encouraged to adopt or deny.

Perhaps the most important reason for taking this less-than-prescriptive approach to visitor characterisation is that the 'resonance' of player characters lies, necessarily, outside the purview of this thesis. While I certainly think that the autocosmic model would be of great use to PC design, the many complications of the task – between characterisation and instrumentality, between what Calleja calls the 'entity' and the 'self'²¹⁷⁶, and the potential for dissonance between player and character²¹⁷⁷ - may require a different direction for the researcher or artist, and different examples and inspiration from beyond the narrowly aesthetic upon which to draw. Such 'non-actual persons'²¹⁷⁸ lie along a more complicated, yet equally fruitful, line of enquiry than my own.

²¹⁷⁶ Calleja, Gordon, p. 124

²¹⁷⁷ Seraphine, Frederic 2016. Frederic 2016.

²¹⁷⁸ Margolin, Uri 'Introducing & Sustaining Characters in Literary Narrative: A Set of Conditions'. p. 3.

Appendix 5

Videogames, Digital Installation Art And Their Critical And Methodological Overlaps

Project `knole`, beyond being a work of comp-art, might more specifically be defined as a work of digital installation art. This is a well-defined area of study and practice in its own right²¹⁷⁹, and I have drawn on its discourses throughout the development of the project. However, it will be clear from my bibliography and this thesis that a larger proportion of my research has been drawn specifically instead from videogames culture and its academic corollary, game studies²¹⁸⁰²¹⁸¹²¹⁸². This is despite the fact that, at first glance, `knole` has little in common with the 'classic' videogame.

The reasons for this discrepancy are several, though primarily because videogames are the cultural manifestation of comp-art with which I have most familiarity. I grew up playing videogames, rather than visiting digital installations; my introduction to programming and interactive narrative design came under the aegis of text-based and graphical games; my professional networks and didactic influences arose from that culture; and my interests in the wider academia around such practices have, naturally, stemmed from the same discipline.

However, under scrutiny the divisions between these two seemingly disparate examples of comp-art are significantly weakened, and the utility of game studies and videogame practice to *all* narrative comp-art becomes apparent. In a detail which perhaps mirrors the wider trend toward 'post-classical'²¹⁸³, relational and expressive definitions of artforms charted throughout this thesis, the popular definitions of videogame have shifted from the 'narrow discussions of formal definitions' which dominated early

²¹⁷⁹ Mondloch, Kate, 2014, p.149.

²¹⁸⁰ Voorhees, Gerald 'The Character of Difference: Procedurality, Rhetoric and Roleplaying Games'. *Game Studies* 9 (2), 2009.

²¹⁸¹ Ryan, Marie-Laure 'Beyond Myth And Metaphor – The Case of Narrative in Digital Media'. *Game Studies* 1 (1), 2001.

²¹⁸² Simons, Jan 'Narrative, Games and Theory'. *Game Studies* 7 (1), 2007.

²¹⁸³ Mani, Inderjeet, 2013.

discourse²¹⁸⁴, focussing on ludological 'artificial conflicts', skill-based competitions and 'quantifiable outcomes'²¹⁸⁵ (often, as Chapter 1 outlines, arguing against the role of narrative in games altogether), to a greater pluralism²¹⁸⁶²¹⁸⁷²¹⁸⁸²¹⁸⁹ which concentrates on a more multidimensional consideration of the form; encompassing affective, phenomenological, social and narrative elements²¹⁹⁰ united only, at the most base level, by the computational mode, a 'system... defined by rules'²¹⁹¹. The 'game/not game'²¹⁹²²¹⁹³ demarcation that has often occupied critical theory in the form is now a shifting and evolving one. There is much more engagement with works which possess few, if any, of the ludological tenets that define earlier and more purely formal definitions of the videogame, and which often directly challenge the 'designed presumptions'²¹⁹⁴ of the paradigm: particularly when it comes to confronting issues of narrative, using unusual input/output media, and employing novel models of interaction.

Now the economic, social, cultural, methodological and philosophical bounds of videogames parlay with 'not-games'²¹⁹⁵, 'playable

²¹⁸⁴ Keogh, Brendan 'Across Worlds And Bodies: Criticism In The Age Of Video Games'. *Journal Of Games Criticism* 1 (1), 2014, p.1.

²¹⁸⁵ Salen, Katie and Zimmerman, Eric, 2004, p. 81.

²¹⁸⁶ Zimmerman, Eric. *No Single Definition*, 2013 [Online]. Available at: <http://www.criticalpathproject.com/video/no-single-definition/> [Accessed: 18th August 2018].

²¹⁸⁷ Alderman, Naomi *Don't listen to those who try to own the definition of a video game*, 2015 [Online]. Available at: <https://www.theguardian.com/technology/2015/dec/04/video-games-gaming-dudegamers> [Accessed: 18th August, 2018].

²¹⁸⁸ Kahurlahti, Veli-Matti, 2015.

²¹⁸⁹ Keogh, Brendan, 2014.

²¹⁹⁰ Calleja, Gordon, 2011.

²¹⁹¹ Salen, Katie and Zimmerman, Eric, 2004, p. 80.

²¹⁹² Kopas, Merritt ed. *Videogames For Humans.: Twine Authors In Conversation*. US: Instar Books, 2014.

²¹⁹³ Anthropy, Anna *Rise of the Videogame Zinesters: How Freaks, Normals Amateurs, Artists, Dreamers, Drop-outs, Queers, Housewives, and People Like You Are Taking Back an Art Form*. US: Seven Stories Press, 2012.

²¹⁹⁴ Salen, Katie and Zimmerman, Eric, 2004.

²¹⁹⁵ Samyn, Michel *Not a manifesto*, 2010 [Online]. Available at: <http://notgames.org/blog/2010/03/19/not-a-manifesto/> [Accessed 18th August 2018].

stories'²¹⁹⁶, virtual, mixed and augmented reality experiences²¹⁹⁷²¹⁹⁸²¹⁹⁹, installation works²²⁰⁰, interactive fiction such as Twine Stories²²⁰¹, avant-garde works²²⁰², academic outputs²²⁰³, 'art-games' and 'critical games'²²⁰⁴, 'interactive experiences'²²⁰⁵ and 'strange... unstable... hybrids between games and narratives'²²⁰⁶ of all stripes, most of which 'cannot be easily folded into the field of games in general'²²⁰⁷. There continues to be much discussion about the 'conceptual baggage'²²⁰⁸ of the term 'game' in the culture, particularly as it bleeds into surrounding discourses of comp-art: terms such as 'virtual interactive media'²²⁰⁹ and 'interactive digital narrative'²²¹⁰, have been proposed,

²¹⁹⁶ Wood, Hannah, 2017. **Koenitz**

²¹⁹⁷ Rauschnabel, Philipp *et al.* 'An adoption framework for mobile augmented reality games: The case of Pokémon Go'. *Computers in Human Behavior* 76:1 (2017), pp. 276 – 286.

²¹⁹⁸ Sony Inc., *Wonderbook™: Book of Spells*, 2020 [Online]. Available at: <https://www.playstation.com/en-gb/games/wonderbook-book-of-spells-ps3/> [Accessed: 19th December 2019].

²¹⁹⁹ Dani, Ninad Janardan 'Impact of Virtual Reality on Gaming'. *International Research Journal of Engineering and Technology* 6:12 (2019), pp. 2033 – 2037.

²²⁰⁰ Reed, Emilie M. *Arcades, Let's Plays and Avant-Gardes: perspectives for analysing and developing videogame exhibitions for arts audiences*. PhD thesis: Abertay University, 2019.

²²⁰¹ Kopas, Merritt, 2014.

²²⁰² Schrank, Brian. *Avant-garde Videogames: Playing with Technoculture*. London: MIT Press, 2014.

²²⁰³ Pearce, Celia 'Independent and Art Games'. In: Ryan, Marie-Laure *et al.* *The John Hopkins Guide To Digital Media*. Baltimore: The John Hopkins University Press, 2014.

²²⁰⁴ Flanagan, Mary, 2009.

²²⁰⁵ Kill Screen, *Is It Time To Stop Using The Term 'Walking Simulator'*, 2016 [Online]. Available at: <https://killscreen.com/articles/time-stop-using-term-walking-simulator/> [Accessed: 18th August 2018].

²²⁰⁶ Jenkins, Henry, *Response to Bogost (Part Two)*, 2006 [Online]. Available at: http://henryjenkins.org/blog/2006/08/response_to_bogost_part_two.html [Accessed: 18th August 2018].

²²⁰⁷ Calleja, Gordon, 2011, p. 183.

²²⁰⁸ Veale, Kevin "'Interactive Cinema Is an Oxymoron, but May Not Always Be'. *Game Studies* 12 (1), 2012.

²²⁰⁹ Mol, Angus *et al.* *The Interactive Past: Archaeology, Heritage and Video Games*. Leiden: Sidestone Press, 2017, p. 7.

²²¹⁰ Koenitz, Hartmut, 2015.

while others see the term 'game' as a necessary shibboleth for talking about a wider, and ultimately untriangulated, landscape of works²²¹¹²²¹².

Correspondingly, other forms of 'digital art', 'new media' and 'comp-art' have borrowed from the videogame canon and blurred the boundaries even further; particularly when narrative objectives are invoked. Ryan compares the videogame to the novel as the dominant storytelling form within digital culture, holding the most cultural prominence, methodological influence and focus upon narrative practice²²¹³: an emblem of a particular fusion of systemic procedurality, human-computer interaction and expressive, narrative meaning-making²²¹⁴. For Reidl, similarly, it is 'the largest class of commercial product through which the public regularly comes into contact with artificial intelligence' (as embodied virtual agents within narrative scenarios)²²¹⁵, and for Champion, the form's 'massive influence on culture' make it impossible to segregate from the rest of the comp-art landscape²²¹⁶. Consequently, discourses as diverse as human-computer interaction²²¹⁷, narratology²²¹⁸, artificial

²²¹¹ Hecker, Chris *The Word 'Game'*, 2016 [Online]. Available at: <http://www.criticalpathproject.com/video/chris-hecker-the-word-game/> [Accessed: 8th August 2018].

²²¹² Zimmerman, Eric *Heller Interview*, undated [Online]. Available at: <http://www.ericzimmerman.com/texts/HellerInterview2.htm> [Accessed: 8th August 2018].

²²¹³ Ryan, Marie-Laure, 2009.

²²¹⁴ Newman, James, 2002.

²²¹⁵ Riedl, Mark O. 'Interactive Narrative: A Novel Application of Artificial Intelligence for Computer Games', *Proceedings of AAAI 2012*, 2012 [Online]. Available at: <https://www.cc.gatech.edu/~riedl/pubs/aaai12.pdf> [Accessed: 19th December 2019].

²²¹⁶ Champion, Erik 'Applying game design theory to virtual heritage environments'. *Proceedings of the 1st international Conference on Computer Graphics and Interactive Techniques in Australasia and South East Asia* (2003), pp. 273 – 274.

²²¹⁷ Dix, Alan *et al.*, 2004.

²²¹⁸ Ryan, Marie-Laure, 2014.

intelligence²²¹⁹²²²⁰, and heritage interpretation²²²¹²²²²²²²³²²²⁴²²²⁵²²²⁶²²²⁷ have all drawn from the videogames discourse to advance their own resonant practice. Of particular interest is the osmosis between digital installation art and videogames²²²⁸²²²⁹²²³⁰, with many artists such as Lawrence Lek²²³¹, Jeremy Couillard²²³² and Ian Cheng²²³³ combining videogame technologies and narrative techniques with the participatory, spatial elements of installation art, producing works that are more at home in galleries than living rooms.

Thus my reliance on videogames and game studies for this project's foundation is an exercise in broadening my methodology, rather than narrowing it. However helpful or limiting the term 'videogame' might be, it certainly encompasses far more discussion, and practical exemplars, for the computational artist than its ludic connotations would imply. It is where many of the challenges and problems of computational character that I identify in

²²¹⁹ Stuart, Keith, 2016.

²²²⁰ Yannakakis, Georgios and Togelius, Justin *Artificial Intelligence and Games*. New York: Springer, 2018.

²²²¹ Champion, Erik *Game Mods: Design, Theory and Criticism*. Australia: ETC Press, 2012.

²²²² Graham, Shawn *Writing History With Interactive Fiction*, 2010 [Online]. Available at: <http://www.playthepast.org/?p=68> [Accessed: 8th August 2018].

²²²³ Chapman, Adam. *Digital games as history: How videogames represent the past and offer access to historical practice*. London: Routledge, 2016.

²²²⁴ Ioannides, Marinos *et al.* *Mixed Reality and Gamification for Cultural Heritage*. London: Springer, 2017.

²²²⁵ Tyler-Jones, Matthew *Building an Apotheosis Machine*. York University Department of Archaeology, February 10th, 2015.

²²²⁶ Machidon, Octavian *et al.*, 2016.

²²²⁷ Champion, Erik, 2007. **Champion Book**

²²²⁸ Thom, Danielle *Are art installations the new video games?*, 2014 [Online]. Available at: <https://www.apollo-magazine.com/art-installations-new-video-games/> [Accessed: 8th August 2018].

²²²⁹ Poulsen, Diana *Art and Video Games: Intersections*, 2011 [Online]. Available at: http://www.gamasutra.com/view/feature/134796/art_and_video_games_intersections.php [Accessed: 8th August 2018].

²²³⁰ Flanagan, Mary, 2009.

²²³¹ Lek, Lawrence *Bonus Levels*, undated [Online]. Available at: <http://bonuslevels.net/> [Accessed: 8th August 2018].

²²³² Couillard, Jeremy *jeremy c*, 2018 [Online]. Available at: <http://www.jeremycouillard.com/> [Accessed: 8th August 2018].

²²³³ Cheng, Ian, 2018.

Chapter 1 are not only evident, but actively tackled. Videogames remain the 'current apotheosis of high-level human-computer interaction'²²³⁴, the poster child of narrative comp-art, and in this `knole` is as much a videogame, an interactive, procedural, systemic work of narrative expression, as the latest *Mario* release. Consequently, it shares a similar crop of concerns with other works that lack a 'well-established and fixed field'²²³⁵: concerns that have their roots, ultimately, in computation.

²²³⁴ Newman, James. 'In search of the videogame player'. *New Media And Society* 4 (3), 2002, pp.405-422, p. 405.

²²³⁵ Montfort, Nick 'Foreword'. *In: Koenitz, Harmut et al. (eds.)*, 2015, pp. ix – xiv, p. x

Appendix 6

Fieldwork Report #4: Skyrim Field Studies

In August 2016 I undertook several sessions of 'digital fieldwork' in order to collect raw data on the features, strengths and weaknesses of one of the major 'circumscribed areas of study'²²³⁶ for this thesis: the virtual environments and 'gameworlds' that form the focus of Chapter 3. I chose for this what I felt to be one of the most representative modern examples of a virtual environment: the 'open world'²²³⁷ model provided by the fantasy roleplaying game *The Elder Scrolls V: Skyrim*.²²³⁸ Not only was this a videogame that had served as a research focus for my participant study (see Appendix 3), it was the latest iteration of a franchise that has 'for decades... refin[ed] the same open world formula'²²³⁹, critically acclaimed for its 'glimpse[s] into another world'²²⁴⁰, designed computational spaces with which the player can interact through 'naturally paced, non-linear play and explorative flow'²²⁴¹. Despite being nearly seven years old, it is still held up as one of the best examples of 'a rich and varied landscape'²²⁴² rendered computationally; as close to a characterful, 'resonant' virtual 'place' as any.

Digital and virtual fieldwork – in which virtual environments, rather than real places, are used as sites for data collection – remain an emerging methodology, being pioneered in both the life sciences²²⁴³ and game studies²²⁴⁴. It provides the 'methodological and methodical groundwork'²²⁴⁵ for studies into player engagement²²⁴⁶, archaeological practice²²⁴⁷, and the dynamics of online communities²²⁴⁸. The *Elder Scrolls* series, and in particular their expansive and dynamic landscapes, are frequently used as destinations for digital fieldworkers with a variety of objectives. They have been used to study cultural

²²³⁶ Burgess, Robert *In The Field: An Introduction To Field Research*. Hemel Hempstead: George Allen and Unwin, 1984, p. 1.

²²³⁷ Berry, Noah. *Finding The Look Of Open Game Environments*, 2015 [Online]. Available at: <https://80.lv/articles/building-open-worlds-with-skyrim-envir-artist/> [Accessed 8th August 2018].

²²³⁸ Bethesda Softworks, 2011.

²²³⁹ *The best open world games | PC Gamer*, 2018 [Online]. Available at: <https://www.pcgamer.com/best-open-world-games/> [Accessed 8th August 2018].

²²⁴⁰ Ibid.

²²⁴¹ Berry, Noah 2015.

presence²²⁴⁹, conduct geographical analysis²²⁵⁰ and forward demographic theories²²⁵¹, to name but a few. I had my own, specific objectives in coming to *Skryim*: to directly observe and interact with its virtual environment in order to study and critique its computational systems and aesthetic representations, as well as my own imaginative engagement with them, in light of the theories put forward in this thesis. Additionally, I wanted to provide direct evidence of the paucity of 'resonant' characterisation in such environments, and use this data as a template for my own autocosmic design philosophy: creating a character using the tenets of environment design, such as those employed in *Skryim*, in order to capitalise on those environment's 'resonant' cultural affordances.

I installed the base *Skryim* game alongside several popular fan-produced modifications. Modifications are an enormously important factor in the success (and thus, the resonance) of the *Elder Scrolls* franchise²²⁵². They are officially sanctioned by the game's designers, and so ubiquitous to most

²²⁴² Kelly, Andy *GTA V to Skryim: the 10 most beautiful walks in gaming*, 2014 [Online]. Available at: <https://www.theguardian.com/technology/gallery/2014/may/05/gta-v-to-skyrim-the-ten-most-beautiful-walks-in-gaming> [Accessed 8th August 2018].

²²⁴³ Taylor, Rex N *Virtual Fieldwork Project* [Online]. Available at: <http://visualisation.soton.ac.uk/> [Accessed 8th August 2018].

²²⁴⁴ Watrall, Ethan 'Digital Games as Public Archaeology', *playthepast*, 2011 [Online]. Available at: <https://www.playthepast.org/?p=938> [Accessed: 19th December 2019].

²²⁴⁵ Heidibrink, Simone *et al.* 'Venturing Into the Unknown: Methodological Reflections on Religion and Digital Games, Gamers and Gaming'. *Heidelberg Journal of Religions on the Internet*, 7, 2015.

²²⁴⁶ Miller, Kiri, 2008.

²²⁴⁷ Reinhard, Andrew *Archaeogaming: An Introduction to Archaeology in and of Video Games*. Germany: Berghahn Books, 2018.

²²⁴⁸ Haverinen, Anna *Digital Death: Online Mourning Rituals and Practises*. London: Routledge, 2017.

²²⁴⁹ Champion, Erik *Social Presence and Cultural Presence in Oblivion*, 2007 [Online]. Available at: https://www.academia.edu/1003317/Social_Presence_and_Cultural_Presence_in_Obliion [Accessed 8th August 2018].

²²⁵⁰ Hirschman, Jacob *Geography of Skryim*, 2012 [Online]. Available at: <https://geoskyrim.blogspot.com> [Accessed 8th August 2018].

²²⁵¹ Appleton, Conor and Morris, Jake 'Scaling Skryim – a case study on the population of Solstheim'. *Journal of Interdisciplinary Science Topics*, 2018.

²²⁵² Champion, Erik. *Game Mods*. Pittsburgh: ETC Press, 2012.

player's experience (particularly since becoming available for console versions of the game) that it seemed disingenuous to exclude them from my study in favour of some idealised, so-called 'vanilla' design. This is especially relevant considering the popularity and range of modifications which directly change or improve the landscape or environment of *Skyrim*, the titular virtual environment in which the game takes place.²²⁵³

As well as installing modifications which improved the appearance of the game's textures²²⁵⁴, added new environmental effects such as shooting stars²²⁵⁵, and wove into the game complex new systems for simulating environmental effects such as hypothermia and fatigue²²⁵⁶, I also added a modification which allows the player to keep an in-game journal²²⁵⁷, which I used to record my observations^{2258,2259}. In total I spent four in-game days (equivalent to roughly 5 hours of playtime) exploring *Skyrim*'s varied environments; spaces both rural and urban, wild and cultivated, populated and unpopulated. I paid particular attention to how information about the 'character' of the environment – its history, secrets and dangers – was revealed through exploration, systemic reactivity and player observation, and how both systemic and non-systemic components of the environment contributed to my imaginative engagement in their own particular manners²²⁶⁰.

²²⁵³ Scott, Robin. *Skyrim Mod Categories*, 2018 [Online]. Available at: <https://www.nexusmods.com/skyrim/mods/categories/> [Accessed 8th August 2018].

²²⁵⁴ Laast *Pure Waters*, 2014 [Online]. Available at: <https://www.nexusmods.com/skyrim/mods/1111> [Accessed 8th August 2018].

²²⁵⁵ Isoku *Shooting Stars*, 2013 [Online]. Available at: <https://www.nexusmods.com/skyrim/mods/25022> [Accessed 8th August 2018].

²²⁵⁶ Chesko *Frostfall – Hypothermia Camping Survival*, 2016 [Online]. Available at: <https://www.nexusmods.com/skyrim/mods/11163> [Accessed 8th August 2018].

²²⁵⁷ LordConti2 *Take Notes – Journal of the Dragonborn*, 2014 [Online]. Available at: <https://www.nexusmods.com/skyrim/mods/48375> [Accessed 8th August 2018].

²²⁵⁸ See Appendix #9, Figure 5c.

²²⁵⁹ See Appendix #9, Figure 5e.

²²⁶⁰ See Appendix #9, Figures 5a – 5d.

In general, my approach to the exercise was not to engage in the more granular activities within the landscape that form the game's primary narrative thrust, such as undertaking quests, engaging in combat or talking to characters. Instead, I attempted to make my journey across *Skyrim* one of direct engagement – indeed, even interpersonal interaction - between myself and the environment as a whole. Constantly I tried to think of *Skyrim* as a single entity, rather than as a collection of overlapping systems, or disparate provinces and towns; I tried to maintain that 'paradigmatic... unity'²²⁶¹, that animistic personification, which forms the basis of human autocosmic engagement with place (see Chapter 3). I tried to witness the numerous designed systems that make up the landscape-as-whole as multiple vectors of communication from a coherent individual, and by which that individual could be known, and responded to. This individual is the complex place-person who/which, as I argue in Chapter 3, is the most 'resonant' character in the entire gamespace of *Skyrim*.

My sojourn in *Skyrim*, and the primary data that I gathered, was my own attempt at the mindful, engaged journeys in virtual worlds that form the subject of much of my reading for Chapter 3; journeys which themselves are emulations of psychogeographic and Romantic practices with real-world landscapes, and part of the same autocosmic spectrum of interaction with place that defines the human condition.

²²⁶¹ Margolin, Uri. 'Introducing and Sustaining Characters in Literary Narrative: A Set of Conditions'. *Style* 21 (1), pp.107 – 124, p.115.

Appendix 7

Selected Links

Most of the supplementary material of Project knole, which is not feasible to include in this thesis, can be found at the following links. In each case, I have endeavoured to provide the most stable and canonical link.

<http://bonfireddog.co.uk/knole>

The portal webpage for the entire project, which serves as the ideal introduction to the work for the 'implied' audience to which it is addressed.²²⁶² It includes both theoretical and narrative context for the project, links to all of the project's other outputs and online presences, downloads of the *Housekeeping* and this thesis, as well as providing the ability to sign up for email updates about the project and its scheduled installations.

http://twitter.com/rob_sherman

My Twitter account (now deactivated, but archived), which functioned as a continuous development diary for the project, as well as an avenue to seek advice and critique from other artists and academics.

https://www.zotero.org/bonfire_dog/items/collectionKey/SDA3R9CK

A complete and 'live' bibliography for the project, hosted on the open-source referencing service Zotero.²²⁶³ Please note that this bibliography is not completed to the specification of Bath Spa University's Numeric Referencing System²²⁶⁴.

<http://robsherman.co.uk>

My personal website.

<http://robsherman.co.uk/thegoodlymist/tag/projects/>

²²⁶² Iser, Wolfgang *The Implied Reader: Patterns of Communication in Prose Fiction from Bunyan to Beckett*. Baltimore: The John Hopkins University Press, 1978, p.3

²²⁶³ Roy Rosenzweig Center of History and New Media *Zotero*, 2018. [Online] Available at: <http://zotero.org> [Accessed 25th August 2018].

A collection of development posts from my blog about Project knole.

<https://github.com/bonfireddog/knole-latest>

The Github repository for the Project. This repository includes drafts of this thesis, collections of notes and 'offcuts', the assets for the Project's website, screenshots and prototype code, iterative drafts of the *Housekeeping* and the source files for the final installation. It also plays host to the illustrative videos, images and animations (see Appendix #9) that I use to augment my self-reflection throughout this thesis.

<https://app.researchfish.com/awards/viewdetails/o?gorderby=organisation&filter=AHRC-1672384>

The Researchfish profile for this project.²²⁶⁵ It includes all of the project's academic and non-academic outcomes and impacts, reported on an annual basis for up to three years after the work is completed. This profile is a stipulation of my funding from the Arts and Humanities Research Council.²²⁶⁶

²²⁶⁴ Bath Spa University *BSU Numeric Referencing System*, 2018. [Online] Available at: <https://www.bathspa.ac.uk/media/bathspaacuk/library/policies-forms-and-documents/Numeric-referencing-guide.pdf> [Accessed 25th August 2018].

²²⁶⁵ Research Fish Limited *researchfish(tm)*, 2018. [Online]. Available at: <https://www.researchfish.net/> [Accessed 25th August 2018].

Appendix 8

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²²⁶⁶ Arts and Humanities Research Council *AHRC*, 2018. [Online]. Available at: <http://ahrc.ac.uk> [Accessed 25th August 2018].

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Appendix 9

Illustrative Thesis Figures

These videos, images and executable files are intended as supplementary, illustrative material to the main body of this thesis, referenced (and sometimes reproduced) throughout. They are stored in a secure repository on Github, a well-established code repository website. If this repository is ever compromised, I will endeavour to make the files available through some other source. Otherwise, the Internet Wayback Machine²²⁶⁷ may have a copy of the files.

Various prototypes, screenshots and other illustrative material can be found at the following permalinks:

<https://github.com/bonfiredog/knole-latest/tree/master/notes%20and%20addenda>

<https://github.com/bonfiredog/knole-latest/tree/master/masterbeast/prototypes>

The permalink for the folder containing the illustrative figures is

https://github.com/bonfiredog/knole-latest/tree/master/notes%20and%20addenda/thesis_fig, and the individual files are named as follows:

Figure 1 – An image of the room setup for my videogame play study, as described in Appendix 3 of this thesis.

Figures 2a and 2b – Initial character studies for the creature at the heart of Anne's narrative, as realised by artist Gus Storms²²⁶⁸.

Figures 3a - 3g – Screenshots from a prototype created as part of the installations' development. In this prototype, the moles which roam the

²²⁶⁷ *The Internet Wayback Machine*, 2020 [Online]. Available at: <http://archive.org> [Accessed 20th February 2020].

²²⁶⁸ Storms, Gus, *Gus Storms*, 2020 [Online]. Available at: <http://gusstorms.com> [Accessed 20th February 2020].

creature's body are controlled by an artificially-intelligent 'Moleherd': a symbolic, parasitic substitute for Simon Awlbath, the focus of Anne's impotent frustrations with the natural world. This 'Moleherd' could control the moles' movement, traversing the creature's skin as Awlbath traversed the moor. In initial designs for *knole*, this character played a much larger role in the ritualistic interaction between audience and 'beest'.

Figure 4 – The executable Windows file for the above prototype.

Figures 5a - 5d – Screenshots from my *The Elder Scrolls V: Skyrim* environment study, as described in Appendix 6. In particular, Fig 5c shows the diary that I used to record my observations while in-game.

Figure 5e – A text file export of the journal kept as part of the study described in Appendix 6.

Figure 7 – A prototype version of the 'Temple' functionality of the creature. Inspired by a smartphone locking interaction, this became an important part of interacting with the 'spyrit' – and, by extension, of Anne's flawed, circumstantial cosmology.

Figures 8a – 8c – Various iterations of the installation housing, from initial design to final prototype.

Figures 9a and 9b – Early prototypes for the creature, including physics-based interaction and fur generation.

Figure 10 – A demonstration of the use of Microsoft Oxford Project's emotion recognition API as a key part of the interaction with the creature²²⁶⁹.

Figure 11 – A demonstration of an advanced liquid engine, not used in the final version of the installation.

²²⁶⁹ Linn, Allison 'Microsoft's Project Oxford helps developers build more intelligent apps', *Microsoft AI Blog*, 2015 [Online]. Available at: <https://blogs.microsoft.com/ai/microsofts-project-oxford-helps-developers-build-more-intelligent-apps/> [Accessed: 19th December 2019].cite

Figure 12 – A demonstration of an early version of a fine-control vocal engine for the creature, not used in the final version of the installation.

Figures 13a – 13w – Images and videos of audiences interacting with the prototype version of Project *knole* at the Museum of Witchcraft and Magic in Boscastle, Cornwall, as described in Appendix 1.

Figure 14 – A PDF of the Google Forms exit questionnaire given to participants in my videogame study, described in Appendix 3.

Figure 15 – A playable prototype of the 'cellar couple' functionality, as described in Chapter 3.7.

Figure 16 – A screenshot of the latest version of the project's website.

Figure 17 – A screenshot of a selection of pages from the *Housekeeping*.

Figure 18 – A screenshot of the Gamemaker IDE, in use for the development of the simulation at the heart of the project.

Figure 19 – The full complement of sensors, physical props and constructed sets which form the core of the installation's mixed reality dynamic.

Figure 20 – A photograph of a section of moorland, between Redmires and Stanage Edge on the Derbysshire moors above Sheffield, where Anne's narrative takes place.