Backwards Time: The Rhetoric of Reverse

VIRDEE, DOUGLASS

Backwards Time: The Rhetoric of Reverse

Douglass Virdee

PhD Thesis
Durham University 2020

Acknowledgments

My list of debts in producing this thesis is long and distinguished, but I must begin by thanking my supervisors, Peter Garratt and Patricia Waugh, for their generosity, kindness and inspirational conversation. I have also benefited from a visiting studentship at the University of British Columbia, where I was lucky enough to work with Barbara Dancygier who convinced me to pursue some interesting cognitive linguistic enquiries which greatly broadened my thinking. I would also like to thank the people who set me off on my somewhat accidental academic trajectory. Thanks to Richard Marriott for getting me interested at school, to Helen Lynch for encouraging me to pursue postgraduate studies, to Stacy Gillis for guiding me through the beginnings of research and to Anne Whitehead for introducing me to my doctoral supervisors. It has been a serendipitous journey. Finally, special thanks must go to my friends and family who have been unfailingly patient while I have neglected them for this work, and who have kept my feet firmly on the ground.

Abbreviations

TNS - Steven Greenblatt et al., eds., *The Norton Shakespeare*, 2nd edn. (London: W. W. Norton and Company, Inc., 2008)

TWLC – The Works of Lewis Carroll, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968)

CWSF – The Standard Edition of the Complete Works of Sigmund Freud, ed. James Strachey (London: Vintage, 2001)

All references to Lewis Carroll's personal library are gleaned from Charlie Lovett, *Lewis Carroll Among his Books: A Descriptive Catalogue of the Private Library of Charles L. Dodgson* (Jefferson, NC: McFarland & Company, Inc., 2005)

Contents

Introduction

In his 1988 best-seller *A Brief History of Time*, Stephen Hawking identifies three arrows of time: thermodynamic, psychological and cosmological. The first expresses the basic physical fact that we cannot unstir a spoon of sugar out of a cup of tea; the second, that we remember the past and not the future, and experience the flow of time; the third, that the dynamic state of the universe means that it is expanding rather than contracting or standing still.[1] For Hawking, as beings comprised of matter, our psychological arrow of time is subordinate to the thermodynamic arrow of time, which impinges on the brain's chemical processes. But the thermodynamic arrow is in turn subordinate to the cosmological arrow and, as Hawking points out, the universe may well contract in future. If so, might the thermodynamic and psychological arrows reverse? Initially, he answers yes, reasoning that when the universe contracted it must return to its original 'smooth and ordered state' with the result that '[p]eople in the contracting phase would live their lives backward: they would die before they were born and get younger as the universe contracted.'[2] By the time he publishes *A Brief History of Time* in 1988, however, he has done a U-turn. While the laws of physics are generally reversible, these three arrows are not. Ultimately, Hawking changed his mind because of the no boundary condition: the universe is finite but has no boundary in a time measured by imaginary numbers. In other words, he has shifted from a closed to an open model of the universe, meaning that contraction would not result in decreasing entropy. Disorder would continue to grow while the universe got smaller.

Hawking's journey shows the seductive quality of backwards time as a rational consequence of physical laws. This speaks to a more general human appetite for order, for the clean lines and symmetry of rational structure, both in the external world and in the theories

[1] Stephen Hawking, *A Brief History of Time* (New York: Bantam, 2011) p. 166.
[2] Ibid., p. 170.

with which we understand it. We want the world to make sense, to possess order, to have purpose. This has, at times, led to rational systems that overreach in absurd, even tragic, ways. Many brilliant thinkers have dallied with backwards time, with varying degrees of self-awareness. This thesis argues that from the end of the nineteenth century to the present day, as new physical and psychological theories were absorbed into literary fiction, thinkers reached for ever more outlandish theoretical tools to help them account for the irreconcilable difference between two models of time: reversible and one-way.

I focus on three authors who see the dangers of idealism, even as they recognise its practical uses: Lewis Carroll, Vladimir Nabokov and Martin Amis. Using backwards time as a guiding thread through the work of all three, I discuss how they use reversibility for comedic effect, holding a mirror to the world around them to reflect back its flaws. Carroll uses backwards time to critique secular selfhood, railing against Victorian relativity, which for him is an error springing from physics having too much license to speculate on that which belongs to metaphysics and theology, matters of neither empirical nor *a priori* proof, but of faith. Such misappropriations of logic are the source of the wrongheadedness he sees in the politics, law, and philosophy of contemporary Britain. Nabokov recognises a more insidious problem with the rationalist endeavour, showing that what had been said about the reversibility of the outside world became applied to the inside world by ambitious system-builders like Freud, resulting in a tyranny of the mind in which selves are defined from without, by rational inquiry, rather than understood from within and articulated through individual expression. Nabokov perceives a totalitarian closedness in Einsteinian relativity and responds by appealing to the so-called irrational notions of transience, flux and chaos. Amis sees difficulties with both approaches, recognising that without Enlightenment rationalism the modern European social order would not even have got started, but that the erosion of its Christian foundations could only be reversed by appealing to the same logic with which it destroyed itself.

Post-war efforts to understand the rise of twentieth-century totalitarianism have tended to blame one of two incompatible modes of thought. Either it was the inevitable consequence of Enlightenment rationalism pushed too far, or it was the chaotic impulse that followed the accidental turn to irrational mysticism after rationalism self-destructed. Neither gives the full picture of what happened. Nor do I pretend to give it here. Identifying a resurgence of backwards time in the mid-to-late nineteenth century, the thesis focuses on how backwards time was used from the nineteenth century to the present, suggesting that deeper philosophical modes are at work of which the historicist enterprise, as a rationalist process, can of course only represent part. I pinpoint two sources of backwards time – both idealist – in Plato and the Vedas. Recognising the historical disconnect between European and Buddhist idealism, I show that the challenge nineteenth-century physics posed to Enlightenment interpretations of Newton led to the appropriation of idealist metaphysics as a way to shore up rationalist superstructures like direct causality. Backwards time, then, is where rationalism meets irrationalism.

ii. T-symmetry in Mental Time Travel

In 1983, the psychologist Endel Tulving coined the phrase 'mental time travel' (MTT), expanding on an influential theoretical distinction he had made in 1972. Memory theory until now, he argues in this early paper, focusses too much on studying memory for facts at the expense of remembering experience. Instead, we should distinguish between 'semantic memory' (knowledge of things like facts) and 'episodic memory' (experiential recollections relative to the self).[3] Episodic memory, Tulving writes, 'is not unlike a perception, a thought, or a dream'. It bears all the hallmarks of immediate subjective consciousness, while remaining

[3] Endel Tulving, 'Episodic and Semantic Memory' in *Organization of Memory*, ed. Endel Tulving and Wayne Donaldson, (New York: Academic Press, 1972), pp. 381 – 403.

intuitively distinct. Key to recognising episodic memory is our 'belief', both that it is accurate and that it belongs to our own past so that '[r]emembering, for the rememberer, is mental time travel, a sort of reliving of something that happened in the past'.[4]

Initially, then, MTT refers to the subjectively realised re-experience of the personal past. Always experienced in the present, it is characterised by the simultaneity of past and present awareness so that mind experiences time independently of body, which remains subject to the inevitable progress of external time.[5] Semantic memory is timeless, episodic memory inherently temporal. In recent years, psychologists have suggested that the episodic system is also used in constructing possible future scenarios with the result that memory may not be a natural kind, but a subset of imagination.[6] This forward-looking episodic thought is called future-oriented mental time travel (FMTT), considered, by its proponents, inseparable from MTT, with some even going as far as to invoke an evolutionary argument that FMTT was likely the primary cognitive function and MTT its derivative.[7] The emergence of FMTT has been divisive. There are now two schools of thought in current episodic memory research. On

[4] Endel Tulving, *Elements of Episodic Memory* (Oxford: Clarendon Press, 1983) p. 124.

[5] This broadly amounts to a statement that memory appears not to adhere to the second law of thermodynamics: roughly, in any closed system the amount of energy available for work naturally decreases; molecular disorder, or entropy, never decreases. Bodies age while memories accumulate and potentially become – at least in the semantic system – more ordered in relations with one another.

[6] See, e.g., Charles Fernyhough, *Pieces of Light* (London: Profile, 2013); Kourken Michaelian, *Mental Time Travel: Episodic Memory and Our Knowledge of the Personal Past* (Cambridge, MA: MIT Press, 2016); Kourken Michaelian, Stanley B. Klein and Karl K. Szpunar, eds., *Seeing the Future: Theoretical Perspectives on Future-Oriented Mental Time Travel* (Oxford: Oxford University Press, 2016). Others go further, arguing that such systems are part of a broader system of always-online 'predictive processing', so that 'perception, understanding, dreaming, memory and imagination may all emerge as variant expressions of the same underlying mechanistic ploy', using top-down conceptual apparatus to generate 'imagery and dreaming' along with MTT 'as we assemble cues and contexts able to reconstruct the past and preconstruct the future.' Andy Clark, *Surfing Uncertainty: Prediction, Action and the Embodied Mind* (Oxford: Oxford University Press, 2016) p. 1; p.107. All of these accounts build on the neurological finding that hippocampal bodies are involved in establishing a spatial framework in which simulations of both past and future are constructed. See Demis Hassabis et al., 'Patients with Hippocampal Amnesia Cannot Imagine New Experiences', *Proceedings of the National Academy of Sciences of the United States of America*, 104 (2007) pp.1726-1731; Daniel L. Schacter et al., 'Remembering the Past to Imagine the Future: The Prospective Brain', *Nature Reviews Neuroscience*, 8 (2007), pp. 657-661; Daniel L. Schacter and Donna Rose Addis 'The Cognitive Neuroscience of Constructive Memory: Remembering the Past and Imagining the Future', *Philosophical Transatctions of the Royal Society of London*, Series B, 362, pp. 773-786. For a predictive coding approach cf. 'bidirectional cascades' in Andy Clark, 'Whatever Next? Predictive Brains, Situated Agents, and the Future of Cognitive Science', *Behavioural and Brain Sciences* 36, 3 (2013) pp. 181-204.

[7] Stanley B. Klein, 'The temporal orientation of memory: it's time for a change of direction', *Journal of Applied Research in Memory and Cognition*, 2, 4 (2013), pp. 222-234.

the one hand are the continuists, for whom episodic memory and FMTT are part of the same general cognitive system of MTT (not too much has changed here, theoretically, from Tulving's original general abstract processing system (GAPS) except the orientation of the simulation and the shift to more engaging nomenclature). Discontinuists, on the other hand, see differences between the two systems as justification for considering episodic memory and FMTT distinct capacities. Continuism now dominates in psychology and neuroscience, while philosophers tend to favour discontinuism.

The editors of *Seeing the Future* recognise that the pursuit of parsimony might lead down a blind alley. While physiological evidence is growing to suggest that the same areas of the brain are used in both remembering our past and imagining our future, it may be, they concede, 'that the search for a common mechanism underlying the various forms of FMTT is futile'.[8] No doubt FMTT is an elegant theory, but there is much at stake, especially in epistemology, since the personal past and future are subsets of the faculty of imagination and '[episodic] memory does not have a privileged status relative to other forms of imagination'; instead, it is 'distinguished […] only by its specific temporal orientation.'[9] This view seems to relegate the past to the unknown, and the apparent accuracy of memories to a matter of chance. FMTT threatens to make the past as imaginary as the future, rendering knowledge a matter of consensus and convention and fact a matter of epistemic luck, placing the value of eyewitness testimony in question.

Not that FMTT has gone unchallenged. The philosopher Denis Perrin objects to it on the ground that there are significant differences in how episodic memory and FMTT are processed.[10] Moreover, there are, for him, problems about the 'actuality claim' made by each

[8] Editors' introduction to *Seeing the Future*. p. 14.
[9] *Mental Time Travel*, p. 57.
[10] Denis Perrin, 'Asymmetries in Subjective Time', *Seeing the Future*, p. 39. For a linguistic challenge see William J. Friedman, 'The meaning of "time" in episodic memory and mental time travel', *Behavioural and Brain Sciences*, 30 (2007), p. 323.

process, since episodic memory is supposedly linked to what actually happened, while FMTT might simulate any possible ('inactual') future. Perrin, sensing, perhaps, the postmodern crisis of truth latent in the theory, blames constructivism, seeing in it the roots of the 'mistaken idea that the processes at work for each cognitive achievement [i.e. 're- and pre-experiences'] are generally similar.' The biggest problem is one of selfhood. MTT is possible because we can identify episodic memories with ourselves: we know they are ours (Tulving calls this autonoetic consciousness). Can we say the same of FMTT? No, says Perrin, because 'subjectivity in forward mental time travel is not automatically personal'. Perspectival it may be, but 'the self whose experience is simulated is not necessarily the self of the anticipating subject.' For Perrin, it is a matter of the past being real while the future is not (yet), so that 'episodic subjectivity is not equivalent to and not dependent on autonoetic subjectivity.'[11]

Perrin is in the minority. Brain imaging studies have lent considerable weight to the FMTT story, leading one prominent memory theorist to argue that we have a 'fully symmetrical ability to mentally travel backwards and forwards in time' and that 'philosophers would do well to follow the lead of psychologists' because the images 'suggest differences of degree, rather than differences in kind, between episodic memory and FMTT', offering 'little support for discontinuism'.[12] Maybe so, but Perrin is right to be suspicious about FMTT's cheerful appropriation of temporal symmetry to describe something avowedly a-causal. Even more so because Michaelian's ideas seem to rest on an understanding of causality that rules out time travel by denying that the episodic memory system is causally connected with the past,

[11] 'Asymmetries in Subjective Time', p. 47; p. 42; p. 43; p. 55.

[12] Kourken Michaelian, 'Against Discontinuism: Mental Time Travel and our Knowledge of Past and Future Events', *Seeing the Future*, p. 63; p. 66. For reviews of the evidence see S. B. Klein, 'The Complex Act of Projecting Oneself into the Future', *Wiley Interdisciplinary Reviews: Cognitive Science*, 4, 1, (2013) pp. 63-79. Daniel L. Schacter et al., 'The Future of Memory: Remembering, Imagining, and the Brain', *Neuron*, 76, 4 (2012) pp. 677-694. K. K. Szpunar, 'Episodic Future Thought: An Emerging Concept', *Perspectives on Psychological Science*, 5, 2 (2010), pp. 142-162.

though it aims to reflect it accurately. Instead, memory is characterised by the appearance of accuracy, while we tend not to deceive ourselves about the ability to predict accurately.[13]

In FMTT the past becomes as epistemologically contingent as the future. It is wholly subjective, inculcating a postmodern conception of truth as constructed and consensual. While we are 'dispositionally' capable of remembering something that happened to us whether we are conscious or not, this is a probabilistic fiction.[14] What does it mean to say that I can remember if I do not? Only that I am capable of it, i.e. it is probability non-zero that I will remember it. This, it seems, is one reason that (F)MTT works both forwards and backwards in time. The future need not be actual, i.e. predetermined, for us to foresee what will happen to us. This is chancy foresight – simulating a future situation from one's own point of view is all it takes. If it happens, it was a good prediction, but only in retrospect, resembling the Derridean distinction between *l'avenir* and *l'arrivant* (between 'the future' and 'that which arrives') and the Bergsonian view on which predicting the future is always a matter of partial and schematic foreknowledge. Even when we predict an event accurately, when it arrives it always differs from what we had in mind.[15] Prediction, on this view, is always partially inaccurate – the accident is left out.

Rightly or wrongly, Michaelian et al. here draw on a rich intellectual tradition of thinking about time, and while brain imaging evidence suggests our brains are doing the same things when imagining and remembering, this does not necessarily give us license to talk about travelling in time. That would require a directly causal link between mental representations and the outside world, whereas if mental time is all that is being talked about, surely Perrin and Michaelian have nothing to argue over: obviously, representations have no time of their own. MTT, then, implies a logical structure which separates experience into two distinct temporalities: objective and subjective. It is an attractive metaphor for episodic memory

[13] 'Against Discontinuism', p. 70.
[14] Sven Bernecker, *Memory: A Philosophical Study* (Oxford: Oxford University Press, 2010) p. 27.
[15] Mark Currie, *The Unexpected: Narrative Temporality and the Philosophy of Surprise* (Edinburgh: Edinburgh University Press, 2013) p. 32.

because its source domain, time travel, entails just such a separation. In this way, MTT relies on a structure resembling narrative.

iii. Little Fictions

> 'A dream no longer a dream, a thing
> Of things as they are…'
> ~ Wallace Stevens, 'The Man with the Blue Guitar'.[16]

The more mathematically reductionist a theory becomes, the more it reveals the fictions with which it was constructed. We want and expect science to come up with totalising explanatory systems. Often, it obliges with grandiose bluster. Patricia Waugh sees science of the postmodern era as tilting towards a pseudo-Hegelian historicism of grand narrative. With its concept of the world as a story writing itself, she argues, science is 'breaking out of the shackles of Kantianism and positivism into a new expansionist theoretical narrative of evolution from origins to ends.' This, it hopes, will yield a materialist causality of mind, and square the circle of conscious self-description so that science can 'break out of incompleteness and undecidability, for in reconciling mind and matter, science can claim to have arrived at that theoretical closure which includes in its account of everything, an account of itself.'[17] In the quest for an elegant theory, psychologists have – serendipitously – alighted upon physical evidence that memory and imagination are products of the same mental system. Yet MTT may be symptomatic of another overreach of science, harking back to a prelapsarian ability to name nature directly and weaving an 'expansionist metaphysics' to fit its 'parsimonious reductionism' so as to 'mak[e] the world feel safe and as beautifully intelligible as a Pythagorean mathematical order.'[18] If so,

[16] Wallace Stevens, 'The Man with the Blue Guitar', *Selected Poems*, ed. John N. Serio (New York: Alfred Knopf, 2009), XVIII, 3-4.
[17] Patricia Waugh, 'Just-so Stories? Science, narrative, and Postmodern Intertextualities' in Rüdiger Ahrens and Klaus Stierstorfer, eds., *Symbolism: An International Annual of Critical Aesthetics*, Vol. 5 (New York: AMS Press, 2005) p. 243.
[18] Ibid., p. 260.

MTT suffers from a congenital idealism which has plagued reversible time in the physics from which it derives its name. If, as Michaelian argues, it does not entail a causal link between the present subject and its past or future, it may be time to rethink the metaphor which offends Friedman and Perrin by implying backwards causation. If MTT is a matter of epistemological probability, it is unclear what value MTT offers over the GAPS proposed by Tulving in 1983.[19] If not, 'mental time travel', throwaway explanatory metaphor turned theoretical mainstay, misleads by suggesting a closed system of reversible laws. The argument seems to stem from a disagreement over how to describe the mental processes at work, with discontinuists apparently dissenting from the MTT/FMTT paradigm on the basis that it cannot be an accurate causal description. Not that this thesis will argue for an alternative description closer to the 'truth'. Perhaps MTT theory is a self-aware usage of the time travel conceit: an ironist, rather than representationalist, account of mind's activity during remembering – something like Wallace Stevens's blue guitar which, quite self-consciously, does not say things 'as they are'. Still, there is another reason to have reservations about the paradigm's crowning metaphor: it is not a useful description. Recognising, with Richard Rorty, that 'all essences are nominal', this thesis urges a pragmatist entente between continuists and discontinuists.[20] The stories told about MTT do not fit coherently with our other stories about causality, resulting in unnecessary intellectual conflict.

iv. Backwards Time Returns

Backwards time, earnest or not, is a good indicator of idealism, and MTT invokes the possibility of backwards time uncritically (if only figuratively). This thesis tells the story of historical uses of backwards time, not to undermine psychological theory, but to suggest that its language of

[19] *Elements of Episodic Memory*, pp. 142-3.
[20] Richard Rorty, 'Texts and Lumps', *New Literary History*, 17, 1 (1985) p. 10.

symmetry and time travel sates an appetite for order that had previously led to mistakes elsewhere. As the philosophical overview in Chapter One shows, backwards time is just as often used, not in earnest, but ironically. Presenting the negative of the picture as they see it, writers using backwards time this way invite us to construct our own realities and choose between them according to our tastes and experience. Whether it is turning the austere calculable world of classical physics on its head, lambasting the pessimistic eternity of Buddhism (as opposed to Christianity's 'good news'), mocking psychoanalysis using hare-brained causality or skewering Nazi doctors with the sharp end of time's arrow, for the last two hundred years backwards time has been the scourge of determinism.

In Chapter One, I show how a new translation of Plato rekindled interest in backwards time. As rival models of mechanics in physics clashed, different explanatory systems were needed in order to account for the apparent contradiction between reversible physical laws and the thermodynamic arrow of time. Some scoffed at the absurdity of time going backwards. Others tried to rescue rational order with appeals to idealism. This theoretical background informs the three historical moments reflected by the texts and authors the thesis covers. Carroll, in the *Alice* and *Sylvie and Bruno* books, engages with contemporary disputes surrounding thermodynamics and innovations in formal logic. For him, reversible time is a symptom of a backwards-looking curriculum and muddle-headed interpretations of German and Buddhist idealism which threaten to usurp the moral order. Likewise, Nabokov, in *The Luzhin Defense*, *Ada*, and *Look at the Harlequins!*, written in the aftermath of relativity, quantum mechanics, and in the case of the latter two WWII, tests the idea that physical reversibility ends in moral relativism. For him, the internalisation of physical laws and principles in, e.g., Freud's timeless system of the unconscious, represents a despotic impulse to limit and control individuals. Amis, inheriting these critiques, adds to them in *Time's Arrow* by noting – with dark irony – that, regardless of whether it is 'true' or not, reversibility shows endogenously coherent logic, like the

Nazi biomedical ideology, leading to irrational, absurd, and dangerous results. All three authors mobilise backwards time to draw out the metaphysical implications of contemporary science, pseudo-science and theory. In the process, each makes the case for a non-essentialist approach to the natural world.

Chapter One

Backgrounds

Part One. Thermodynamics and Nineteenth-century Idealism

1.1.1 Pre-history

Backwards time is old. Very old. Nowadays we are familiar with the idea of film running backwards, whether in the reversal of physical film footage, or of the digital video content we have at our fingertips as pre-programmed effects on our smartphones and computers, or, more rarely, in the quasi-cinematic language used to describe backwards time. For all these reasons it is tempting to see backwards time as the progeny of the motion picture. This, at any rate, is Stephen Kern's view.[21] It does not bear up to historical scrutiny. True, a large number of visual cues appear in almost all sources where time goes the other way, but the idea of backwards time can be traced back at least as far as Plato's *Politicus*, in European philosophy, and further still in Indian philosophy – all the way to the Vedas (especially the Yajurveda) which produced the Buddhist doctrine of *satkaryavada* (roughly, a determinist teleology in which effects pre-exist within causes).[22] Plato's Stranger, meanwhile, claims that the universe sometimes reverses its direction so that everything happens backwards.

Cinema, by contrast, does not begin to reverse time until the end of the nineteenth century with films like Louis Lumière's *La Charcuterie Mécanique* (1895), and by then there were already at least two literary works in which time goes backwards: Lewis Carroll's *Sylvie and Bruno* was published in 1889 and H. G. Wells's *The Time Machine* followed shortly after in 1895.[23] Still,

[21] Stephen Kern, *The Culture of Time and Space, 1880-1918* (Cambridge, MA: Harvard University Press, 2003) p. 29.
[22] See §1.2.2.
[23] *The Culture of Time and Space* p. 30. Early drafts of *The Time Machine* date from 1894.

between Plato and the mid-to-late nineteenth century backwards time was barely mentioned. This chapter investigates why and how it made its way into popular consciousness, framing the literary as a place where concepts and metaphors can be deconstructed, elaborated, and self-referentially performed.

A more plausible explanation for the nineteenth-century emergence of backwards time that recuperates some of the views of its ancient precursors combines the resurgence of idealism after Kant's 'Copernican revolution' with a radical re-imagining of causation precipitated by thermodynamic research and the growing success of statistics. Backwards time re-emerges in the nineteenth century in two streams: first, in Germany, following scholarly research into Buddhist philosophy; then, in England, following a new translation of Plato's *Politicus*. The two streams would later meet. Physicists, philosophers and literary authors resistant to determinism found in the *Politicus*'s image of backwards time a rhetorical tonic to Newton's reversible 'celestial and rational' mechanics, making of it a *reductio ad absurdum* (hereafter *reductio*).[24] Such ironic barbs no doubt stung the pride of those still clinging to the divine order of classical mechanics, but the rationalism underpinning the positivists' desire to discover fixed laws behind all physical interactions refused to die. It was almost fifty years before the Buddhist stream met its Platonic counterpart in Britain at the end of the nineteenth century in Oxford. The confluence brought about a reappraisal of backwards time and a new way to avoid the impending chaos promised by thermodynamics.

With its insistence on the continuous decline of order in the universe, thermodynamics threatened to pull the rug from under the carefully constructed systems of rationalist philosophy. The whole trajectory of European thought since at least the seventeenth century had been directed at finding the eternal order hidden behind the changing face of things. The physical world was subject to calculable laws; all was governed by divine reason. No more. In

[24] Ian Hacking, *The Taming of Chance* (Cambridge: Cambridge University Press, 1991) p. 38.

1824, Sadi Carnot published his *Reflexions sur la Puissance Motrice du Feu* ('reflections on the motive power of fire') which laid the groundwork for what would become the second law of thermodynamics: in a closed system, the amount of energy available for work cannot increase. Carnot's findings, popularised by the preeminent atomists and early statisticians James Clerk Maxwell and William Thomson (Lord Kelvin) in Britain and Ludwig Boltzmann in Germany, seemed to seal the fate of the human race: the world had a finite amount of energy to transform, beyond which equilibrium would be achieved and there could be no more change. As Rudolf Clausius famously put it, '[t]he entropy of the universe tends towards a maximum' beyond which 'the universe would be in a state of unchanging death.'[25] It follows that the universe is in a state of constant change with a particular trend/direction, and this presents a problem. In classical mechanics, physical processes are reversible, yet here is a process which appears unidirectional. Initially, it seemed classical mechanics was incompatible with thermodynamics, which threatened to undermine its validity. In part this is because a great part of what we call 'time' is simply the growth of entropy: the shift of things from an ordered state in which energy is available for work to a chaotic one in which it is not.[26] Thermodynamics meant a radical reshaping of theoretical physics. It was no longer possible to adopt a deterministic view of nature on the basis of empirical science alone because mechanism implies reversibility, which the observations of thermodynamics refute. Whereas classical dynamics suggests a closed system governed by immutable laws and reversible processes, thermodynamics suggests an open system of stochastic processes, a universe where chance takes precedence over causation.

Thermodynamics may have been the final physical evidence needed to kick-start the move away from rationalism-inflected interpretations of the physical world, but it is part of a broader shift in thinking about time. As more numerical data were collected on individuals

[25] Rudolf Clausius, 'On the second fundamental theorem of the theory of heat', *Philosophical Magazine* 4, 35 (June 1868) p. 419.
[26] Arthur Eddington sums this up when he describes the second law of thermodynamics as 'time's arrow'. Arthur Eddington, *The Nature of the Physical World* (Cambridge: Cambridge University Press, 1929) p. 69.

across the world in the eighteenth and nineteenth centuries, statistical inference became an important method of social measurement and control as states sought laws of behaviour analogous to deterministic physical laws in ever more fine-grained pictures of populations provided by statistics.[27] On top of that, the use of statistics enabled forecasters to predict the future of geological and meteorological events better than ever before. If mechanism maintains reversibility, it seems to deny the reality of time – a charge which has been levelled at it at least since Laplacean determinism. To reconcile the second law of thermodynamics with the continued effectiveness and coherence of classical mechanics in other areas, it was necessary to establish an explanation for why physical reversibility observed at the microscopic level does not obtain at the macroscopic level. In other words, why, when left to their own devices, things do not tend towards order. While the fixed causality of eighteenth-century rationalism was on the wane in the nineteenth century, then, stochastic modelling promised to restore divine harmony.

1.1.2 Restoring Order: A Philosophical Overview.

> Confusion heard his voice, and wild uproar
> Stood ruled, stood vast infinitude confined;
> Till at his second bidding darkness fled,
> Light shone, and order from disorder sprung.
>
> ~ John Milton, *Paradise Lost*.[28]

When Milton composed his account of the Christian Creation in the mid-seventeenth century, he drew not just on Biblical scripture, but Platonic myth.[29] The contravention of the second

[27] *The Taming of Chance*, p. 116.
[28] John Milton, *Paradise Lost*, ed. Alastair Fowler 2nd. rev. edn (Harlow: Pearson, 2007) III, 710-713.
[29] Milton's time at Cambridge coincided with a group often referred to as the Cambridge Platonists. While his philosophical outlook cannot be straightforwardly characterised as Platonic, the influence of these scholars and a broader preoccupation with Platonic philosophy is clear in this this quotation, which resembles Augustinian Platonism. For Augustine, teleology is the order and organisation God imposes on temporal creation in order to give it form. This is alongside an order of ideas that, while distinct from God, 'experiences unswerving enjoyment of [His] eternity and immutability.' Saint Augustine, *Confessions*, trans. Henry Chadwick (Oxford: Oxford University Press, 1998) XII, xii, 15.

thermodynamic law inherent in 'order from disorder sprung' occurs in the midst of references to idealist metaphysics which had renewed significance when the law was discovered two hundred years later. Idealism looms over nineteenth century thought, casting a long shadow over philosophy and physics alike. In order to understand the reason that backwards time was mobilised in thermodynamics' assault on classical mechanics, and to reveal the casuistry employed by the physicists and philosophers whose grounding in a philosophical tradition of rationalism motivated them to mount a defence, a philosophical overview is necessary here. This rough sketch provides the theoretical background for the thermodynamics controversy in which the concept of backwards time was used primarily as a thought experiment disproving mechanistic materialism. The discussion will then shift gears, slowing down to look in detail at how the debate about time changed radically in the nineteenth century as a result of scientific work in thermodynamics. This chapter tells the story of how the Platonic myth of backwards time resurfaced in the nineteenth century as the result of idealism and a desire to conceive the world as a rational, calculable whole.

The chapter begins with a broad-brush philosophical overview to contextualise Maxwell and Thomson's papers on thermodynamics. These authors are singled out for their towering status within the scientific community, the importance of their work, which radically altered the conception of time, and for their use of backwards time as a rhetorical device in the arguments accompanying their results. The argument here is that backwards time, which had previously belonged to the realm of myth (e.g. Plato) and religious mysticism (e.g. Buddhism), came to be used ironically as a *reductio* with which to ridicule determinism, and in earnest as a philosophical response to thermodynamics, whose second law threatened to undermine the ordered universe of classical mechanics by turning the world from a perfectly reversible rational order into an ever more chaotic continuous flux.

Reversibility implies determinism, a rationalist hangover from seventeenth-century interpretations of Newtonian mechanics by the likes of Spinoza and Leibniz, informing the surefooted detective work of Voltaire's Zadig.[30] Not until the 1800s was the static view of Nature and Society superseded by a fully-fledged concept of development and progress in the work of Vico.[31] Even then, a taste for the tidy symmetry of geometric rationales such as Descartes' method persisted. Unwilling to give up the divine order underlying all things – why destroy the beautiful symmetry of perfectly reversible physical laws for the sake of one law that refused to get in line? – nineteenth-century positivists, faced with the challenge of incorporating thermodynamic research within a rational universe, turned to idealism. Whether they knew it or not, they were returning to a metaphysics which, in its objective forms as Platonic and Buddhist idealism, had conceived the idea of backwards time in the first place. The extracts examined in this chapter show that backwards time is a rhetorical technique with ancient origins but its resurgence is marked by an inversion, turning it from mystical doctrine to logical absurdity.

Natural philosophy at the beginning of the nineteenth century was dominated by the mechanistic materialism advocated by contemporary descendants of the schools of Descartes, Hobbes, Leibniz, Spinoza and Newton.[32] At its most stringent, the determinism nineteenth-century physics derived from this way of thinking left no room for meaningful choice: if all processes were subject to physical laws, and if all actions were causally determined, free will was at best a subjective illusion. This view was expanded to include the social sphere under the idealist conception of history espoused by Hegel and Marx.[33] These thinkers adopt a historical perspective of the world in which the fate of humanity is no longer contingent. Beneath the

[30] Gillian Beer, 'Forging the Missing Link: Interdisciplinary Stories' in *Open Fields: Science in Cultural Encounter* (Oxford: Oxford University Press, 1996) p. 118.
[31] Stephen Toulmin and June Goodfield, *The Discovery of Time* (New York: Harper and Row, 1966) p. 127.
[32] Though Hobbes was no rationalist.
[33] Karl R. Popper, *The Poverty of Historicism* (New York: Harper and Row, 1964) pp. 17-19.

surface of everyday events, they contend, dispassionate and irresistible forces battle for supremacy. It is these forces, not the will or actions of individuals (however exceptional they may seem in retrospect), that are responsible for setting the course of history. The ebb and flow of political power, the rise and fall of civilisations, the development of individual character; all are explained as component parts of a larger unitary pattern of cause and effect.[34]

The most effective challenge to such magisterial theories is often found in the everyday. The Hegelian legacy, not inappropriately, is an antithetical surge in intuitionism, *déraison* and the beginning of the school we now call existentialism. An important battleground between the two schools of thought is the concept of time. Absolute idealists consider time unreal. Existentialists and intuitionists see it as an ontological primitive. More broadly, for literary authors opposed to historicism and reversibility – notably Lewis Carroll, Vladimir Nabokov and Martin Amis – the price to be paid for postulating universal laws behind human affairs is too great. To accept this view is to turn over individual responsibility to inexorable forces, sacrificing free will – and with it, morality – at the altar of fate. While a grand overview of events is of course the position towards which history naturally leans, adopting it wholesale makes a mockery of justice. Why have juridical laws at all if human beings are just physical manifestations of a mechanistic universe 'working itself out'?

Our knee-jerk rejection of determinism is partly motivated by the realisation that we cannot, without contradicting ourselves, claim human action is wholly governed by mechanistic laws and maintain a meaningful sense of justice or morality. Some shred of contingency, or at least a regard for the reality of the actions of conscious agents, is required for these sociological systems to exist as anything more than arbitrary cultural symbols. Whatever credibility the doctrine of free will loses by its inability to be falsified empirically, there is at least this in its

[34] One attraction of this view is its promise to increase the potency of the apparatuses of sociological control by establishing causal laws for human activity. Seeming to help us understand where we came from and predict where we are headed, the historicist view of statistics can be a potent ideological tool for economics and other statecraft, like electioneering. (See Conclusion).

favour: for any meaningful science of ethics to exist, and for the values we live by to continue to make sense, the freedom to choose must be considered real.

While it tends to be associated with rigid interpretations of mechanics, then, backwards time always entails some form of idealism. Yet as outlined above, it also requires a level of determinism commonly found in mechanistic materialism. Since materialists often accuse idealism of building castles in the air, it seems strange that backwards time is also seen as a consequence of mechanistic materialism. Certainly, a monist materialism appears to rule out the possibility of meaningfully observing such a reverse: in a universe where everything is backwards, an observer has nothing with which to contrast the observed. It is tempting to object that one could differentiate using memories of events going forward but this requires memory to do double duty, with epistemological access to the future.[35] So, whether we take the temporality of memory to be primarily situated in internal sequence (the order in which memories are encoded), external sequence (the order in which they present themselves to consciousness), an intuited qualitative schema of pastness, presentness, or futureness or some combination thereof, there must be direct opposition between the past and future of memory and event for backwards time to obtain. Backwardness is parasitic.

Because it requires this apparent disagreement about time between mind and matter, backwards time is only possible in a few metaphysical outlooks. Works which venture backwards in time, wittingly or unwittingly, carry with them a good deal of philosophical baggage. For this reason, a caveat like 'apparent' is awkward but necessary. To come full circle: backwards time entails idealism. With this in mind, it may be useful to outline the major idealist standpoints.

[35] An idea MTT brings under the statistical fiction of probability. Michaelian expands what Bernecker refers to as 'dispositionally capable' epistemology, (roughly, we have epistemologically unlimited memory about the past but in practice accuracy is limited by the haphazardness of construction) arguing that 'memory' and 'imagination' only express a difference in the likelihood of accuracy in two time directions.

Subjective idealism is canonically associated with Bishop Berkeley but is related to Humean scepticism. In *A Treatise of Human Nature* (1739-1740) Hume challenged the Lockean view that matter had qualities which existed prior to interaction with minds. Hume's discovery that causality is something we construct in our heads, not something existing outside them, issues from a seed sown by Berkeley's *A Treatise Concerning the Principles of Human Knowledge* (1710). Subjective idealism holds that qualities exist only in the mind and that qualities can only be attached to ideas. It follows that what we know as the world is comprised of ideas, and therefore that the mind is all there is. Life may be no more than a dream.

Transcendental (sometimes 'epistemological') idealism begins with Kant in his *Thoughts on the True Estimation of Living Forces* (1746), as Coleridge notes, but is later given fuller and more influential exposition in his *Dissertation on the Form and Principles of the Sensible and Intelligible World* (1770), *The Critique of Pure Reason* (1781) and the *Prolegomena to any Future Metaphysics* (1783).[36] Transcendental idealism turns Humean scepticism into an epistemological impasse: we cannot have direct knowledge of the outside world because our experience of it is limited by our cognitive faculties, especially those pertaining to time and space. Our experience of objects is always mediated by our subjectivity.[37] Kant, however, does not deny the existence of the outside world but exposes it as an article of faith. For this reason, we might see Kant as espousing a pragmatic fictionalism, conceding the reality of the outside world on the basis that it is more useful to act as if it were so.[38]

---

[36] Samuel Taylor Coleridge, *Aids to Reflection* (London: Taylor and Hessey, 1825) pp. 392-393.

[37] Kant argues that 'the things which we intuit are not in themselves what we intuit them as being'. We add meaning to them, so that without a subject 'the whole constitution and all the relations of objects in space and time, nay space and time themselves, would vanish.' Immanuel Kant, *The Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan, 1989) A42/B59-60. See also Kant's argument that time, as the 'formal condition of the manifold of inner sense' provides the scaffold upon which we construct ideas, so that all ideas have duration. There is something of this in Bergson and, latterly, MTT's 'chronesthesia' which gives to episodic memory and imagination its flavour of duration. A139/B178-A147/B187.

[38] This is my understanding of the irreconcilability of the two opposing views of time identified by Jimena Canales and whose figureheads, at the turn of the century, were Bergson and Einstein: each took it on faith that a particular kind of reality existed. Einstein's metaphysical reflection on his research inclined towards absolute idealism (he repeatedly claims time to be an illusion, though he does not think mind is all there is), while Bergson's position appears to follow Kant in maintaining that we cannot know whether the universe is a block along which egos traverse world-lines because we are limited by our cognitive faculties. Bergson's problem with Einstein, then,

Absolute idealism was the prevailing philosophical school of early nineteenth-century Germany and late nineteenth-century Britain following Hegel (Germany fell out of love with it just as Britain became enamoured).[39] During this period it was understood that Hegel developed the Kantian position without reaching Kant's agnostic conclusion. In *The Phenomenology of Spirit* (1807) and *The Philosophy of Nature* (1842), Hegel embraces the unknowability of the outside as an affirmation of the reality of ideas, making the world of philosophy hospitable to God once more. Like Berkeley's subjective idealism, absolute idealism holds that since we have no direct access to the outside world we cannot establish proof that it exists. For Hegel, our ideas about the outside world allow us to interact with it in useful ways. To have meaningful ideas about the outside world, he reasons, there must be some agreement between them and it, some identity between subject and object such that mind is the ultimate reality. At the centre of Hegel's idealism is time.[40] Hegel sees human life as progress towards absolute knowledge, so that it is possible to read his philosophy as an affirmation of God in the pantheistic sense of a universal mind. In the end, all is one: subject and object are subsumed under *Geist*.[41] We are all parts of the cosmic mind, each playing our tiny part in its self-discovery. Esoteric Buddhism, in its belief that material reality is an illusion (*māyā*) and all is cosmic mind,

appears to stem from a quasi-Kantian critique of relativity. Perhaps Maxwell was right to assert that metaphysicians suffer from a loss in credibility owing to their lack of physical knowledge in a ratio resembling that in which physicists suffer from a lack of insight about the metaphysical implications of their work owing to lack of philosophical knowledge. (See Chapter Three).

[39] The Oxford Idealists engage with Lotze's critique of Hegel in an attempt to shore up absolute idealism. Meyrick H. Carré, *Phases of Thought in England* (Oxford: Oxford University Press, 1949) p. 363.

[40] This time is ideal and is not to be confused with reality because '[t]ime, like space, is a *pure form* of *sense* or *intuition*, […] the distinction of objectivity and a subjective consciousness confronting it, does not apply to time. If these determinations were applied to space and time, the former would then be abstract objectivity, the latter abstract subjectivity. Time is the same principle as the I = I of pure self-consciousness'. Hegel was ambivalent about time's arrow, conceiving time as a circle so that '[i]ts goal is the point which is its past; and this is the truth of time, that the goal is not the future but the past.' G. W. F. Hegel, *The Philosophy of Nature*, trans. A. V. Miller (Oxford: Oxford University Press, 1970) §258; §261. The purpose of this model of time becomes more obvious in the context of history. See §807-808 and G. W. F. Hegel, *The Phenomenology of Spirit*, trans. A. V. Miller (Oxford: Oxford University Press, 1977) § 807-808.

[41] There is controversy about how to translate *Geist*. Miller opts for 'Spirit'. For this chapter, I favour Peter Singer's 'Mind' to avoid confusion between Hegelian and Platonic conceptions of God.

is a forerunner of Hegel's absolute idealism.[42] The European viewpoints above all owe something to Plato, who held that the reason we can conceive norms and types is that beyond the world with which we interact is an eternal realm of Ideas. Reality as we know it is just a series of illusory imitations of these, distortions of the originals which nevertheless remind us of them.

1.1.3 The Platonic Myth

Perhaps the earliest European account of backwards time is found in Plato, whose myth of backwards time resurfaced in the classical scholar Lewis Campbell's translation of the *Politicus* in 1867. The reappearance of backwards time during the upheaval caused by the discovery of the thermodynamic laws may be sheer coincidence, but its reception was coloured by a readership preoccupied with questions of temporal directionality. Plato's description of backwards time was mobilised as a *reductio* by opponents of mechanical reversibility and the determinism it implies and appears again in earnest as philosophers sought to legitimate causal laws. Whether the intention was to denigrate or justify reversibility, authors employed backwards time in varying but recognisable iterations of the following myth voiced by Plato's Stranger. God, the Stranger explains, turns the universe Himself, because 'it cannot move itself always: for that is the privilege of mind. Nor can mind originate opposite movements.' But God occasionally lapses in his duty and, when this happens, the universe

> makes countless revolutions by itself, like a huge and perfectly-balanced top, revolving on the finest peg. This change is, as it were, the solstice of the great year […] many creatures perish, and of mankind also but few are left. And on these few there passes a mighty change. As the movement of the world, so the order of the ages of man, is

[42] See Chapter Two. Hacking distinguishes Western (meaning British and French here) from Eastern (German) thought in the nineteenth century, the former tending to view society as comprised of individuals, the latter as a collective. Both calibrated social policies accordingly. *The Taming of Chance*, p. 37

> reversed. And, at the time when the world returns under the Divine care, old age is done away, and men pass through maturity and youth to childhood and infancy, and so pass away. And in harmony with the same movement, the bodies of those who slept in earth arise again.[43]

This passage remains relatively little-known outside classical circles, yet its existence at once proves the longevity of backwards time as a concept and torpedoes Kern's theory that it could not have been imagined before early motion-picture devices. While other translations, such as that included in the second edition of Martin Gardner's *The Ambidextrous Universe*, reached a larger audience, Campbell's suggests a network of contemporary authors connected by their rhetorical use of backwards time at a turning point in the history of physics. It marks the beginning of a tradition of backwards time as an ironic device in English.

Campbell attended Edinburgh Academy as a boy, where he met Maxwell and struck up a friendship that would last until Maxwell's death in 1879.[44] The publication of his friend's book in 1867 may have inspired Maxwell's own use of backwards time in his private correspondence with Mark Pattison the following year. On top of that, Campbell matriculated at Balliol college, Oxford in 1849, the year before Carroll matriculated at Christ Church (May 1850), meaning they were contemporaries at university. Whether they met is uncertain, but Carroll corresponded with Maxwell while writing the Alice books (which Maxwell read enthusiastically), and it is not much of a stretch to imagine he came across Campbell's work in conversation, print or derivative forms like Maxwell's letters.[45] This less familiar translation of

---

[43] Plato, *Politicus* in *The Sophistes and Politicus of Plato*, trans. Lewis Campbell (Oxford: Clarendon Press, 1867) 269c-271b pp. 45-54. Cf. the 'reversal peg' on Carroll's Outlandish Watch (§2.6).

[44] Campbell seems to be aware of thermodynamic theory when he writes that Plato's backwards time episode mockingly 'modifies Pythagorean optimism' in a way that brings out its doctrine that 'the disorder out of which the whole was brought into the present order, the breaking out again of this disorder so as almost to bring Chaos back again, [and] the fear that but for Divine interposition the world might founder in the "infinite abyss of dissimilitude". Campbell, Introduction to *Politicus*, p. xxiii. He went on to edit a volume containing Maxwell's biography and various papers.

[45] Gillian Beer, *Alice in Space: The Sideways Victorian World of Lewis Carroll* (Chicago: University of Chicago Press, 2016) pp. 58-59.

Politicus, then, benefits from being read alongside Maxwell's letter to Mark Pattison, not least for Campbell's commentary.[46] Plato, he argues, 'knew well how laughable was his image of all things growing backwards in the golden age [when humankind lived under a theocracy]', suggesting he might have intended the 'almost savage irony' in this passage of backwards time as an interlude worthy of a sophist.[47] Certainly, this image of time does not align neatly with time and creation in the *Timaeus*, where cycles are a matter of one-way progress. If Campbell is right about Plato's tone, as I suspect, this argument is unfairly ignored by Gardner who represents backwards time as Plato's earnest belief, and by Popper, who sees this as one of the oldest degeneration myths.[48]

Maxwell's description of backwards time is an avowal of faith in empirical science at the expense of holistic rationalist schemas, but his explanation of why it may be used to argue for unidirectional time does not put backwards time beyond the reach of positivists. Physicists like Ludwig Boltzmann and philosophers like Friedrich Nietzsche and Francis Herbert Bradley would later, under the seductive influence of idealism, become convinced that it was possible to reconcile Plato's tongue-in-cheek myth to thermodynamics.

1.1.4 Illustrations of Error: Maxwell and Thomson

Disagreements over how to interpret the tensions between classical mechanics and thermodynamics often came down to arguments about free will. On 4th April 1868, *The Saturday Review* published an anonymous review of Elme Marie Caro's *Le Matérialisme et la Science* (1867) focusing on the metaphysics Caro seemingly espoused. The reviewer chides Caro for failing to

[46] See also §2.2 & §2.8.
[47] Campbell, Introduction to *Politicus*, p. xix.
[48] *The Poverty of Historicism*, p. 109. Not that Popper is wrong to blame Plato for spreading the idea. Plato is responsible for the consequences of his writing, regardless of his intent, because misinterpretations might have been avoided had he communicated his point less gnomically. Still, perhaps those who find degeneration in the *Politicus* might be missing Plato's point. Sèan Burke, 'The Responsibilities of the Writer' in *Literary Theory and Criticism* ed. Patricia Waugh (Oxford: Oxford University Press, 2006) pp. 487-488.

account for moral liberty in a mechanistic universe. On the other hand, the author argues, Caro is to be commended for using thermodynamics to argue for an intelligent creator. On the face of it, thermodynamics amounted to a knock-down argument against cyclical time. There would be an end in which 'nature would have passed from the dynamical to the statical [sic.] state' and 'the Cosmos would have become […] a vast tomb in which would be buried the corpse of an extinct life'. Caro and his reviewer agree that a dynamic state cannot come from an inert one (that, *pace* Milton, order did not from disorder spring), both making the case that 'the laws which now regulate the world had been arranged by an intelligent cause'.[49] An important consequence missed by Caro and his reviewer is pointed out by Maxwell, who on 7th April 1868 wrote a letter to the magazine's editor Mark Pattison, rector of Lincoln College, Oxford in which he outlines the second law's challenge to hardnosed materialism:

> Now one thing in which the materialist (fortified with dynamical knowledge) believes is that if every motion great & small were accurately reversed, and the world left to itself again, everything would happen backwards the fresh water would collect out of the sea and run up the rivers and finally fly up to the clouds in drops which would extract heat from the air and evaporate and afterwards in condensing would shoot out rays of light to the sun and so on. Of course all living things would regrede [sic.] from the grave to the cradle and we should have a memory of the future but not of the past.
>
> The reason why we do not expect anything of this kind to take place at any time is our experience of irreversible processes, all of one kind, and this leads to the doctrine of a beginning & an end instead of cyclical progression for ever.[50]

[49] Anonymous, 'Science and Positivism', *Saturday Review of Politics, Literature, Science and Art*, 25 (1868). p. 456.
[50] James Clerk Maxwell, Letter to Mark Pattison, 7th April. I have not altered Maxwell's breathlessly sparing punctuation since it may be intended to convey his extrapolating materialist's over-excited mental state. Cf. letter to William Strutt, 6th December 1870. Maxwell describes a similar scene (again, incredulously) in which 'men will see all their friends passing from the grave to the cradle till we ourselves become the reverse of born, whatever that is.' 1868 in P. M. Harman, ed., *The Scientific Letters and Papers of James Clerk Maxwell* (Cambridge: Cambridge University Press, 1995) II, pp. 360-361; p. 582.

Strikingly, here, as in the *Politicus*, causality is effectively synonymous with time. By reversing the order of observable phenomena which we know to occur in sequences governed by laws, Maxwell gives the impression of a temporal volte-face.[51] The intention is not to convince the reader of the authority of his presentation of reality but to incur knee-jerk rejection. This is an argument against rationalist interpretations of classical mechanics by *reductio*. Arguments fielding *reductio* present intentionally absurd conclusions drawn from the premises they attack. This is usually an attempt to convince the addressee that alternative premises must be found. To invoke a principle of cognitive semantics, an alternative mental space is forced in which the addressee works backwards from the absurd conclusion to arrive at more sensible premises producing an intuitively correct conclusion.[52] Maxwell frames his thought experiment with a counterfactual ('*if* every motion great & small were accurately reversed'), but he might just as well not have. The frame is not a necessary condition for determining what is happening. In fact, his argument might have had more force had he omitted it – the initial rejection would have been stronger.

Quite why Maxwell 'fortifie[s]' his straw man materialist by impaling him on a pole of 'dynamical knowledge' is left implicit. The context, however, suggests taking 'dynamical' to refer to the 'dynamic' philosophy whose father Coleridge identifies as Kant.[53] There are two main reasons. The Kantian insistence that all we can know for certain comes from the view from inside threatened, in the wrong hands, to undermine the authority of empirical science.[54] Using the image of backwards time, Maxwell shows the ease with which common sense coupled

---

[51] The image of all living things regressing 'from the grave to the cradle' recalls Campbell's *Politicus* in which 'men pass through maturity and youth to childhood and infancy.'
[52] Gilles Fauconnier, *Mental Spaces: Aspects of Meaning Construction* (Cambridge, MA: MIT Press, 1985).
[53] Kant's challenge to the mechanistic materialism of Descartes is not lost on Coleridge: 'the dogmatism of the Corpuscular School […] has received a mortal blow from the increasingly *dynamic* spirit of the physical Sciences now highest in public estimation.' That Coleridge endorsed an epistemological dualism akin to Kant's is suggested by his rejection of the 'utter emptiness and unmeaningness of the vaunted Mechanico-corpuscular Philosophy, with both its twins, Materialism on the one hand, and Idealism, rightlier named *Subjective Idolism*, on the other: the one obtruding on us a world of Spectres and Apparitions; the other a mazy Dream!' Coleridge then recommends, effusively, that we read Kant. *Aids to Reflection*, p. 387; p. 391; pp. 391-392.
[54] Cf. §1.2.3.

with everyday experience can provide the resources to refute this argument. The mischievous conclusion to Maxwell's letter offers another clue: 'the Edinburgh & the Dublin Hamilton differ in their metaphysical power in the direct ratio of their physical knowledge (not the inverse as most people suppose).'[55] In other words, the Edinburgh Hamilton is not clued up enough about physics for his metaphysical reflections to be truly profound, offering 'words and nothing more'.[56] The Dublin Hamilton, meanwhile, lacks the imagination to speculate in the manner that might bring out the importance of his work for ontological questions and win him the recognition it deserves. [57] Maxwell's suggestion is that Kant's epistemological dualism allows mechanistic materialists, whose reversibility of all things he opposes, to have their cake and eat it. By following Kant, they can hold all physical processes reversible without denying the second law of thermodynamics. All that is necessary is to push the rationalist order of mechanism into the world of noumena and conceive time as a subjective illusion.[58]

Maxwell was not the only physicist to invoke backwards time as a *reductio*. Here is Thomson, six years later, describing it in virtually the same terms:

---

[55] Letter to Pattison 7th April 1868, p. 361. Sir William Rowan Hamilton, an Irish mathematician, played a key role in the reformulation of Newtonian mechanics by introducing the Hamiltonian, a quantity which includes both the kinetic energy and the potential energy of a system. This helped pave the way for statistical and quantum mechanics. The Edinburgh Hamilton (Sir William Hamilton, Bart) is the Hamilton whose *Lectures on Metaphysics and Logic* (1859) helped popularise Kant and the idea of the unknown in Britain. He was the last major thinker in the tradition of Scottish Common Sense philosophy (discounting, for now, its resurgence in Bergson), which can be traced to Thomas Reid. Hamilton's thought mixes that tradition's intuitionism with his own brand of Kantian rationalism. He is responsible for spreading the concept of epistemological relativity, which he channels from Kant, seeing an example thereof in Voltaire's *Micromégas*, citing a passage in which the inhabitants of Saturn lament their too-short lifespan (about fifteen thousand Earth years). Micromégas replies that 'when we come to the last moment, to have lived a single day, and to have lived a whole eternity, amount to the same thing.' That is, one's appreciation of time is relative to one's lifespan. William Hamilton, *Lectures on Metaphysics and Logic* (Edinburgh: W. Blackwood and Sons, 1859) I, pp. 101-102. Though Hamilton does not say so (perhaps to mask Voltaire's sceptical view of idealism), *Micromégas* lampoons Platonic metempsychosis here. Voltaire, *Micromégas* in *Zadig et Micromégas* (London: Routledge, 1886) p. 76. Cf. John Stuart Mill, *An Examination of Sir William Hamilton's Philosophy* (Longman, Green, Longman, Roberts & Green, 1865), in which Mill is widely held to have crushed Hamilton's philosophy.

[56] Letter to Pattison 7th April 1868, p. 361.

[57] Ibid.

[58] That this reflects Einstein's view will become important in later chapters. See also Christopher Herbert's argument that Henri Poincaré reads Maxwell as a 'protopostmodernist' for his unusual rejection of the totalising rational impulse of contemporary science. Christopher Herbert, *Victorian Relativity: Radical Thought and Scientific Discovery* (Chicago: Chicago University Press, 2001) p. 68.

> If then, the motion of every particle of matter in the universe were precisely reversed at any instant, the course of nature would be simply reversed forever after. The bursting bubble of foam at the foot of a waterfall would reunite and descend into the water; the thermal motions would reconcentrate their energy, and throw the mass up the fall in drops re-forming into a close column of ascending water. […] And if also the materialistic hypothesis of life were true, living creatures would grow backwards, with conscious knowledge of the future, but no memory of the past, and would become again unborn.[59]

Again, the construction is counterfactual, but here the reliance on matter itself is more apparent and there is an air of melodrama not present in Maxwell. As a result, this *reductio* is more recognisable by another name: the appeal to extremes. Thomson, like Maxwell, ridicules naïve acceptance of physical reversibility. If they could only see the implications of what they propose, he seems to say, these materialists would surely come around to our view. The counterfactual, then, serves to emphasise the otherworldliness of the events Thomson describes.[60]

Thomson first illustrates a process in forwards time ('the bursting bubble of foam'), then invites us to construct a backwards construal. He assumes we will be able to discern backwardness from the contrast between this new construal and ordinary experience. There is nothing particularly controversial about the linguistic constructions employed by either Maxwell or Thomson. Both introduce a backwards viewpoint which is subordinate to the forward viewpoint of the speaker. That a hierarchically superior forward viewpoint is maintained is indicated by (a) reliance on the prefix *re-* and (b) the temporal logic of the perfect and pluperfect. The former indicates that events are happening 'again', the latter reinforces the construal of those events as the personal past of the putative narrator-observer. This is the basic

[59] William Thomson, 'The Kinetic Theory of the Dissipation of Energy', *Nature*, 9 (1874), p. 442. Maxwell and Thomson were friends and their correspondence shows a lively back and forth of ideas. Cf. §3.8.
[60] It also strongly invites us to construct an alternative mental space in which events run as they do in common experience, making backwards time a particularly effective ironic trope.

conceit of all narrative: the narrator relays knowledge she already has. It is taken as a given that the speaker and reader share the same past, with the result that we are moving into the past as if it were the future. Nevertheless, it would be remiss to read either Thomson or Maxwell's use of *reductio* as a straightforward repudiation of Kant.[61] Maxwell in fact seems willing to concede that we may very well not know the real world as a thing-in-itself, but for him this makes little difference as long as experience continues to favour the view that a doctrine of beginning and end is more useful.[62] He was open enough to the concept of reversibility as a form of relativity to prove that it was mathematically possible even if physically it was never observed.

In a letter to Peter Guthrie Tait on 11th December 1867, Maxwell famously invoked the idea of a mediating intelligence which could sort molecules of gas according to their kinetic energy without doing work so that 'if heat is the motion of finite portions of matter and if we can apply tools to such portions of matter so as to deal with them separately then we can take advantage of the different motion of different proportions to restore a uniformly hot system to unequal temperatures or to motions of large masses.'[63] Less well known is the comment Thomson appended to the letter: 'Very good. Another way is to reverse the motion of every particle in the universe and preside over the unstable motion thus produced.'[64] This last is the problem with backwards time in a nutshell: who or what presides? Ultimately, an ideal observer is called for, inculcating relativity.[65] As outlined in §1.1.2, if every particle in the universe goes

[61] Both are part of a wider mid-century growth of relativism identified by the likes of Matthew Arnold, John Stewart Mill and Walter Pater. *Victorian Relativity*, pp. 3-6. The unknown, unconditioned and the objective are exotic concepts in this period, imported and distributed initially by Hamilton. Hamilton's philosophy of the unconditioned (roughly, the idea that all knowledge implies the antithesis of subject and object), and its seemingly unavoidable 'law of the conditioned' are Kantian in origin. '[A]ll human knowledge', Hamilton explains, 'is only of the relative or phænomenal […] we know nothing absolute […] without relation to us or our faculties.' *Lectures on Metaphysics and Logic*, I, p. 96.

[62] Carroll would no doubt agree. *Sylvie and Bruno* plays out the consequences of a world in which the idealists are right: that is why backwards time can occur there (hence the thematic prominence of Buddhism). (See Chapter Two).

[63] This 'demon', so called by Thomson, not Maxwell, later delineates between hyper-rational paranoia and going with the flow in Thomas Pynchon's *The Crying of Lot 49*. See §4.7.

[64] Letter to Peter Guthrie Tait, 11th December 1867, *The Scientific Letters and Papers of James Clerk Maxwell*, II, p. 332.

[65] Narrative cannot help but involve such an observer (for Popper, the same is true of history) – all textual experience is mediated by a putative narrator-observer's implicit subjectivity. *The Poverty of Historicism*, p. 150.

backwards and the mind is inextricably linked to the body, physical processes pertaining to the mind will be reversed too with the result that the observer will not experience 'reverse' because there will be nothing with which to make a contrast. Likewise, any recording instrument designed in the world of normal particulate motion would be unrecording once motion was reversed. For this reason backwards time always involves an ideal observer outside of time, which in turn requires an additional order of time in which that observer can observe. This in turn leads to a common sense rejection of backwards time in kinetic theory. If the cost of rationalising thermodynamic reversibility is to duplicate every process in the universe, or to deny the reality of the physical process which led to the second law in the first place, there is a strong case for irreversibility as a more parsimonious explanation.

1.1.5 Through all Possible Points: Boltzmann's Probabilistic Backwards Time

Probabilistic reasoning in the nineteenth century marks the beginning of serious thought about backwards time. The rise of inductive logic led to the mistaken belief that rational order could be restored to the universe through as yet undiscovered statistical laws.[66] A mathematical solution to the problem of reconciling the second law's tendency towards chaos with the rationalist desire for a stable universe of fixed perfectly reversible laws surfaced in 1872 when an extraordinary interpretation was advanced by Boltzmann.[67] With his *H*-theorem, Boltzmann managed to stave off the paradox of classical reversibility against the second law of thermodynamics by using statistics to explain the behaviour of gas particles.[68] The calculations

[66] Carroll sees the value of inductive logic but cautions against using it to reinstate determinism. See Chapter Two.
[67] Ludwig Boltzmann, 'Weitere Studien über das Wärmegleichgewicht unter Gasmolekülen' *Wiener Berichte* 66, 275 (1871) 62–100.
[68] Maxwell was pursuing a similar method but had not yet formulated an equation. In 1871 he gave an introductory lecture at Cambridge university discussing the importance of thermodynamics and the possibility of using probabilistic calculations of atomic activity to prove that free will, not determinism, is the best metaphysical description of human activity. The study of atoms, Maxwell explains, leads us to 'attach more importance to the doctrines of integral numbers and definite proportions' but, owing to our sensory limitations, it would be impractical to attempt an 'exact history of each atom', so we must settle for a description of 'the average condition' of a visible group of atoms. This method, which Maxwell is already calling 'the statistical method' means abandoning 'strict dynamical principles' in favour of probability theory. Had we always expressed natural laws

are ingenious, but Boltzmann's understanding of their metaphysical import is flawed. It is possible, he argues, for molecules to arrange themselves so heat concentrates in one area, but so improbable that it never happens. While there can be no *a priori* proof of one-way time, in practice we do not get useful results from calculations in the other direction.[69] In short, Boltzmann introduced the statistical fiction of probability to the concept of kinetic energy and tentatively concluded that time could no longer be considered unidirectional *de jure*.[70]

By 1897, he had developed his theory to a statement that kinetic energy tends from a less probable state to a more probable state, equating the past to the former and the future to the latter. Not only that, the universe as a whole is already in thermal equilibrium or overall heat death, but dotted around here and there are little pockets ('worlds') of highly improbable thermodynamic activity where time goes backwards. So, Boltzmann explains, '[i]n the universe as a whole the two directions of time are indistinguishable, just as in space there is no up or down.' But we might distinguish between them pragmatically by thinking of the arrow of time 'as going from the less probable state to the more probable one (the former will be the "past" and the latter the "future")'.[71] Time, on Boltzmann's view, is relative: it simply expresses one's relation to the entropic state of one's surroundings. Karl Popper sees this view, in which the arrow of time becomes wholly subjective as it does in Buddhist *māyā*, as 'beautiful' but ultimately 'self-defeating (like every idealism)' in that it cannot avoid rendering 'the catastrophe of

this way, he argues, 'we might have considered the existence of a certain kind of contingency a self-evident truth, and treated the doctrine of philosophical necessity as a mere sophism.' A sophism prefigured, perhaps, by Plato's Stranger in the *Politicus*. James Clerk Maxwell, 'Introductory Lecture on Experimental Physics', *The Scientific Papers of James Clerk Maxwell*, ed. W. D. Niven, (New York: Dover, 1965). II, p. 253.

[69] While his equation makes room for the possibility of reversibility, Boltzmann cautions against making too much of the mathematical proof. 'The reversible process', he says, is 'merely an idealization, which can be approached more or less but never perfectly.' Ludwig Boltzmann, *Wissenschaftliche Abhandlungen*, ed. F. Hasenöhrl (New York: Chelsea, 1969) I, p. 345. Translation Jos Uffink's.

[70] Carlo Cercignani notes that 'the Boltzmann equation is, historically, the first equation to govern the evolution in time of a probability.' Carlo Cercignani, *Ludwig Boltzmann: The Man Who Trusted Atoms* (Oxford: Oxford University Press, 1998) p. 97.

[71] Ludwig Boltzmann, 'Zu Hrn. Zermelo's Abhandlung': Über die mechanische Erklärung irreversibler Vorgänge', *Wiedemannsche Annalen (Annalen der Physik)*, 60 (1897), pp. 392-398. Translation in Karl Popper, *Unended Quest: An Intellectual Autobiography* (London: Routledge, 2002) p. 186.

Hiroshima' a morally vacuous 'illusion'.[72] Worse, Boltzmann's theory undermines the principle for which it tries to account: the objectivity of the empirically grounded kinetic theory of heat. Boltzmann thought he was proving the second law of thermodynamics. By restoring reversibility to the universe, he made it unreal.

To temper Popper's demolition of Boltzmann, the solution is ingenious if misguided, and it was hardly a fruitless exercise – equations derived from Boltzmann's probabilistic treatment of particles are still used in statistical modelling. Moreover, by falling into idealism in an attempt to reconcile his results to his rationalist mindset Boltzmann did no more than, say, Einstein or Schrödinger.[73] His pockets of backwards time in a holistic universe of probability represent just another in the long line of *a priori* dodges used to bind two initially opposing conceptual schemas but which end up, as M. C. Cornforth puts it, in 'medieval obscurantism'.[74] Boltzmann's idealism, then, is typical of a nineteenth-century penchant for ingenious but long-winded scientific apologia. Maxwell and Thomson belong to a different school. Maxwell's work on electromagnetic field theory is a case in point. Above the clamour of competing logical and philosophical interpretations, what was heard most clearly was the silent perfection of Maxwell's equations.[75] This goes some way to explaining Maxwell and Thomson's scepticism about backwards time.

It is easy to see where Boltzmann went wrong. In his rush to reduce stochastic phenomena to deterministic law, he forgot that the probabilistic expression of entropy is a fiction. When he came to turn his description of atomic particles into a description of the universe, he failed to remove the fiction, producing backwards time within forwards time, a contradiction which was, ironically, somewhat inevitable. For the eminent Kant and Nietzsche

---

[72] Popper was also aware of the moral problems generated by idealist theories of time, not least its invitation to relativity. His use of WWII's horrors to argue against idealism echoes the ironic use of backwards time in Vonnegut and latterly Amis. *Unended Quest*, p. 184; p. 186. See Chapter Four.
[73] §3.1; §3.7.
[74] M. C. Cornforth, *Science and Idealism* (New York: International Publishers, 1947) p. 261.
[75] '[T]he observed facts could be described just as well in terms of Maxwell's equations without the mechanical models; all the mechanical hypotheses were unnecessary, and therefore meaningless.' Ibid., p. 155.

critic Hans Vaihinger, Boltzmann was bound to arrive at this error unless he was scrupulous about removing all the mathematical apparatuses which led him to his result. 'The fundamental concepts of mathematics', says Vaihinger, are 'empty space, empty time […] points without extension, lines without breadth, surfaces without depth', all of which are 'contradictory fictions' because mathematics is 'based upon an entirely imaginary foundation indeed upon contradictions.' Since empty space is a 'mathematical fiction' and all science attempts to 'reduce the world-processes to movements of atoms in empty space', Vaihinger concludes that 'modern science reduces all existence […] to an entirely subjective and purely fictional standard.'[76] Nonetheless, Boltzmann's statistical fiction is a solution of sorts, and one which had great appeal for those of a rationalist mindset who aspired to achieve a scientific description of the universe akin to the logical perfection of clockwork. Partly, this is an expression of the conceptual dichotomy between open and closed systems. The rationalist clockwork universe is a closed system. In theory, it can be reversed without changing any of its moving parts. Thermodynamics inculcated a view of the universe as an open system in which chance played a meaningful part. The upshot was that things only went one way.

Part Two. Idealism and Casuistry

1.2.1 Philosophical Responses to Thermodynamics

As Boltzmann's theoretical wrangling shows, Thomson's late-nineteenth-century work on thermodynamics had far-reaching effects. Beyond the back and forth in the natural sciences, the exception it presented to reversible Newtonian mechanics threatened to undermine the rational order of the universe. Instead of discovering the divine harmony at the heart of all

[76] Hans Vaihinger, *The Philosophy of 'As If': A System of the Theoretical, Practical and Religious Fictions of Mankind*, trans. C. K. Ogden (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1924) pp. 51-53.

things, thermodynamics showed that on the whole things tend from a state of order towards a state of chaos. While this appealed to later 'irrational' schools like existentialism and intuitionism, it was initially met with hostility by a philosophical community that cut its teeth on the rationalism of Enlightenment thinkers who believed in a divine order wedded to Newtonian mechanics.[77] A metaphysical intervention was needed.

In England, philosophers began to adopt the absolute idealism of Hegel, seeing history as the rational progress of a world-spirit towards absolute self-knowledge, the ultimate ordered state. However, the absolute idealism which dominated English philosophy at Oxford was not straightforwardly Hegelian.[78] For a start, the Oxford idealists placed less emphasis on teleology, meaning they were not committed to a world which progressed towards order (or towards anything, for that matter). They leaned into the subjectivity of experience, seeing it as an arbitrary limit on knowledge that need not apply to all beings, only ones such as ourselves. Incorporating ideas gleaned from German idealism and from the researches of their contemporaries in the fields of Indology and Orientalism, the Oxford idealists developed a deep interest in the idea of backwards time.

In part, this is because there was a desire in the late nineteenth- and early twentieth century to account for history and for human behaviour on the grand scale of races and societies in terms analogous to physical laws. The success of the physical sciences at reducing observable phenomena to ever more precisely calculable formula lent credibility to parallel efforts in the social sciences. Since humans were part of nature and nature was subject to calculable physical laws, it was reasoned, what holds for the natural world ought to hold just as well for us. Our ignorance of the factors which directly cause us to behave in predictable ways does not preclude

[77] Irrational here in William Barrett's droll sense. Barrett notes that Kierkegaard perceived a threat to Christianity in the so-called law of large numbers used to justify notions of unseen forces guiding the fate of humanity. William Barrett, *Irrational Man: A Study in Existential Philosophy* (New York: Anchor, 1962) p. 173. *The Taming of Chance*, p. 104.
[78] *Phases of Thought in England*, p. 364.

their existence. There is, then, a determinism and an omniscience implicit in this notion, under whose purview our actions are not guided by rational choices or motives but by the unseen hand of impersonal forces.[79]

The second half of this chapter focuses on attempts made by post-Hegelian philosophers to justify reversibility in response to a two-pronged assault on backwards time in the mid-to-late nineteenth century, the first horn of which – Maxwell and Thomson's ironic use of backwards time as a *reductio* – was described above. The second horn sees backwards time rejected after thoughtful treatment by a thinker whose work was translated by the Oxford idealists: Rudolf Hermann Lotze.[80] Lotze, whose philosophical thought is relatively unknown today, arrived at what may be considered the first statement of process philosophy. To get there, he had to cut a path through the dense rationalism of Hegel. The potential for reversibility is one of Lotze's main reasons for breaking with the Hegelian concept of time, and it is to him that Bradley responds with his apologia for backwards time in *Appearance and Reality*. Nietzsche, meanwhile, responds to Thomson and his work on thermodynamics, somewhat counterintuitively finding in it a justification for his doctrine of eternal recurrence.[81] Hegel, Nietzsche and Bradley all share an interest in Buddhist idealism, which suggests one source of their concept of time as an ordered series open to reverse. Buddhist metaphysics were key to allowing the latter two to develop an idea of reversible time compatible with their positivist approach to science.

---

[79] Isaiah Berlin notes that such a view is shared by Hegelianism and Buddhism – among other determinist worldviews – which both see human affairs as momentary manifestations of a superordinate 'world-spirit'. Berlin also sees that the idea of the world progressing towards a single 'answer' is equally applicable to thinkers of the extreme left and right like Marx and Oswald Spengler, whose influential *Decline of the West* (1918-1923) marks the nadir of the pessimistic narrative of degeneration feeding early twentieth-century European nationalism. Isaiah Berlin, *Historical Inevitability* (Oxford: Oxford University Press, 1954) p. 7; p. 41.

[80] The translation of Lotze's *Metaphysic* was completed by many hands, all of them members of the Oxford idealist set: Book I and Chapter III of Book II ('On Time') were translated by Thomas Hill Green, Whyte's professor of moral philosophy at Oxford, who organised this translation; Chapters I, II & IV by Bernard Bosanquet (general editor after Green's death) one of Bertrand Russell's influences; Book II, Chapters V-VII by Reverend C. A. Whittuck; Book III ('Psychology') by Andrew Cecil Bradley, distinguished literary critic and brother of idealist philosopher Francis Herbert Bradley, who we will meet again later.

[81] See §1.7.

1.2.2 Backwardness in 'Esoteric' Buddhism: A Solution?

It was not until the end of the nineteenth century that research into Indian philosophy begun in Germany reached England. The ideas in these texts seemed to offer workarounds for some major problems in European philosophy, especially the concept of time in the light of recent advances in physics like electrodynamics and thermodynamics. Three figures at Oxford university led the way.

Friedrich Max Müller, Reginald Stephen Copleston and Monier Monier-Williams brought Buddhist teachings to the attention of students and fellow academics alike. Theologists Copleston and Monier-Williams described the Buddhist doctrine of backwards time (with varying levels of Western bias) for English speakers. The philologist Max Müller, meanwhile, who studied under Lotze at Leipzig and whose 1881 translation of Kant's *Critique of Pure Reason* remained the academic standard until Norman Kemp Smith's classic translation of 1929, sees in the Vedas the philosophical 'childhood' from which Kant emerges. 'The bridge of thoughts and sighs that spans the whole history of the Aryan world', says Max Müller, shamelessly historicising, 'has its first arch in the Veda, its last in Kant's critique.' Never mind that he has just explained why Kant is not to be thought a mere *réchauffage* of Berkeley, nor that he has called all subsequent philosophies in Germany derivative. The Divine has transitioned from natural disasters in the *Rigveda* to morality, so that

> the Divine is heard in […] the Categorical Imperative […] which Nature does not know and cannot teach. Everything in Nature is or is not, is necessary or contingent, true or false. But there is no room in nature for the Ought, as little as […] in Logic, Mathematics, or Geometry.[82]

[82] Max Müller is acquainted with Vaihinger's work. Friedrich Max Müller, Translator's preface to *Immanuel Kant's Critique of Pure Reason*, trans. Friedrich Max Müller (London: Macmillan and Co., 1881) I. p. xiii; p. xxiii; pp. lx-lxi.

Here is an early English admission, then, that morality is as fictional as the latter three, though Max Müller is no nihilist.[83] All three men were known to Lewis Carroll, who dined with Max Müller and Monier-Williams on several occasions and owned a copy of Copleston's work on Buddhism. This trio is representative of the undercurrent of Buddhist philosophy at Oxford during the period. Their understanding of Buddhism, however imperfect, influenced colleagues in fields ranging from philosophy to mathematics. One major idea the Oxford idealists lifted from Buddhism was its legitimation of backwards time through absolute idealism. To understand why Lewis Carroll would later pillory the Oxford idealists for endorsing backwards time in his *Sylvie and Bruno* books, it is necessary to gloss the ideas of Buddhism which led them to believe they could do so within the logical bounds of empirical science. The discussion leads, inevitably, to the concept of causation.

It is commonplace nowadays to associate Nietzsche with the ancient texts of Buddhism. Both invoke the concept of cyclical time, both are accused of moral nihilism, and both are given to flights of mysticism. Beyond this, they share the hypothesis of backwards time. This is likely to be because both invoke the idea of a causal chain, which Nietzsche can only rationalise in light of Kelvin's work under the all-encompassing mind of absolute idealism. For Copleston, of all the Buddhist teachings besides the Four Noble Truths (which all concern suffering) the Chain of Causes is the most fundamental and characteristic. 'We might in fact call them one dogma,' he writes, invoking the concept of cyclic time, 'that of the Causation and Destruction of Sorrow […] all things whatever, being formed only by the union of elements, are sooner or later, by the dissolution of those elements, to break up.'[84] In other words, Copleston understands the central tenet of Buddhism to be an affirmation of universal wholeness, a

[83] Max Müller was also partially responsible for associating the swastika's chirality with temporal progress. The chirality of the swastika is later mentioned without reference to time. See Martin Gardner, *The Ambidextrous Universe* (London: Allen Lane, 1967) p. 24; p. 173; p. 177. Cf. §4.6.
[84] Reginald Stephen Copleston, *Buddhism Primitive and Present in Magadha and in Ceylon* 2nd edn. (London: Longmans, Green, and Co., 1908) p. 70

totality. In Buddhism, a bad life leads to rebirth, while the reward for the highest form of good life is to become one with the universe and enter eternity. Eternity, like the world of classical physics, has no place for uncertainty since 'the Buddha knows nothing conditional, and condescends to nothing tentative' and 'he who sees the Chain of Causes and the nature of things ceases to inquire about past, present, or future.'[85] Despite the apparent similarity in their conceptions of eternity, a major difference between Christianity and Buddhism emerges here. For the Christian, life has onward progress, is teleological in some sense, while eternity is reserved for God. We can attain it only in the hereafter. The Buddhist, on the other hand, maintains that eternity is the truth, and progress an illusion. Eternity is there to be apprehended whenever we wish, if we can attain the right frame of mind. The appeal of this teaching for proponents of reversible physics is clear: the causal chain remains absolute; conditionality and uncertainty are part of *māyā* (the world dream which characterises everyday experience for the unenlightened). Time only appears to go one way because we are ignorant of the true nature of reality.

Copleston's gloss on Buddhism goes one step further towards explaining how backwards time became associated with a fixed causality and physical laws in modern science. 'The book of the Rule (Vinaya)', he writes, 'opens […] with the picture of the Buddha […] sitting under his sacred tree, and revolving in his mind backward and forward the twelve-fold links of the Chain of Causation, through which ignorance leads up to birth and to the sorrows of life.'[86] That this causal chain revolves equally well backwards as it does forwards is a feature shared by film which, in its analogue form, embodies a representative causal chain of discrete moments (frames). Neither has motion, or time, until it is input from an external source. In the Vinaya,

[85] Ibid., p. 57; p. 71.
[86] Ibid., p. 70.

time is supplied by the Buddha's mind. In analogue cinema, it is provided by the motion of projection reels. Both create a representative 'dead' or 'empty' time.[87]

The analogy of this metaphysical doctrine with other areas of interest is made explicit by Monier-Williams, who differentiates the Buddha's *Dharma* (roughly, 'law' in the loose English sense that can be applied equally to the physical, moral and social spheres) from that of other teachers by its lack of distinction between mind and matter.[88] That is, the Buddha's *Dharma* is monist, and denies the existence of individual souls. Instead, it represents 'a knowledge of the truth,' Monier-Williams explains:

> that all life was merely one link in a series of successive existences, and inseparably bound up with misery. Moreover as there were two causes of that misery – lust and ignorance – so there were two cures.
>
> The First cure was *the suppression of lust and desire*, especially of all desire for the continuity of existence.
>
> The second cure was *the removal of ignorance*. Indeed, Ignorance was, according to Gautama, the first factor in the misery of life […] ignorance that all life is caused by indulging lusts, and will cease by suppressing them.[89]

A cheerful thought – the chapter is entitled 'All Life is Misery' – illustrating the patronisingly superior Christian view of Buddhism that helped Monier-Williams leapfrog the more qualified Max Müller to the Boden Chair of Sanskrit at Oxford university. Monier-Williams's subtext is that a Christian life is a happy one (which happens to be Carroll's position – see Chapter Two). It is also, for less religious reasons, why Nabokov and Amis are reluctant to give up on the reality of duration. Although neither needs God in their life – both are agnostic – they recognise

---

[87] Cf. Mircea Eliade: 'Existence *in* Time is ontological nonexistence, unreality […] seen in the perspective of eternal recurrence, it is nonduration.' Mircea Eliade, 'Time and Eternity in Indian Thought', trans. Ralph Manheim, in *Papers from the Eranos Yearbooks* (New York: Pantheon, 1957) p. 181.
[88] Monier-Williams translates *karma* as 'act', i.e. deed.
[89] Monier Monier-Williams, *Buddhism, in its Connexion with Brāhmanism and Hindūism, and in its Contrast with Christianity*, 2nd edn. (London: John Murray, 1890) p. 99.

that a world without duration is a world which denies the reality of everything we value and enjoy.

On Monier-Williams's view, the main difference between Buddhism and Christianity lies in their conception of time, which is cyclic in the former and rectilinear in the latter. '[T]he constant revolving wheel of life in one eternal circle, according to fixed and immutable laws,' he writes, 'is perhaps after all the sum and substance of the philosophy of Buddhism.'[90] Whether or not modern Buddhist theologians would agree, that this view was spoken from the lecterns of two respected British universities is testament to the esteem and influence it was accorded at the time, and gives an indication of how easily the Oxford idealists might run into it.[91]

The potential for Buddhist metaphysics to solve problems when it comes to interpreting the natural world is not lost on Monier-Williams. He sets up the determinism of classical mechanics in unholy alliance with Buddhism, the unspoken corollary being that the second law of thermodynamics favours the Christian world view.[92] Thermodynamics naturally appeals to the Christian world view because it provides physical evidence of an ending while allowing free will: the destination is assured but the way is not fixed. Christian morality, not moral relativism or nihilism remains a legitimate response to life. In esoteric Buddhism, he writes, 'we are the outcome of ourselves […] It is said that Buddhism leaves the will unfettered; but surely fatalism is taught when the force of one's own deeds in previous births is held to be irresistible.'[93] The type of personal causality that extends from life to life is, for Monier-Williams, as close as the Buddhist gets to having an immortal soul:

> We often talk of the force of a dead man's acts […] It is this force which in Buddhism resists death; for no force can ever be lost.

---

[90] Ibid., p. 122.
[91] In addition to his teaching duties at Oxford, Monier-Williams gave the Duff Lectures for 1888 at Edinburgh University, also on the subject of Buddhism.
[92] Cf. Einstein, who apparently had no trouble reconciling a Judeo-Christian worldview with his determinist physics (§3.1).
[93] Monier-Williams, *Buddhism*, p. 116. Cf. Nietzshe's doctrine of self-creation (§3.6).

> And what does the modern Positivist philosopher assert? He maintains that both body and mind are resolved into their elements at death. The only immortal part of us consists in the good deeds, words, thoughts and influences we leave behind us [whose aggregate] constitute, according to the Buddhist, a power strong enough to re-create not only human beings but the whole material world.'[94]

Buddhism and positivism initially seem unlikely bedfellows. One is characterised by its commitment to strict empirical observation and mathematical proofs, the other couches its teachings in mysticism and allegory. They do overlap, though, in their ideas of causal sequence and reversibility, showing why absolute idealism seems capable of rescuing rationality from the slow creep of chaos promised by thermodynamics. One problem with positivism is that it can imply fatalism when pushed too far. Buddhism shares this difficulty but dispels it (or compounds it, depending on your point of view) by removing subjectivity altogether. The question of personal autonomy simply melts away.

1.2.3 In Defence of Backwards Time

Not everyone was convinced by the quiet apocalypticism of thermodynamics. Nietzsche, for instance, responded to Thomson directly. His interpretation of thermodynamics shows that he considered the world from an absolute idealist standpoint similar to Buddhism's but that this led him to reject time as seriality. Instead, Nietzsche embraces time as infinite becoming. His reasoning is probabilistic. 'If the world could […] become rigid, dry, dead, *nothing*,' he writes,

> or […] reach a state of equilibrium, or if it had any kind of goal that involved duration […], then this state must have been reached. But it has not been reached: from which it follows–

[94] Ibid., pp. 116-117.

> This is the sole certainty we have […] to serve as a corrective to a great host of world hypotheses […] If, e.g., the mechanistic theory cannot avoid the consequence, drawn for it by William Thomson, of leading to a final state, then the mechanistic theory stands refuted.[95]

Nietzsche's theoretical contortions here resemble Boltzmann's ergodic hypothesis: given enough time, a physical system will pass through all of its possible states.[96] Not only does he seem to draw the odd conclusion from the directedness of the second law of thermodynamics that eternal recurrence must be true in his elided philosophical thunderbolt ('from which it follows–'), but his use of backwards time elsewhere shows that this thinking paves the way for a moral relativism which resurfaced as intellectuals began to work out the ramifications of relativity theory in the early twentieth century.

With the doctrine of eternal recurrence, Nietzsche is trying to marry materialism with idealism so he can maintain his *amor fati* while acknowledging that the universe we observe tends to go in one direction, following Thomson. 'The two most extreme modes of thought,' he explains, meaning mechanism and Platonism, 'are reconciled in the *eternal recurrence*: both as ideals.'[97] The crisis which precipitated this attempt at reconciliation was thermodynamics. Given its second law, on Nietzsche's view, infinite flux required infinite force. If it ever ran out, nothing new could be created – nothing could change. For this reason 'the world […] lacks the capacity for eternal novelty' and '[t]he law of the conservation of energy demands *eternal recurrence*.'[98] Not that Nietzsche's idealism entails empty time. Time for him is an ontological

---

[95] Friedrich Nietzsche, *The Will to Power*, trans. Walter Kaufmann and R. J. Hollingdale, ed. Walter Kaufmann (New York: Vintage, 1968) §1066.
[96] 'The different molecules of the gas will… pass through all possible states of motion.' Ludwig Boltzmann, 'Über das Wärmeglechgewicht zwischen mehratomingen Gasmolekülen', *Wiener Berichte* 63, 397 (1871). English translation in S. G. Brush, *The Kind of Motion We Call Heat: A History of the Kinetic Theory of Gases in the 19th Century*, (Oxford: North Holland Publishing Company, 1976) II, p. 362
[97] *The Will to Power*, §1061.
[98] Ibid., §1062; §1063.

primary. Our experience of it and the absence of perfect equilibrium in nature is reason enough to reject the idea of timelessness.[99]

Yet on Nietzsche's view nothing is ever really gone, after all. 'The world exists;' he asserts, warming to his theme, 'it is not something that becomes, not something that passes away. Or rather: it becomes, it passes away, but it has never begun to become and never ceased from passing away – it maintains itself in both. – It lives on itself: its excrements are its food.' This only seems paradoxical until it becomes apparent that Nietzsche is speaking of a cycle, but again he does not think that this entails backwards time, chastising the Hegelian philosopher and scientist Eugen Dühring for mistaking 'the head – this moment – for the tail' and supposing that 'direction (forward or backward) is logically a matter of indifference'.[100] In this image of the cyclic universe as a coprophage we have both a grotesque re-imagining of the *ouroboros* – Coleridge's ideal narrative form – and a foreshadow of the absurd time-reversals of Philip K. Dick's *Counter-Clock World* and Martin Amis's *Time's Arrow*, in which characters feed on excrement and remove food items from their mouths after deft construction work by tongue and teeth.[101]

1.2.4 Backwards Time as Objective Moral Standpoint

By relegating chance to the absolute Nietzsche was able to make room for eternal recurrence and account for apparent directionality at the same time. These thoughts of the later Nietzsche are guarded about the possibility of backwards time. It was not always so. In the 1870s, Nietzsche gave backwards time serious thought, seeing it as a tool with which to critique moral systems. Breaking free of traditional European morality left an ethical vacuum with disastrous consequences.

---

[99] Ibid., §1064. He maintains the reality of time by postulating the existence of absolute chance.
[100] Ibid., §1066.
[101] See §3.1.2

Nietzsche's moral fictionalism comes from his preoccupation with the consequences of blind faith in, and uncritical obedience to, moral systems. He does not see why an agent ought not to take a certain course of action just because it is prohibited by moral law, preferring instead something like intuitionism: a contingent case by case morality, an open system without the rigidity which might have the will deny itself unduly in unforeseen exceptional circumstances. If a cause is noble enough the ends will always justify the means.[102] This need not entail nihilism. Nietzsche's interest in Buddhism, his disdain for uncritical acceptance of authority, and his emphasis on the importance of the individual will in producing actions all point to his offering an alternative view of the prevailing Christian moral system in nineteenth-century Europe, rather than comprehensively rejecting it. In fact, reading Nietzsche as a moral nihilist would probably have been regarded by the philosopher himself as intellectual slovenliness. After all, such a judgement comes from within the moral system that he set out to critique. If we want to criticise Nietzsche on terms he would have accepted we must set ourselves on an equal footing with him and take a view from outside.

It is impossible to truly understand a moral system from within, says Nietzsche. And since moral systems only exist in relation to time, in order to understand them properly we must first become untimely. Only by removing ourselves from the time in which our moral system obtains can we disabuse ourselves of the prejudices that come from living in it.[103] Nietzsche suggests we might do so by imagining backwards time in order to show the arbitrariness of our sense of forward progress. In a passage culminating in one of his most quoted phrases (also the title of an earlier work) Nietzsche writes,

> How far the perspectival character of existence extends, […] whether an existence without interpretation, without 'sense', doesn't become 'nonsense' […] cannot […] be

[102] Friedrich Nietzsche, *The Gay Science*, Ed. Bernard Williams (Cambridge: Cambridge University Press, 2001), §264-267.
[103] Ibid., §380.

> decided […] it is a hopeless activity to want to know […] whether other beings might be able to experience time backwards (which would involve another direction of life and a different conception of cause and effect) […] too many *ungodly* possibilities of interpretation are included in this unknown; too much devilry, stupidity, foolishness of interpretation – our own human, all too human one, even, which we know…[104]

In other words, if existence cannot be conceived of without interpretation, why should the prevailing interpretation be the only one? There are many possible interpretations of existence on which things might look very different. Clearly, the issue is one of perspective.[105] So much of what holds in moral systems depends on the tacit assumption that time goes one way, which we cannot know for sure.

For Nietzsche, then, backwards time is a way of exploring the arbitrary fictions upon which we base moral systems. Nietzsche has often been criticised for consigning morality to the realm of fiction. Along with Bergson, he is one of the philosophers associated by post-war historians with the type of thinking which gave rise to Nazism. Behind these allegations was the recognition that the understanding of time advocated by both thinkers had dangerous consequences when matched with political ideology. For instance, a conception of time which seems to allow for that teleological suspension of the ethical which fascinated Kierkegaard (roughly, a situation whose ends justify its means). But Kierkegaard thinks through his teleological suspension of the ethical in order to both rationalise how a Christian God could demand that Abraham sacrifice his son and to grant clemency to Abraham for having gone along with the demand in the first place.[106] That is, for Kierkegaard, this is an exception to the rule rationalised within the moral system which the problem seems to challenge. Nietzsche and

---

[104] Ibid., §374.

[105] There are shades of Kant here. Nietzsche is pointing out that the world comes to us not directly but through perceptions so we must accept that other worldviews exist. Perhaps infinitely many.

[106] Abraham's is a theological dilemma. He must choose either the sin of killing his son, thereby reneging on his duty as a father and a Christian to love him, or the sin of disobeying a command from God (reneging on his duty to the Father). Søren Kierkegaard, *Fear and Trembling* in Walter Lowrie, trans., *Fear and Trembling and the Sickness unto Death* (Princeton: Princeton University Press, 2013) p. 107.

Bergson, on the other hand, argue that such a suspension is always justified if the worth of the end is great enough. For revolutionaries this is the justification for pursuing a better future by whatever means, violent or otherwise. For nationalists, it provides similar justification for using whatever means to protect the status quo or return to some idealised and/or fictional past.

Considering what he calls 'time-philosophy' more generally in his treatment of perennialism (whose chief exponent in Carroll's time was Max Müller), Aldous Huxley argues that this is because for thinkers who reject the Christian conception of eternity,

> the ultimate good is to be found in the temporal world – in a future, where everyone will be happy because all are doing or thinking something either entirely new and unprecedented or, alternatively, something old, traditional, and hallowed.[107]

Since, on this view, the ultimate good lies beyond the present, Huxley reasons, the ends justify any means, however awful. Bertrand Russell, whose critique of Bergson's philosophy as a form of 'irrationalism' is particularly withering, claims that 'the main effect of Bergson's philosophy was conservative, and it harmonized easily with the movement which culminated in Vichy.'[108] What Russell and Huxley are uncomfortable about is the shift from moral systems which hold in all circumstances towards those in which each individual choice is the product of its own unique circumstances. Though they came at the problem of temporality with very different perspectives, Bergson and Nietzsche identified and promoted an alternative conception of time that undermined Western morality, which had until then been based on the Christian understanding of eternity coupled with the idea of the immortal soul.[109] Even if these

---

[107] Aldous Huxley, *The Perennial Philosophy* (London: Chatto and Windus, 1946) p. 221. Huxley is showing the influence of Wyndham Lewis here, who identifies a 'time-cult' with what he considers unsavoury influence in inter-war Western society. However, given that Lewis himself has been accused of harbouring fascist views it is not clear that the Bergsonian conception of time is a necessary condition for such thinking. Wyndham Lewis, *Time and Western Man* (London: Chatto and Windus, 1927) pp. 224-230.

[108] Bertrand Russell, *A History of Western Philosophy* (London: George Allen and Unwin Ltd. 1946) p. 819.

[109] Both Vaihinger and Nietzsche came to regard ethics as based on fiction. An important factor in their development of this view is their exposure to alternative conceptions of temporality. Both are part of the growing cohort of German students exposed to Indian philosophy in the nineteenth century. Locke, Hume and Kant had already shown that the meaningful concept of causality from which ethical values are derived is mediated by consciousness, a European articulation of the relativism shared by Buddhism. By the seventeenth century, then,

philosophers could not be held directly responsible for the horrors of the early twentieth century in, say, Russia and Germany, for some post-war critics they were guilty by association.

1.2.5 *Nunc Stans* vs. *Nunc Movens*: Religious Crossroads at the Turn of the Century

In 1910, William James published an essay entitled 'Bradley or Bergson', weighing the merits of two men whose metaphysics polarised the age. He preference was for Bergson. In part, James's essay was a response to the resurgence of the centuries-old debate about determinism and the nature of time in the wake of Einstein's papers on relativity. These seemed once more to legitimise reversibility, and his decision to side with Bergson foreshadows the twentieth-century shift away from rationalism in response to the success of quantum mechanics, which seemed to reinstate free will.[110] James, though, tackled Bradley not as a physicist but as a philosopher and psychologist. At bottom, his objection was the incompatibility of Bradley's philosophy with the evidence of the senses. 'When we handle felt realities by our intellect', James explains, outlining Bradley's view, 'activity becomes inconstruable, relation contradictory, change inadmissible, personality unintelligible, time, space and causation impossible – nothing survives the Bradleyan wreck.'[111] It is the threat of nothingness in Bradley's work that has James worried.[112] Far from an irrational position, then, James considers Bergson's the only logical one for a philosopher wanting to engage the world at face value. 'As

---

the original dogmas of Christian morality were already regarded by some thinkers as fictions. But while these dogmas may be empirically baseless, they have important real-world consequences. It may not have been possible to construct a network of ideas as complex as a moral system without them. Vaihinger acknowledges this when he writes, 'an idea like [the soul's] immortality may be necessary for a time in order to give birth to moral ideas. But once they have been developed, the scaffolding […] can be demolished.' The problems for Vaihinger, as for Nietzsche, begin when such scaffolds are not dismantled and obscure the structure beneath. *The Philosophy of 'As If'*, p. 130.

[110] *The Taming of Chance*, p. 116.

[111] William James, 'Bradley or Bergson?', *William James's Collected Essays and Reviews*, ed. Ralph Barton Perry (London: Longmans, Green and Co., 1920) p. 492.

[112] Some see a similar threat in Buddhism.

[…] a radical empiricist,' he declares, 'I can find no possible excuse for not inclining towards Bergson's side.'[113] It is only when time goes one way that things make sense.

For Bradley, time's arrow is the result of experience and no more. 'The direction, and the distinction between past and future,' he explains, 'entirely depends upon *our* experience.' Yet he seems to think of time as a passive sagittal mapping, the kind of time which comes at us head-on while we stand still so that '[o]ur fixed direction is given solely by the advent of new passive arrivals' and '[w]e think forwards […] on the same principle on which fish feed with their heads pointing upstream.'[114] As I will argue in Chapter Four, this cognitive mapping of time, analogous to cinema, allows the concept of backwards time to creep in without logical contradiction.

Realising that one-way time is a matter of convention all too human will, Bradley claims, bring us closer to seeing existence as a whole. To illustrate, he invites us to imagine a time-reversed being analogous to Nietzsche's. Our assumption that time goes one way is 'clearly not defensible', says Bradley, because there is nothing impossible about a being who experiences time backwards. Yet their experience would be incomprehensible:

> *if* in any way *I* could experience *their* world, I should fail to understand it. Death would come before birth, the blow would follow the wound, and all must seem to be irrational. […] Or, […] from a point of view beyond the limits of my life, I might find a reality which had, as such, no direction. And I might there perceive characters, which […] show *both* directions harmoniously combined in a consistent intuition.[115]

No doubt, but it is absolute idealism which makes this view of time as a finite interval within which direction of travel dictates the sequence of experience possible. This is because '[t]he Absolute has no history of its own, though it contains histories without number' which 'are but

[113] 'Bradley or Bergson?', p. 498.
[114] F. H. Bradley, *Appearance and Reality* (London: Swan Sonnenschein, 1893) p. 214.
[115] Ibid., p. 215.

partial aspects in the region of temporal appearance'. The upshot is that 'the question whether the history of a man or a world is going forwards or back, does not belong to metaphysics. For nothing perfect, nothing genuinely real, can move.'[116] While Nietzsche's point was a moral one – that we might imagine any number of perspectives – Bradley's is an ontological one. Our perspective does not matter because it is not real: 'time is unreal'.[117]

In nineteenth-century Britain, it was Campbell's translation of Plato's *Politicus*, followed by the thermodynamic papers of Kelvin and Maxwell which brought the absurdity of backwards time into public discourse, while the work of Müller, Monier-Williams and Copleston at Oxford provided the alternative means of legitimating upon which Bradley draws here. The coherent causal scheme afforded by Buddhism's absolute idealism means Bradley's vision of backwards time in which 'all must seem to be irrational', is as much an answer to the irreverent absurdities of unroasting mutton and episodically reversed conversations incurred by Carroll's Outlandish Watch (see §2.6) as it is to Kelvin's upwards waterfall and Maxwell's memories of the future. Whichever he is engaging, and it may well be all three, Bradley is defending Plato, Buddhism, and all objective idealism from the ironic jibes of these authors. He is perhaps not as successful as he would like. In turning things around so that they happen the wrong way Bradley is echoing a passage in which Shakespeare extolls the virtues of upholding the law. It is not quite syllabically identical but 'Death would come before birth, the blow would follow the wound, and all must seem to be irrational' resembles in its rhythm Vincentio's dark warning of what happens when law is left to moulder: '… Liberty plucks Justice by the nose, / The baby beats the nurse, and quite athwart / Goes all decorum.'[118] Bradley, whose brother was the eminent Shakespearean Andrew Cecil Bradley, likely intended this echo, calling attention as it does to both the problems of mensuration inherent in the physics of time and the

[116] Ibid., pp. 499-500.
[117] Ibid., p. 221.
[118] William Shakespeare, *Measure for Measure*. I. iii. 29-31.

way justice goes awry when time is reversed. In the context of his argument, however, the inverted disciplinary image of baby beating nurse is more reminiscent of absurd Platonic myth than of coldly rational reversible laws. This allusion highlights a recurrent and bizarre comparison between juridical and physical law.

1.2.6 Teleology Returns

It is time to take a step backwards. The serialism that emerged in British philosophy in the late nineteenth century, and which culminated in Bradley and J. M. E. McTaggart's unreal time, was also a reaction against a resurgent Kantianism whose contemporary mouthpiece is Henri Bergson.[119] Lotze, while not directly involved in the thermodynamics debate which would bring backwards time to bear on physics, is ever-present in the writings of the Oxford idealists with whose work Carroll is in dialogue, and idealism more generally as it is likewise explored and ultimately rejected by both Nabokov and Amis.[120] This was not a matter of taking up Lotze's ideas wholesale, however, and the Oxford idealists used Lotze as a punch bag on issues like backwards time over which they did not see eye to eye. By emphasising that time is a matter of becoming, as opposed to being, and that all physical things tend towards ends which their being notionally encapsulates, Lotze's philosophy offered a new way of conceiving physical phenomena: it is possible to read him as the first process philosopher. Lotze prefers to think of time as a 'process' rather than a series or a line, which puts him in direct opposition to absolute idealists like Hegel, Bradley, and McTaggart for whom time is reducible to a series.[121] The purpose of his argumentative use of backwards time is aligned with Maxwell and Thomson's,

[119] J. M. E. McTaggart, 'The Unreality of Time', *Mind* (1908), XVII, 4 p. 462
[120] Carré, *Phases of Thought in England*, p. 363.
[121] 'Nothing is gained by substituting the more abstract conception of a series for the unavailable image of a line. It would only be the order of the single moments of Time in relation to each other that this conception would determine.' Rudolph Hermann Lotze, *Lotze's System of Philosophy*, ed. Bernard Bosanquet (Oxford: Clarendon Press, 1884) Vol. II, *Metaphysic*, pp. 239-240. For more on this see Paul Grimley Kuntz's introduction to George Santayana, *Lotze's System of Philosophy* (Bloomington, IN: Indiana University Press, 1971).

but tends to be overlooked in discussions of his influence on British idealism. As a result, while Lotze's presence in this chapter is something of an anachronism, the intrusion is justified.

Like Kierkegaard, Lotze was unconvinced by Hegel's claim that the history of the world is a series of necessary products resulting from one general principle (the dialectic). Lotze accepts Kant's argument that all knowledge is mediated by experience, and therefore subjectivity, but rejects Hegel's conclusion that because of this there is no distinction to be made between an inner and an outer world and thus that all is one, and of the mind. So, in 1880, we find Lotze writing for an English audience to foreground the problem underlying the idealism which had dominated German philosophy for forty years. For Lotze, while 'Idealism urges with perfect justice that the representation of the external world is only a representation of ours and nothing more' it oversteps when it denies the existence of the outside world because 'this must be so in any case. Our representation must be subjective, not merely if there were no external world, but it must be subjective also if there is.'[122] This argument has become a classic rejoinder to sceptical positions such as Berkeley's idealism or Buddhist *māyā*, both of which see experience as analogous to a dream. Lotze shows that the extra step of denying the existence of noumena is unwarranted.[123] Not only is nothing gained thereby, the hypothesis defies common sense, a principle Lotze equates with 'mankind's natural feeling for probability'.[124] Here Lotze aligns himself with what we might nowadays call a neo-Kantian position: a middle way between materialism and speculative idealism. His desire to compromise, to hold the subjectivity of experience while holding that the real in all likelihood does exist, led Lotze to a precarious position straddling the major philosophical schools of his time. This refusal to be trenchant is one reason for his relative obscurity today (though it did no harm to the legacy of Nietzsche or

[122] Rudolph Hermann Lotze, 'Philosophy in the Last Forty Years', *The Contemporary Review*, XXXVII (January, 1880) p. 145.
[123] Kant did not think so either, but held that the external existed as an article of faith. Lotze carves out a deeper agnosticism here.
[124] 'Philosophy in the Last Forty Years', p. 152. The link between intuitive probability and Carroll's work on logic is implicit here.

Derrida). Another is that as a matter of principle he refused to make philosophical statements based on untested convictions, however satisfying their unifying influence might be. This, as I will argue in Chapters Two and Three, is a credo shared by Carroll, and by Nabokov who came across Lotze via G. J. Whitrow when writing *Ada*.[125] Both sympathise with his project to restore time to the world of philosophy.

One way Lotze does so is by likening the world to an ongoing piece of music, a 'melody' whose 'organization' can only be appreciated retrospectively.[126] Each individual note is a contribution to an as yet unrealised whole. Partial views of the whole are available, but only after the fact. The truth of any one of these views is a matter of perspective. The analogy of melody is a favourite of Lotze's and the article in *The Contemporary Review* glosses an argument developed in his *Metaphysic* (1871) as part of a demolition of Plato.[127] It was physical laws, Lotze explains, that led Plato to postulate the existence of the forms. Laws are repeating predicates which seem to stand in a uniform relation to particular subjects. Their combination and recombination could, on Plato's view, be conceived as the baseline of reality. For Lotze, such generalisation inevitably leads to error. While he concedes the existence of physical laws, for him they are evidence in favour of the ontological primacy of time. In explaining the unidirectionality of time Lotze tries to reduce the thing to the sequence of its process. 'The real Thing', he writes, somewhat gnomically, 'is nothing but the realised law of its procedure.'[128] This teleological interpretation of becoming leads Lotze to something resembling process philosophy.[129] The position sketched here, in which becoming and not being is the essence of

[125] Whitrow, like Lotze, Carroll, Nabokov and Amis, thought one-way time more than just an illusion produced by a quirk of cognition. G. J. Whitrow, *The Natural Philosophy of Time* (Edinburgh: Thomas Nelson, 1961) p. 313.
[126] 'Philosophy in the Last Forty Years', p. 149. Eight years later, we find Carroll experimenting with playing music backwards as a method of imaginary time travel (§2.3).
[127] *Metaphysic*, pp. 69-70. See also pp. 73-74.
[128] Ibid., p. 72.
[129] It is not quite satisfactory, because a law cannot be realised since it must be eternally real in order to be a law in the first place. Still, this is the closest Lotze feels he can get within the limits of language to expressing the directional character of phenomena.

existence, is the reason Lotze could say of his philosophy that it would probably appeal to Heraclitus.[130]

Like melody, Lotze argues, Hegel's world process simply would not be what it is without its inherent directionality: a universe of qualitatively indistinct moments is a universe robbed of time. To demonstrate this, Lotze reaches for backwards time: '[t]here would be nothing on this supposition', he explains incredulously, 'to exclude the adventurous thought that the course of events runs counter to time and brings the cause into reality after the effect.'[131] Like Maxwell and Thomson, he invokes backwards time as a *reductio*, a method which requires his reader to reject the proposed counterfactual. We do so with recourse to common sense, our 'natural feeling for probability', as Lotze puts it. While he is not shy about offering in-depth logical analysis no better reason for excluding Lotze's 'adventurous thought' is really necessary.

Lotze recognises that we tend to construe time in one of two ways. Recent research identifies two alternative cognitive mappings of time as either Moving Ego (the virtues of which Lotze extolls) or Moving Time (whose consequences he rails against).[132] Time can only move from the future toward the present and into the past if it pre-exists. Backwards time implies some form of the Moving Time mapping. Returning to metaphysics, Lotze points out that this view, on which all moments are of equal status, the 'empty time' originating in Parmenides, implies that there is no point in trying to predict the future by looking at the past, which is in practise quite useful.[133]

---

[130] *Metaphysic*, p. 85. Lotze's work, taking the analogy between time and space as little more than a bad linguistic 'habit' papering over a crack in our knowledge of time, of which 'we have no primary and proper perception […] at all', may well have appealed to Bergson. Others, too, have noticed similarities between Bergson and Lotze. *Metaphysic*, p. 238. G. Stanley Hall, *Founders of Modern Pyschology* (New York: D. Appleton and Company, 1912) p. 74.

[131] *Metaphysic*, p. 242.

[132] Alice Gaby and Eve Sweetser, 'Concepts and Approaches: Space and Time', *The Cambridge Handbook of Cognitive Linguistics*, ed. Barbara Dancygier (Cambridge: Cambridge University Press, 2017) pp. 625-634.

[133] *Metaphysic*, pp. 245-246. Lotze does not rule out an emergent block (the view later taken up by C. D. Broad), but he does not regard the future as determined, rejecting a model with a static present against which time flows. Probably the best way to sum up Lotze's position would be to say that he thinks of us as being conjoined with the present moment and that we are active participants in the becoming which underlies all apparent being. As a consequence, he is scathing about viewing time as a fourth dimension, calling this 'unmeaning play on words'.

Having dispatched Plato, Lotze moves on to Kant. This is where his relevance to the view later popularised by Bergson becomes most apparent. Lotze says it is meaningless to try to identify a moment of creation – a 'doctrine of a beginning & an end' – as Maxwell puts it, if Hegel's stream of 'empty time' is real, since no moment has any more claim to priority than any other. In cosmological terms, this effectively rules out using a definite article in conjunction with what we think of as the Big Bang. It may have happened several times before and may again in future: a Nietzschean observation stripped of bombast, Lotze has identified the basis of the doctrine of cyclic time. Lotze also recognises empty time's destructive effect on ethics: removing a definite beginning and end renders all means and ends perspectival. A catastrophic ambivalence is introduced to consequentialism and to utilitarianism. Not only that but, as Nietzsche saw, the whole social worth of morality comes into question because agents cannot meaningfully be said to have free will. If all moments are equally existent, all actions have in a sense already been done, are being done, will be done, at any moment we care to consider them. As he has already rejected the stream of empty time, however, Lotze shifts to a new line of inquiry: 'we will try how far we are helped by the opposite view, that Time is merely a subjective way of apprehending what is not in Time.'[134] In other words, Lotze is going to evaluate the usefulness of the time-as-epiphenomenon view originating in Kant.

He begins with an observation Bergson would be proud of. We can have a non-spatial representation of what occurs in space by imagining it, Lotze says, but the same is not true of time: all ideas are durative, in the sense that they must be created and destroyed in consciousness.[135] *Pace* Kant, Lotze argues, time and space are not comparable modes of cognition. Time is different because it is an essential condition for consciousness, whereas space

---

Lotze, then, can be added to the ranks of those who consider Wellsian time travel an absurdity arising out of the uncritical acceptance of metaphor. *Metaphysic*, p. 226

[134] Ibid., p. 248.

[135] Ibid., p. 248; pp. 248-249. There is an obvious link here to the perspectival destruction and creation of subjectivist time explored by Amis in *Time's Arrow*.

can be eliminated without damaging it.[136] Backwards time, then, requires separating subjective from objective time. It is an illusion which seems to follow from thinking about time in a particular way. Representing time symbolically, a feat necessary in order to invert the relationship of event sequence to consciousness, abstracts it to a point where it is no longer recognisable as anything we would instinctively call time. Perhaps space is only a subjective illusion, Lotze argues, but time cannot be if we hold ourselves to be real.

In his development of this point, Lotze anticipates Bergson's objection to Einsteinian space-time – and the ideal observer it seems to introduce – as a development of serialism in the realm of the unconditioned, recognising a mathematical tendency in this view tending to construe the future as now '+1' and the past as now '-1'. Again, Lotze says, this is a matter of perspective, and 'the capacity of tracing out the connexion of occurrences in both directions – forwards and backwards – would only be possible to a consciousness standing outside the completed course of the world.'[137] In other words, mathematical time naturally implies the block view and the block view invalidates the reality of time. The view from outside calls to mind what Frank Kermode called the sense of an ending, Thomas Nagel the view from nowhere, Nietzsche the untimely viewpoint, and so on. In order for such a view to obtain there must be another time in which the observer can observe. Such a view can only be a fiction. It is usefully introduced in order to construe causal relationships allowing us to interact usefully with our environment, but this in itself does not mean that it is a real feature of the universe. The fiction of the ideal observer is one which the form of narrative imposes upon events by emplotting them. To narrate is to make sense and sense implies directedness.[138] In taking a putative consciousness as a viewpoint from which to construe all events, then, we are also

[136] *Metaphysic*, p. 249
[137] Ibid., pp. 254-255. Lotze's argument is antiquated in its phrasing but remains a legitimate logical objection to the likes of Bradley and McTaggart, and the source domain of MTT. The 'conditioned' as translated here is that which makes its way into British philosophy through Hamilton and is traceable to Plato. H. L. Mansel, *The Philosophy of the Conditioned: Comprising Some Remarks on Sir William Hamilton's Philosophy and on Mr. John Stuart Mill's Examination of that Philosophy* (London: Alexander Strahan, 1866) pp. 101-109.
[138] See §4.11.

constructing a universe on a subjective framework. That is, by bringing a time from outside to bear on a time from inside so that all subjective viewpoints are seen as part of a history working itself out, narrative naturally implies absolute idealism. This is an inversion of Lotze's ontology; instead of objective time being the condition for subjective time, in narrative subjective time gives life to an imagined objective time. While it remains an open question how far narrative reflects either the state of the universe (as it would if the block view were correct) or the nature of mind (as it would if the narrative view of the self were correct), narrative time is always mediated by at least two levels of subjectivity: the experience of a narrating consciousness and the experience of the reading/listening consciousness. The latter is hierarchically superior in the construction of chronology.

Chapter Two

Smoke and Mirrors: Carroll's Closed Systems

2.1 Introduction

Plato's myth of backwards time may have resurfaced in academic debate as a response to the mid-to-late nineteenth century's new understanding of energy conservation, but its populariser was undoubtedly Carroll. Carroll's use of backwards time mirrors Thomson and Maxwell's: his descriptions of it tend towards the absurd and, more than those of his scientific counterparts, revel in ludicrous extrapolations of the consequences of reversing time. Writing backwards time allows Carroll to engage in more intellectually vigorous forms of that serious play known as 'nonsense', stretching the parameters of language and logic. Maxwell and Thomson clearly aligned themselves with unidirectional time; Boltzmann tried to achieve a middle way, granting backwards time in localised areas of the universe by applying the statistical fiction of probability to time; Carroll, in contrast, presents backwards time as a reason to stick with Christian morality in the face of material mechanism and its Buddhism-inflected rationalisations of thermodynamics. Combining readings from Carroll's prose fiction and logic, this chapter argues that his use of backwards time represents a covert assault on three intellectual establishments he could challenge in his fiction but could not openly oppose in his professional life: classical mechanics, Oxford idealism and Aristotelian logic.

It is impossible to separate Carroll's fiction from his logic. The finer points of philosophical logic in the *Alice* and *Sylvie and Bruno* books may have proven too abstruse for a readership which, at least initially, was overwhelmingly made up of children, but the most memorable nonsense passages are often those involving logic games or puzzles. The purpose of Carroll's logic varies from text to text, but in his narrative prose it addresses four broad

themes: consciousness, morality, language and time. In his narrative prose, these themes are arranged so that each can be used to explore another. Take dreams: *Alice's Adventures in Wonderland* and *Through the Looking-Glass* are externally focused dream narratives, while *Sylvie and Bruno* and *Sylvie and Bruno Concluded* are internally focussed narratives spread across three planes of consciousness: waking, dreaming, and a trance-like 'eerie' state in between. Dreams draw attention to the split between conscious and unconscious thought. Not only that, they allow us to transcend moral systems and range about in time.[139] Moral systems and time are inextricably linked. As Carroll illustrates, there can be no consequences without directional sequence, no responsibility without indeterminism, no justice without one-way flow.

Gillian Beer sees similarities between Maxwell's and Carroll's thought. 'Both', she observes, 'are mathematicians mingling mathematics and poetry, sorting, categorizing, destabilizing, and running counter to theory. Maxwell works through thought-experiment and Carroll through dream-work'. Similarly, both are 'religious men, committed to a view of the world as under the ordinance of God and organized by Him. Each, nevertheless, pursued ways past determinism, Carroll into dream-space and Maxwell into a universe in which statistical probability rather than substantial models provides the means of interpretation.'[140] There is evidence to suggest that the similarity goes beyond what Beer outlines here, bridging the divide she identifies between the two men's methods. This chapter argues that Carroll uses narrative as a laboratory of thought and that, while Maxwell may not have been particularly interested in dreams, Carroll showed a marked interest in inductive logic and was an early advocate of probabilistic reasoning in an age coming to terms with stochastic phenomena like

[139] There is a suggestion of this flexibility of dreams in Carroll's letter of 30th November 1879 to Edith Blakemore, which makes gleeful use of tense logic: 'generally I go to bed again the next minute after I get up: and sometimes I go to bed again a minute *before* I get up!' *TWLC* p. 707.
[140] *Alice in Space*, p. 59.

thermodynamics. It will also explore the possibility of crosscurrents of influence between Carroll, Maxwell and Thomson.

2.2 The Macmillan Set

At least one critic sees *Sylvie and Bruno*'s Outland as 'an outlandish parody of Oxford'.[141] As a general observation this holds up, but the particulars which bear it out point to a parody with a discernible message. The Oxford idealists are fools. One figure in particular is chided over and again: it is no coincidence that he is German.

Like Wonderland and Looking-glass Land, Outland is crammed with logical absurdities and puzzles. Unlike its predecessors, however, Outland has no clearly defined border with the real world; they bleed into one another, leaving narrator and reader unsure about what is 'really' happening. It is this ambiguity between the internal and the external, a transcendental aesthetic, that allows backwards time to obtain.[142] Narrative, like idealism, gives no concrete reason to distinguish between waking, dreaming and daydream. All is epiphenomenon. That time appears to go forward is a matter of convention, rather than a feature of the world described.

In 1867 at the height of the thermodynamics controversy the Clarendon press, under the stewardship of Alexander Macmillan, published Campbell's translation of Plato's *Politicus*.[143] This chapter argues that Campbell's book, while it did not make waves, had far-reaching influence. Notwithstanding Campbell's friendship with Maxwell, the proofs were circulating in Oxford while Carroll was writing *Through the Looking-Glass*. Dons of all stripes

---

[141] Martin Gardner, introduction to Lewis Carroll, *Sylvie and Bruno* (New York: Dover, 1988) p. ix.

[142] As a result, there is an alternative to Carroll's translation of the canine language 'Doggee' in which denizens of Outland are conversant. According to Carroll's narrator, 'Hooyah wah!' means 'come in'. Phonetically, 'How are you?' backwards. Cf. Amis's 'oo y'rrah?', *Sylvie and Bruno* in *TWLC* p. 450. Martin Amis, *Time's Arrow* (London: Vintage, 2003) p.14.

[143] Macmillan's involvement with Oxford University Press ran 1863-1880. Just after leaving, he published Max Müller's translation of Kant's *Critique of Pure Reason* at his own publishing house. He remained Carroll's publisher throughout his literary career, meaning – if I am right about Mein Herr – Carroll and his adversary shared a list.

might have come across it, at dinner or at desk, and the increasing literature of backwards time in its wake suggests this book marks the beginning of a renewed European engagement with Plato's myth. Macmillan's part in the piece is shadowy but suggestive. Outside his work for the university press, Macmillan established the scientific journal *Nature* in 1869. This was the venue, in 1874, for Thomson's reiteration of the backwards time *reductio* seen in Maxwell's letters to Pattison. Also on the books at Macmillan's, having prepared a volume on Milton for the *Men of Letters* project, Pattison was a social and educational moderniser with influence in journalistic and literary circles.[144] Maxwell and Pattison shared backwards time as a private joke. With Macmillan's help, Thomson went public. While it would be rash to see Macmillan as some sort of Svengali bent on forcing writers to engage with backwards time, he happens to have published several influential accounts of it (three ironic) by authors who knew one another either at first or second hand. It is possible Campbell, Carroll, Maxwell, Pattison and Thomson shared ideas as well as (or even through) a publisher, given the overlap in their uses of backwards time. If Campbell was responsible for making the Platonic myth of backwards time accessible to non-classical scholars, Maxwell and Thomson made sure it was put to good use as an embarrassing side-effect of mechanism while Carroll ensured it spread into popular culture. Over against the Oxford idealists, then, we might think of these authors as the Macmillan set.

2.3 Dreams and Music: Experiments with Form

To write about dreams is to nest the unreal within the real; what at first seems outrageous is explained away by the moment of waking.[145] Dreams free a writer from the rules governing the physical world without substituting for it a fantastic alternative. Noting that in dreams we are

[144] John Gross, *The Rise and Fall of the Man of Letters: English Literary Life Since 1800* (London: Penguin, 1991) pp. 119-122.

[145] The temporal flexibility afforded by layered realities in dreams was depicted in Christopher Nolan's 2010 blockbuster *Inception*, which involves a sort of time travel insofar as personal time within a dream continues at a constant rate while external time is slower.

not constrained by society to act or think as befits our age, Robert Douglas-Fairhurst writes that for Carroll and his nineteenth-century contemporaries 'dreams were more than an escape from the demands of consciousness; they were a form of time travel.'[146] This is loose talk. If dreams can be thought of as a form of time travel at all, it is mental time travel only; but this kind of mental time travel differs from MTT as described by psychologists by being non-conscious. Equally, it is difficult to ascribe a direction to any of this 'travel' because dreams are characterised by ambivalence about time, cheerfully rolling on, story-like, but without much heed for coherent causal relations or associative significance. That stuff is added later, either upon waking or as part of the dream. Moreover, mental time travel and dreaming might both be thought of as desire-driven, to various degrees. This entails a problematic assumption about the relationship between author and text, and ignores contemporary evolutionary and psychoanalytic work. Douglas-Fairhurst's metaphor, then, does not engage with the psychology literature in a serious way (and probably intends no such association) but highlights an important point about time travel: it seems to evoke mind-body dualism with the concept of consciousness absenting itself from the present moment, an idea which becomes a formal principle in the *Sylvie and Bruno* books.

The ideas explored in these books hinge on a series of far-fetched conditions. The two-part novel, Carroll explains in the preface to *Sylvie and Bruno Concluded*,

> show[s] what might possibly happen supposing that Fairies really existed; and that they were sometimes able to assume human form […] also, that human beings might sometimes become conscious of what goes on in the Fairy-world – by actual transference of their immaterial essence, such as we meet with in 'Esoteric Buddhism'.[147]

[146] Robert Douglas-Fairhurst, *The Story of Alice* (London: Vintage, 2016) p. 124.
[147] Carroll, preface to *Sylvie and Bruno Concluded* in *TWLC* p. 539. The reference to Buddhism suggests that Carroll is aware of the influence that Indian philosophy had on German idealism and, later, Oxford idealism.

These comments frame the texts in modality: they become a 'what if' situation, in which some form of idealism is true, and souls and bodies are no longer inextricable and the usual rules about time do not hold. Carroll goes on to tabulate three 'psychical states' for his narrator-cum-'historian', each 'with varying degrees of consciousness', one accounting for normal fairy-less experience, another accounting for combined consciousness of both actual surroundings and fairies ('eerie' state) and a third, trance-like, state in which a person's 'immaterial essence' slips its spatio-temporal moorings, travelling to other parts of this world or the fairy world.[148]

This tripartite reality highlights some problems encountered if one holds to general principles associated with esoteric Buddhism, like objective idealism. Carroll uses the subjectivity of his narrator to present the fairy world as if it were real; it is the unitary viewpoint from which Carroll presents different worlds that gives to the *Sylvie and Bruno* books their intricate and at times confusing narrative structure. Because all narrative testimony is filtered through the experience of a putative observer, the three psychical states correspond to three worlds: the real world of everyday experience; the 'eerie' world, characterised by a trance-like state in which the narrator can see fairies as part of the real world; and Outland, where the fairies live. There is not scope here to speculate about the wider significance of fairies in these novels, but it is worth noting that Carroll's interest in them points to another possible inspiration for backwards time. The catalogue of Carroll's personal library lists a copy of Thomas Crofton Croker's *Fairy Tales and Traditions of Southern Ireland*, in which Croker mentions the broader European context of elfin music

> which compels all who hear it, […] even inanimate objects, to begin to dance […] and the musician himself cannot leave off unless he knows how to play the air backwards […] or someone […] cuts the strings of his violin.'[149]

[148] Ibid. This last state seems to share qualities with Mental Time Travel (esp. episodic memory and episodic imagination).
[149] Thomas Crofton Croker, *Fairy Tales and Traditions of Southern Ireland* (London: John Murray, 1928) p. 92. This episode is a favourite of Kierkegaard's, who has read the Grimm brothers' translation of Croker. Søren

While there is no evidence that Carroll did so, this can be read as a powerful allegory for the use of backwards time as a tonic for determinism. If we think of an a-temporal sequence of predetermined history as the tune to which we all (even inanimate objects) must dance if determinism holds, playing it backwards frees us from the illusion by showing determinism's outrageous consequences.

This is a little simplistic, but the observation holds in light of Carroll's descriptions of backwards music played on mechanised musical instruments like the orguinette. In 'Isa's Visit to Oxford' (1888), Carroll explores the imaginative possibilities a of such a device, which plays notes represented as holes punched into a piece of paper: '[t]hey put one in wrong end first, and had a tune backwards, and soon found themselves in the day before yesterday. So they dared not go on, for fear of making Isa so young she would not be able to talk.'[150] Here, music compels Isa's regress into infancy as the scene threatens to darken into a Struwwelpeter-like cautionary tale. The backwards music is a bit of fun, as is the notional time travel, but the congruent reversal of ontogenesis, if continued, would silence Isa suggesting a more sinister aspect to what is at first glance passing fancy. Not that Carroll wants to silence Isa – the third person plural suggests he is just as afraid of the prospect as her, within the story – but there may be a hint of wish-fulfilment on Carroll's part. Douglas-Fairhurst argues that the *Alice* books, in the context of the author's interest in photography and fascination with children, are Carroll's attempt to arrest the development of his child friend. If the Alice Pleasance Liddell of real life cannot not avoid growing older and more experienced, he argues, Carroll can at least preserve her youth in the amber of his prose.[151] Although speculative – verging on pop-psychology – this is an interesting interpretive lens through which to view Carrollian backwards time; it is

Kierkegaard, *Journals and Notebooks*, ed. Niels Jorgen Cappelørn, Alastair Hannay, David Kangas, Bruce H. Kirmmse, George Pattison, Vanessa Rumble, and K. Brian Söderquist, (Princeton: Princeton University Press, 2007) I p. 235; Søren Kierkegaard, *The Sickness unto Death* in *Fear and Trembling and The Sickness unto Death*, p. 321; Søren Kierkegaard, *Either/Or*, trans. Alastair Hannay (London: Penguin, 2004) P. 83.

[150] 'Isa's Visit to Oxford' in *TWLC*, pp. 720-721. Cf. Lotze, for whom the 'melody' of the universe is a matter of projecting teleology backwards. Lotze's God is no organ grinder.

[151] *The Story of Alice*, pp. 139-140; p. 315.

easy to see the appeal of backwards time for an author nostalgic for child friends who have long since grown up.[152]

This idea of backwards time as an act of defiance, an attempt to reverse and so postpone indefinitely the disenchantment of old age, is later explored in Ian McEwan's *The Child in Time* (1987).[153] McEwan plays with time's elasticity throughout this novel, stretching it out in the frantic final moments before a car crash and compressing it into the empty monotony of the years following the loss of a child, Kate, who goes missing in a supermarket never to be seen again. Charles Darke, long-time friend of the narrator, Stephen Lewis, and high-powered publisher-turned-statesman, suffers a breakdown and retreats spatially and temporally from his life in public service. Moving to Suffolk with his wife Thelma (a theoretical physicist by training), Charles reverts to a childhood mental state, building an impossibly high treehouse and wearing faintly ridiculous flannel shorts. In doing so he seeks to escape from time, aided in part by a naïve understanding of his wife's research.

Stephen approaches Thelma looking for answers. Might there be a physical explanation behind his recent vision? Watching a couple through the window of a pub, something tells Stephen they are his parents.[154] Thelma's response is guarded. 'In dense bodies with colossal gravitational fields, [like] black holes' she explains, giving Stephen a rundown on late 1980s theoretical physics, 'time can grind to a halt altogether. The brief appearance of certain particles in the cloud chamber can only be explained by the backward movement of time.'[155] The best Stephen can do in reply is to quote T. S. Eliot's vision of eternity: 'Time present and

[152] It may also shed light on Carroll's oblique references to Dickens (§2.8). If, as one commentator has it, *Bleak House* presents a world in which 'children are the only true adults', it seems to follow that some sort of psychological regress occurs over the course of individual ontogeny; a reinscription of Plato's myth in which 'old age is done away, and men pass through maturity and youth to childhood and infancy, and so pass away.' Carolyn M. Dever, 'Broken Mirrors, Broken Words: Autobiography, Prosopopeia, and the Dead Mother in "Bleak House"', *Studies in the Novel*, Vol. 27, No.1 (1995) p. 43.
[153] Lewis identifies the same impulse in the self-consciously child-like writing of Gertrude Stein – a desire to return to the 'time-paradise' of childhood. *Time and Western Man*, pp. 69-70.
[154] Ian McEwan, *The Child in Time* (London: Picador, 1988) p. 59.
[155] Ibid., p. 118.

time past / Are both perhaps present in time future, / And Time future contained in time past.'[156] Thelma approves. When science cannot decide upon a definite position, poetry must intercede. Besides, '[i]t's still a divided subject', she concedes, '[t]he twin pillars are relativity and quantum theories. One describes a causal and continuous world, the other a non-causal, discontinuous world.'[157] Whether or not these views (the deterministic and the 'chancy', as Hacking puts it) are reconcilable, remains to be seen. Charles evidently favoured the former – '[c]hildhood to him was timelessness', though his (inevitable?) death from hypothermia resulting from an unseasonal combination of shorts and prolonged stargazing from his tree-house in winter suggests he has foolishly forgotten the second law of thermodynamics.[158] Still, Stephen wants to agree with Charles. He wants his mother's vision to correspond to physical reality, to go beyond hallucination, because that would affirm the physical reality of the past in the relativistic block view of the universe. That way, his lost daughter Kate cannot be dead, cannot be gone – in some part of the spacetime continuum she is still with Stephen and his wife Julie.[159]

Later, Stephen's mother seems to confirm his beliefs. 'I can see it now as clearly as I can see you', she replies, explaining that this memory is something of a causal node – during the conversation in question she was pregnant and discussing with his father whether or not to keep the baby – 'there was a face at the window, the face of a child, sort of floating there. […] I was convinced, I just *knew* that I was looking at my own child. If you like, I was looking at you.'[160] It is tempting to see this as an affirmation of the relativistic view, but the complexity of this second account coupled with other plot factors should make us cautious. The two accounts intuit different universes. Stephen favours relativity, construing the vision as mental time travel

[156] T. S. Eliot, 'Burnt Norton' in *Four Quartets* (London: Harvest, 1943) 1-3.
[157] *The Child in Time* p. 118.
[158] Ibid., p. 201.
[159] Cf. Einstein's letter to Besso's family (§3.1). Dunne's second and third books were titled *The New Immortality* and *Nothing Dies*.
[160] *The Child in Time* p. 175.

(in the most literal sense) so that the two episodes are bridged by his consciousness. On this view, Stephen was fated to look in at the window of The Bell to close a causal loop and incur the vision which made his mother keep her baby and eventually give birth to him. His mother Claire, on the other hand, favours quantum mechanics, construing her vision of a child at the window as happenstance, her identification of the face at the window with her unborn child little more than fanciful thought. The problem is never resolved. While factors like Charles's death hint at an authorial bias towards one-way time, McEwan leaves it to us to choose the universe we prefer.

Returning to Carroll's orguinette, that it is a mechanised instrument points to a deterministic operation in which time is replaced by sequence with the result that the tune can be played backwards just as easily as it can forwards.[161] The orguinette emblematises the reversible time of deterministic physics, taking a sheet of paper and recreating a tune as a reader takes up a book and reconstructs a narrative. In both, time is encoded in symbols which can be manipulated so that when time is reintroduced the effect is distorted. Carroll is aware of narrative's ability to 'twirl time', as Nabokov puts it.[162] Some of this is down to the method of composition. Roger Lancelyn Green records that Carroll, shortly before his death, added a preface to *Alice's Adventures in Wonderland* in which he responded to a deluge of inquiries as to the answer of the Mad Hatter's riddle ('Why is a raven like a writing-desk?'):

[161] The question of whether the tune is still the tune when separated from its original temporality is also explored with a malfunctioning mechanical instrument in *Sylvie and Bruno*, where an Earl boasts that he has 'heard an air played […] right through variations and all, in three seconds […] by a little musical box' whose 'regulator […] broke'. *Sylvie and Bruno*, p. 512. The moral of this anecdote is that artistic pleasure cannot be rushed: the Earl did not enjoy the music so he has wasted his time by failing to invest it wisely. Tied up with this moral is the temporal compression of the tune effected by the failure of the regulator, which, by maintaining proper tempo and represents the mechanical equivalent of time. The suggestion is that one should not wish away duration because it is an integral part of attention and conscious enjoyment (Cf. §2.7).

[162] Vladimir Nabokov, *Look at the Harlequins!* (London: Penguin, 2011) p. 214.

> "Because it can produce a few notes, though they are *very* flat; and it is never put with the wrong end in front!" This, however, is merely an afterthought: the Riddle as originally invented, had no answer at all.[163]

It has been argued that this passage contains an inappropriate correction of Carroll's original, in which it is alleged that 'never' was spelled 'nevar' i.e. raven, backwards, giving a coherent answer to the riddle.[164] If so, Carroll is disingenuous when he tells us that it originally had no answer. We can now go beyond the standard Edgar Allan Poe-inspired answer ('because Poe wrote on both') to say something meaningful about writing itself.

In his autobiography, Harry Furniss reproduces part of a letter from Carroll with instructions for illustrating *Sylvie and Bruno*. '[D]raw the last picture first,' Carroll advises, and 'work backwards (as Poe tells us he wrote "The Raven".)'[165] Nearing the end of his life and having written, if the numbers are to be believed, well over forty-nine thousand letters to Furniss alone, Carroll can be forgiven for forgetting this reference to Poe.[166] Perhaps he was just playing his cards close to his chest, because this cryptic allusion points to a more interesting reading of his 'afterthought'. The passage Carroll has in mind is from 'The Philosophy of Composition' (1846), in which Poe claims to hold a note from Dickens explaining that William Godwin composed *Caleb Williams* (1794) backwards.[167] Of course, Dickens does not mean Godwin sat and painstakingly wrote everything out from the last word to the first in mirror-reversed script (though writing backwards was one of Furniss's little pleasures).[168] He is describing what he

---

[163] Quoted in Roger Lancelyn Green, Introduction to *TWLC* p. 18. *Alice's Adventures in Wonderland* in *TWLC*, p. 68.
[164] Nicholas Royle, *Veering: A Theory of Literature* (Edinburgh: Edinburgh University Press, 2011) p. 121.
[165] Harry Furniss, *The Confessions of a Caricaturist* (London: Harper and Brothers, 1902) I, p. 112. It is easy to see why Poe's account of composing 'The Raven' might appeal to the logically minded Carroll. 'The work proceeded,' Poe recalls, 'step by step, to its completion with the precision and rigid consequence of a mathematical problem.' Edgar Allan Poe, 'The Philosophy of Composition', *Graham's Magazine*, Vol. XXVIII, No. 4 (1846) p. 163.
[166] When writing biographical notes, it is nigh on impossible to account for the mental minutiae accounting for having taken this or that course of action. Many factors which, by contributing to constitution and character, influence choices, remain utterly invisible. It is inevitable, then, that the history of a person (and perhaps narrative self) is characterised more by its epistemological limits than by its descriptive scope. It is just one possible causal description of the processes leading up to the point at which it is constructed, informed by the imperfect and contingent knowledge of whoever constructs it.
[167] 'The Philosophy of Composition'. p. 163.
[168] *Confessions of a Caricaturist*, p. 128. As a fellow mirror-writer, Carroll no doubt approved.

considers the proper method of plot construction: Godwin first thought of a series of problems for his character and then accounted for them with a plot, setting effect before cause in the composition process. It is the same, Poe says, with 'The Raven': 'I first established in mind the climax, or concluding query — that to which "Nevermore" should be in the last place an answer — that in reply to which this word "Nevermore" should involve the utmost conceivable amount of sorrow and despair.'[169] Poe's remarks turn a spotlight onto narrative's determinism and the author's role in constructing apparent contingency in plot.[170] In Beer's terms, this is a matter of 'backward hypothesizing', drawing on Peircean abduction, (Carroll owned a collection of essays edited by C. S. Peirce, who also reviewed his friend John Venn's *The Logic of Chance* in 1867) to work backwards towards certain causal origins.[171] In narrative fiction, this means persuading the reader that a 'sufficient explanation of how things came to be will be provided by means of this revisionary backward reading.'[172] Outside fiction, this was less convincing. By the mid-nineteenth century, as Beer points out, attempts to divine absolute beginnings of causal chains flew in the face of cosmological, geological and evolutionary discoveries.

Carroll's recommendation that Furniss compose his illustrations backwards is at odds with his claim that he did not have an answer in mind when drafting the Mad Hatter's riddle. There is no way to know when Carroll came across Poe's reflections on composition, but the riddle's obvious links to 'The Raven' discerned by early readers should not be ignored. The incongruity between Carroll's allusions to Poe and his claim that he had no particular answer in mind should make us wary about taking Carroll at his word when it comes to explaining the puzzles in his work. Besides, this may be a final tongue-in-cheek reversal: if composition starts

169 'The Philosophy of Composition', p. 165.
170 Poe's 'philosophy' is roughly Aristotelian in nature, presenting the climax as the telos for which plot exists, in contrast to the illusion of causality realistic plotting requires.
171 Hacking considers Nietzsche and Peirce kindred spirits when it comes to chance and probability. 'Both, he explains, 'believed that our world, which others find orderly, is a product of chance. Neither thought that the presence of law in the universe makes it any the less chancy.' *The Taming of Chance*, p. 147.
172 'Forging the Missing Link' p. 119.

at the wrong end, the 'afterthought' comes first. A raven is not like a writing-desk (though 'The Raven' might be) and that is the point; the riddle's form seems to impose a future with an answer that already exists, giving the illusion that solution is definitely possible.[173] Riddles must have answers, or what are they for? A riddle with no answer leaves the future open. We are free to answer as we choose.

In contrast to the *Alice* books, the *Sylvie and Bruno* books feature first person internally focalised narrative, whose epistemology naturally lends itself to idealism, and hence to backwards time. A detached, matter of fact third-person omniscience encourages the reader to conceive Alice's story world as if all that is recounted actually happened, while the layered conscious experience of *Sylvie and Bruno* and *Concluded* poses questions not just about the reliability of their narrators, but about the reliability of narrative, and of resort to experience as evidence in general, giving these novels an air of proto-modernism. Their three psychic worlds interact; like the waking and the dreaming world of everyday experience, these narrative worlds interpenetrate associatively.[174]

Often, Carroll's fictions perform thought experiments allowing metaphysical speculations and philosophical critiques based on his work in mathematical logic running against the grain of the thought fermenting in Oxford's faculty of *Literae Humaniores*. This is especially true of backwards time. Evidence suggests that Carroll is poking fun at the philosophy taught by his colleagues. The butt of these jokes is absolute idealism, the dominant philosophical school during Carroll's time at Oxford.[175] The *Sylvie and Bruno* books in particular

---

[173] A syllogism illustrating this might run

The Mad Hatter's question is a riddle;
Riddles have answers;
The Mad Hatter's riddle has an answer.

The second premise, however, involves taking a principle of inductive logic and applying it in a deductive series. Only if we grant that both premises are true, and that if both are true, they will produce a consequence, can we deduce that an answer exists – one reason for Carroll's reticence.

[174] The almost synonymous use of world and mental state is deliberate. Carroll argues against idealism in *Sylvie and Bruno*, although Kantian transcendentalism is compatible with his position.

[175] *Phases of Thought in England* pp. 343-383; William Warren Bartley, introduction to *Lewis Carroll's Symbolic Logic*, ed. William Warren Bartley (New York: Harvester, 1977) p. 30.

provide a platform upon which Carroll stages a theological-philosophical debate between, on the one hand, the temporal models of recurrence associated with Buddhism and, on the other, the doctrine of beginning and end associated with Christianity. The former's influence is felt in the post-Hegelian rationalism of the Oxford idealists. Without the latter, the legal machinery of the British state, and perhaps the moral framework of Western civilisation, is in danger of becoming farcical.

2.4 Carrollian Logic

It is not immediately clear why Carroll's logic should interest literary critics. Arguments for keeping his two oeuvres separate seem strengthened by the author's deliberately distinct personas as Lewis Carroll, writer of children's literature, and Charles Lutwidge Dodgson, reverend and Oxford don. However appetising such an image from an autobiographical perspective, carving up Carroll's writings to this two-cultures inspired image will not do. Logic, not character, setting or rhetorical force, is Carroll's most effective weapon in his skirmishes with contemporary society, and it is by combining thought experiment and logic in narrative that he delivers his most devastating blows to the utilitarian state.

Arguments for strict separation are easily dismissed. If Carroll intended his fiction for a general audience and reserved his specialist material for students and colleagues at Oxford, why publish the first part of *Symbolic Logic* under the name Lewis Carroll? It may be, as one commentator suggests, that he intended it for children and the wider audience besides to which his literary pseudonym had access.[176] The second part of *Symbolic Logic*, though, is subtitled 'advanced', suggesting a more exclusive readership. Carroll's writing is also laced with an irony which lends itself to an older, more experienced readership familiar with the conventions of,

[176] Ibid., p. 5.

for example, the English legal system.[177] Still, it might be argued that Carroll thought it too much of a risk to his reputation at Oxford to allow his speculative forays into philosophy and social comment to become associated with Charles Dodgson; that he preferred to reserve these for thought experiments published under literary pseudonym. This does not hold up either. Carroll enlisted with the Society for Psychical Research (SPR), a membership likely to divide opinion among his Oxford colleagues, as Charles Dodgson.[178] These considerations suggest Carroll trained the lurid vine of his fiction to the precise trellis of his logic for a purpose. Whatever the intended audience, the problems and puzzles that crop up throughout his work point to an author whose interests resist a crisp division between literary and private life. Carroll's prose is at its most logically dense when it critiques the social and philosophical problems of his day. As a result, any perceived incoherence or nonsense tends to have a whiff of irony about it.

For this reason, Douglas-Fairhurst's account of Carroll's logic, explored through a reading of his limericks, does not go far enough. Douglas-Fairhurst argues that what interested Carroll about the limerick form was its demonstration of 'what could happen when imaginative freedom encountered formal restraint', so that '[t]he reason Carroll's young man grows 'shorter' is because he is from a place called 'Oporta' […] What at first sight looks like logic turns out to be nothing more than an accident of language.'[179] There are several problems with this. First, although Carroll undoubtedly uses language to critique faulty logic, Douglas-Fairhurst's argument is tautological. There is no more reason to assume that the young man grows 'shorter' as a result of his being from 'Oporta' than there is to assume that Carroll chose the location 'Oporta' and the surname 'O'Finner' because he wanted to write about a man

[177] Carroll's nod to Dickens on utilitarianism might also be missed by young readers. (See § 2.7-2.8)
[178] In a letter to James Langton Clarke dated December 4th 1882 Carroll records his conviction that materialist sceptics will soon have their eyes opened by evidence of 'a natural force, allied to electricity and nerve-force, by which brain can act on brain.' Morton N. Cohen, ed., *The Life and Letters of Lewis Carroll* (Cambridge: Cambridge University Press, 1979) I, pp. 471-472. While this speaks to Carroll's spiritualism and his interest in the unknown/unconditioned, it need not entail idealism.
[179] *The Story of Alice*, pp. 40-41.

shrunk by mortar and his underfed sister, composing his limerick backwards in the manner Poe suggests. This is especially obvious in rude limericks, whose rhyme scheme is further constrained by the limited vocabulary of taboo. One infamous example involves a young man from Nantucket with a penis so long he can suck it. Plainly he does not do so because he is from Nantucket: the location serves the theme by adhering to the rhyme scheme. Granted, the 'logic' explaining the transformations in the second line of each stanza is the stylistic convention of rhyme, but it is rhyme's limitation on imaginative freedom that stifles Douglas-Fairhurst's argument that it is an 'accident of language'; nothing could be more deliberate. Carroll's point is that form is logically coercive and arguments like this exploit semantic association – a proto-Wittgensteinian recognition of language-games, foregrounding the manipulative power of authorial intent. Even less convincing is the notion that any reader would consider the names of the characters to be the cause of the transformations. The 'reason' is reciprocal; we need not choose between rhyme and reason.

Another way to look at Carroll's interest in nonsense poems and limericks might be to consider his use of language as a critique of formal logic. If the limerick is a trite poetical form limiting writers to a predictable rhyme structure (usually AABBA, like Douglas-Fairhurst's examples) so too the Aristotelian syllogism imposes formal limitations on the logician, arbitrarily limiting possible combinations. The limerick seems to produce from the combination of AA and BB a semantically linked conclusion, A, often explanatory or at least giving resolution to the foregoing lines. As Douglas-Fairhurst notes, below a limerick's surface meaning is a set of stylistic conventions and grammatical rules which influence the outcome of the so-called reasoning. We might, then, look upon the limerick as a form of casuistry, boasting logical proof but hiding authorial design in its formal convolutions like Poe's description of backwards composition.

The syllogism proceeds along similar lines, taking two premises and arriving, by deductive logic, at an apparently consequent conclusion. Carroll extends this exploration of the interplay of form and imagination to the novel, inviting us to think of causality in a similar manner, framing over-reliance on deductive reasoning and extreme implementations of consequentialist ethics within risible but meticulously thought-out scenarios and warning of the possible dangers of such thinking. Not that Carroll considers Aristotelian logic casuistry; rather, he is aware of its limitations.[180] By pointing them out he shows a similarity between limerick, syllogism and narrative: all impose formal limits on the combinations afforded by semantic juxtaposition, and so also limit the potential outcomes of the calculations for which they are used. This is not so important in a form like the limerick, which is traditionally playful; it is a different matter with the syllogism, which aims at logical truth.

A logician and mathematician by training, Carroll was well aware that syllogisms can mislead. Perhaps this is one reason we find Carroll ridiculing them in *Sylvie and Bruno* in a scene encapsulating the tongue-in-cheek tone the book takes with philosophical matters. Arthur Forester, love rival and eminently sensible friend of the narrator, is toying with a peripheral character – a 'metaphysical young lady' – at a picnic.[181] In a pastiche of Aristotelian logic, Arthur reframes the syllogism as the 'Sillygism'. 'For a complete logical argument', he explains, 'we need two prim Misses' and these, taken together, will produce a 'delusion'.[182] The truth obtained by the Aristotelian syllogism is fool's gold, the 'complete' argument riddled with holes.[183]

Almost all of Carroll's examples in part one of *Symbolic Logic* are surreal. For example:

---

[180] Carroll identifies issues with an exclusively Aristotelian method of deduction, making his case for incorporating probabilistic reasoning within the curriculum.
[181] *Sylvie and Bruno*, p. 476; p. 482.
[182] Ibid., p. 482.
[183] The joke goes over the young lady's head, suggesting that it is at the expense of the type of person she exemplifies, as well as the syllogism itself. She is an everywoman, indicative of a type (perhaps not limited to women), rather than a nuanced individual. The intended target seems to be those who proceed *a priori* uncritically (she accepts Arthur's mathematical axioms as obvious, without seeking to prove them herself).

All cats understand French;

Some chickens are cats.

Some chickens understand French.[184]

Compare this dry textbook favourite:

All men are mortal

Socrates is a man

Socrates is mortal.

Partly, the sideways subject matter is there to make things fun – part one of *Symbolic Logic* was ambitiously subtitled 'a fascinating diversion for the young' – but there may be more to it. In the Socrates example, the conclusion's truth seems to rest on something outside the syllogism's terms: the logical truth of sequential reasoning itself. The result is that there is always an assumption outside of the terms of the syllogism to which it must submit. Carroll famously argued this in a much-discussed article for *Mind*, using Euclidean principles to thwart Aristotelian logic by incurring infinite regress.[185] Socrates being mortal because he is a man has nothing to do with the syllogism's logic. What is wanted is a basis on which to establish the following general principle:

All x are y

Z is an x

Z is y.

Carroll's point is that to conclude Socrates is mortal we must grant two things: (1) that all men are mortal and Socrates is a man; (2) that if this is so it follows that Socrates is mortal. Because justification for (2) is not given within the terms of the syllogism we must grant as a third premise

[184] *Symbolic Logic: Part I Elementary*, 5th edn. in *Lewis Carroll's Symbolic Logic* p. 108.
[185] Lewis Carroll, 'What the Tortoise said to Achilles', *Mind*, IV, 14 (1895) pp. 278-280.

that (2) is valid, and so on.[186] The upshot is that this deductive reasoning leaves us with no rational proof to say anything but that, on balance, Socrates is probably mortal.[187]

Carroll's critique is not limited to Aristotelian logic but extends to its broader application in deductive reasoning. The syllogism's fallibility, Carroll maintains, is a warning that deductive logic is never wholly reliable. This is one reason The Professor of *Sylvie and Bruno Concluded* is a figure of ridicule: he believes wholeheartedly in deductive reasoning. Not only that, he is obsessed with laws based on 'Axioms of Science' resembling the premises of a syllogism. 'An Axiom,' The Professor explains, 'is a thing that you accept without contradiction.'[188] This blind acceptance, coupled with his bizarre inventions and generally muddled thinking mark The Professor as a clownish figure.[189] Jokes at his expense are yet more evidence that Carroll's interest in inductive and probabilistic logic pervades his fiction. Certainty without empirical evidence is presented as folly.

With deductive logic, we can proceed straightforwardly to a conclusion by a proper combination of axioms. Provided the correct information is available, the product is always true. As a result, deductive logic entails or seems to entail inevitability: if it is the case that *x*, and it is also the case that *y*, then it is/was/will be the case that *z*. That Carroll does not follow this reasoning is indicated by three factors. First, the chapter in which The Professor gives this definition is entitled 'Gammon and Spinach', a contemporary colloquialism for claptrap, drawing attention to a Dickensian quirk of the *Sylvie and Bruno* novels explored elsewhere.[190] Second, the fatalistic elements of the plot, both in the *Sylvie and Bruno* books and in *Through the Looking-Glass* are continually brought into focus as objects of satire. True, when the White

[186] See also Carroll's letter to the anti-associationist G. F. Stout, 25th August 1894, *Lewis Carroll's Symbolic Logic*, pp. 472-474.
[187] In Peircean terms, syllogisms are not demonstrative but probable arguments. *The Taming of Chance*, p. 209.
[188] *Sylvie and Bruno Concluded*, p. 669.
[189] The Professor's lecture hints at a Lockean inflection to Carroll's thought. Locke argues that science must not proceed from 'maxims' and 'axioms' unless they can be proven empirically. It is a mistake to think such things are 'self-evident'. For Locke, the only place for absolute maxims is mathematics. John Locke, *An Essay Concerning Human Understanding*, ed. P. H. Nidditch (Oxford: Oxford University Press, 1979) 4.7.1; 4.7.6.
[190] §2.8.

Queen screams in anticipation of pricking her thumb, we use deductive reasoning to conclude that she will do so in the ensuing pages, but that she does so does not actually follow, because she has already screamed and bled. It is the convention of Aristotelian plot and deductive causal reasoning which creates the illusion that pricking the thumb is inevitable: the prick itself is incidental. Third, Carroll's interest in probability spills over from his professional life into his literary work here, giving it a Lockean flavour. Locke holds that probabilistic reasoning shows God did not intend science to be infallible. Errors are a reminder that human knowledge cannot aspire to the complete knowledge of the divine.[191] To deny absolute certainty in all things is already an argument against, for example, Cartesian mechanism and Laplacean determinism, but Locke's argument can also be used to refute Boltzmann's statistical workaround of localised determinism in pockets of the universe, which nevertheless remain inert considered as a whole. Judgement based on probabilistic reasoning is an expedient, a fiction allowing us to act 'as if' the propositions we posit as likely 'were infallibly demonstrated, and that our Knowledge of them was perfect and certain' so we can take rational action where knowledge is unavailable.[192] Any reasoning based on probability must, then, be tested before its conclusions are adjudged true, and a crucial component of this proof is '[t]he conformity of any thing with our own Knowledge, Observation, and Experience.'[193] Backwards time is out, then, regardless of Boltzmann's statistical wizardry.

The syllogism often hides its logical inadequacy in semantic association. It intuitively follows that Socrates is mortal because men, mortality and Socrates are semantically related, but this relation is not accounted for by the terms of the logical form itself. This is one way the syllogism can be made to deceive. By substituting nonsensical terms for those in classical examples which make intuitive sense because of extraneous semantic information, Carroll

[191] *An Essay Concerning Human Understanding*, 4.14,1-4.
[192] Ibid., 4.15.2.
[193] Ibid., 4.15.4

exposes the arbitrary relation of semantics within the syllogism as a form. Besides, what can be explained by the syllogism can also explained by symbolic logic, Carroll's specialist field. With Arthur's punning 'sillygism', Carroll shows where his professional allegiances lie. The future of logic would be the flexible symbolic logic pioneered by George Boole combined with the inductive logic endorsed by William Whewell, Peirce and others, not the turgid Aristotelian logic to which his colleagues at Oxford still clung.[194] What is important in pure logic is the relation of the terms among themselves, not the objects being discussed. In logic as in fiction it is enough that terms are internally coherent: they need not correspond to reality to attain endogenous truth. This is the rhetorical mechanism producing backwards time, a formal iteration of an absurd metaphysical myth, demonstrating a confusion between logical and empirical necessity. Later, this aspect of Carroll's work would inspire the young Wittgenstein to the extent that the Wittgenstein expert George Pitcher saw them as 'spiritual twins'.[195]

Taken together, Carroll's limericks and syllogisms show the intersection of form and imagination as a locus for logical prompts. The range of compositional and interpretive possibilities diminishes as the form progresses, so that if there is a man from Oporta who gets shorter the range of possible causes is predictable. Douglas-Fairhurst, then, is right to identify poetry, especially the limerick, as a form giving rise to a feeling of inevitability, but to a degree such 'rules' influence all language usage. The sense of inevitability and narrowing possibilities is equally prevalent in syllogisms and achieves perhaps its grandest expression in narrative.[196] Equally, novels use this kind of anticipatory structure to show narrative's limitations: event, surprise, hidden perspective and so on show narratives are not 'totalities' unless, like the early Georg Lukaćs, you take a novel (or a life) to be a closed and complete form which 'cancels out'

---

[194] Bartley, introduction to *Lewis Carroll's Symbolic Logic*, p. 19. Boole's algebraic logic attempts to establish a mathematical basis for Aristotelian logic. Carroll owned a substantial collection of secondary literature on Boolean logic.

[195] George Pitcher, 'Wittgenstein, Nonsense, and Lewis Carroll', *The Massachusetts Review* 6, 3 (1965) p. 606.

[196] Douglas-Fairhurst also mentions Carroll's projection of chess strategy (which is 'always dominated by the strategy needed to bring it to an end') to plot in order to bring out teleological concerns in *Through the Looking-Glass*. *The Story of Alice*, p. 190.

accident.[197] By upscaling his exploration of the limiting influence of form to the novel, Carroll is able to expand his philosophical range to include time and ethics.

2.5 Metaphysics

There are other reasons to suspect Carroll of satirising. The metaphysical young lady is, he tells us, 'the very embodiment of the March of Mind'.[198] What to make of this gnomic description? On the one hand, the March of Mind points to the nineteenth-century controversy about increasing literacy rates and the accompanying progress towards a more horizontal distribution of knowledge throughout society. On the other hand, it may simply refer to the lady's youthful exuberance; a college student in the Spring of her intellectual development. Though initially far-fetched, this reading is supported by Carroll's working title for the *Sylvie and Bruno* books (planned as one volume): 'Four Seasons', the suggestion being that, since they represent conscious states over the course of one year, the novels extend the seasons metonymically to developmental phases of mental life.[199] That being so, the *Sylvie and Bruno* books can be read as an attempt to develop the Hegelian idea of the universe as mind coming to know itself in the form of narrative. At the very least, the lady is presented as a naïf who, having lately come to metaphysics, has gotten carried away with abstract ideas at the expense of the real-world scenarios for which metaphysics must ultimately account if it is to do any good.[200]

---

[197] Georg Lukaćs, *The Theory of the Novel: A Historico-Philosophical Essay on the Forms of Great Epic Literature* (Cambridge, MA: MIT Press, 1987) pp. 125.

[198] *Sylvie and Bruno*, p. 476.

[199] Carroll's diary entry for 22nd/23rd February 1888 reads 'Wrote scene of "disguises" for "Four Seasons".' The disguises are the characters in *Sylvie and Bruno* and their varying manifestations across the three worlds of the story. Edward Wakeling suggests Lady Muriel is tied to *Sylvie*. Another obvious link ties Mein Herr to the Professor. When the Professor arrives in *Sylvie and Bruno Concluded*, both the narrator and Lady Muriel can see him, prompting the narrator to wonder whether 'the fairy-life [had] been merged into the real-life', perhaps hinting at Friedrich Max Müller's wrongheaded idealist philosophy. Edward Wakeling, ed, *Lewis Carroll's Diaries* (Luton: L&T Press, 2004) VIII p.384. *Sylvie and Bruno Concluded*, p. 581; Gardner thinks the working title refers to action in the plot taking place over one year. Perhaps, given the preoccupation with esoteric Buddhism, there is also a hint at progressive cycles of time. Gardner, introduction to *Sylvie and Bruno*, p. vii.

[200] This informs the lampooning of idealism throughout *Sylvie and Bruno*, particularly of the Professor and his inventions.

The young lady is quite well informed about the physiology of sight, and muses on our aesthetic sensibility's relation to the body. 'Isn't it strange,' she says, voicing a question that runs through aesthetic and literary theory from John Ruskin and the Pre-Raphaelite Brotherhood to impressionism, Walter Pater and Vernon Lee, 'that the mere impact of certain coloured rays upon the Retina should give us such exquisite pleasure?'[201] Unpicking this philosophically, we might say she holds *a priori* that the outside world causes phenomena.[202] So far, so empiricist. But a more nuanced position rattles out of her in a staccato of metaphysical statements, two of which underline the type Carroll profiles with her:

(1) 'Man is a bundle of qualities!'

(2) 'the Objective is only attainable through the Subjective!'[203]

(1) is a recognisable paraphrase of Hume's famous argument about personal identity over time, viz. that the self is 'nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement.'[204] Aldous Huxley (also a member of the SPR, long after Carroll's death) is not satisfied with Hume's explanation here, likening it to the Buddhist doctrine of *anatta*, which denies the existence of an enduring soul. Instead, it affirms that life is a flux of experience held together only by slightly longer-lasting *skandhas*, or groups of perceptions. Huxley's chief objection to this is that it obviously lacks an origin: how did the bundles or *skandhas* come about in the first place? For Huxley, explaining that means doing away with the permanent soul which organises experience across a lifetime. Moreover,

---

[201] *Sylvie and Bruno*, p. 476

[202] If 'isn't it strange' is earnest.

[203] Carroll, *Sylvie and Bruno* in *TWLC*, p. 476. This is of course the basis of Locke's epistemology, although the consequences he draws from it take their cues from common sense, opting for faith in the outside world rather than the agnosticism of Kant.

[204] David Hume, *A Treatise of Human Nature*, ed. L. A. Selby-Bigge (Oxford: Clarendon Press, 1975) p. 252.

> all the exponents of the Perennial Philosophy make […] the affirmation that man is a kind of trinity composed of body, psyche and spirit. Selfness or personality is a product of the first two elements. The third element […] is akin to, or even identical with, the divine Spirit that is the Ground of all being. Man's final end, the purpose of his existence, is to love, know and be united with the immanent and transcendent Godhead. And this identification of self with spiritual not-self can be achieved only by 'dying to' selfness and living to spirit.[205]

Ultimately, Huxley argues, to be wholly consistent – to have one personality throughout one's life – is to be saintly. Hardly anybody manages it, he says, and our lives are the more interesting for it. Carroll seems to agree, insofar as he prefers Christian teleology to the ambivalence and moral relativism he sees in Buddhism. In Chapter Four I will show how such relativism was mobilised for darker purposes by the Nazis and something like Huxley's ''dying to' selfness' is ironised in Martin Amis's quip about humans 'dying to be alive.'[206] For now, the important point is that no single perception remains constant: all our perceptions come to us through time, as do all qualities notionally pegged to them. Moving on to (2), Carroll clearly gives the young lady an appreciation of Kant's transcendental aesthetic or Hamilton's conditioned: she holds that all we know of reality is given to us by our senses, so that conscious reality is derivative.[207]

---

[205] *The Perennial Philosophy*, p. 48.

[206] *Time's Arrow*, p. 145.

[207] Although there is no evidence that Carroll owned copies of Kant's work, he had access to them through the libraries at Oxford and Coleridge's gloss on Kant's challenge to materialism. Coleridge, *Aids to Reflection*, pp. 392-393. Carroll's diary entry for 14th January 1855: 'Read Coleridge's *Aids to Reflection* in the evening – it is one of those books that improve on a second reading: I find very little in it even obscure now.' Edward Wakeling, ed., *Lewis Carroll's Diaries* (Luton: L&T Press, 1993) I. p. 56. Cohen considers Coleridge one of the two most significant influences on Carroll's faith, alongside Frederick Denison Maurice. It was through Maurice, a contemporary of Carroll's father, that the young Carroll became acquainted with Coleridge's theological work. Maurice was a founding member of the Apostles and an outspoken critic of the Benthamite Utilitarianism which then held sway in Cambridge philosophical circles. 'Like Coleridge,' Cohen explains, 'Maurice believed in free will and the need to exercise it. […] Truth, for both Coleridge and Maurice, lived only in an ethos that enabled one to search and choose.' Cohen notes Coleridge's debt to German idealism: 'Like Kant and Fichte, Coleridge insists that the essential source of moral knowledge is the intuition, not the intelligence.' Morton N. Cohen, *Lewis Carroll: A Biography* (London: Macmillan, 1995) pp. 352-4; p. 355; p. 358; pp. 358-359.

This is a point made by Kant from the outset of his *Critique of Pure Reason*. On Kant's view, we have no knowledge which does not come from experience, whether directly or indirectly. Even in the case where we reason out what will happen in a situation we have never experienced, we are drawing either on our own analogous experiences or received knowledge of others who have experienced our hypothetical scenario.[208] Carroll's understanding of Kantian epistemology is unlikely to have come from engagement with primary sources. One striking feature of his personal library is the dearth of metaphysical texts.[209] In contrast, hiding among the shelves are twenty-five works on logic and *The Philosophical Works of John Locke*. While it is unwise to lay too much stress on an author's reading materials this suggests that Carroll's epistemology is essentially Lockean, taking as a given that the outside world causes knowledge.[210] In contrast, the metaphysical lady takes her cues from Hume and Kant via their glosses in Spencer and Hamilton's portrayal of the 'Unknown' in a way typical of mid-to-late nineteenth century relativity, which magnified the scepticism of the Scottish Enlightenment and German idealism through the lens of Victorian empiricism to renew doubts about the reality of the external world.[211] By the time Carroll writes this, however, the young lady is behind the curve. The problem of the external world was at best philosophical navel-gazing, at worst a hackneyed cliché trotted out to add a melodramatic frisson to unimaginative philosophical dreck.

---

[208] *Critique of Pure Reason*, A1B1.

[209] In deference, perhaps, to David Hume's advice for bibliographic pruning:

> take […] any volume; of divinity or school metaphysics, for instance; […] Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion.

David Hume, *Enquiries Concerning Human Understanding and Concerning the Principle of Morals* ed, L. A. Selby-Bigge, 3rd edn, revised by P. H. Nidditch, (Oxford: Clarendon Press, 1989), 12. 3, §132. He made an exception for Hamilton's *Lectures on Metaphysics and Logic*.

[210] *An Essay Concerning Human Understanding*, 4.3.2.

[211] Hume, in fact, cautioned against the dangerous relativity he saw in Berkeleian idealism: 'The existence […] of any being can only be proved by […] arguments […] founded entirely on experience. If we reason *a priori*, anything may appear able to produce anything.' *Enquiries Concerning Human Understanding and Concerning the Principle of Morals*, 12. 3, §132.

2.6 An Outlandish Watch

In *Sylvie and Bruno*, a character known as The Professor lends an 'Outlandish Watch' to the narrator. This watch, the professor explains, 'has the peculiar property that, instead of its going with the time, the time goes with it.'[212] In other words, it is capable of subordinating universal time to the personal time of its bearer: 'So long as it is let alone,' says the professor, 'it takes its own course. Time has no effect upon it.'[213] The division of personal time from universal time is the basis of time travel. As a result, Gardner has argued that 'episodes created by the watch are the second earliest known instances in fiction of time-travel made possible by a machine' (after *The Time Machine*) and that '[t]he backwards events that occur when the watch's Reversal Peg is turned are the first scenes in fiction in which time goes the wrong way.[214] Gardner's claims should not be taken at face value for two reasons. First, he seems to be confused about the chronology of the publications to which he refers. Although *The Time Machine* was serialised prior to its publication in book form, the earliest surviving drafts date from 1894. *Sylvie and Bruno* was published by Macmillan in 1889, making the Outlandish Watch the senior of the two time machines Gardner considers here. Second, Gardner's two claims, (1) that the Outlandish Watch scenes are the second instance in fiction of machine-induced time travel and (2) that its Reversal Peg triggers the first scenes in which time goes the wrong way, are incompatible.[215] *The Time Machine* does in fact contain a scene in which time goes the wrong way, so if Gardner is correct in saying that Wells's time machine came first then we must grant Wells the accolade of having written the first scenes involving time going backwards.

---

[212] *Sylvie and Bruno*, p. 504.
[213] Ibid., p. 503. The duality of the Professors foregrounds the dissonant quality of this idea: a fascinating imaginative proposal from Carroll; loose talk, by Dodgson's standards.
[214] Gardner, Introduction to *Sylvie and Bruno*, p. xiii.
[215] The reversal is effected by a 'peg', an unusual word for a watch mechanism. Turning the hands to manually change the time is done using the crown, while the classic watchmaker's term for a button is a 'push-piece'. The jarring 'peg' recalls Campbell's translation of the *Politicus*, whose universe 'revolv[es] on the finest peg'.

When Wells's time traveller returns from the future he experiences events which are a recognisable inversion of an earlier sequence in the time traveller's plot:

> As I returned […] [Mrs. Watchett's] every motion appeared to be the exact inversion of her previous ones. The door at the lower end opened, and she glided quietly up the laboratory, back foremost, and disappeared behind the door by which she had previously entered.[216]

Wells explicitly spells out the method of reversing time here: 'inversion' (I favour causal catachresis, for reasons explained in §4.8).[217] In the backwards sequence, Mrs. Watchett travels 'back foremost' and exits through the door 'by which she had previously entered.' The use of the pluperfect highlights the anteriority of the narrative future – this scene is not only backwards, outside of the personal time of the time traveller it has not happened yet! While it is true that backwards time is sustained and explored in more detail in *Sylvie and Bruno Concluded*, it does make an appearance in *The Time Machine*. Consequently, even if Gardner were correct in his assertion that *The Time Machine* predates *Sylvie and Bruno* (and the publication dates are against this) he would be incorrect in asserting that the Outlandish Watch scenes are 'the first in fiction in which time goes the wrong way'.

Regardless of historical priority, Carroll's is the more theoretically meticulous approach to time travel and this rigour is not limited to preventing logical contradiction. 'The changes are unreal' cheerfully annihilates a host of considerations. That all seems well until returning to the present is not a matter of the narrator deluding himself. Or, if it is, that only raises further questions. If nothing has changed in the outer world as per materialist (e.g. Wellsian) time travel, has the experience happened at all?[218] Since the narrator goes back in time alone and there is no corroborating evidence it might just as easily be intrusive memory, hallucination, or

---

[216] H. G. Wells, *The Time Machine* (London: Penguin, 2012) p. 93. Cf. p. 17

[217] See Douglass Virdee, 'Backwards time: Causal catachresis and its influence on viewpoint flow', *Cognitive Linguistics* 30, 2 (2019) pp. 417-438.

[218] Cf. Daniel Dennett, 'Are Dreams Experiences?', *The Philosophical Review*, 85, 2 (1976) pp. 151-171.

an undisclosed act of voluntary imagination.[219] Given the tripartite structure of reality in the narrative, there is a possibility that the narrator is replaying events in a sort of theme and variations arrangement. In light of this, our understanding of the significance of the Outlandish watch must change. It is not just a device with which to look at temporal logic; its existence is subject to the logical and metaphysical conditions afforded by narrative itself, conditions which Carroll finds lend themselves to idealism.

Pace Gardner, Carrollian backwards time does engender a paradox or two, but they are deliberate. The narrator resolves to test the Reversal Peg, walking into a stranger's villa uninvited:

> I pressed the 'reversal-peg' and walked in. In *another* house, the entrance of a stranger might cause surprise – perhaps anger, even going so far as to expel the said stranger […] *here*, I knew, nothing of the sort could happen. The *ordinary* course of events […] would be reversed […]. They would *first* wonder who I was, *then* see me, then look down, and think no more about me. And as to being expelled with violence, *that* event would necessarily come *first* in this case. 'So, if I can once get *in*, […] all risk of *expulsion* will be over.'[220]

It cannot be so. The narrator was not expelled in normal time so there is no risk of expulsion once he has pushed the peg. Besides, expulsion would in this case be an inversion of an invitation – by no means the obvious reaction of someone finding a stranger on her property. The narrator's description of what would happen is correct only if he has already gone into the house before pushing the peg – the events have then happened for inhabitants of the house so they too may live them in reverse order. Since he pushes the peg before entering the house, there is no question of them being aware of his presence at all. As a result, what follows pushing

[219] By foregrounding subjectivity in this way, Carroll calls attention to mental simulation, sometimes called episodic imagination and/or memory. This is one reason he may appeal to MTT theorists, who apparently overlook the irony of Carrollian time travel.
[220] *Sylvie and Bruno*, p. 517.

the peg might be interpreted as the testimony of an unreliable narrator who is either unaware of how the watch works or who deliberately conceals the determinism involved in narrative plot.

The scene inside the house is a literary precursor of *Time's Arrow*. People 'take no notice' of the narrator, and 'apparently, all com[e] towards the door (I found they were really walking backwards)'.[221] This 'really' is problematic. It is unclear whether the narrator means 'really' in the slack colloquial sense, in which case they are walking backwards, or whether he means 'really' in contrast to 'apparently', indicating that the house's inhabitants are not in fact coming towards the door but walking away from it. No doubt this ambiguity is deliberate on Carroll's part, as is the uncomfortable relativism injected by 'I found'. Of which apparent reality ought we to find in favour? The answer, if there is one, is that such confusion is unjustified. Overall, the novel is against the idealist and determinist conditions allowing backwards time to obtain, which Carroll finds morally repugnant. Although critical of Aristotle's *Nicomachean Ethics* as an undergraduate, Carroll seems to hold to Christian ethics which ultimately require the doctrine of beginning and end. Carroll's problem with Aristotle seems to have been the insistence on final causes and entelechy, in which he saw a reflection of physical determinism.

The ironic tone of backwards time in *Sylvie and Bruno* can be gleaned from the narrator's direct address to the reader: 'But to you, O hypercritical reader, resolute to believe no item of this weird adventure, what need to tell how the mutton was placed on the spit, and slowly unroasted […]?'[222] Understanding Carroll's meaning here means deciding whether or not he approves of such hair-splitting. The direct address amounts to the narrator throwing up his hands and admitting there is little point in continuing to relate such fantastic events. That he continues is a symptom of Carroll's own pedantry and his determination to lay out the absurd consequences of reversible time. The narrator is convinced that backwards time is a physical

[221] Ibid.
[222] Ibid., p. 519.

reality; Carroll is not. The reversal episode, according to the author's tabulation of mental states by page number, occurs in the 'real' world. But this is complicated by the modality outlined in §2.3; 'reality' here is subject to the metaphysical conditions of Esoteric Buddhism, in which a person's 'immaterial essence' is not constrained by bodily form, and some form of idealism holds. Carroll expect us to be cynical – he wants us to be – the moral ambiguity accompanying the doctrine of temporal recurrence jars with the Christian morality he advocates throughout the *Sylvie and Bruno* novels, which requires a doctrine of beginning and end.[223]

Another factor to consider is the object of this scepticism: 'this weird adventure' strikes the modern eye as an acknowledgment of the tale's strangeness. Carroll's use of 'weird' may be more nuanced. This is its only appearance in *Sylvie and Bruno*, a text full of strange events, which suggests Carroll was not over-fond of the word.[224] What prompts its use here is likely a punning reference to fate, especially given the allusions to Macbeth elsewhere in the text.[225] Weird derives from the Old English *wyrd* ('fate', 'chance', 'destiny'), a covert acknowledgment that backwards time is bound up with determinism. In the context of the novel as a whole, then, the address to the reader calls attention both to the fatalism inherent in backwards time and to the fact that it is a narrative. As Carroll is aware, these factors are connected.

When the Reversal Peg of the Outlandish Watch is pushed, the professor explains, 'the events of the next hour happen in the reverse order' (though in contrast to 'The Jabberwocky' dialogue and word order remain forward).[226] We are used to the adjective 'next' denoting something which has not yet happened. What happens 'next' is rarely certain, outside of

---

[223] Cf. §1.1.4.

[224] It appears twice more in the sequel, the latter of these two instances occurring in a song of luck and fate. *Sylvie and Bruno Concluded*, p. 569; p. 645.

[225] For example, a beggar's prophecy of the usurping Vice-Warden of Fairyland, his wife and son Uggug: 'From bad to worse! That is their destiny. I see it, but I cannot alter it. The selfishness of a mean and crafty man – the selfishness of an ambitious and silly woman – the selfishness of a spiteful and loveless child – all tend one way […]!' Note destiny's 'one way' quality. *Sylvie and Bruno*, p. 425. Another, more direct reference echoes the opening lines of *Macbeth* (I. i.1-5.): "*when* shall we three meet again?' '*When the hurly-burly's done*!" and, towards the end of the novel when the narrator believes his friend Arthur dead: "Are we four destined *ever* to meet again, on this side of the grave?"' *Sylvie and Bruno Concluded*, p. 580; p. 650.

[226] *Sylvie and Bruno*, p. 504.

narrative. Within narrative, as Carroll shows, 'next' does not sit in its usual temporal relation to the present moment because narrative's present dissolves into three separate moments: the moment of narration which follows the plot, the moment of utterance which stands outside it or just at its end, and the moment of comprehension from which it is seen in its entirety as an atemporal whole. The narrative future has already happened, and its future anteriority is not lost on Carroll. The emergent block view he favours is a writhing mass of open possibilities that cannot be pinned down by narrative which, necessarily, represents time as a closed block or else ends in the 'narratological shipwreck' in which there is nothing left to tell but the telling itself.[227] In representing any events in the real world as narrative, then, something of the reality of time is lost.

That presumptuous little 'next' in The Professor's explanation redefines the narrative's orientation to history in relation to the watch-holder's present. It is a deictic marker indicating that the watch-holder's next hour will be the previous hour of history. Narrative time is always filtered through a putative observer-narrator and is therefore vulnerable to the same crisis of subjectivity as all human experience. As Hume and Kant showed, that the passage of time appears to go one way is no guarantee that this is actually the case. Doubts of this kind are what the metaphysical lady brings to the narrative of *Sylvie and Bruno*, while the irony of backwards time and Carroll's foolish Professor serve as reminders that everyday experience readily dispels them.

Time cannot go backwards and allow a person to continue to experience things in the same manner as before unless some big metaphysical assumptions are in play; for instance, that time is an epiphenomenon and reality a fixed sequence of spatiotemporal events. This means Carroll's use of the definite article to explain the function of the Outlandish watch ('instead of its going with the time, the time goes with it') is problematic. Backwards time requires two

[227] Mark Currie, *Postmodern Narrative Theroy* (London: Macmillan, 1998) p. 123.

opposing orders of time because backwardness is relative.[228] In this case, the time of the person holding the watch is in opposition to the course of events as they already happened. That is, personal time has split from universal time and doubled back on it, satisfying David Lewis's conditions for time travel.[229] Subjective time is ascendant. There is little room for the eternal, and hence for God. As a logician and a theologian, Carroll was hostile to this view. These consequences of backwards time are laid out to make it clear what is at stake in determinism – Christian morality and perhaps faith itself – to undermine the absolute idealism in vogue with the philosophers in contemporary Oxford's faculty of *Literae Humaniores*.

Importantly, Carroll's depiction of backwards time establishes that sequence is not time. And, while what we know of time is necessarily subjective, like Lotze Carroll sees that this must be so whether time is real or not. We need not follow Hegel in affirming that time is merely our limited experience as part of a universe coming to know itself. Again, we must recall the modality with which Carroll frames the text: only 'if' certain tenets of Esoteric Buddhism obtained, and their rationalist expression in absolute idealism, might the world look like this.

To make matters more confusing, the model of time Carroll is operating with is the emergent block view, later favoured by C. D. Broad, in which the past is fixed and in a certain sense still 'there' while the future is open-ended.[230] The Professor's patient explanation of how to use the watch without engaging the Reversal Peg shows that the determinism on offer is only partial:

---

[228] An observation which leads first Gardner, then Nabokov, to link backwards time with chirality. See §3.7.

[229] David Lewis distinguishes between personal and external time. In his terminology, personal time is that which is represented by the Time Traveller's wristwatch while external time is that which is represented by everyone else's. Although the Time Traveller may travel into the future or the past in external time, he is always progressing toward the future in personal time: 'Memories accumulate. Food digests. Hair Grows. Wristwatch hands move […] It isn't really time, but it plays the role in his life that time plays in the life of a common person.' David Lewis, 'The Paradoxes of Time Travel', *American Philosophical Quarterly*, Vol. 13 No. 2 (1976) p. 146.

[230] Like Carroll, Broad is keen to do away with the rational seriality of post-Hegelian 'mentalism' which makes time illusory. C. D. Broad, *The Mind and its Place in Nature* (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1947) pp. 624-625; p. 630.

> if I move the hands, I change the time. To move them forwards, in advance of the true time, is impossible: but I can move them as much as a month backwards – that is the limit. And then you have the events all over again, with any alterations experience may suggest.[231]

The reason we cannot go forwards in time is that the future does not exist yet. Time travel into the future entails determinism, whether linear or forking, to account for the possibility of return.[232] Perhaps it would be satisfying enough to have the option to travel back in time to right the wrongs of the last month, though this proves not to be the case. The past cannot be changed.

The narrator is initially optimistic about the possibilities opened up by the Outlandish watch: 'the real usefulness of this magic power,' he muses, 'would be to undo some harm, some painful event, some accident–'.[233] Carroll wastes no time in providing an opportunity to put this altruistic possibility to the test. An accident: a young man riding a bicycle tries to avoid running over a case dropped in the street. He swerves, crashes, and ends up badly injured. The narrator resolves to save him from harm. He puts the watch hands back, ensures the case is in its cart, not in the road so the cyclist need not swerve to avoid it, and waits. At the moment of the original accident all is well. The cyclist passes the cart without incident. The problem comes when the narrator reaches the moment at which he turned back time.

> oh woe for the golden dream of world-wide benevolence that had dazzled my dreaming fancy! – the wounded youth was once more reclining on the heap of pillows […] Oh mocking Magic Watch! […] The good I fancied I could do is vanished like a dream: the evil of this troublesome world is the only abiding reality![234]

---

[231] *Sylvie and Bruno*, p. 503.
[232] i.e. a view relative to which our present is the past.
[233] *Sylvie and Bruno*, p. 515. Cf. *Time's Arrow*. Amis too slaps down this naïve motive for backwards time.
[234] *Sylvie and Bruno*, p. 516

The narrator has only played out another version of history which was possible but did not occur. He experienced it, but nobody else did; it was a hallucination. The past of the moment from which he left could not be changed because to do so would incur a causal paradox: if the young man had not injured himself, the narrator would not have put the hand of the watch back to prevent him from getting injured. The narrator cannot change the course of events without annihilating his own past, invalidating the timeline which was previously the universal track of history. What appears to be the future to the narrator when he is removing the case from the road is actually an anterior future in which the accident has already happened. Only the person with the watch can change, not the rest of the world. Carroll, then, does not present time travel as a material possibility even within the tenets of idealism, but he concedes that time travel is possible mentally, if only on an imaginary basis.

2.7 No Royal Road to Justice

The subjectivity of time Carroll foregrounds with the Outlandish Watch points to a German shadow looming over nineteenth-century philosophy and science: Kant. Although, as already suggested, there is no direct evidence that Carroll had read Kant, he may well have got the idea for hallucinatory backwards time from his copy of Hamilton's *Lectures on Logic and Metaphysics*. Hamilton, a sower of what would in the mid-to-late nineteenth century become the movement known as British Idealism, gives a succinct – if reductive – gloss on Kant's doctrine of space and time as follows.

> Kant […] reduced [Time and Space] to mere subjective spectral forms, which have no real archetype in the noumenal or real universe. We can infer nothing from this to that. Cause and Effect govern thing and thought in the world of Space and Time; the Relation will not subsist where Time and Space have no reality.[235]

[235] *Lectures on Metaphysics and Logic* I. pp. 402-403.

Where time and space are not real, as Hamilton notes, neither are cause and effect. Nor, troublingly, is morality. Hamilton does concede, however, that Kant never actually denied the existence of noumena, he simply exposed it as an article of faith. Kant himself was willing to adopt theism because it 'rescues […] the purposiveness of nature from idealism, and introduces a causality acting with design for its production'.[236] Carroll may have entertained the idea of the transcendental aesthetic, insofar as he concedes that experience is indirect, but he does not take the potentially nihilistic next step of denying the existence of the outside world. Instead, he holds, as Kant does, that the outside does exist, that it is where the good and the just are (as divine final causes), but that for us there is no hope of 'absolute teleological judgment'[237] That is God's business, and He accounts for a world that is not meaningless mechanism.

As a Christian, Carroll might have been intrigued by another aspect of Kant to which Hamilton draws attention. For Kant, says Hamilton, 'the dogmatic assertion of necessity, – of Fatalism, and the dogmatic assertion of Liberty, are the counter and equally inconceivable conclusions from reliance on the illegitimate and one-sided.'[238] On this reading, Kant neither confirms nor denies fatalism, but reveals both to be the product of epistemologically unbalanced reasoning. In other words, Kant makes room for God, for the eternal, by reducing the outside world to an unknowable unknown. What, then, to make of the narrator's assertion that 'the evil of this troublesome world is the only abiding reality'? At first glance, it reflects the narrator's pessimism about nature's indifference to the Christian impulse to undo regrettable events. Perhaps there is more to it. In *Sylvie and Bruno Concluded*, Bruno points out that 'evil' is just 'live' backwards.[239] The narrator agrees, though it remains ambiguous to what extent. We are left to

[236] Ibid. p. 404; Immanuel Kant, *Critique of Judgement* in *Kant's Critique of Judgement*, trans. J. H. Bernard, 2nd edn. (London: Macmillan, 1914) §73.
[237] Ibid., §63
[238] *Lectures on Metaphysics and Logic*, Vol. I. p. 403.
[239] *Sylvie and Bruno Concluded*, p. 550.

wonder whether the narrator refers only to the typographic inversion, or whether his agreement stretches to the evils obtaining from living backwards.

If, as Aristotle has it in the *Nicomachean Ethics*, everything has as its aim universal happiness, *eudaimonia*, then everything unfolds inevitably toward the good.[240] To live backwards would mean going beyond a mere inverted sequence of letters: it would mean progress away from the good. This consideration is particularly suggestive in the context of Carroll's undergraduate essay on the *Nicomachean Ethics*.[241] In the *Nicomachean Ethic*s Aristotle argues that 'nothing that is past is an act of choice […] no one *deliberates* about the past, but about what is future and capable of being otherwise, while what is past is not capable of not having taken place'.[242] What happens after the narrator of *Sylvie and Bruno* attempts to alter history to prevent the cyclist from hitting the cart suggests that Carroll agreed. The same goes for temporal reversal: time does go backwards when the Reversal Peg is pushed, but this does not mean Carroll endorses reversibility. The tone, framing, and lack of consequences for the plot all favour a reading which takes the Outlandish Watch to be, as its name suggests, strange and hard to accept. The levels of consciousness which frame the story suggest that Carroll endorses mental time travel only: the watch does not allow history to be changed, only one's memories of it in the present. Like the 'sillygism', despite the internal coherence of the logic it employs the Outlandish Watch produces only a 'delusion'.

The undergraduate Carroll takes as his starting point the opening of the *Nicomachean Ethics*: 'Every art and method aims at some good'.[243] Carroll's quarrel with Aristotle seems to stem from the latter's presumptions about the scope of philosophy (a similar objection informs Bernard Williams's *Ethics and the Limits of Philosophy* (1985)). Carroll is damning:

---

[240] Aristotle, *Nicomachean Ethics*, trans. David Ross (Oxford: Oxford University Press, 2009) I, 1094a; VI, 1139b.
[241] Lewis Carroll, Untitled, 3rd May 1854, Reproduced in Cohen, *Lewis Carroll: A Biography*, pp. 539-540.
[242] *Nicomachean Ethics*, VI, 1139b.
[243] Cf. Ross's translation: 'Every art and every inquiry, and similarly every action and choice, is thought to aim at some good; and for this reason the good has rightly been declared to be that at which all things aim.' Ibid., 1094a.

> our author [Aristotle] scarcely deserved being called a philosopher. For philosophy has a double nature: first, it seeks after pure and simple truth, scrutinizes the secrets of nature, and establishes theories and axioms; secondly, it rules life's ways and loves virtue and justice. Everyone agrees that the name of philosophy rightly belongs to the first and should be denied to the second.[244]

Carroll also finds a logical discrepancy in Aristotle's ethics. How, he asks, is it possible for a thinker who considers pleasure the highest good to agree with what contemporary believers called 'final cause'? For Carroll, the appeal to ends in order to justify means, later developed by Jeremy Bentham and John Stuart Mill into utilitarianism (roughly, the greatest good to the greatest number), is invalid.[245] Instead, he reasons, virtue inhabits the realm of the eternal: 'the true and the good are permanent'.[246] For the young Carroll, there is no place for philosophy in justice or the ways of life, while his appeal to the eternal is evidence of his faith. Good and evil are to be determined from beyond the limitations of human thought by an omniscient observer: God. Let us try how far his position has changed by the time he writes *Through the Looking-Glass*.

At the end of the famous 'jam to-morrow' conversation, Alice cries out in frustration: 'I don't understand you […] It's dreadfully confusing!'.[247] The White Queen responds by explaining her topsy-turvy logic in a scene of reverse causation that, given its influence on subsequent literature (fictional and scientific) merits close attention:

> 'That's the effect of living backwards," the Queen said kindly: '[…] one's memory works both ways.'

---

[244] Untitled, 3rd May 1854, p. 539.
[245] The legal machinery of the modern British State was constructed according to largely utilitarian principles in line with the moral theories of Bentham, Mill and others.
[246] Untitled, 3rd May 1854, p. 540.
[247] *Through the Looking-Glass* in *TWLC*, p. 161. This, as Gardner's readers note, is another pun: 'j' is interchangeable with 'i' in classical Latin. In the past and future tenses, *Jam* means 'now'; in the present tense *nunc* is used instead. Thus the White Queen's apparently unreasonable offer to pay 'twopence a week, and jam every other day [i.e. never today]' turns out to be an offer of payment plus a free lesson in Latin. Beyond this, we might observe that the true 'now' of narrative is always past so as readers we cannot have jam today either. Martin Gardner, *The Annotated Alice* (London: Penguin, 2001) p. 206.

'I'm sure *mine* only works one way," Alice remarked. […]

'It's a poor sort of memory that only works backwards,' the Queen remarked.

'What sort of things do *you* remember best?' […]

'Oh, things that happened the week after next,' the Queen replied […]. 'For instance, now,' she went on, sticking a large piece of plaster on her finger as she spoke, 'there's the King's Messenger. He's in prison now, being punished: and the trial doesn't even begin until next Wednesday: and of course the crime comes last of all.'

'Suppose he never commits the crime?' said Alice.

'That would be all the better, wouldn't it?' the Queen said, as she bound the plaster round her finger with a bit of ribbon. […]

'Of course it would be all the better, […] but it wouldn't be all the better his being punished.'

'You're wrong *there* […] Were you ever punished?'

'Only for faults,' said Alice.

'And you were all the better for it, I know!' […]

'Yes, but then I *had* done the things I was punished for,' said Alice […]

'But if you *hadn't* done them […] that would have been better still; better, and better, and better!" […]

Alice was just beginning to say 'There's a mistake somewhere–,' when the Queen began screaming […]

Her screams were so exactly like the whistle of a steam-engine, that Alice had to hold both her hands over her ears. [248]

While it is common to focus on the Queen's 'memory' of pricking her finger – 'it's poor sort of memory that only works backwards' is a popular epigram for works on mental time travel – by

[248] *Through the Looking-Glass*, p. 161-162.

far the more interesting consequence of reverse causation here is that the King's Messenger (Mad Hatter) is imprisoned for a crime he has yet to commit. The sort of memory that can justify this – and does not only work backwards – has epistemological access to the future. It is a commonplace to remember things planned for the future without the guarantee that they will take place; the trial being 'next Wednesday' is one such example. To remember them as events, on the other hand, is only possible if they have in some sense already happened so that the future, singular, exists. Otherwise the White Queen is remembering a possible future, or simulation.[249] Alice intuits the paradox produced by this warped jurisprudence: if the King's Messenger is in prison then he will not commit the crime for which his imprisonment is punishment, ergo he is punished unfairly. This is an appeal to extremes: the logical conclusion of the White Queen's reasoning would be to prevent all crimes by locking up all citizens, just in case.

This, of course, is not Carroll's position. The point is to reject the White Queen's argument, but the reason for doing so is still unclear. To get at this it is necessary to profile the ethical system she is trying to implement. Like Aristotle, the White Queen is using the end to justify the means and for her the only consideration in what is the right thing to do is what the outcome will be. This is a form of consequentialism. She is also working to promote the happiness of the many over the few by imprisoning the as yet innocent King's Messenger. Finally, by holding that it would be 'all the better' if he did not commit the crime, and that, had Alice not done wrong in her childhood, not only would she still have been justly punished but it would have been 'better still; better and better and better!', the White Queen is literally tending towards the superlative: what is 'for the best', the principle of utilitarianism. Preventative imprisonment is one extreme manifestation of rigid utilitarianism. In our own

[249] C.f. Nabokov's dream experiment (§3.7).

time, Guantanamo Bay provides a chilling reminder of how much wrong can be done to an unhappy few in the name of the greatest good to the greatest number.

The allusion to the railways is no accident. '[The White Queen's] voice went higher with each "better"', Carrol writes, 'until it got quite to a squeak at last […] Her screams were so exactly like the whistle of a steam-engine, that Alice had to hold both her hands over her ears.' Carroll's writing is full of unfamiliar similes but likening a Queen to a steam engine is still likely to raise a few eyebrows. The context suggests it is part of an elaborate pun. In a famous – possibly apocryphal – episode, 'Ptolemy once asked Euclid if there was not a shorter road to geometry than through the Elements, and Euclid replied that there was no royal road to geometry' meaning that in the study of geometry there are no shortcuts.[250] Well versed in both classics and geometry, Carroll likely knew this smug didacticism and evidence suggests he transfers the object from geometry to justice in this scene.

Both the White Queen and Ptolemy are royals, rulers from the Latin *regula* ('rule', 'straight piece of wood'), and the proto-Indo-European *reg-* ('move/direct in a straight line'). Similarly, rail derives from the Old French *reille* ('bolt', 'bar') through the Latin to the same proto-Indo-European root. There is, then, a sense in which the railroad is already a 'royal road', rail being an approximate homophone for both the Spanish *real* ('royal') and the Old French *reille*.[251] We also use railroad as a transitive verb, meaning 'to coerce' or 'to rush' (to a conclusion). Carroll's allusion recalls a rarer sense. The White Queen has sent the King's Messenger to prison without a fair trial. In the United States of America, this has been known as railroading since at least the mid-nineteenth century.[252] In any case, this use seems

[250] Proclus, *A Commentary on the First Book of Euclid's Elements*, trans. Glen R. Morrow (Princeton: Princeton University Press, 1970) p. 57.

[251] Carroll is certainly aware of this by the time he writes *Sylvie and Bruno*. Sylvie, disoriented, asks her father how she came to be in Elfland so quickly. He tells her it is because she 'came by the Royal Road'. In the real world, the narrator and Sylvie's real-world counterpart, Lady Muriel Orme, arrived in Elveston by railroad. *Sylvie and Bruno*, p. 411.

[252] *OED* has the general coercive sense from 1850 and 'To send to prison, convict, or punish (a person) with summary speed, esp. on false evidence or without a fair trial' from 1877. The latter is likely incorrect; it was already in use in the United States. Newspaper coverage of Edward Stokes's trial for the murder of rail financier Colonel

subordinate to the earlier meaning, 'to do with undue haste'. The idea is what we might nowadays, still employing the railway metaphor, call fast-tracking someone to prison without due process to prevent future crimes. This idea is likely to appeal in retrospect owing to the usual causal chimaeras of memory (if it were not for *x*, *y* would not have happened) or, in a particularly extreme application of utilitarianism, it is for the best that this man go to prison without trial – it will lead to the greater happiness of society at large.[253]

Railroads are geometric by design. Laying track is a linear process, the finished product, a 'line'. They also emblematise determinism – deviation from the expected results in catastrophe.[254] Rails are physically extended pieces of matter with few irregularities. Bumpy rails do not work. Once laid, a railroad conveys rolling-stock from one end to the other through a fixed sequence of stops and locations: a closed system that impinges on the individuality of those within it. For this reason, Ruskin saw in the railroad an inevitable sadness akin to Monier-Williams's pessimistic view of Buddhist fatalism. 'The whole system of railroad travelling', Ruskin complains, 'is addressed to people who, being in a hurry, are therefore, for the time being, miserable.' This misery is a matter of necessity. 'No one would travel in that matter who could help it', he continues, because the railroad 'transmutes a man from a traveller into a living parcel.' The price paid for the railroad's 'planetary power of locomotion' is a suspension of individual agency and the ability to appreciate the aesthetic nuance of nature.[255]

James Fisk (who allegedly claimed to 'rule New York with a rod of iron as completely as Robespierre ruled France') reads, 'Q: Were you present at any time when anything was said with reference to having Stokes railroaded to State prison? A: Yes sir, I was: in the front parlour of Mrs. Mansfield's house. That was a year before the killing.' *Sun* [New York], 9 July 1872, pp. 2-3. *Merriam Webster* has 'to convict with undue haste and by means of false charges or insufficient evidence' from 1828.

[253] Cf. recent discussion of mental time travel as 'what if' episodes, which of course impinge on moral reasoning. *Mental Time Travel*, p. 176.

[254] Making railroads a useful analogy for limitations on thought imposed by inflexible adherence to certain modes of reasoning. Maxwell, in a letter to Herbert Spencer, observes that '[m]athematicians, by guiding their thoughts always along the same tracks, have converted the field of thought into a kind of railway system and are apt to neglect cross-country speculations.' Letter to Herbert Spencer, 5 December 1873, *The Scientific Letters and Papers of James Clerk Maxwell*, II. p. 957.

[255] John Ruskin, *The Seven Lamps of Architecture* in *The Works of John Ruskin*, ed. E. T. Cook and Alexander Wedderburn (London: George Allen, 1903), VIII, p. 159. Cf. Marxist criticism of the railroad in Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Oakland, CA: University of California Press, 2014) pp. 119-120.

Similarly, in videogame design the metaphor 'on rails' takes as its source domain the closed system of the railways and projects it to its target: games with deterministic storylines in which players have limited or no choice in the unfolding sequence of events. Most written narratives could be said to be on rails in this sense. By likening the White Queen to a steam engine, Carroll calls attention to determinism's linearity. It also shows why he denies a royal road to justice: determinism is incompatible with a meaningful concept of morality. Having constructed an internally coherent logic-inflected scene in which causation and memory go backwards, Carroll returns to the initial position he took up against Aristotle: the pure and simple truths attained through philosophy ought not to be extrapolated into rules governing everyday life with one to one correspondence. To recall Carroll's earlier points about logic and its application, the exclusive use of deductive logic and mathematics which results in classical mechanics and determinism makes a mockery of justice.[256] There can be no perfect legal machinery, no mechanism for the dispensation of fast universal justice, for the same reason that there can be no perfect machine: flaws are inevitable. They are evidence of contingency, thermodynamics and stochastic processes. To look at it another way, our intuitive sense of justice makes a mockery of determinism: the fact that we build societies around the idea of choice and contingency is proof that legal decision-making ought not to proceed only along deductive lines.

2.8 Gammon and Spinach

The White Queen's mad application of deduction, determinism and utilitarianism to the judiciary is just one example of the deep engagement with contemporary society under the playful surface of Carroll's prose. The Professor of *Sylvie and Bruno* and *Sylvie and Bruno Concluded*

[256] He has an ally in Berlin here. Cf. Popper's critique of Boltzmann's inductive logic.

is another mouthpiece for the wrong-headedness Carroll perceives in nineteenth-century Britain.

By casting The Professor as a pompous and blustering sophist, Carroll reveals his own views about idealism. If some of the metaphysical tenets of esoteric Buddhism were true, then The Professor would be correct; that these conditions lead to absurd consequences in his fiction shows Carroll's denunciation of idealism. However ironic, his epistemically transgressive writing shows that from 1870 to 1900 the traditional view of philosophy as split into two schools of empiricists and metaphysicians could not be maintained (if it was ever a true picture). Throughout this period, British thought was engaged in the slippery business of mixing grand theoretical systems with the reproducible minutiae of empirical research.[257]

Backwards time in *Sylvie and Bruno Concluded* represents a formally realised critique of idealist philosophy, especially Oxford idealism. One sign is the watch's German provenance. The Professor, who gives the watch to the narrator, is noted for his German accent and is twinned with a character known only as Mein Herr, a university professor whose institutional affiliation is never divulged. In a passage that plays with biological time, Mein Herr hints that he favours a Buddhism-inspired cyclic model of time:

[257] For Popper, this is when 'the habit of confusing trends with laws' begins. G. H. Lewes, for example, in his (unsuccessful) 'Metempiric[al]' attempt to solve the riddle of the absolute with positivism, sees in evolutionary biology the first glimpse of the 'true notion of causality'; which for him is 'the *procession* of causes, – the combination of factors in the product, and not an *ab extra* determination of the product.' Not determinism, then, but a combination of 'co-operating conditions'. On a grander scale, '[i]n Sociology […] we see […] the *historical conditions of existence*. From the due appreciation of the conditions of existence, material and historical, we seize the true significance of the principle of Relativity.' Lewes shows he has succumbed to some form of absolute idealism (he calls it pantheism/panpsychism but we might think of it as mystic vitalism in which sentience in nature is a matter of degree, not kind) with his argument that 'Mind and Life are not confined within the narrow limits of the Animal world, not even within the wider limits of the Organic World, but are essential attributes of the whole Cosmos.' It is this conviction which allows him to say 'Necessity and Universality are not criteria of a knowledge transcending Experience […] it is precisely where the range of Experience ceases that the necessity and universality of a proposition vanishes into indistinctness and uncertainty. *The Poverty of Historicism*, p. 116; G. H. Lewes, *Problems of Life and Mind*, (London: Trübner, & Co., 1874-1879) 2nd Series, *The Physical Basis of Mind*, III p. 6; IV, pp. 18-19; 1st Series, *The Foundations of a Creed*, II, p. 222.

> something tells me we are further on than you in the eternal cycle of change […] many a theory we have tried and found to fail, you will also try, with a wilder enthusiasm: you will also find to fail, with a bitterer despair!
>
> […] as he talked […] the whole man seemed to be transformed, as if he had grown fifty years younger in a moment of time.[258]

Of the great German idealists, this passage rules out Kant and Lotze as models for Mein Herr; Kant because he does not venture an opinion on the structure of time, Lotze because he was convinced that becoming was absolute and eternal cycles were nonsense. Nor is Hegel a likely candidate. While the dialectic is cyclical it marks repeated stages in the rectilinear teleological progress of world-spirit. Besides, such canonical figures are more likely to elicit pious reverence than mocking cynicism, even among detractors, and do not fit the satirical portrait of a dreamy Oxford don Carroll paints in the *Sylvie and Bruno* books. If speculation must be ventured as to the identity of Mein Herr, we should affect a more parochial gaze.

A more probable man behind the mask is Max Müller. Relations between the pair initially verged on friendship (dinners in the 1860s and even portrait sessions in which Carroll photographed Max Müller's family).[259] By 1876, they had broken down, largely because Carroll opposed a motion to relieve Max Müller of his teaching duties to pursue his personal research on full salary.[260] An undated letter attests to the contempt in which Carroll held Max Müller with a private joke at his expense shared with Dr. Robert Scott (co-editor of Liddell's *Lexicon*). 'Are we to suppose,' Scott writes, responding to a contemporary suggestion that 'The Jabberwocky' was a derivative translation of a German original entitled '*Der Jammerwoch*',

> that the Saga of Jabberwocky is one of the universal heirlooms [of the] Aryan race […]? You must really consult Max Müller […] the *origo originalissima* may be discovered in

[258] *Sylvie and Bruno Concluded*, p. 610.
[259] *Lewis Carroll: A Biography*, p. 76; p. 162.
[260] Ibid., p. 390.

> Sanscrit, and […] we shall by and by have a *Iabrivokaveda*. The hero will turn out to be the Sun-god in one of his *Avatars*; and the Tumtum tree the great Ash *Ygdrasil* of the Scandinavian mythology.[261]

In fact, Scott himself published the waggish back-translation in *Macmillan's Magazine* in 1872 under the pseudonym Thomas Chatterton, claiming it was a transcription of the original '*Jammerwoch*' (perhaps 'yammer week', with some glib transliteration and the generous approximation typical of those hot-air peddling philologists in a town now full of 'too much chatter') penned by Hermann von Schwindel ('Herr Man of Swindle'?).[262] Again, this is mercilessly satirical and Scott evidently has a German target in mind. Von Schwindel is a probable forerunner of Mein Herr, and further evidence that Max Müller may be Carroll's model for the 'dreamy' Professor.

Philological joking aside, Müller emerges as a figurehead of German idealism at Oxford in the late nineteenth century. His translation of the *Critique of Pure Reason* in 1881, eight years before *Sylvie and Bruno*, invites comparisons with its muddled Professor and his German alter-ego Mein Herr. Müller is also responsible, along with Copleston and Monier-Williams, for spreading the ideas of Buddhism at Oxford, whose combination with German idealism is one way the Oxford idealists began to deviate from conventional Hegelianism, rejecting the teleological model of history and opting for an ambivalent seriality allowing backwards time.

---

[261] Quoted in Stuart Dodgson Collingwood, *The Life and Letters of Lewis Carroll* (New York: The Century Co., 1899) p. 143.

[262] Scott's translation is awash with slapdash associational leaps; 'beamish boy', for example, must be a corruption of *Böhm'sches kind*, 'my young Bohemian', alluding to Max Müller's annoyingly pompous habit of referring everything to Germanic, (then Indian) origins. Contemporary philologists, Scott suggests, overreach by trying to establish such roots everywhere, whether because study in those areas is in vogue or in a covert attempt to establish German superiority over English by showing it truer to the ancestral origins of Indo-European language. For Scott and Carroll, English is not some illegitimate younger brother of a true German heir to European culture. In this way, Scott's satirical letter looks ahead to the arcane travails of the backward-looking *Ahnenerbe* which tried to establish scientific and historical bases for the Nazi racial ideology. Equally, it looks back to Hegel's vision of German culture as the fourth great civilisation in history, following the Oriental, Greek and Roman (which he suggests Max Müller shares). George Wilhelm Friedrich Hegel, *The Philosophy of History*, intr. C. J. Friedrich (New York: Dover, 1956). Thomas Chatterton [Robert Scott], 'The Jabberwock Traced to its True Source', *Macmillan Magazine*, 25 (1871) pp. 337-338. The publication venue suggests Macmillan was in on the joke.

Both Carroll's 'Jabberwocky' and Scott's '*Jammerwoch*' end where they began, showing that both had cycles in mind while composing their poems. Carroll's cycle is indicated by two factors. First, the opening and concluding stanzas are identical, meaning the poem can be read as an infinitely repeating song of nonsense. Second, the writing is printed backwards, so deciphering the message without a mirror requires something like a mental dialectic: backwards letters interpreted as words; forward counterparts comprehended and strung together for syntax; meaning creation. Thesis, antithesis, synthesis. The dialectic itself, while it nods covertly to Kantian antinomy via Fichte and Hegel, is not really the point. What matters is the endlessly rolling cycle of interpretation – the removal of a teleological ending. With orthographic mirror-reversal Carroll suggests that time going backwards is part of the conception of cyclical time. Scott continues the joke, concluding with the beginning of the first line of the final (and first) stanza: '*Es brillig war,* ↄ*c.*' or , in Scott's truncation of Carroll's text *en face*, ''Twas brillig, &c.'[263] That cyclical and backwards time are nonsensical is asserted by both writers and, while it is uncertain that 'The Jabberwocky' was intended as a jibe at Max Müller before Scott's pithy translation and ironic notes, Mein Herr strongly resembles the Oxford philology professor.

However suggestive the evidence, direct correlation between Max Müller and Mein Herr is unnecessary. With his linguistic cookie-cutters ('The Professor', 'Mein Herr', the 'metaphysical young lady') Carroll shows he is more interested in types than individuals. His reference to cyclical time in the above passage is tongue-in-cheek, recalling Mein Herr's dark comments ('something tells me we are further on than you in the eternal cycle of change […]'). The Oxford idealists are flogging a dead horse, repeating the mistakes of their German counterparts about fifty years earlier when they began to incorporate Indian, especially Buddhist, philosophy into their thinking in the shape of absolute idealism.[264] Just thinking of

[263] 'The Jabberwock Traced to its True Source', p. 388.
[264] E.g. Fichte, Schelling, and Hegel. Schopenhauer, whose passion for the Upanishads is well known, began the pessimistic school which heavily influenced Nietzsche, and which provided the inspiration for his doctrine of eternal recurrence.

the eternal cycle seems to allow the German to roll back the years and grow younger in a demonstration of the reversible dead time of the absolute idealists.

Carroll also casts up Mein Herr by ironising his myopic devotion to classical Newtonian mechanics and a closed system of reversible physical laws. That Mein Herr is not from a place we might recognise as Germany in the real world is evinced by his description of railroads where trains 'run […] without any engines – nothing is needed but machinery to *stop* them.' When pressed as to how sufficient locomotive force is generated, Mein Herr explains that it is supplied by gravity, for all railroads in his country go downhill 'from *both* ends'.[265] Because they run in straight tunnels underground from point to point, gravity supplies enough momentum to take the train from one end of the tunnel to the other in a perfectly reversible mechanical process. The Professor, then, seems unaware of the second law of thermodynamics.[266] Only in an ideal Newtonian system might this work. In practice the energy available for work in order to take the train back up hill will be diminished by friction from the rails, air resistance, etc. This calls attention to two things. First, that The Professor 'comes from' an ideal world as opposed to a place with a terrestrial location. Second, that empirical evidence is again the vanquisher of idealism suggests that Carroll sides with Maxwell and Thomson on the matter of backwards time. A cyclical world, or one in which time was reversible, is incompatible with a Christian doctrine of beginning and end. Thermodynamics provides a way out of the Newtonian snare: epistemological relativism notwithstanding, ontological realists can read the inevitable heat-death of the universe as a materialist answer to judgement day, the moment in which being transcends the temporal.

Over and again, the arguments Carroll places in The Professor's mouth belie idealism. 'History', he tells Sylvie and Bruno, 'repeats itself'.[267] Like the 'eternal cycle' and the railroad

[265] *Sylvie and Bruno Concluded*, p. 585
[266] The conventional mode of traction in Carroll's day was the steam engine, itself a symbol of the scientific advance represented by thermodynamics.
[267] *Sylvie and Bruno Concluded*, p. 550

which goes downhill from both ends, this demonstrates The Professor's equivocal sense of causality. It is underlined in a chapter entitled 'Gammon and Spinach', in which he shows the children his memoranda. Recorded here are the cases of patients he treated in his role as court physician:

> "'*Under-Cook Number Thirteen recovered from Common Fever* […]." And now see what's pinned to it. "*Gave Under-Cook Number Thirteen a Double Dose of Medicine.*" […]
>
> 'But which happened *first*?' said Sylvie […].
>
> The Professor examined the papers carefully. 'They are not *dated* […] so I fear I ca'n't tell you. But they *both* happened: there's no doubt of *that*.'[268]

This scene shows the importance of logistic time in relation to sequence when living memory fails. One benefit of history is that it offers a claim to certainty, though the uncertainty about order here shows that emplotment, to borrow a term from Hayden White, is not arbitrary. Emplotment, for White, means taking value-neutral historical events and setting them in a causal sequence. By rejecting the notion that this act is arbitrary Carroll also rebuts Hegelian emplotment as outlined by White, viz. the reduction of historical narrative to 'formal systems'. On Carroll's view the direction of time is already an important aspect of history before the historian's intervention; by constructing a narrative out of a series of events the historian is trying to put back something that has been lost (i.e. time) rather than adding something subjective and extraneous.[269] The Professor may simply have forgotten to date his notes but by insisting that this is unimportant he shows himself more interested in events and formal systems than processes and consequences. This is how he can hold to a history which repeats and even reverses, as it does when he activates the special 'peg' on his watch.[270] The Professor's blasé approach to medical causality demonstrates the same ambivalence about cause and effect

---

[268] Ibid. p. 664.
[269] Hayden White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore: Johns Hopkins Press, 1980) pp. 93-97.
[270] Cf. The 'peg' in Campbell's *Politicus*.

characterising the totalitarian warning in *Through The Looking-Glass*'s 'Wool and Water' sequence, showing that reversibility and determinism were subjects Carroll challenged over many years. In this context such ambivalence seems relatively innocent, but its dire consequences are played out to their tragic extreme in Amis's *Time's Arrow*.

The Professor's ideas are fun, but obviously hare-brained. Little wonder then that Carroll titles the chapter in which he explains them to Sylvie and Bruno while preparing to give a lecture, 'Gammon and Spinach'. Ray Dyer argues we ought to interpret this as 'stuff and nonsense', claiming the phrase is used in this sense by Dickens in *David Copperfield* and *Our Mutual Friend*.[271] That is not strictly true. In both novels, Dickens uses the phrase to flag up not nonsense but social interactions in which discourse does not reflect the sentiment of the speaker, a tension between signifier and signified. In *David Copperfield*, Miss Mowcher critiques the set piece routine of introductions: 'Oh my goodness, how polite we are! […] What a world of gammon and spinnage it is, though, ain't it?'[272] Rubbish, yes, but rubbish that hides something. In *Our Mutual Friend*, the context is still more nuanced. Here it appears in an address made by Mr. Veneering, one half of a couple Dickens fingers for new money and highly polished sycophants ('what was observable in the furniture, was observable in the Veneerings – the surface smelt a little too much of the workshop and was a trifle sticky').[273] Mr. Veneering makes a toast to Mr. and Mrs. Lammle on their first wedding anniversary, 'the time has arrived when […] with a profusion of gammon and spinach in our emotional larders, we should […] drink to our dear friends the Lammles'.[274] This is complicated by its being reported speech so that we do not know what the words, replaced here with the catch-all 'gammon and spinach' are supposed to have been. In *Our Mutual Friend*, then, Gammon and Spinach is not just nonsense, it is dissembling rubbish in

[271] Ray Dyer, PhD [sic.], *Lewis Carroll's Sylvie and Bruno with Sylvie and Bruno Concluded: The Neglected Victorian Fairytale, Annotated and Re-presented* (Leicester: Matador, 2015) p. 498. *David Copperfield*, *Our Mutual Friend*, and *Bleak House* are all itemised in the catalogue of Carroll's personal library.
[272] Charles Dickens, *The Personal History of David Copperfield*, ed. Nina Burgis (Oxford: Oxford University Press, 1999) p. 320.
[273] Charles Dickens, *Our Mutual Friend*, ed. Adrian Poole (London: Penguin, 1997) p. 17.
[274] Ibid., P. 407.

the mouth of a social climber. Dickensian gammon and spinach refers to times when language misses a truth which is nevertheless discernible.

Dickens is more than just a touchstone for the phrase gammon and spinach. The *Sylvie and Bruno* books have a distinctly Dickensian bent in general. Hardly surprising, given Carroll's lifelong love of Dickens: here are the worldly-wise children; here too is the grotesque (anti)realism, a stylistic distortion allowing us to perceive deeper truths.[275] It is worth adding one more Dickensian source, from *Bleak House*, Dickens's most entropic novel, which provides a contrast to Dyer's precedents. In *Bleak House*, Gammon and Spinach are the names of two of Miss Flyte's geese. Miss Flyte, a suitor in the Jarndyce and Jarndyce case, has been driven to madness by the Court of Chancery's longwinded legal processes. In this last example, Gammon and Spinach become proper nouns, indicating the dangers of taking abstractions too seriously and losing sight of what is important in reality.[276] In fact, most of Miss Flyte's Geese are named for abstract nouns, indicating just this kind of blur between the ideal and the real, while those denoting concrete items clearly derive from Chancery's inventory. The full list runs 'Hope, Youth, Joy, Peace, Rest, Life, Dust, Ashes, Waste, Want, Ruin, Despair, Madness, Death, Cunning, Folly, Words, Wigs, Rags, Sheepskin, Plunder, Precedent, Jargon, Gammon, and Spinach.'[277] Because lists foreground sequence, Miss Flyte's geese also suggest the fate of those who trust in Chancery. It may justly be pointed out that this contradicts the argument that Dickens warns us not to trust in deterministic outcomes. A charitable reading on this view would be to say that Dickens considers it unwise to put faith in that which seems pre-determined

[275] Cohen, too, remarks that in his youth Carrol 'was devoted to the writings of Blake, Wordsworth, Coleridge, Dickens, and Tennyson – all Romantics and all variously commentators on the nature of the child and the child's place in the universe.' *Lewis Carroll: A Biography*, p. 106. Cf. pp. 118-119.

[276] One moral reading of *Bleak House* would be that it is better to live in the here and now than to waste life on an empty promise (Richard Carstone dies having spent all his energy trying to acquire what turns out to be a worthless inheritance) or an unchangeable regret (Lady Dedlock dies cold and alone having fled her husband upon news of the return of a potentially ruinous illegitimate daughter, a tragedy compounded by her having done so in anticipation of her husband's anguish and ignorance of his immediate forgiveness).

[277] Cf. Mr. Bucket's abbreviation. Charles Dickens, *Bleak House*, ed. Stephen Gill (Oxford: Oxford University Press, 2008) p. 217; p. 370.

without first subjecting it to serious scrutiny. A harsher response might be to accuse Dickens of inconsistency. Neither is necessary, because Miss Flyte named the geese. The madness is all hers: the geese represent the destiny of those who trust in Chancery, but she does not see this sequence is also her own (she is at 'madness', next stop: 'death'). Miss Flyte repeats the list towards the end of the novel when everyone has learned more about how Chancery operates. This time she has additions to make: 'Two more. I call them the Wards in Jarndyce. They are caged up with all the others.'[278] This time the transformation is the other way around: the wards, Ada Clare and Esther Summerson, have become idealised as the 'Wards in Jarndyce' and reduced the status of (silly?) geese.

Which Dickens does Carroll reference in *Sylvie and Bruno Concluded*? On balance, the evidence favours a nod to *Bleak House*, which is deeply interested in the relationship between time, justice, and perhaps entropy (the narrative itself runs out of steam, tailing off mid-sentence). It is also, along with *Hard Times*, a novel in which Dickens attacks the Benthamite utilitarian state, and especially the law, which for Dickens exists solely 'to make business for itself.' 'Viewed by this light', he explains, 'it becomes a coherent scheme, and not the monstrous maze the laity are apt to think it.'[279] As Dickens demonstrates with the Jarndyce and Jarndyce case, money resembles energy where the law is concerned. The second law of thermodynamics states that in a closed system the amount of energy available for work cannot increase. Similarly, in an inheritance suit, the amount of money in the estate available to pay for legal work is steadily used up until irreversible inertia, rather than definite resolution, is reached. In *Bleak House*, as in *Through the Looking-Glass*, the law and justice do not necessarily go hand in hand.[280]

Not that either Carroll or Dickens sets thermodynamics in direct opposition to justice.

---

[278] Ibid., p. 853.
[279] Ibid., p. 573.
[280] This is certainly Mrs. Bagnet's view: 'It won't do to have truth and justice on his side; he must have law and lawyers,' she says, because for her 'the latter form a separate establishment, and have dissolved partnership with truth and justice for ever and a day.' Ibid., p. 777.

Miss Flyte seems perfectly lucid most of the time, but she is deluded when it comes to Chancery. She is convinced that the suit will come to a resolution, allocating funds after an orderly fashion according to the law. That is, she believes in fixed outcomes and expects the law to proceed along the lines of classical logic.[281] Although the law was once considered a deductive science, this type of thinking has long since fallen out of favour. It is now widely acknowledged that administering justice is an evaluative process involving many different strands of reasoning. Just as it is in *Through the Looking-Glass*, the idea of the law as a slick justice-dispensing machine is summarily dismissed by Dickens in *Bleak House*. The reality, Dickens shows, is more entropic – the estate is gradually eaten away as the funds dissipate in legal costs. Dickens portrays Miss Flyte as mad to trust in the law as it exists in the machinations of the Benthamite utilitarian state. The Professor of the *Sylvie and Bruno* books, whom Carroll aligns with Miss Flyte in this chapter's sidelong glance at Dickens, is mad for trusting in the physical Law as an absolute, as the kind of deterministic and reversible process which obtains in classical mechanics.

Carroll's overarching theme in the *Sylvie and Bruno* books – also evident in reverse causation scene in *Through the Looking-Glass* – is that in order for it to make sense, morality must be regarded as existing outside of the system of physical laws which hold for everything else. His response to deterministic materialism though is to appeal to the eternal: to God.[282] Rejecting the determinism which might follow from taking up a hard materialist view combined with absolute idealism, such as he might have found in John Stuart Mill's *A System of Logic, Ratiocinative and Inductive* (1843), Carroll writes 'Human Free-Will is an exception to the system of fixed Law.'[283] The reason, he argues, is that only through will can God influence the world.

---

[281] For similar reasons, as outlined above, classical mechanics results in determinism and reversibility.

[282] This appeal to the eternal was also at the root of Einstein's rejection of quantum theory.

[283] Mill did not believe in free will and was ultimately an idealist (probably objective though perhaps transcendental):

> of the outward world, we know and can know absolutely nothing, except the sensations which we experience from it. […] As body is the mysterious something which excites the mind to feel, so mind is the mysterious something which feels, and thinks.

John Stuart Mill, *A System of Logic, Ratiocinative and Inductive* (London: John W. Parker, 1843) I, pp. 80-81; *Sylvie and Bruno* p. 532.

That puts the onus on us as individuals to make godly choices and, since choice is real for Carroll, who rejects determinism and holds that the ethical comes from within, we must act on intuition.[284]

Insofar as he is against intellectualism in ethical thought, Carroll has an ally in Bernard Williams. For Williams, ethical convictions are not knowledge and cannot be calculated artificially, outside of the situation to which they apply. 'The truth', Williams writes,

> is that the basic question is how to live and what to do; ethical considerations are relevant to this; and the amount of time and human energy spent in reflecting on these considerations must itself depend on what, from the perspective of the ethical life we actually have, we count as a life worth living and on what is likely to produce people who find life worth living.[285]

Carroll agrees. Whereas Nietzsche thinks materialism has killed God, delivering an unanswerable challenge to the basic tenets of Christian morality, Carroll thinks it simply shows us a more streamlined view of free will: one in which it was irrational ever to conceive of a God who could intervene on request.[286]

[284] Cf. Kant, for whom ethical values come from without.
[285] Bernard Williams, *Ethics and the Limits of Philosophy* (Cambridge, MA: Harvard University Press, 1985) p. 171.
[286] *The Gay Science*, §125.

Chapter Three

Nabokov's Open Mind: The Freedom to Self-Determination

3.1 Introduction

> 'Life, what is it but a dream?'
>
> ~ Lewis Carroll, *Through the Looking-Glass*.[287]

Despite a lifelong obsession with the nature of time and a taste for extremes, Nabokov never set forth a coherent and fully formed expression of his views on time. Characteristically strident elsewhere yet seemingly ambivalent on this one issue, Nabokov's writing occupies an unusual place in the literature of time. Still, taking a wide survey of his writing on time, this chapter argues it is possible to make sense of Nabokov's competing narrative voices and that he ended up favouring irreversible time. The above question, with which Carroll ends *Through the Looking-Glass*, originates in idealism, specifically in Berkeley's impervious but unappealing argument that since the outside world is never directly experienced all may be of the mind, though in Carroll's time the encroachments of Buddhist philosophy into European thought saw the concept of *māyā* renewing speculation about an epiphenomenal external world in an attempt to legitimate a perfect system of reversible mechanical laws.[288] Carroll answers this scepticism forcefully in the form and plot of the *Sylvie and Bruno* books: life is plenty else besides, he says, and, nudging us back to Lockean empiricism, if we need convincing we need look no further than moral, social and practical experience.[289] For all that, the question was far from settled,

---

[287] *Through the Looking-Glass*, p. 219.

[288] 'We see only the appearances, and not the real qualities of things', says Berkeley, so that 'for aught we know, all we see, hear, and feel, may be only phantom and vain chimera'. George Berkeley, *A Treatise Concerning the Principles of Human Knowledge*, ed. Jonathan Dancy (Oxford: Oxford University Press, 1998) §87.

[289] The poem whose question graces the conclusion of *Through the Looking-Glass* is answered by another introducing *Sylvie and Bruno*, suggesting Carroll wanted to link the *Alice* books to the *Sylvie and Bruno* books. Brian Sibley, 'The Poems to *Sylvie and Bruno*', *Jabberwocky*, 23 (1975) pp. 51-58.

and not only because few people read the *Sylvie and Bruno* books. Idealism, including but not limited to the Oxford variety against which Carroll fought, had proven that though thermodynamics undermined the reversibility of classical mechanics, it could neither do away with physical reversibility at the microscopic level nor as a concept at the macroscopic. Workarounds were found which accounted for the irreversible second law as a mere epiphenomenon, or as a statistical description of a whole whose parts did not always abide by it.

The next moment in the story of backwards time was relativity theory. With relativity came a shift from Euclidean to non-Euclidean geometry. Among the benefits was the ability to reinstate reversibility by construing space and time as inextricable but drawbacks included a tendency to invite moral relativism because it rendered time epiphenomenal.[290] In a letter to his friend Michele Besso's family, offering condolences following his death, Einstein writes, 'Here Besso has once more preceded me a bit in leaving this strange world […] that does not mean anything. For us, physicists of faith, the separation between the past, present and future, holds nothing more than the value of an illusion, however strong it may be.[291] Whether he knew it or not, by steadfastly maintaining the unreality of time, Einstein was urging an idealist metaphysic alongside his mechanical theory. Denying the reality of time also means denying the significance of death; Einstein's letter to Besso as good as says 'nothing dies', a phrase J. W. Dunne uses to title one of his works about the relation of mind to matter in such a universe and who developed a dream experiment Nabokov would use in later life to investigate which universe – Einsteinian block or Bergsonian becoming – was for him.

---

[290] Einstein himself never endorsed moral relativism.

[291] Einstein to Besso's family, 21 March 1955 qtd. in Jimena Canales, *The Physicist and the Philosopher: Einstein, Bergson, and the Debate that Changed our Understanding of Time* (Princeton, NJ: Princeton University Press, 2015) pp. 338-339. Cf. The reported speech of Philip K. Dick's Anarch Peak:

> there's no death […] Time is an illusion. Every instant that comes into being never really passes away. […] So there's no dualism, no evil, no satan. Evil is an illusion like decay. […] Eidos is form. Like Plato's category – the absolute reality. It exists; Plato was right.

Philip K. Dick, *Counter-Clock World* (London: Harper Voyager, 2008) p. 215

Finally, there is the controversy over what to make of quantum mechanics. At first, with its insistence on uncertain futures, it seemed to make one-way time an incontestable physical principle. Later, philosophers of science would unpick quantum theory to find one of its uncertainties was whether time existed at all: time's arrow was not reinstated once and for all, but instated over and over again every instant in an endless process of creation, leaving open the possibility of localised pockets of reversibility.

Where Nabokov landed in his thinking about time is the interest of this chapter, which argues that he always favoured one-way time but at times this was hard to reconcile with contemporary physics. Because he is prone to strong opinions, and because those opinions are not always consistent, ascertaining Nabokov's views on any matter is a tricky business.[292] Add to that his disdain for interpretive certainty and it becomes nigh impossible. For all that, the task is a worthy one: Nabokov's understanding of time has important consequences, both for his characters and his plots. It is the difference between a shrug and a scowl when evaluating his darker characters' penchant for little girls (and his attitude to Carroll), and it is intimately bound with the ironies of his texts, helping shape the Nietzschean, as opposed to Freudian, model of selfhood that he appears to have espoused. Although, for the most part, this chapter will focus on Nabokov's understanding of time through his allusions to backwards time, it proceeds on the understanding that the outcome of the debate over the reversibility of time's arrow stands to reframe interpretation of the morality of characters like Humbert Humbert, Van Veen and Vadim Vadimovich.

Immediately, a difficulty arises which threatens to foil the attempt: Nabokov's pathological hostility to interpretation. One of the slipperiest aspects of Nabokov's prose is its self-awareness. Nabokov has a high reflexivity quotient, resulting in endlessly proliferating puns and jokes resisting unequivocal interpretation. To grasp the model of time he endorses, so that

[292] Nietzsche, too, deliberately avoided a single epistemological standpoint. *The Will to Power*, §470.

we can contrast it with what is presented in order to perceive the ironies therein, we must interrogate Nabokov's authorial construction of causality. To do so, this chapter begins by reading Freud against himself as an idealist, in order to frame ironic readings of *Ada* and *Look at the Harlequins!*, whose ending is seen as a sort of theoretical coda. Reading *Ada* for his thoughts on time is justified by Nabokov himself. *Ada*, he says, teasing his interviewer, is

> mostly set in a dream America. […] I've drawn my scalpel through spacetime, space being the tumor, which I assign to the slops. While not having much physics, I reject Einstein's slick formulae; but then one need not know theology to be an atheist.[293]

The setting, a dream America, offers an interpretive head start. This ontological nesting, reminiscent of *Sylvie and Bruno*, calls into question the epistemology of experience and sets up a critique of idealism and the reversibility it legitimates. It also points to a deep engagement with Freud and the nature of the Freudian unconscious. This chapter explores the historical context of Nabokov's dream experiment of 1964, using this evidence to inform readings of the experiment's influence in his subsequent work and ultimately arguing that dreams and backwards time become a locus for Nabokov's argument denying what Bergson called the 'dead' and Lotze the 'empty' time of absolute idealism.

Key points of interest in this chapter are: the status of selfhood (is it – in Strawson's terms – 'episodic' i.e. transitory or 'diachronic' i.e. historicist), for Nabokov? Chirality, which Nabokov discovered through Gardner's *The Ambidextrous Universe* and which is bound up with reversible time in *Ada* and *Look at the Harlequins!*;[294] different forms and applications of logic as expressed in *The Luzhin Defense* - a theme linking Nabokov to Carroll through their readings of Locke and their interest in probability and chess; an analogous rivalry between the reversibility of relativity theory and the one-way time initially implied by quantum mechanics and its

[293] Vladimir Nabokov, *Strong Opinions* (London: Vintage, 2011), p. 100. There is an acknowledgement of Einstein's concept of eternity here, which Nabokov evidently considers theological.
[294] Chirality refers to Kant's discovery that left and right cannot be differentiated *a priori*. See §3.7.

historical precursor, the challenge to classical mechanics posed by thermodynamics explored in Chapters One and Two; Freud and Einstein as idealists. This argument will develop the claim that binding them together is the concept of backwards time.

At this point it may be useful to give an overview of the chapter, outlining its concerns and basic arguments. In §3.2, I identify the model of selfhood proposed by Freud, arguing that it rests on idealist foundations which legitimate backwards time. §3.3. argues that Nabokov presents ironized Freudian profiles in his fiction. I then make a quick digression in §3.4 to conclude from these observations that Nabokov is beyond the grubby fingers of commentators reading his works as manifestations of repressed drives and desires. Identifying a common line of backwards time at the racial level in Freud and Nietzsche in §3.6, I propose that Nabokov is against backwardness at the level of the individual, even if his adoption of the Nietzschean self-creation model is problematic for reading him as an advocate of one-way time because to see personhood as a continuing creative process seems to run counter to Nietzsche's avowal of determinism. (This will become important in Chapter Four, where I discuss Nabokov's legacy as it is manifest in the anti-war time reversal of Amis's *Time's Arrow*.) In §3.7, drawing together the above observations, I argue that Nabokov's dream experiment represents an attempt to show that reversibility and spacetime, which apparently endorses it, are not beyond contention and that his own view of continual progress cannot be dismissed even if it cannot itself be proven. I then discuss, in §3.8, the epistemological issues underpinning this observation, finding that Nabokov, like Carroll before him, ends up returning to Locke to discover where things start going wrong in our reasoning about the world, and that all three conclude the problem is a matter of bogus abstraction. In §3.10 this is used to show how Nabokov's early novel, *The Luzhin Defense*, explores problems of determinism and the inappropriate application of particular forms of logic to problems for which it is not well suited. The results are tragic, prefiguring the Nazi biomedical ideology covered in the next (Amis) chapter. §3.11 looks at

how Nabokov expresses the problems of time and identity through referential paradoxes, linking the material to Borges and paving the way for a discussion of his choice of title as a choice between an aestheticized or an ethical view of the world/a Kierkegaardian choice (explored in §3.9). Finally, in §3.12, I consider what this all means in terms of Nabokov's outlook by interrogating a lecture on art and 'commonsense' in which he apparently pits one against the other. Nabokov, I argue, champions an individual's right to self-expression and an artist's right to authenticity and integrity, both of which can only be achieved in a world which does not seek to hem them in. Rejecting the hard forms of both idealism and materialism, he ends up in a Kantian agnosticism, unable to say whether time is real or not. Faced with the prospect of having all he considers good and beautiful about the world ripped from under him, Nabokov saddles his readers with the choice between two models of time, suggesting a new way of reading *Ada*.

Although he favours one-way time, Nabokov does not write the kind of fiction which formally realises it in the way that characterises, for example, the canonical novels of high modernism. Instead, what he presents consistently in his work is two competing views of time, the indefinite race of two irreconcilable cosmological fictions exemplified by his short story 'Ultima Thule', and which broadly correspond to a block view as opposed to continuous flux. Nabokov claims that Van Veen's 'The Texture of Time' is inspired by Berkeley and Bergson.[295] This is a bit mischievous. Not only do these thinkers disagree, they are not even contemporaries,

[295] *Strong Opinions*, pp. 251-252. Asked by the artist Gospodin Sineusov about the prospect of immortality, Adam Falter, a savant who has apprehended the universe as a whole and who can, as a result, name things directly in his mind though not communicate them (a postlapsarian Adam), replies,

> You want to know whether Gospodin Sineusov will forever reside within […] Gospodin Sineusov […] or whether everything will vanish. There are two ideas here, aren't there? Round-the-clock lighting and the black inane. Actually, despite the difference and metaphysical colour, they greatly resemble each other. And they move in parallel […] they're racing each other, and you would very much like to know which will arrive first at the post of truth, but in asking me to give you a yes or a no for either […], you want me to […] interrupt the competition, […] the winner would be […] the one I did not snatch, an utterly meaningless result inasmuch as no rivalry would any longer exist.

Vladimir Nabokov, 'Ultima Thule', *Vladimir Nabokov: Collected Stories*, ed. Dmitri Nabokov (London: Penguin, 1995) p. 519.

an anachronism highlighting the lengthy duration of the debate between determinism and indeterminism. Bergson's real foe is Berkeley's heir, Einstein, in a lineage running back at least as far as Parmenides.[296] Similarly, to risk another anachronism, Bergson's forerunner in rejecting determinism and using backwards time to send up idealism is Lotze, who takes his cue from Heraclitus, and knows it.[297] Nonetheless, Nabokov's observation holds: there is an irreconcilable divide between these competing views of time, borne out in the results of his dream experiment, which shows backwards time in his fiction is doing similar work to that in Carroll and Amis's: illustrating the dangerous and absurd consequences of idealism.

3.2 Idealism in Freud

3.2.1 The Freedom of Self-Determination

For Nabokov, Freud is a contemptible byword for psychoanalysis and its efforts to define personhood extraneously. The self is not there to be deduced, says Nabokov, or subjected to logical analysis in the hope of establishing a systematic basis for traits and behaviours, wants and fears. Instead, he prefers to express himself in his own terms and will not endure the ignominy of being told who he is by a 'perfect stranger at the bedside of [his] mind'.[298] Nabokov's refusal to be framed by someone else's words is reminiscent of the Nietzschean aesthetic of selfhood in which the subject is self-creating: 'We […] want to *become who we are*', says Nietzsche in a rallying cry, to be 'human beings who are new, unique, incomparable, who give themselves laws, who create themselves!'[299] Nabokov, however, does not agree with

[296] A lineage which passes through Mach, on its way. K. R. Popper, 'A Note on Berkeley as Precursor of Mach', *The British Journal for the Philosophy of Science*, IV, 13 (1953) pp. 26-36. Later editions included Einstein explicitly, e.g. Karl Raimund Popper, 'A Note on Berkeley as Precursor of Mach and Einstein' [1963] in *Conjectures and Refutations: The Growth of Scientific Knowledge* (London: Routledge, 2002) pp. 224-236.
[297] *Metaphysic*, p. 85.
[298] *Strong Opinions*, p. 99.
[299] *The Gay Science*, §335.

Nietzsche on everything, notably physical reversibility, which for Nietzsche was an open question and a harbinger of moral relativism but which for Nabokov is just a clever thought.

If Nabokov is so against psychoanalysis, why give it oxygen by spending so much time disparaging Freud? Jealousy, answers Rorty. Nabokov and Freud share similar epistemological aims – among them, articulating a means of accounting for individuality through personal contingencies – but, because Freud got there first, Nabokov rolls him in the dirt.[300] Rorty's reading rests on an idiosyncratic view of Freud, who is for him 'the moralist who helped de-divinize the self by tracking conscience home to its origin in the contingencies of our upbringing' and who 'leaves us with a self which is a tissue of contingencies rather than an at least potentially well-ordered system of faculties.'[301] On the face of it, there are reasons to agree that Nabokov seeks to define people in like fashion. In *Ada*, for example, Van Veen appears to be a case of arrested development stuck in the moment of his adolescent trysts with his twelve-year-old sister. His adult neuroses can be traced back to formative experiences and his revisionary narrative style can be explained by *Nachräglichkeit*. Oddly, for an author usually sensitive to irony and its social consequences, Rorty overlooks the possibility that Nabokov's depiction of neuroses as traceable to formative contingencies is ironic.

While Freud does construct the self from unique contingencies in the personal past, he wants to establish a universal framework by which this can be described, trespassing against the Nietzschean imperative not to submit to description in someone else's terms (which Rorty asserts as a commonality between all three). What Freud asserts is not the primacy of individual contingency, which is of secondary concern, but that continuity is reduced from the level of the race to that of the individual, and even then, only on the proviso that the timeless unconscious preserves primitive humanity within us all. The aim of the project is still to uncover universalised processes by which we can trace actions, behaviours and ways of life back to

[300] Richard Rorty, *Contingency, Irony, Solidarity* (Cambridge: Cambridge University Press, 1995) p. 154.
[301] Ibid., p. 30; p. 32.

developmental causes, whether instilled after a hiatus via *Nachträglichkeit* or not, establishing patient by patient the discrete data which will form the basis of a totalising statistical system revealing the laws of thought.[302] This is the Freudian project, not self-actualisation or self-creation. At heart, Freud belongs to that pre-Nietzschean tradition of German thought which wants to establish, if not what the mind is, then at least how it works in universalising historicist terms.

By rejecting Freud, Nabokov, like Carroll, bucks the notion that closed systems and deterministic modelling lead to harmonious results.[303] What Nabokov dislikes about psychoanalysis, especially the Freudian sort, is that it imposes a rigid hermeneutic system, reducing the potentially unlimited hues of individual consciousnesses to the checking of arbitrary boxes devised by one man. 'Nabokov cherished the anarchy of the inner mind,' Amis explains in what might almost be a response to Rorty, and 'Freud is excoriated because he sought to systematise it. Is there something rivalrous in this hatred? Well, in the end it is Nabokov, and not Freud, who emerges as our supreme poet of dreams (with Kafka), and our supreme poet of madness.'[304] Amis elliptically replies that there is nothing to be jealous of, though of course jealousy is not always rational. In any case, 'freedom' works better than 'anarchy' here because Nabokov sees Freud as imposing limits on selfhood and artistic expression.

Freudians tread on an author's toes by reading her consciousness in her texts and assigning her predetermined labels. 'Who is Freud to impose such a taxonomy?', Nabokov

---

[302] i.e. Freud is not a liberal, but a conservative entranced by the '[s]weet despotism of reason' who 'regards law as a social product' and for whom '[l]aws of society, if such there be, are facts about the culture, not distillations of individual character.' *The Taming of Chance*, p. 35; p. 37.

[303] The same can be said of Amis, whose closed system of time in *Time's Arrow* demonstrates the absurd but internally coherent logic of totalitarian ideology. Totalitarianism like determinism will not tolerate contingency. Anomalies, outliers, aberrations, are repressed or destroyed in the name of establishing a harmonious closed system. Opposed to political change so as to retain power, totalitarian regimes naturally align with stable deterministic worldviews and attempts at social control (see Conclusion).

[304] Martin Amis, 'Nabokov and the Problem from Hell', *The Rub of Time: Bellow, Nabokov, Hitchens, Travolta, Trump and Other Pieces, 1986-2016* (London: Jonathan Cape, 2017) p. 19.

seems to say, likening Freud's monopoly on symbolic significance to a totalitarian regime. *Ada*'s thinly-veiled 'Dr. Sig Heiler' is just one of its many faces of Freud, whose detached veneration of transferable signs at the expense of the warmth of individual human feeling is indicated by a coeval 'Dr. Froid' (French for 'cold') and who in turn 'may have been an émigré brother with a passport-changed name of the Dr. Froit of Signy Mondieu-Mondieu'.[305] The juxtaposition of infantile regression with the adjective 'signy' and clichéd exclamation in French is no accident; the sign is the Freudian's god, as far as Nabokov is concerned, representing an irrational reversion to explanatory myth.[306]

For Nabokov, Freud is both totalitarian exegete and purveyor of cheap tricks. Yet while Nabokov rejects the idea of a coherent narrative self, he forgives Freud his endeavour, seeing in it a natural desire to discover harmony. 'The unravelling of a riddle', he writes,

> is the purest and most basic act of the human mind. All thematic lines mentioned are gradually brought together […] in a subtle but natural form of contact which is as much a function of art, as it is a discoverable process in the evolution of a personal destiny.[307]

Such unravelling, in autobiography no less than in fiction, is an imperfect process. Just as riddles seem to call for an answer, so patterns and themes in narratives seem to point to causal origins. It is natural to want to understand the whys of other rational agents, for Nabokov, but to achieve certainty in such matters is to be duped by the illusion of an arbitrarily imposed form.

3.2.2. *Nachträglichkeit*: Backwards Causation in the Mind

It is not obvious why Nabokov demonises Freud as a dictatorial menace, barring megalomaniac typology. True, Freud's system imposes a set taxonomy upon individuals, but while psychoanalysis is a conservative profession, it is hardly despotic. Moreover, such a picture risks

[305] Vladimir Nabokov, *Ada or Ardor: A Family Chronicle* (New York: Vintage, 1990) pp. 27-28.
[306] A tongue-in-cheek illustration of Freud's infantile 'compulsion to repeat'. Freud, 'Beyond the Pleasure Principle' in *CWSF*, XVIII, p. 35.
[307] Vladimir Nabokov, *Speak, Memory* (London: Penguin, 2016) pp. 239-240.

pushing Freud so far from Nabokov that the similarities between them are lost from view. Both, for instance, hold that memories are subject to change. Where they differ is on the nature of that change, and in that distinction lies a difference in worldview which explains Nabokov's caricature of Freud as despot. For while Freudian memory is subject to change it is not in the radically revisionist sense advocated by Nabokov, F. C. Bartlett and the cognitive psychologists.[308] This difference is also one of direction in time, and here there can be no reconciliation. Freud's model identifies the causes of hysterical symptoms in the past, in memory, but these causes are interpreted as such after symptoms begin. There is a backwardness to Freud's method, encapsulated in the concept of *Nachträglichkeit* (lit. 'afterward-ness', 'additional-ness'), but also present elsewhere in his writing, which inclines his understanding of causation towards idealism. This is the dangerous common root from which totalitarian systems grow.

Nachträglichkeit describes the retroactive interpretation of an event as traumatic. For Freud, 'a memory is repressed which has only become a trauma by *deferred action* [*Nachträglichkeit*]'.[309] Trauma is constructed after the event, re-transcribing the memory of it in light of a new interpretation.[310] This implies a system of backwards causation in which the traumatic event qua traumatic event does not exist until it is later transcribed owing to some physical or psychological action in the present. On the Freudian view of mental life, as Peter Brooks puts it,

> causation can work backward as well as forward since the effect of event, or of phantasy, often comes only when it takes on meaning, […] which may occur with significant

[308] And which has gained traction even with materialists in light of recent research into neuroplasticity.
[309] Sigmund Freud, 'Project for a Scientific Psychology', *CWSF*, I, p. 356.
[310] Freud considered the inconstancy of the memory trace to be one of his contributions to psychology, though his model is not the same Bartlett's, in which memories are changed every time they are accessed and originals lost forever. For Freud, the original trace remains buried in the unconscious under layers of reconstructions in 'a process of stratification' with 'the material present in the form of memory-traces being subjected from time to time to a *re-arrangement* in accordance with fresh circumstances – to a *re-transcription*.' Sigmund Freud, Letter to Wilhelm Fliess, 6 December 1896, *CWSF*, I, p. 233.

> delay. Chronological sequence may not settle the issue of cause: events may gain traumatic significance by deferred action (*Nachträglichkeit*) or retroaction, action working in reverse sequence to create a meaning that did not previously exist.[311]

This reverse causation is not quite backwards time – nothing is supposed to change for anyone else – nor is it constructionist memory in the sense we would recognise today since it leaves the original memory trace untouched yet obscured by a new trace with which it is associatively linked. Instead, a distinction is drawn between subjective and objective time, in which individuals return to a previous memory and reinterpret it to suit the needs of the present, laying a new trace over the original thereby producing trauma.

Freud gets around the problem of reverse causation by arguing that time does not apply to the unconscious. It is ordered neither by time nor space, he says, but by association. This is why consciousness is free to re-arrange and reconstruct memories at will in his system.[312] By denying chronology's role in the construction of selfhood, Freud robs the unconscious mind of time's arrow, which helps orient us to the world of experience and with which we make sense of our actions, motivations and desires; our losses, fears and regrets. The primitive, inbuilt systems of the mind are not time-directed and to make matters worse, Freud sees the unconscious as the mind's primary process and consciousness as secondary to it. The whole of personhood, in effect, is laid out in this system without paying much attention to individual experience. What is primary, i.e. fundamental, in the Freudian self is timeless: a network of associational linked contingencies. The rest amounts to little more than the adult mind's retrospective rationalisations. Freud, then, takes the dead time of Hegel, Bradley and McTaggart – in which events are reduced to discrete quanta as perceived by one observer and whose sequence supersedes their direction (a mere epiphenomenon) – and breaks it down still

---

311 Peter Brooks, *Reading for the Plot* (New York: Vintage, 1985) p. 280.
312 'The processes of the system *Ucs.* are timeless […] Reference to time is bound up […] with the work of the system *Cs.*' Sigmund Freud, 'The Unconscious' in *CWSF*, XIV, p. 187. Cf. §3.12.

further. Selfhood, understood through the Freudian subconscious, is a totalising associative system; the way it is retrospectively construed at any one time by the individual whose experience it is, arbitrary.

The legitimacy of Freud's project to determine the self from the outside, then, might be argued to hang on an epistemology of objective idealism, in which the impassable experiential divide between analyst and analysand disappears because both are part of a unified system with only one recognised observer. For this reason, when Louis Althusser, as part of his argument that philosophy is always political, compares the Western tradition's reaction to Marx and Lenin to the 'intellectual pariah' Freud, he tacitly acknowledges one reason Nabokov rejects Freud.[313] If Althusser is right in saying that 'the concept of a process without a subject underpins the whole of Freud's work' then Freud's system threatens to do away with the subject as a rational agent altogether.[314] His is a totalitarian philosophy reducing human beings to cogs in an ideological machine. No wonder Nabokov, who twice fled totalitarianism (first Bolshevism, then Nazism), was so opposed to it.[315]

---

[313] Louis Althusser, *Politics and History: Montesquieu, Rousseau, Hegel and Marx*, trans. Ben Brewster (London: NLB, 1972) p. 168. Marx famously turns Hegelianism on its head by substituting materialism for idealism in the dialectic. Popper, too, puts Freud in the bracket of totalising historicist thinkers when he mockingly fingers him for one of the 'Three Great Makers of the modern man's philosophy' along with Adler and Marx. K. R. Popper, *The Open Society and its Enemies*, 5th rev. edn. (London: Routledge, 1966) II, p. 100.

[314] *Politics and History*. p. 185.

[315] Despite all this, there are pragmatic reasons for adopting Freud's method without assuming that its postulates about the direct causality of the past and its reciprocal link to the present through *Nachträglichkeit* are true. Narrative therapy, for instance, aims at something similar, reconstructing the past in a way that joins fragments of traumatic memory into a cohesive interpretive whole even when that whole is not rooted in historical truth. On this view, having an intelligible story to tell about how one came to be and feel what one is and does is more useful for a patient than what actually happened, which may or may not be discoverable. The discomfort of uncertainty is palliated by a past (fictional or not) reconstructed on the scaffolding of external terminology. One way of reconciling Freud to Nabokov is to say that the method of backwards induction constitutes a form of Socratic questioning which invites a patient to construct herself anew by revising memories as traumas are discussed and explored together. The causal model of selfhood may indeed be a fiction, but this does not mean it is without merit.

3.3. The Causal Model of Selfhood: Nabokov as Ironic Freudian

Chapter Two noted that open and closed physical systems have profound consequences for moral codes and legal institutions. What about cases where the physical has no bearing? In the risk-free environment of dreams, what is to stop us from indulging (wilfully or otherwise) our most heinous desires? Carroll uses dream states to lighten the doxastic burden of his readers and create a low stakes environment for his anti-materialist, anti-idealist thought experiments the better to perceive their irony. Likewise, *Ada* uses dreams and memories to send up the idealism undergirding both the Freudian model of selfhood with its reverse causation and, more broadly, reversible time. Like Carroll, though for different reasons, Nabokov accords dreams the same epistemological status as fictions: both may draw on memory in a combinative way, but neither is admissible evidence of the creating mind's intentions, motivations, or psychological state.[316] Standing in Nabokov's way is the stubborn figure of Freud, whose thinking had, by the mid-twentieth century, slipped into the vernacular.

The causal model of selfhood employed by Freud is anathema to Nabokov. Nabokov uses dreams to critique Freudian psychoanalysis, meeting Freud, whom he considers a quack, on his own turf. If dreams for Freud are the way to discovering the unconscious drives and desires which constitute our innermost essence, for Nabokov their significance is less clear cut. One major objection Nabokov has to Freud's interpretation of dreams is the hypothesis that dreams are manifestations of unconscious desires, that they form part of a closed system of selfhood whose outward manifestations of personality are really the expression of uncontrollable preestablished inner impulses so that people need help to understand their dreams and the motives behind their own actions. In other words, the authoritative interpretation of a dream is not the dreamer's but the analyst's.

[316] The imaginative process of reading is equated to dreaming by protagonist Van who considers writing a novel in *durée* inconsiderate: 'Ought to begin dating every page of the manuscript', he writes, '[s]hould be kinder to my unknown dreamers.' *Ada* p. 122. Whereas in Carroll dreams are part of the rejection of idealism, in Nabokov they are the reason it cannot be wholly discarded.

On the back of his idea that dreams are caused by wants, Freud points out that many moralists analysing dreams are hypocritical. To be logically consistent, he argues, anyone holding that the dreamer's moral character is not identical with the waking person's ought not to be bothered by immoral dreams since they fall outside the remit of personal responsibility. Anyone who thinks dreaming and waking self alike are duty-bound to adhere to a moral code, on the other hand, ought to wholeheartedly accept responsibility for immoral dreams.[317] In the latter, Freud is referring to the Kantian categorical imperative and more broadly deontology, a set of fixed rules governing the behaviour of all moral agents. Kant's central idea is that if we want to know whether something is morally acceptable, we must first consider whether we would will it a 'universal law of nature'.[318] In the former, Freud may be appealing to any number of metaphysical outlooks, but it is to one of these that Nabokov belongs. If Carroll rejects determinism by illustrating the absurdity of a royal road to justice through mechanical utilitarianism, Nabokov rejects dream interpretation as a royal road to the constitution of a personality.[319] That is, he rejects the idea that individuality can be determined from without, and that conscious thought is runner up in the competition for psychological primacy. At the root of this reasoning is a form of idealism in Freud, which he inherits from Nietzsche but which leads him in a different direction in terms of his model of selfhood. In most of his later fiction, but especially in *Ada*, Nabokov offers a Euclid-inspired warning similar to Carroll's, this time against taking shortcuts when it comes to understanding the inner workings of our fellow human beings. He has one hasty analyst in particular in mind.

Freud famously thought of dreams as the fastest way to get at the composition of the analysand's mind. '*The interpretation of dreams*,' he writes, '*is the royal road to a knowledge of the*

[317] Freud, *The Interpretation of Dreams*, *CWSF*, IV, p. 68.
[318] Immanuel Kant, *Groundwork of the Metaphysic of Morals*, ed. Mary Gregor, intro. Christine M. Korsgaard (Cambridge: Cambridge University Press, 2006) AK 4: 421.
[319] Nabokov also rejects the notion that the categorical imperative applies to dreams and, because they have the same epistemological value, fictions.

unconscious activities of the mind.'[320] This is because for Freud dreams show us what we really want, beyond what we know we want in waking life. His insistence that dreams are wish fulfilment assumes they are directed towards the future. This is a causal model of mental projection taking the desires and drives of now, whether conscious or unconscious, as the authors of nocturnal fictions. Even when we dream about the past it is to satisfy some present want in the future, be it revisionary, nostalgic, or a desire to atone. This, according to Gilbert Ryle, is the whole psychological enterprise. 'Psychological theories', he writes, 'provide or will provide, causal explanations of human conduct' with the ultimate aim of establishing 'precise functional correlations or causal laws', though he concedes that psychology as it stands in the mid-twentieth century has a long way to go before it can lay claim to such grandiose structures.[321]

Freud's attempt to explain dreams causally extends to base physical wants like thirst. Citing examples like eating salty foods before bed, he claims that by doing so he can induce a specific dream of drinking.[322] As a consequence, Freud reasons, if the dream is convincing enough it will slake the thirst without waking the dreamer, but notes that in his own case it does not satisfy in the way that dreams palliate his desire for vengeance against certain individuals so that he does not commit violent acts in waking life.[323] He still wakes up thirsty.

The reductionist interpretations of Douglas-Fairhurst and Brandon S. Centerwall lead down similar paths. Both claim the author is palliating forbidden urges by indulging them in a fictional world beyond the moral exigencies of society. For Douglas-Fairhurst, Carroll's narratives are an extension of his photographs; they allow him to collect the juvenile characters of his child friends, preserving their youth in prose and so fulfilling a wish for the object of desire

[320] *The Interpretation of Dreams*, p. 608.
[321] Gilbert Ryle, *The Concept of Mind* (London: Hutchinson, 1949) p. 324; p. 327.
[322] 'The thirst gives rise to a wish to drink, and the dream shows me that wish fulfilled.' *The Interpretation of Dreams*, p. 123.
[323] Cf. Nabokov's brutal vengeance dream of October 16, 1964 in which he mutilates a man for kissing his wife. Gennady Barabtarlo, ed., *Insomniac Dreams: Experiments with Time by Vladimir Nabokov* (Princeton: Princeton University Press, 2018) p. 39. Nabokov would not likely regard this as fulfilling a specific wish. His experiment is about precognition – it is forward, not backward, facing.

to remain young forever.[324] For Centerwall, Nabokov's novels are a pornographic substitute for repressed desire, a space for ribald romps with underage girls without the threat of punishment.[325] While it makes for distasteful reading, Freud does not condemn this sort of compensatory artifice, at least in dreams. 'Plato', Freud says on the subject of moral trespasses in dreams, 'thought that the best men are those who only *dream* what other men *do* in their waking life.'[326] As long as such deeds are constrained to the sphere of the imaginary there is no offense.

For Nabokov, meanwhile, we must distinguish between the waking and the dreaming moral agent. The direct causal link Freudians see between ideas in sleep and those in real life is, he argues, an illusion created by mistakenly taking one object for another in their own desire to establish it. Freudians err by

> regarding a real object a pompon, say, or a pumpkin […] as a significant abstraction of the real object, as a bumpkin's bonbon or one-half of the bust […] In those random visions [i.e. dreams] nothing […] can be construed as allowing itself to be deciphered by a witch doctor who can then cure a madman or give comfort to a killer by laying the blame on a too fond, too fiendish or too indifferent parent[327]

The refraction of a pompon or a pumpkin into a bumpkin's bonbon on the basis of superficial similarity shows the sleight of hand Nabokov sees in twisting a dream to fit the symptoms of the patient, who is also absolved of moral responsibility by this causal explanation. For Nabokov, Freud's method is post-hoc modelling, taking a patient's presentation now as an indication of the dream's significance and projecting both back to establish a causal origin in a barely remembered – and so less contestable – infant state.

---

[324] Cf. *Lolita*. When Dolores Haze is fourteen, the top end of Humbert Humbert's hebephilic bracket of attraction, he calls her his 'aging mistress'. Vladimir Nabokov, *The Annotated Lolita*, ed. Alfred Appel Jr. (London: Penguin, 2000) p. 190.
[325] Brandon S. Centerwall, 'Hiding in Plain Sight: Nabokov and Pedophilia', *Texas Studies in Literature and Language*, Vol. 32, No. 3 (Fall 1990) pp. 464-484.
[326] *The Interpretation of Dreams*, p. 67. Strachey's notes call attention to Book X of the *Republic*.
[327] *Ada* pp. 363-364.

The paradigm of dreams as wish fulfilment, or at least as compensatory fictions, is as old as Plato's *Republic*. Freud's argument in the above passage recalls a scene in which the Platonic Socrates explains the substitutive value of dreams.[328] He begins with a consideration of 'unlawful' desires:

> when, during the slumbers of that other part of the soul, which is rational and tamed and master of the former, the wild animal part, […] becomes rampant, and […] endeavours to set out after the gratification of its own proper character […] It does not […] hesitate to commit the foulest murder[329]

This might just as easily be a Freudian description of the Id triumphing over the Ego in sleep, spilling those desires which during waking consciousness remain bottled up. Such transgressive dreams are not reserved for 'bad' people but are a feature of all of our lives. '[A] terrible species of wild and lawless appetites resides in every one of us,' Plato explains, which reveal themselves in our dreams.[330] Plato, then, appears to side with Nabokov in taking dreams as a safe environment for dangerous desires.

Not that Nabokov is a Platonist. On at least one occasion he recorded his desire not to be associated with Plato.[331] What Nabokov objects to is not the idea that dreams are a risk-free place for transgression – by according them the same status as fictions he stakes a claim for a similar freedom in art – but the idea Freud gets from Plato that events in dreams, as in fiction, are causally connected to the unconscious desires of the dreamer or author and can be used to define them in reductive terms. But dreams are not exactly like fictions; they are composed without conscious involvement (with the exception of lucid dreams) while fictions – especially the philosophical sort – are often difficult births, straining consciousness until they 'reek of

---

[328] The chapter explains how a democrat may become a tyrant (See Chapter Four).
[329] Plato, *Republic* in *The Republic of Plato* trans. John Llewyn Davies and David James Vaughan (London: Macmillan, 1921) §571. This translation was available to Carroll too, translated in Cambridge around 1852 and remaining the critical standard in English until Campbell finished Benjamin Jowett's translation posthumously in 1894.
[330] Ibid., §572.
[331] *Strong Opinions*, p. p. 59

sweat and effort', as Sartre puts it.[332] However much it resembles a dream, then, the painstaking production of a fiction ought not to be treated as the straightforward gratification of desires. Literary art is a place for freedom of expression. Authorial wish-fulfilment is neither here nor there.

Besides, as Hume showed, causality is something we construct ourselves. So, Borges, in a short story critiquing idealism entitled 'Tlön, Uqbar, Orbis Tertius' (1941), observes that detective work like Freud's rests on an assumption of causality not rooted in fact. Borges illustrates the association of ideas which produces a causal chain. In the culture of Tlön, Borges explains, 'space is not conceived as having duration in time. The perception of a cloud of smoke on the horizon and then the countryside on fire, and then the half-extinguished cigarette that produced the scorched earth is considered an example of the association of ideas.'[333] Borges is alluding to Hume's discovery that causality begins in our heads so that what originally seemed a deductive matter – ascertaining the cause of the blaze – is instead revealed as induction.[334] The reversed presentation of ideas (smoke, fire, cigarette) underlines the backwards logic that determines an unusually large cloud of smoke was still, in the end, caused by a cigarette.[335] Vulgarizing Borges, we might say he reveals a misstep encapsulated in the colloquialism for establishing guilt on circumstantial evidence: 'no smoke without fire' (a juridical shortcut the like of which Carroll parodied). But Borges's focus is not the consequences of Humean skepticism for apportioning praise and blame, but the consequence of taking it too far: if we reduce causality to association – as Freud does with his unconscious – we become ambivalent about the arrow of time.

[332] Jean-Paul Sartre, *Words*, trans. Irene Clephane (London: Penguin, 1985) p. 103.
[333] Tlön is an idealist world in which cosmos is a 'perfect synonym' for thought. Jorge Luis Borges, 'Tlön, Uqbar, Orbis Tertius' in *Collected Fictions*, trans. Andrew Hurley (London: Allen Lane, 1999) pp. 73-74.
[334] *A Treatise of Human Nature*, 1.3.3; *Enquiries Concerning Human Understanding*, 4.1.25.
[335] Cf. §4.5.

Nabokov is well known for baiting Freudians. In the foreword to *King Queen Knave* he writes

> As usual, […] the Viennese delegation has not been invited. If, however, a resolute Freudian manages to slip in, he or she should be warned that a number of cruel traps have been set here and there in the novel.[336]

This foreword, added in 1967 while he was writing *Ada*, speaks to Nabokov's frustration with reductive attempts to identify repressed desires and diagnose neuroses through Freudian readings of his work. Nabokov's later novels are more direct in their criticism, reflecting this foreword's retroactive defence of the question-begging taboos running through his novels.[337] *Ada* is a good example. Although nominally 'a family chronicle', *Ada* is first and foremost a love story taking place across a lifetime.[338] It quickly becomes clear that the Veens whose romance it is, are brother and sister. This time, incest is the taboo Nabokov drags through his novel to scent the psychoanalyst's hounds, littering the trail with a few anagrams for good measure. The narrator, Ivan (Van) Veen, is a retired psychiatrist who trained as a conjurer in his youth (another swipe at Freud). Nabokov regards psychoanalysis as a trick, a pseudo-religious throwback making believers out of the naïve with metaphorical sleight of hand and the dazzle of fussy terminology, to say nothing of cigar smoke and derivative mirrors.[339] Interviewed in 1964, while composing *Ada* and just before conducting Dunne's dream experiment, Nabokov said,

> Our grandsons no doubt will regard today's psychoanalysts with the same amused contempt as we do astrology and phrenology. One of the greatest pieces of charlatanic,

---

[336] Vladimir Nabokov, *King Queen Knave*, trans. Dmitri Nabokov (Oxford: Oxford University Press, 1988) p. viii.
[337] While such protestations might be read as suspicious, this would be a lazy interpretation given the many threads of ironic psychoanalysis in Nabokov's fiction.
[338] i.e. the story of Van's ardour for Ada.
[339] Jacques Lacan, 'The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience' in *Écrits*, trans. Bruce Fink (London: W. W. Norton & Company, 2006) pp. 75-81.

and satanic, nonsense imposed on a gullible public is the Freudian interpretation of dreams.[340]

Nabokov, who hated cheats, had more than one reason when he said of his conjurer-cum-analyst 'I loathe Van Veen'.[341] There is a hint in the rhyming 'charlatanic and satanic' both of Van's professional training and of his patronymic, Demonovich, which marks him as a satanic figure. Beyond goading those who would like to pigeonhole him according to the tastes of his characters, though, Nabokov has a formal score to settle with Freud.

It has been said that the *Alice* books are 'one of the keys to the whole Nabokovian *oeuvre*'.[342] While there is certainly a Carrollian bent to much of his work, Nabokov's view would be that to search for such a key in the first place involves an unfounded assumption. A key implies a lock, and a lock something worth keeping safe or hidden. But Nabokov's twisting and turning fictions are aporetic: there is no lock, no hidden meaning; all is surface. Such superficiality is no doubt intentional. The Freudian mind is characterised by depth metaphors. Shimmering on the surface is the conscious mind. Below it, extending to unknowable depths, is the unconscious mind.[343] Nabokov rejects the structure Freud builds on this fiction.

Carroll and Nabokov alike warn of the danger of imposing fictions on reality. For Carroll, the Aristotelian plot with a fixed beginning and end is preferable to the reversible causal chain of Buddhist-inspired absolute idealism in contemporary Oxford because it gives to actions their proper moral weight and conforms with our experience of time as one-way. Nabokov considers the Aristotelian plot Freud imposes on the self an arbitrary formal constraint, though he agrees that one-way time is a sociological prerequisite. In this respect he

[340] *Strong Opinions*, p. 40.
[341] Ibid., p. 129; p. 103.
[342] George Steiner, 'Extraterritorial' in *Extraterritorial: Papers on Literature and the Language Revolution* (New York: Atheneum, 1971) p. 6.
[343] A metaphor familiar from, say, the allegory of backwards time in J. G. Ballard's *The Drowned World* (1962), which mixes the depth metaphor with Freud's idea of the unconscious as a primaeval state of mind (see §3.5).

is closer to Nietzsche (who inherited Buddhist leanings from his early enthusiasm for Schopenhauer) and Bergson than to Carroll.

Despite this difference, Nabokov, like Carroll, sees in idealism a dangerous equivocality about time. In Freud this is causal, largely because he conceives personality in terms of narrative, assuming from the outset that people are diachronic. This produces a system in which predictable patient outcomes are linked to recognisable developmental events and periods: adult neuroses are the result of unsettling childhood sexual experiences; hysteria is a consequence of past trauma; slips of the tongue are caused by repressed wishes.[344] For Nabokov, to reduce an individual to a typology with a causally coherent beginning, middle and end is to force her into an Aristotelian straitjacket and deny her the liberty of transient selfhood. Formal reservations notwithstanding, Nabokov, following Hume and Kant, cannot accept Freud's method at face value because it must be subjected to the same epistemological scrutiny as other empirical sciences. In this case, how to establish a valid causal model of self when causality cannot be proven to exist outside of our minds. Besides, on the Kantian view, there is every chance that the noumenal mind is nothing like the phenomenal mind and Freud seems to take the unconscious as the noumenal mind. Nabokov, not without glee, repeatedly points to the paradox this produces in his novels: the conscious mind can never directly experience the unconscious.[345] As a result, any claim to logically define another person's selfhood, whether by Freudian analysis or by some other misapplication of rationality is for the birds.

---

[344] Sigmund Freud, 'My Views on the Part Played by Sexuality in the Aetiology of the Neuroses', *CWSF*, VII, pp. 269-279; Josef Breuer and Sigmund Freud, 'On the Psychical Mechanism of Hysterical Phenomena: Preliminary Communication', *Studies on Hysteria*, *CWSF*, II, pp. 4-5; Sigmund Freud, *The Psychopathology of Everyday Life*, *CWSF*, VI, pp. 61-64. Cf. *Ada*, p. 549.

[345] This is the basis of sceptical arguments like Russell's five minute hypothesis and Dennett's suggestion that dreams are without duration until we retrospectively project time into them when reconstructing them during waking consciousness. Cf. more modern neurological research which shows that people are capable of lucid dreaming during REM sleep e.g. rolling eyes in pre-arranged choreographed manner – changing the ontological and epistemological status of dreams. Bertrand Russell, *The Analysis of Mind* (London: George Allen & Unwin, Ltd., 1921) pp. 159-160. 'Are Dreams Experiences?', pp. 151-171. Evan Thompson, *Waking, Dreaming, Being* (New York: Columbia University Press, 2015) p. 154.

3.4 Why the Closet Paedophile Hypothesis Misses the Point

For too long, Nabokov's literary output has been viewed through the greasy lens of one theme: little girls. Having written six novels in which this uncomfortable trope surfaces, Nabokov could hardly hope to avoid critics discussing it but, when seen as an expression of a dark, unfulfilled authorial desire it would no doubt have irked him. Unsympathetic to psychoanalytic reading in general, Nabokov rejects fiction as a breadcrumb trail to the author's inner sanctum. For Nabokov, the individual has a right to self-determination and self-creation. While it is only natural that people are intrigued by the unknown, this is outweighed by a right to privacy, freedom from prejudice and artistic censorship. Reading with the author constantly in view as a text's 'cause' is not only misguided, it is immoral. It is a transubstantiation, exchanging ink for blood and diminishing the author's life for the sake of livelier interpretation. The loss is twofold: not only does the author lose the right to privacy and creative freedom but fiction's status qua fiction is lowered thereby; on this reading, pure fiction does not exist at all – it is causal residue left by non-fictional minds. While it is relatively well known that Nabokov translated *Alice in Wonderland* into Russian in the early 1920s, then, we ought to be wary of reductive psychoanalytic comparisons between Carroll and his translator.

Chapter Two mentioned in passing Douglas-Fairhurst's argument that Carroll used narrative as a means of preserving Alice Liddell and collecting the memories and characters of his other child friends. A similar argument is sometimes made about Nabokov. The nymphets of his fiction, it is claimed, are an imaginative indulgence in forbidden fruit.[346] While it is true that many of his novels include this uncomfortable theme, such readings are to be dismissed. Perpetrating the Genetic Fallacy by mistaking the origin of the text for its logical essence, these critics see the text as subordinate to questions of authorship and authorhood. This is a

[346] For an example of the hypocrisies and contradictions of this ill-advised approach see 'Hiding in Plain Sight: Nabokov and Pedophilia'.

misappropriation of the critical endeavour: what is at stake in reading an author's work is not her identity, nor the identity of the text, but meaning, established on a contingent reader by reader basis. Still, the reasons for dismissing such arguments bring us closer to understanding Nabokov's skirmishes with Freud as attempts to pierce the suffocating film of mass-produced selfhood.

Although not among those who consider the trope to be evidence of a predilection, save for writing about such things, Martin Amis concedes that the little girl theme is 'the only significant embarrassment in the Nabokov corpus'.[347] That being so, and given that it was already an embarrassment after the scandalous reception of *Lolita*, what made Nabokov persist? Why incorporate this theme at the risk of his reputation? Leaving aside the defiance of censorship, the benefits are threefold. For a start, it allows Nabokov to meander through his favourite subjects: time, morality and personhood. Whether it is the age gap between Vadim Vadimovich and his nymphet Bel in *Look at the Harlequins!* or the time gap between the elderly Van and his erotic memories of trysts with his sister Ada – she twelve, he fourteen – in *Ada* the theme foregrounds physiological and psychological ontogenesis in a way that becomes uncomfortably ambiguous in the context of reversible time.

It is also a worthy intellectual challenge: Nabokov must construct a believable semblance of humanity to bear the psychological strain of the fallacies and casuistry with which his nympholeptic characters legitimise their actions. He is not always successful. Both Van and Vadim lack the psychological nuance beyond their temporal sophistry to be believable characters. While this is largely a stylistic choice reflecting the artificial distance of their (reflexive) narrative modes – Van's *Ada* is a revisionary bildungsroman-cum-memoir written by a sad old man with as much to hide from himself as from his readers, while *Look at the Harlequins!*

[347] Martin Amis, 'Nabokov's Natural Selection', *The Rub of Time*, p. 133.

is an autobiographical narrative about an author struggling to write a novel entitled 'Ardis' – it makes it difficult to invest in their lives.

The little girl theme gives Nabokov a chance to attempt a bifocal description of desire over time which helps to calibrate the intricate ironies of the plot by establishing two competing perspectives from which to see desire. On a related note, it ensures the continued readership of those who wish to see Nabokov's fictions as evidence of repressed desires, without whom there is not much fun to be had in ridiculing Freud. Van Veen and Vadim Vadimovich in particular, with their vacuous personalities and predictable neuroses, can be read as parodies of the Freudian doctrine, playing with the confirmation bias of such readers so they end up with the characters they want – psychologically damaged repressive sex offenders – at the expense of what makes meaningful individuals: the contingent detritus of human life. After all, Nabokov rejected the label of 'moral satirist', making a useful distinction in the process: 'Satire is a lesson,' he told the interviewer, 'parody is a game.'[348] While we cannot summarily dismiss the possibility that Nabokov's fictions are the expression of repressed desires, in the sense that we cannot dismiss any unfalsifiable hypothesis, to focus on it in an attempt to understand the author is to miss the point. Nabokov is making sport of would-be psychoanalysts, baiting his hook with an irresistibly squirmy taboo.

The Freudian desires of his characters, then, are part of a larger scheme in which Nabokov presents two types of time and two types of universe – reversible and irreversible, closed and open – to think through the consequences of those competing perspectives for human affairs. It is no accident that the determinism which legitimises reversibility is also implied by the Freudian method, which needs it to account for things like regression and *Nachträglichkeit*. While he often seems to be a fatalist, Nabokov repeatedly sets himself up against reversibility. In part this is because, like Carroll, Nabokov realises that in order to give

[348] *Strong Opinions*, p. 65.

significance to morality, in order for human social affairs to have coherent meaning, we must construe them in terms of unidirectional time. Yet his rejection of reversibility does not make him a believer in absolute chance. Nabokov rejects a calculable future without ruling it out.

3.5 Backwards Time at the Racial Level: Similarities between Freud and Nietzsche

> 'Time without consciousness – lower animal world; time with consciousness – man; consciousness without time – some still higher state'
>
> ~ Vladimir Nabokov.[349]

Dreams are not just a royal road to the unconscious for Freud. They also take us back in time. Since conscious thought was a late development in humans, he reasons, by taking us to the unconscious dreams return us to a primitive mode of thought. In revisions to *The Interpretation of Dreams* undertaken in 1914 and 1919 Freud added two paragraphs in which he began to consider dreams as a form of regression. Dreaming, he explains in the latter,

> is […] an example of regression to the dreamer's earliest condition […] Behind this childhood of the individual we are promised a picture of a phylogenetic childhood – a picture of the development of the human race, of which the individual's development is in fact an abbreviated recapitulation influenced by the chance circumstances of life […] so that psycho-analysis may claim a high place among the sciences which are concerned with the reconstruction of the earliest and most obscure periods of the beginnings of the human race.[350]

Freud's regress is Platonic: his idea of returning to an earlier racial stage is traceable to the *Politicus*. It is not quite the tomb-to-womb reversal Plato describes, and which is borne out in the plots of Phillip K. Dick's *Counterclock World*, Kurt Vonnegut's *Slaughterhouse-Five* and Martin

[349] From an index card of rejected notes for *Pale Fire*. *Strong Opinions*, p. 25.
[350] *The Interpretation of Dreams*, pp. 548-549. Freud makes passing reference to Nietzsche in the 1919 paragraph.

Amis's *Time's Arrow*, but it shows Freud (perhaps inspired by Ernst Haeckel's recapitulation theory) thinking about the microcosmic significance of psychological regression on the macroscopic scale of race.[351] The development of the individual, he argues, should be construed as a microcosmic iteration of the development of the race. The lack of psychological continuity between parent and child is apparently no impediment – the unconscious does not declare itself to the waking mind.

Insofar as he conceives dreams as a sort of mental time travel, the late Freud resembles the early Nietzsche. For the Nietzsche of *Human, all too Human* (1878), dreams prompted primitive Man to pick up a flint and carve two realms from nature's oneness.[352] The story of dualism, he explains, begins with dreams:

> In ages of crude, primordial cultures, man thought he could come to know a *second real world* in dreams: this is the origin of all metaphysics. Without dreams man would have found no occasion to divide the world.[353]

Like Freud, Nietzsche thinks we revert to an earlier form of consciousness in dreams, a sort of crude racial time travel we all do in sleep, returning to a primordial cognitive state resembling Lockean madness in which we are less competent at discriminating between memories and attributing significance to them.[354] For Nietzsche,

> all of us are like the savage when we dream. Faulty recognitions and mistaken equations are the basis of the poor conclusions which we are guilty of making in dreams […] The utter clarity of all dream-ideas, which presupposes an unconditional belief in their reality, reminds us […] of the state of earlier mankind[355]

---

[351] 'Ontogenesis is a brief and rapid recapitulation of phylogenesis', Ernst Haeckel, *The Riddle of the Universe: At the Close of the Nineteenth Century* (New York: Harper and Brothers, 1900) p. 81.
[352] Cf. Plato, *Phaedrus* in *Phaedrus & Letters VII and VIII*, trans. Walter Hamilton (London: Penguin, 1973) §265-266.
[353] Friedrich Nietzsche, *Human, all too Human*, trans. Marion Faber and Stephen Lehmann (London: Penguin, 2004) §5.
[354] See §3.8.
[355] Ibid., §12.

There are three major premises to draw out here. First, memory is not simply a matter of recall, but of recognising what is recalled and being able to combine it in meaningful ways. Whether we take 'equations' literally, in the sense of establishing identity, or figuratively, in the sense of a mathematical equation between things quantitatively equal but which can be expressed differently the implication is the same: reasoning and cognition depend on memory for Nietzsche.[356] Second, the incorrect discrimination and combination of ideas in dreams makes fools of us all, and foolishness is the state of primitive man. This is a variation on Locke's claim that it is incorrect identification and combination of ideas which accounts for madness. Third, dreams are a form of mental time travel beyond the limits of the individual in the sense that our cognition switches to a shared primordial default.

Common to both these Nietzschean and Freudian origin myths is the notion of a continuous link between individuals throughout the ages, allowing us to revert to cognitive basics in dreams in a sort of mental time travel (although only Freud draws a parallel between ontogenetic and phylogenetic development). If the similarity of Nietzsche and Freud's remarks about dreams returning us to primitive states of mind seems to recall the *Politicus*, it is because both authors are under the spell of idealism.

Later, in *The Dawn of Day* (1881) Nietzsche expands his terms to include madness as an example of a return to our mental past, and culture as a necessary forgetting of base instincts:

> In […] the delusions of dreams and madness, man rediscovers his own primitive history, and that of humanity […] his memory stretches back into the past, while his civilized condition is developed from the forgetfulness of these primitive experiences[357]

For Nietzsche, primitive man mistakenly combines ideas to arrive at madness in the way Locke describes, likening these delusions to early mental states. Rather than laying blame with the

[356] For semioticians, identity in the first sense does not exist. There is only the figurative sense – to say one thing is 'the same' as another is merely to acknowledge similarity.
[357] Friedrich Nietzsche, *The Dawn of Day*, trans. J. M. Kenny (New York: Dover, 2007) §312.

faculty of reason, it is misapprehension, misrecognition and misapplication which are to blame for madness, explaining its close relationship to dreams. The forgetfulness Nietzsche describes is a stone's throw from Freudian repression – on this view, how much we have forgotten about our primitive past is a mark of how far civilisation has come. For Nietzsche, dream logic is a throwback to the birth of reason in our cognitive past and a comfort zone for the put-upon modern-day psyche.[358] The necessity he sees in being a 'forgetful one' to participate in society is a theme developed by a mature Freud in *Civilization and its Discontents* (1930). Like Freud, Nietzsche conceives of dreams as being caused by other factors, rather than being spontaneous fictions.[359]

Where the two differ is that Nietzsche recognises that dream causality need not follow exactly the patterns we find in the causality of waking life. 'Everyone knows from experience how fast the dreamer can incorporate into his dream a loud sound he hears,' Nietzsche writes; 'how he can explain it *after the fact* from his dream, so that he *believes* he is experiencing first the occasioning factors, and then that sound.[360] In dreams, says Nietzsche, we reason backwards so that

> the supposed cause is deduced from the effect and imagined *after* the effect. All this with an extraordinary speed, so that, as with a conjurer, judgement becomes confused, and a sequence can appear to be a synchronism, or even a reversed sequence.[361]

The reference to a conjurer, and the recognition that causality is retrospectively projected, leads to Van's personal ambivalence to temporal sequence in *Ada* which allows him to say without

---

[358] '[M]an still draws conclusions in his dreams as mankind once did *in a waking state*,' Nietzsche explains:
> the first *causa* which occurred to the mind to explain something […] sufficed and was taken for truth. […] This old aspect of humanity lives on in us in our dreams, for it is the basis upon which higher reason developed […]: the dream restores us to distant states of human culture […] a recuperation for a brain which must satisfy by day the demands made on thought by higher culture.

Human, all too Human, §13.
[359] 'It is the dream which *seeks and imagines the causes* for those stimulated feelings – that is, the alleged causes.' Ibid. §13.
[360] Ibid. Freud, too, considers this an illusion. *The Interpretation of Dreams*, pp. 23-30.
[361] *Human, all too Human*, §13.

invoking cinematic reversal that his 'beard grows in reverse' but which marks him as either a madman, a dreamer or a savage in the eyes of Freud and Nietzsche for doing so.[362] Of course, because Van lives only in a fiction he considers equivalent to dreams such diagnoses are not fully justified.

For Nietzsche, whom Nabokov holds in considerably less contempt than Freud, the primitive cognition of dreams is part of an overall fatalism. Freud does not go in for speculations about the nature of time. He does, however, brush off premonitory dreams as an entertaining but baseless illusion. Such dreams, he argues, are created by memories of a recurrent situation retrospectively attributed the status of dream so that the similarity of the current situation is a coincidence accorded the status of prophecy via backward projection. 'The creation of a dream after the event,' he explains, 'which alone makes prophetic dreams possible, is nothing other than a form of censoring, thanks to which the dream is able to make its way through into consciousness.'[363] Nabokov's openness to determinism before his 1964 experiment with time leaves him wondering whether Freud might have got the causality of dreaming the wrong way round. Freud says dreams come from the past, caused by unconscious drives and acting as substitutes for a desired past, present or future. If some came from the future, his wish-fulfilment argument would collapse like a house of cards. There would be little sense in attempting to establish patient diagnoses on the basis of events which had not yet happened. Nabokov, favouring a Nietzschean aesthetic – especially in the autobiographical *Speak, Memory* – but rejecting the reversibility Nietzsche partially endorses in *The Gay Science*, sees in Dunne's theory that dreams contain snippets of the future an opportunity to vanquish Freud and the basis of his theory, idealism, at one stroke.

[362] Recalling the reverse causation of fire and smoke in Borges's 'Tlön, Uqbar, Orbis Tertius'. *Ada* p. 547
[363] Sigmund Freud, 'Appendix A: A Premonitory Dream Fulfilled', in *CWSF*, V, p. 625.

3.6 Nietzsche as an Alternative to Freud

In this chapter's introduction, I made two conflicting claims. The first was that Nietzsche can be read as postulating an alternative to Freudian selfhood. The second, that Nietzsche is a determinist whose influence runs deep in the Freudian canon. In this section I will outline what appeals to Nabokov about Nietzsche's idea of personhood.

Initially, there are strong reasons to object to an alliance between Nabokov and Nietzsche, who marches under the banner of German idealism and for whom causality, thinking and even facts are 'derivative intellectual phenomena', inviting a moral nihilism in which 'both the deed and the doer are fictions.'[364] Worse, Nietzsche grounds his fatalism on the argument that we have phenomenalism all wrong and that time as we understand it is already backwards. The phenomena of the inner world, he says, are characterised by '[c]hronological inversion, so that the cause enters consciousness later than the effect […] The fragment of outer world of which we are conscious is born after an effect from outside has impressed itself on us, and is subsequently projected as its "cause"'.[365] Statements like this, in which Nietzsche denies the reality of causality, are one reason Walter Kauffmann aligns him with Bradley and McTaggart, whom he labels 'English Nietzscheans' but who are really more Hegelian thinkers despite their Buddhism-inspired relativism, and who see no logical issue in the reversal of time since what we mean when we speak of time cannot be directly experienced but comes to us latent.[366]

Not for Nabokov the solipsistic prison of empty time. What he likes about Nietzschean selfhood is not the idealism asserting that 'we have no categories at all that permit us to distinguish a "world in itself" from a "world of appearance" – a mode of scepticism originating

[364] *The Will to Power*, §477.
[365] Ibid., §479.
[366] Walter, Kaufmann, Translator's preface to Friedrich Nietzsche, *Beyond Good and Evil: Prelude to a Philosophy of the Future*, trans. Walter Kaufmann (New York: Vintage, 1966) p. xiv.

in Berkeley which leads to the question of what life is besides a dream.[367] Nabokov's answer, like Carroll's before him, is plenty. The Nietzschean individual is a self-stitching tapestry whose needle is threaded with a yarn unravelling from its bottom edge. It is in continual flux and does not exist as an entity which 'causes' action, which is only the backwards projection of our desire for an agent. On Nietzsche's view, even as we create, we destroy our previous selves, inventing diachronic essence where none exists. So, for Nietzsche, '*what things are called* is unspeakably more important than what they are' and what a person is called is up to herself.[368] It is only our ill-considered moral habit which separates 'strength from the manifestations of strength, as though there were an indifferent substratum behind the strong person which had the *freedom* to manifest strength or not.' A mistake, says Nietzsche, since

> there is no 'being' behind the deed, its effect and what becomes of it; 'the doer' is invented as an afterthought, – the 'doing' is everything so that when people construe moral actions as caused by a self they 'double a deed' […] they posit the same event, first as cause and then as its effect[369]

In other words, we experience ourselves only in retrospect, as hypothetical causes of the effects we manifest. We invent causality, as we invent ourselves, to gain purchase on social events past present and future.

3.7 Chirality: Nabokov's Dream Experiment as a Rejection of Backwards Time

> My soul's an amphicheiral knot,
> Upon a liquid vortex wrought
> By Intellect, in the Unseen residing
> And thine doth like a convict sit,

[367] *The Will to Power*, §488.
[368] *The Gay Science*, §58.
[369] Friedrich Wilhelm Nietzsche, *On the Genealogy of Morality*, trans. Carol Diethe, ed. Keith Ansell-Pearson (Cambridge: Cambridge University Press, 2000) §13. Cf. The alternative translation in Alexander Nehamas which makes the Nietzschean self's fictional quality explicit: 'there is no such substratum; there is no 'being' behind doing, effecting, becoming; 'the doer' is merely a fiction added to the deed – the deed is everything.' Alexander Nehamas, *Nietzsche: Life as Literature* (Cambridge, MA: Harvard University Press, 1985) p. 172.

With marlinspike untwisting it,
Only to find its knottiness abiding;
Since all the tools for its untying
In four-dimensional space are lying,
Wherein thy fancy intersperses
Whole avenues of universes,
While Klein and Clifford fill the void
With one finite, unbounded homaloid,
And think the Infinite is now at last destroyed.
~ James Clerk Maxwell, 'A Paradoxical Ode'.[370]

In drily describing his soul as an 'amphicheiral knot', Maxwell exposes a flaw of the 'unbroken causal chain' postulated by classical mechanics: it cannot account for irreversible processes. Even on the loosest definition of soul – say, thoughts and feelings attending experience – plainly it is not reversible. If it were, it would be hard to explain why we do not remember the future as well as the past.[371] The soul is closely bound with personhood, and personhood has a direction: from birth to death, from innocence to experience, and so on. Following Maxwell, then, the soul is a chiral (asymmetrical) object; 'amphicheiral' it is not. Here Maxwell again critiques the mental gymnastics which make of the world a deterministic system of reversible physical laws despite evidence to the contrary.

For all his hostility to the closed system of Freudian hermeneutics, Nabokov seems to have entertained the idea of another closed system: physical determinism. Up to now, this has been the view of the dream experiment he conducted between October 1964 to January 1965,

[370] Addressed to 'Hermann Stoffkraft, PhD' (sic.), all three of the Ode's stanzas exhibit this mocking melodrama. Maxwell points out that neither the new geometries of Bernhard Riemann (to whose work the allusion to Clifford-Klein forms most likely pertains) nor the extra dimensions of e.g. J. C. Friedrich Zöllner (who credulously explained the charlatan Henry Slade's knot untying at a séance with the fourth dimension) can explain the nature of the soul. Science, he suggests, overreaches when it speculates without experimental evidence in an effort to rid the universe of infinity with appeals to holism – the 'viewless fancies' Maxwell impishly exhorts himself to accept. James Clerk Maxwell, 'A Paradoxical Ode' [1878] in *The Life of James Clerk Maxwell*, ed. Lewis Campbell and James Garnett (London: Macmillan and Co., 1882) pp. 649-651; J. C. Friedrich Zöllner, 'On Space of Four Dimensions', *The Quarterly Journal of Science*, VIII, lviii (1878) pp. 227-237. See also Mark Blacklock's discussion of Maxwell's Ode in relation to the final three stanzas of Shelley's *Prometheus Unbound*. Mark Blacklock, *The Emergence of the Fourth Dimension* (Oxford: Oxford University Press, 2018) pp. 46-48.

[371] As Maxwell pointed out in his letters.

following the outline in Dunne's *An Experiment with Time*.[372] Given what has been argued so far in this chapter, I want to suggest an alternative reading which raises the stakes. Nabokov undertook this experiment not to find evidence for, but against, backwards time. Since Dunne's theory is based on a marriage of reversible Einsteinian spacetime and the timeless Freudian unconscious, if he was right Nabokov would have to discard the one-way time which was his personal conviction. If, on the other hand, Dunne's experiment did not work, that would at least prove that Nabokov need not be dissuaded by the evidence of empirical science. As he had suggested in 'Ultima Thule', the opposing views of time are irreconcilable but unfalsifiable and compete in every generation of human thought. It falls to each of us to choose whichever model best suits the way we want to conceive the world. Either we choose the eternal block of, for example, relativity, which for Einstein and his nineteenth century predecessors meant time was an illusion and the soul an 'amphicheiral knot', or time is real and pervades all things in a continuous progress towards maximum entropy – the quantum mechanical view, taking cues from thermodynamics and with conceptual forbears in process philosophy. Not one to hide from an argument, and keen to defy those limiting artistic and individual freedoms, the empirically minded Nabokov resolved to try for himself.

Dunne's hypothesis in *An Experiment with Time* was that Einsteinian space-time meant consciousness might be tied to the present moment by little more than habit (he did not intend it as a *reductio*, though others found it absurd enough).[373] 'Was it possible', he speculated,

> [t]hat dreams–[…] were […] *images of past experience and images of future experience blended together in approximately equal proportions?* That the lop-sided view we had of [the universe] – […] with the 'future' […] cut off from the growing 'past' […] by a travelling 'present moment' – was due to a purely mentally imposed barrier […] when we were awake?

[372] At least for Barabtarlo and, tacitly, Boyd, who suggests that Nabokov did not find what he sought.
[373] See §3.1.

> So that, in reality, the associational network stretched […] backwards and forwards in time[?][374]

Dunne describes a block view in which time is reduced to psychological epiphenomenon. On this view, there is no reason consciousness should be tethered to the present moment. The mind may travel through time at will. All it takes is the proper training.

To test his theory, Dunne proposes an experiment we can all do at home. By recording our dreams and paying precise attention to their contents we ought, he reasons, to discover whether some are premonitory. Recognise an experience during the day as something in your dream log and you have proof of precognition. Job done. Such precognition takes recurrence as a triumph over time so that dreaming something before it happens means experiencing it twice, rendering the universe a closed system of (pre)determined spacetime events. There are many reasons to take issue with Dunne's theory, not least its call for an infinite regress of time series, reducing time to sequence and invoking a secondary time with which to measure travel across the first. Objectors also criticised Dunne's naïve reliance on linguistic coincidences (one remarks that he has 'no qualms about the literal truth of metaphors', another describes his hypotheses as little more than 'quarter-baked speculations').[375] Still, it proved a popular and influential work, going through three editions and many more reprints. To what does it owe its popularity?

There are probably two main factors. First, Dunne's work has mass appeal, promising to legitimise the common phenomenon of *déjà vu* with the prestige of physical science. Second, physicists and philosophers of the early twentieth century were unable to achieve consensus on the metaphysical significance of their findings. If Dunne was right, dreams of the future need

---

[374] J. W. Dunne, *An Experiment with Time*, 3rd edn. (London: Faber and Faber, 1958) pp. 59-60.
[375] Ernest Nagel, 'An Experiment with Time by J. W. Dunne' (review), *The Journal of Philosophy*, vol. 24, no. 25 (1927) p. 692; Irving John Good, 'Speculations Concerning Precognition' in Irving John Good, ed., *The Scientist Speculates: An Anthology of Partly-Baked Ideas* (London: Heinemann, 1962) p. 152. Like Maxwell and Boltzmann, Good was a brilliant statistician.

not be reserved for mystics and madmen. Time might go backwards just as well as forwards, according dreams the same epistemological status as memories.[376] Nabokov grew up in a world still coming to terms with relativity theory, an intellectually divisive issue which provoked impassioned debates like the 1922 showdown between Einstein and Bergson.[377] His adult life was subjected to further upheaval when the stable law-based universe was threatened by quantum mechanics. Following the Solvay conference of 1930, in which Einstein appeared to lose a debate with the Danish quantum theorist Niels Bohr, Canales argues that Bergson's stock began to rise again. 'Some who followed these debates', she writes, 'saw in them, and in the triumph of quantum physics, the final vindication of Bergson's work.'[378] Whether such a vindication was justified is a moot point. It is probably more useful to think of the resurgence of Bergsonism as a consequence of relativity's loosened grip on time owing to the challenges posed by quantum theory, after which there was again room for speculation about the nature of time. Although by the time Nabokov began writing *Ada* in the mid-1960s an uneasy balance was in place, the ontological status of time remained an open question.[379] It was in this context that Nabokov began his own dream experiment. But why 1964 specifically? Thirty-seven years had passed since Dunne's work first appeared and, while Nabokov's time at Cornell overlaps with Richard Feynman's, it was another fourteen years before Nabokov began his experiment. If there is one provocateur responsible for Nabokov taking up Dunne's challenge in 1964 it is likely to be Gardner. Described by W. H. Auden as a 'splendid example of *haute vulgarisation*', Gardner's *The Ambidextrous Universe* (1964) is a popular science book containing, amongst

[376] A relationship turned on its head by FMTT, which transmutes memories into imagination.
[377] *The Physicist and the Philosopher*.
[378] Ibid., p. 231.
[379] Although Nabokov does not always agree with Van Veen, his attitude to relativity seems to chime Nabokov's:

> What many cosmogonists tend to accept as an objective truth is really the flaw inherent in mathematics […] I sweep away the business of [clocks] slowing down. Time, which requires the utmost purity of consciousness to be properly apprehended, is the most rational element in life, and my reason feels insulted by those flights of Technology Fiction.

Ada p. 543.

puzzles, word play and allusions to Carroll, a discussion of the fall of parity in modern physics in the context of chirality.[380]

Chirality expresses the fact that asymmetrical objects may exist in two forms, one the mirror image of the other, called enantiomorphs. For this reason, Kant observes, while they cannot share gloves, a right hand seen in the mirror will appear to be a left hand. He invokes the concept to demonstrate his idea, more fully developed in the *Critique of Pure Reason*, that while there is an outer world of things, we can only know them indirectly, through the mediating representations of consciousness.[381] Kant concludes that space is not a property of things but one of our modes of experiencing them, along with time. While Kant regards time as the fundamental mode of consciousness, chirality opens the question of whether time's asymmetry might have an enantiomorph in spacetime geometry, whether there might be a mirror image of time's arrow.

To foreground this possibility, Gardner juxtaposes Kant's exposition of chirality with a memorable footnote devoted to quantum mechanics, in which he describes the exciting possibility that time might go backwards in some situations, drawing a parallel between this new interpretation of physics and Carrollian time reversal at the end of the previous century. He begins with Feynman's 1949 suggestion that positrons are electrons moving backwards in time, outlining how this resulted in 'speculations that anti-particles are simply particles moving backwards in time, and that time might be reversed (relative to our time) in galaxies of antimatter.' The consequences were severe: 'Hans Reichenbach […] calls Feynman's positron theory 'the most serious blow the concept of time has ever received in physics'', because 'it destroys the uniform topological *order* of causal chains', Gardner explains. 'Admirers of Lewis

[380] W. H. Auden, 'Books of the Year: A Personal Choice', *Observer* 19 December 1965, reprinted in *The Complete Works of W. H. Auden*, ed. Edward Mendelson (Princeton, NJ: Princeton University Press, 2015) V, p. 178. Gardner remains one of Carroll's most important critics.
[381] Immanuel Kant, *Prolegomena to any Future Metaphysics that will be Able to Present Itself as a Science*, trans. Peter G. Lucas (Manchester: Manchester University Press, 1953) §13.

Carroll need not be reminded of the Outlandish Watch'.[382] Reichenbach's interpretation of Feynman's theory is more significant than Gardner lets on. Initially, by reintroducing chance at the subatomic level, quantum mechanics seemed to strike a hammer blow against the reversibility which remained possible on the view of relativity. Instead, Reichenbach argues, it changes the nature of the universe as a system so that rather than endorsing the one-way time of thermodynamics, quantum mechanics returns us to thinking of time as something of an accident, bringing it under the umbrella of stochastic phenomena.[383] '[Q]uantum physics does not present us with the time direction denied to us by […] classical physics', Reichenbach concludes. Instead, '[t]ime appears to be a completely macrocosmic phenomenon, which cannot be traced into the microcosm; it is born anew at every moment from the atomic chaos as a statistical relationship.'[384] By giving the observer a causal role, quantum mechanics rekindles the Kantian flame, calling into question the relationship between inner and outer worlds and raising uncertainty to the hallowed status of a scientific principle.[385] No doubt Carroll would be pleased to see his ironic portrayal of determinism mentioned alongside momentous physical discoveries and a dominant probabilistic school half a century later, though given his exhortation to adopt an Aristotelian model for the sake of ethical pragmatism he might have been disappointed to find that backwards time had come back into contention

[382] *The Ambidextrous Universe*, p. 224. See also Richard P. Feynman, 'The Theory of Positrons', *Physical Review*, 76 (1949) pp. 749-759; David Fox, 'The Tiniest Time Traveler' in *Astounding Science Fiction* (December 1952) pp. 83-95; Irving John Good, 'Speculations Concerning Precognition', *The Scientist Speculates*, pp. 151-157.

[383] Boltzmann, for different reasons, attempted likewise in the previous century.

[384] There is something Bergsonian about a time 'born anew at every moment', though for Bergson this is what constitutes discrete moments riven from *durée*'s continuity: 'a present which recommences unceasingly – devoid of all real duration, nothing but the instantaneous which dies and is born again endlessly'. Unlike Reichenbach, though without the benefit of quantum mechanics, Bergson denies backwards time is a consequence of stochastic phenomena, citing the absurd idea of things 'unmaking' themselves suggested by Boltzmann's work. Hans Reichenbach, *The Direction of Time*, ed. Maria Reichenbach (Berkeley, CA: University of California Press, 1956) p. 269; Henri Bergson, *Creative Evolution* trans. Arthur Mitchell, (New York: Henry Holt and Company, 1911) pp. 200-201; p. 245.

[385] W. Heisenberg, 'Über den anschaulischen Inhalt der quantentheoretischen Kinematik und Mechanik', Zeitschrift für Physik, Vol. 43, No. 3-4 (1927), pp. 172-198. Physicists were again lured into idealism to avoid awkward metaphysical implications of quantum mechanics.

as a result. For Nabokov, Feynman's results suggested the possibility that Dunne might not be a crank after all.

The following evidence from Nabokov's dream experiment comes with a caution that does not appear in Barabtarlo's otherwise useful and well-researched book. Nabokov's experiment is plagued by methodological issues (many inherent in Dunne's instructions), rendering its results a curiosity at best. One is confirmation bias: if Nabokov was inspired to perform Dunne's experiment by contemporary discussion of particles travelling backwards in time, he was loading the dice. If unidirectional time holds there cannot be a control experiment – the Nabokov who had not read *The Ambidextrous Universe* did not undertake the experiment. Evidence is easier to find when you already have results in mind. Consciously or otherwise we massage evidence to fit what we expect to observe. Another issue is selectivity: we must take it on faith that Nabokov recorded all of his dreams accurately; unlikely, given his 'gleeful pleasure […] in refuting the Viennese quack by recalling and explaining the details of [his] dreams without using one single reference to sexual symbols'.[386] Inaccuracies might be deliberate (e.g. censorship) or accidental (e.g. forgetting) but they are bound to creep in. Since none of the recorded dreams are especially embarrassing and some, particularly those of a sexual nature, tend towards circumlocution, no doubt some material did not make the cut.[387] Like Carroll's missing diaries, we can only speculate about what is left out.

At the beginning of the experiment, Nabokov explains it was 'undertaken to illustrate the principle of "reverse memory".'[388] What he meant was dreams not as a prophetic function of the imagination produced by combining elements from the past and the present, but a form of knowledge which, to paraphrase Alice, goes the other way.[389] Nabokov is testing the idea that backwards time might give us memory of the future, an experiment which stands to

[386] *Strong Opinions*, p. 40.
[387] E.g. 3 December 1964: 'Vague tender erotic dream […].' *Insomniac Dreams*, p. 85.
[388] Ibid., p. 33.
[389] *Through the Looking-Glass*, p. 120.

counter or confirm Carroll's contemptuous depiction of the White Queen whose memory 'works both ways'.[390] It did not take long for Nabokov to note his first precognition. In the clipped, matter of fact style distinguishing his dream notes from the languid rococo of his literary prose, Nabokov records, 'Clock, yellowish, half-past ten.'[391] Later that day he comes across the same time while reading Dunne:

> came to the passage at the bottom of p.100 (Third edition): … "the first image I saw and noted was a clock pointing to half-past-ten" (on which hangs the plot of a mystery story* *he* was using for an experiment – letting odds and ends of images come into the mind while thinking of the title of (or a name in) a book *before* reading it).
>
> Evidence of "reverse memory?"
>
> * Mason's *House of the Arrow*. [This is nice! Had quite forgotten this when inventing Ardis. March 4, 1968].[392]

Nowadays we might brush this aside as a cocktail of serendipity and confirmation bias. Certainly, Brian Boyd considers it no more than evidence of Nabokov's 'taste for coincidence'.[393] Still, Nabokov's return to the experiment while writing *Ada* in 1968 suggests he was preoccupied with such mental backwash.[394] An alternative perspective would be to say that whether or not Nabokov has read *The House of the Arrow* (1924) and forgotten about it he may be remembering it metonymically as the clock. This would be memory of the past, not the future, since Mason's novel and the significance of the clock reading half-past ten are covered in *The Ambidextrous Universe*.[395]

---

[390] Ibid., p. 160.
[391] 15 October 1964, 8.00 AM. *Insomniac Dreams*, p. 37.
[392] 15 October 1964, 11.45 AM. Ibid., p. 37.
[393] Brian Boyd, *Vladimir Nabokov: The American Years, 1940-1977* (London: Chatto & Windus, 1992) p. 488.
[394] Nabokov's reference to Dunne is accurate.
[395] Gardner explains the plot point to which Nabokov refers:

> hold a clock up to a mirror and […] [t]he numbers […] go 'counter-clockwise'. […] In […] *The House of the Arrow*, a central clue is a girl's memory of […] a clock face […] she had opened a door and glanced quickly at a clock without realizing she was seeing it in a mirror.

The Ambidextrous Universe, p. 14. Gardner's explanation is sandwiched between two references to *Through the Looking-Glass*.

This reading hangs on Nabokov reading the first edition of *The Ambidextrous Universe* (1964).[396] He has certainly read it by the time he writes *Ada*, in which he name-checks Gardner, either in private jest or gentle admonishment depending on how much readerly sophistication we accord to Gardner. Gardner quotes *Pale Fire* to illustrate the Kantian view of time and space as intellectual productions rather than true reflections of the outside ('*Space is a swarming in the eyes; and time, / A singing in the ears*'), attributing the quotation to Nabokov's fictional poet John Francis Shade.[397] Either Gardner is in on the joke or he has been fooled by Nabokov's editorial disguise. Tongue firmly in cheek, Nabokov returns the favour: '"Space is a swarming in the eyes, and Time a singing in the ears," says John Shade, a modern poet, as quoted by an invented philosopher ("Martin Gardiner")'.[398] As a reward for his collusion, intended or not, in reifying a fictional character, Nabokov fictionalises Gardner on Antiterra, the anti-world thematically encapsulating *Ada*'s dialogue with *The Ambidextrous Universe*. Pagination differences show that Nabokov refers to the 1967 Allen Lane edition when quoting himself as quoted by Gardner. Of course, there is nothing to say that Nabokov had not come across *The Ambidextrous Universe* before using this later edition to compile the exegetic crib sheet included with the first Penguin edition of *Ada* in 1970; he might have seen the reference to *House of the Arrow* in the 1967 edition

---

[396] The second edition (1979) includes the backwards time passage from Plato's *Politicus*. Apparently unaware of the connection between Campbell, Carroll, Maxwell, Pattison and Thomson, Gardner prints a later translation. Martin Gardner, *The Ambidextrous Universe: Mirror Asymmetry and Time-Reversed Worlds*, 2nd edn, (London: Penguin, 1991) p. 263.

[397] *The Ambidextrous Universe* (1967), p. 165. Gardner's italics. The full stanza sees Nabokov grappling with backwards time, echoing Wordsworth's Platonism in 'Ode: Intimations of Immortality' and employing a Carrollian syllogism:

> What moment in the gradual decay
> Does resurrection choose? What year? What day?
> Who has the stopwatch? Who rewinds the tape?
> Are some less lucky, or do all escape?
> A syllogism: *other men die; but I*
> *Am not another; therefore I'll not die.*
> Space is a swarming in the eyes; and time,
> A singing in the ears. In this hive I'm
> Locked up. Yet, *if* prior to life we had,
> Been able to imagine life, what mad,
> Impossible, unutterably weird,
> Wonderful nonsense it might have appeared!

Vladimir Nabokov, *Pale Fire* (London: Everyman's Library, 1992) Canto 2 (209-220).

[398] *Ada*, p. 542.

and, moved by a dim recollection to check his notes, returned to this dream card and discovered its relevance for his latest novel by chance. Alternatively, Nabokov could simply have had a dream about a clock showing half past ten. It is not unlikely.

Whatever the impetus, there is evidence to suggest Nabokov became disenchanted with the idea of reverse memory as a result of his experiment. It became a feature of *Ada*, where Nabokov brought his findings, along with ideas gleaned from *The Ambidextrous Universe*, to bear on backwards time, deeming it extremely unlikely. The first few dreams see a credulous Nabokov convincing himself that he is proving Dunne's theory. On 17th October 1964, for example, he records his 'first incontestable success in the Dunne experiment', believing it a predictor for a film he saw on television three days later.[399] As Barabtarlo points out, in its essential details this fourth dream in the experiment resembles Nabokov's short story 'The Visit to the Museum' (1939).[400] On this occasion Nabokov may have experienced source error, confusing an unrecognised ordinary memory for reverse memory, mistaking effect for cause, as Nietzsche has it. A charitable Nietzschean interpretation might point to the dream's disruption of memory's reality tone, making it less recognisable to Nabokov, while to anyone poring over his notes and fictions the link is obvious. But Barabtarlo overlooks the ironic possibility that his rearward connection is just as vulnerable to confirmation bias – it might just as easily be coincidence that the dream resembles the short story.

Despite these early excitements (if that is what they are), Nabokov's experiment with time was a failure. He did not prove reverse memory. Whether he considered this a disappointment is moot, but he was undoubtedly capable of ribbing himself (or others) for naïvely taking up Dunne's challenge. 'Tropes are the dreams of speech', he writes, in playful recognition that repetition invalidates time order only when time is reduced to sequence, as in

[399] *Insomniac Dreams*, pp. 39-40. Though the hyperbolic 'incontestible' savours, perhaps, of sarcasm.
[400] See Vladimir Nabokov, 'The Visit to the Museum', trans. Dmitri Nabokov, in *The Stories of Vladimir Nabokov*, ed. Dmitri Nabokov (London: Penguin, 1997) pp. 277-285.

narrative and the dead time of absolute idealism.[401] Again, there is a link to Freudian psychoanalysis, whose 'masterplot' comprises 'repetitions' anticipating and resonating with its 'final discharge'. This becomes even more important in fiction, where

> these bindings are a system of repetitions which are returns to and returns of, confounding the forward movement to the end with a movement back to origins, reversing meaning within forward-moving time, serving to formalize the system of textual energies, offering the pleasurable possibility of "meaning" wrested from "life."[402]

For Nabokov, finding such meaning at the expense of the thing which produced it is a fool's errand. In *Ada* the question of reversibility which relies on this serial concept of time pervades even the smallest of details. On a transatlantic voyage, for instance, Van appears to slip into an alternate reality in which time, as well as chiral objects, goes the other way:

> He [Van] would uncurl out of an indefinitely lengthy trance, and note with wonder that the ship was going the other way or that the order of his left-hand fingers was reversed, now beginning, clockwise, with his thumb as on his right hand […] He would realize all at once that three, seven, thirteen years, in one cycle of separation, and then four, eight, sixteen, in yet another, had elapsed since he had last embraced, held, bewept Ada.
>
> Numbers and rows and series – the nightmare and malediction harrowing pure thought and pure time – seemed bent on mechanizing his mind.[403]

Here are two images suggesting time is going backwards wedded to a concise Bergsonian explanation of why that is: the reversibility of mechanism based on a serial understanding of

[401] *Ada*, p. 416.
[402] Brooks is equivocal about the power of the Freudian approach. His subsequent thoughts suggest in their emphasis on continual becoming that the subject is always in the best position to define herself: 'Any final authority claimed by narrative plots, whether origin or end, is illusory. […] It is the role of fictional plots to impose an end which yet suggests a return, a new beginning: a rereading.' *Reading for the Plot*, p. 108; p. 109.
[403] *Ada*, p. 450.

time.[404] Although the direction of the ship remains vague, its travelling 'the other way' suggests a reversal so that travels stern-first into its wake – like the ship making the same crossing in *Time's Arrow* – to mark a corollary reversal of time.[405] Further evidence is the reversal of the fingers on Van's left hand so that it resembles the right, alluding to Kant's meditation on chirality in the *Prolegomena* (probably via Gardner). This in turn calls attention to the reversal of clock direction suggested by mirroring as well as to the fingers themselves. The fact that the enantiomorph of the left hand is the right hand suggests backwards time through electrodynamics.

Van's fingers lead to Michael Faraday's electromagnetic induction theory via Maxwell and John Ambrose Fleming's hand rules. Maxwell suggests the analogy of a right-handed corkscrew for the movement through space over time of a man walking forward if the earth's rotation on its magnetic axis from West to East is taken for positive.[406] When current is passed head to foot through a wire hung vertically, by gripping it with your right hand with your thumb in the direction of the current you can determine the rotation of its magnetic force: rightward, in the direction of the fingers.[407] Fleming developed a similar but distinct rule to determine the direction of the windings in electric motors. Suppose you spread the thumb, index finger, and middle finger of your left hand so that each is perpendicular (index finger straight, middle finger bent), representing the three axes of space. Take your middle finger to indicate the direction of current in a wire, Fleming explains, and magnetic force will be in the direction of your index finger while mechanical force, or work in an electric motor, will be in

[404] For Bergson, apparently referring to the Oxford idealists and perhaps McTaggart, this is a major source of conceptual error in the reversibility issue. 'The English school', he explains, 'tries […] to reduce relations of extensity to more or less complex relations of succession in time' by likening the sequence of sensations to motion through space, which 'experience teaches us […] can be reversed'. Bergson warns that 'such a definition involves a vicious circle, or at least a very superficial view of time.' Henri Bergson, *Time and Free Will*, trans. F. L. Pogson (London: Swan Sonnenschein & Co., 1910) pp. 99-100.
[405] 'The ship's route is clearly delineated on the surface of the water and is violently consumed by our advance. Thus we leave no mark on the ocean, as if we are successfully covering our tracks.' *Time's Arrow*, p. 109.
[406] James Clerk Maxwell, *A Treatise on Electricity and Electromagnetism* (Oxford: Clarendon Press, 1873) I, §23.
[407] Ibid., II, §477.

the direction of your thumb. Fleming's rule comes with an illustration of what Maxwell had only described: current flowing perpendicularly toward a clockface produces magnetic force in a clockwise direction.[408] The rule for generators is the reverse, taking the right hand and using all the same fingers. Fleming's left- and right-hand rules explain why an electric motor can be used as a generator: putting in work in the opposite direction to its output results in current flowing the opposite way down its wires. As a consequence, it also expresses the perfect reversibility of electromagnetism in an ideal world, suggesting a richer significance to Nabokov's 'L disaster' which results in the Antiterran taboo against electricity.[409]

This aspect of chirality is not covered by Gardner in *The Ambidextrous Universe*, where he mentions neither Maxwell nor Fleming, but he does refer to an interesting coincidence in *The Annotated Alice*, noting that Arthur Eddington, who coined the phrase 'time's arrow' to express one-way time, once likened electrons to slithy toves.[410] Beyond the playful allusion Gardner mentions, Eddington uses 'The Jabberwocky' and its suggestively logical nonsense to illustrate the explanatory benefits of quantum mechanics.[411] '[T]he quantum *h* regulates each change [of an electron in its orbit] with mathematical precision' he explains, a probabilistic approximation, allowing a mathematical expression of uncertainty. This allows us to calculate with an unknown variable; as Eddington explains,

> *Something unknown is something we don't know what* – That is what our theory amounts to. […] I have read something like it elsewhere –
>
> The slithy toves
>
> Did gyre and gimble in the wabe.

[408] John Ambrose Fleming, *Magnets and Currents: An Elementary Treatise for the use of Electrical Artisans and Science Teachers* 2nd edn. (London: E. & F. N. Spon, Limited, 1902) p. 142.
[409] *Ada*, p. 17.
[410] *The Annotated Alice*, p. 159.
[411] A similar observation informs Maxwell's poem 'Molecular Evolution' (1874), whose penultimate stanza seems to endorse Carroll's playful endeavours, recognising that without 'nonsense' – a pejorative for the unorthodox – there could be no innovation, no challenge to orthodox 'Truth' in its Platonic, essentialist form. James Clerk Maxwell, 'Molecular Evolution', *The Life of James Clerk Maxwell*, pp. 637-638. Cf. Nietzsche, *The Gay Science*, §58.

> There is the same suggestion of activity. There is the same indefiniteness as to the nature of the activity and of what it is that is acting. And yet from so unpromising a beginning we really do get somewhere.[412]

Returning to Van Veen admiring his hands on the sundeck of an ocean liner, we might observe that the order of fingers on his left hand also points to backward time. Van is imagining his enantiomorph; if he continues in this vein his right hand will resemble his left before its transformation, so that electric currents are reversed with the possible added consequence of experiencing time backwards.

Given Maxwell's relationship with Carroll, the idea of backwards time as a consequence of electricity may have been thought of half a century before Feynman suggested positrons were the temporal enantiomorphs of electrons, reiterating Mein Herr's rueful warning about the seductive but fruitless way of idealism tried in his country fifty years ago.[413] Maxwell's suggestion that we think of magnetic fields as corkscrews recalls Humpty Dumpty's interpretation of 'The Jabberwocky', in which 'toves' are creatures, 'something like badgers […] something like lizards [and] something like corkscrews', who 'make their nests under sun-dials'.[414] Corkscrews are chiral objects whose function expresses direction (they pierce one way). Sundials are symbols of sidereal time which, as Plato's *Politicus* shows, has long been theoretically reversible. Flipping the magnetic poles of the earth, sometimes called the 'great year', occurring in cycles over millions of years, ought to reverse the direction of magnetic fields and hence the significance of chiral hand rules like Fleming and Maxwell's. Taken together,

---

[412] Cf. Lewis's assertion that Russell's 'common sense' philosophy produces a "causal' cinematograph' in which all moments are equally real by removing the visual from the tactile so that 'the mirror image draws level with the 'thing' it reflects', producing 'the non-plastic, illusory, Alice-in-Wonderland world of post-einsteinian philosophy'. *The Nature of the Physical World*, pp. 290-291; *Time and Western Man*, p. 432. See also Chapter Four of Leonard Susskind, *Black Hole War: My Battle with Stephen Hawking to Make the World Safe for Quantum Mechanics* (New York: Little, Brown and Company, 2008), in which Susskind re-imagines the Mad Hatter's tea party to discuss the wave/particle duality of light (the Hatter's ambivalence shows he advocates the quantum mechanical view).

[413] This might be one reason Nabokov sets his technologically anachronistic Antiterra fifty years before our world.

[414] *Through the Looking-Glass*, p. 175. The thermodynamic arrow of time is of course why all the kings horses and all the king's men could not put Humpty together again in the nursery rhyme.

these provide grounds for a reassessment of Plato's 'great year' described in the *Politicus* where time begins to go backwards.[415]

Whether or not Nabokov had such grand philosophical narratives in mind composing *Ada* is uncertain. What is clear is that he was interested in chirality – particularly spirals – suggesting that he was aware of their significance in electromagnetic field theory. Spirals even began to pop up in his dreams. On 4th November 1964, Nabokov describes dreaming of 'one of [his] "fatidic signs", this time a thick orange-red spiral on a dull brown field – the blazon of a vanished nightmare – on the back of its receding coach.' He has, he says, 'been thinking a good deal about spirals lately in connection with my work on space and time'. Perhaps this is why he records that he always sleeps on his right – a sly nod to his preoccupation with chirality.[416] Van's hand hallucination, then, can be seen as a device to critique the absurdities of imposing formal limits on personhood and time. Nabokov and Carroll, then, offer different answers to the question posed at the end of *Through the Looking-Glass* in ('Life, what is it but a dream?'). Carroll's answer is given in the *Alice* and *Sylvie and Bruno* books where he illustrates the absurd consequences of idealism. Life, he concludes, is plenty besides. Nabokov is more ambivalent: as a fatalist he initially sees both reversible and irreversible time as compatible with his worldview. If Carroll's battle was with the reversible mechanics and metaphysics of the determinists, idealists and headstrong deductive reasoners of the nineteenth century, Nabokov's discussion of reversibility in the mid-twentieth century addresses a similar crowd. This time the clash over models of time in physics was between relativity and quantum theory, while in philosophy, although the analytic school was beginning to dominate, nobody had quite

[415] Another (ultimately rejected) reason for re-assessment was the mid-twentieth-century pseudo-scientific doctrine of cataclysmic pole-shift, which holds that the earth's crust periodically shifts, tipping the poles out of alignment and causing oceans to flood across the land in giant waves. See Charles H. Hapgood, *Earth's Shifting Crust: A Key to Some Basic Problems of Earth Science* (New York: Pantheon, 1958) with its enthusiastic, albeit speculative, preface by Einstein, who endorsed backwards time.
[416] *Insomniac Dreams*, p. 57.

managed to put a lid on idealism, which continued to inveigle the interpretations physicists made of their results.[417]

3.8 Epistemological Inversions: The *Camera Obscura*

By rejecting idealism Carroll was in part advocating a return to Locke and empiricism. Locke was the last of the great realists before the idealist turn which peaked in Britain at the end of the nineteenth century with Bradley, but which continued incognito in physics. He was also the first of the radical epistemologists, followed by Berkeley, Hume and Kant.[418] Locke argues that we have no direct knowledge of things in the outside world. Our senses allow us to perceive only how they behave. From our sensory perceptions we produce ideas, meaning we all get similar sensory information, but we then create ideas from them in a first level of abstraction and these we combine, compare and reflect upon to produce further abstractions and to reason. For Locke, this second level is where things can begin to go wrong with our understanding of the world, whether by producing misshapen ideas or by combining them infelicitously. Madness, on Locke's view, is not the want of reason, but reason misapplied. The mad he argues, 'put wrong *Ideas* together, and so make wrong Propositions, but argue and reason right from them'.[419] The significance of this in relation to Carroll's work is obvious: regardless of their formal brilliance, closed systems and logic machines like the syllogism are not adequate

[417] Erwin Schrödinger, for instance, turns to absolute idealism to reconcile biology with deterministic physical laws. Like Boltzmann, he invokes the statistical fiction of the average: on the whole, the system containing an organism tends towards higher levels of entropy; the organism is just a pocket which manages to stave off the inevitable for a bit longer. Schrödinger agrees with Boltzmann that probability means backwards time is a potential reality. Taking the *Upanishad*s idea that all is one and likening it to a dream, Schrödinger suggests that all experience is like this. To be or feel an 'I', a continuity of experience with control over the atoms which make up its body yet which are subject to laws of physics, Schrödinger says we must conclude that 'there *is* only one thing and that, what seems to be a plurality, is merely a series of different aspects of this one thing, produced by a deception (the Indian Maja)'. For Schrödinger, what we really mean by 'I' is not experiences and memories, but their repository – a totality – which for him is consciousness. He concludes that there is only one consciousness, of which each of us is a part. Invoking the concept of the whole and subsuming all human consciousness within it as Hegel did, Schrödinger totalises the universe so that free will no longer seems to oppose physical laws: consciousness for each of us, and our actions within the universe, are only partial glimpses of an unseen whole. Erwin Schrödinger, *What is Life?* (Cambridge: Cambridge University Press, 1944) p. 70; p. 83; p. 90.

[418] All are present in as ideas explored by the *Sylvie and Bruno* books.

[419] *An Essay Concerning Human Understanding*, 2.11.1.

defences against error. They might reach endogenously true conclusions, but if the ideas or their combination are wrong that truth will not correspond to the outside world (e.g. 'some chickens understand French').[420] In computing parlance: garbage in, garbage out.

There is a lot of this pseudo-rational silliness in Carroll, which Nabokov leverages in allusions throughout *Ada* to critique the thinking of his narrator Van Veen. *Alice*'s Mad Hatter and *Sylvie and Bruno*'s Professor are the main culprits, the former making a triumphant return as the namesake of the Antiterran equivalent of Manhattan, where Van comes across

> a reference to '*alfavit*', an old Russian game of chance and skill, based on the scrambling and unscrambling of alphabetic letters […] revived by the "Madhatters" (as the inhabitants of New Amsterdam were once called).[421]

Fitting, then, that one of the hints at backwards time in *Ada* is also associated with letter transposition. On her sixteenth birthday, recalling a game called 'anagrams' played in her youth, Ada says

> "'Speaking as a character in an old novel, it seems so long […] since I used to play word games here […] 'Insect, incest, nicest.'"
>
> Speaking as a botanist and a mad woman, she said, the most extraordinary word in the English language was "husked," because it stood for opposite things, covered and uncovered, tightly husked but easily husked, meaning they peel off easily, you don't have to tear the waistband, you brute.[422]

That 'husked' is semantically bi-directional in terms of time is unusual, but the superlative is hardly justified. Plenty of English words do this, including a synonym for husked, namely 'skinned' (contrast 'thick-skinned' and 'skinned alive').[423] What Nabokov has hit upon is a

[420] Cf. *Look at the Harlequins!*, in which Vadim Vadimovich (via a character in a novel he is allegedly writing) suffers from a mad inability to imagine an inversion of space. His wife suggests he is confusing space with time.
[421] *Ada*, p. 222.
[422] Ibid., p. 267. Cf. p. 85.
[423] Cf. 'cleave' – 'to split' versus 'to adhere'; 'dust' – 'to clean' versus 'to sprinkle'.

particular subclass of contronym – words which, depending on context, have opposite meanings. 'Sanction' is a classic example. It can mean a punishment for failing to observe a law or official permission to flout one. Where 'husked' and 'skinned' differ from 'sanction' is by suggesting opposing processes in time. This semantic duality plays to *Ada*'s palindromic title and the contemporary physics, which was exploring the possibility of antiparticles going backwards in time. By speaking as a 'mad woman', Ada suggests the wrongheadedness of extrapolating such physical reversibility to the macroscopic level of everyday life so that these childhood games were not 'long ago' but equally present in a spacetime manifold.

Madness is just one example of the link to Locke that Nabokov and Carroll share, woven into a network of play in *Ada* and, latterly, *Look at the Harlequins!* where Nabokov is circumspect about backwards time.[424] Either it is a trick, a '*trouvaille*', highlighting the superficiality of empirical resemblances and the sleight of hand in its theoretical workarounds, or it is real but beyond our ken. The second is an epistemological objection with roots in Locke (though Nabokov is closer to Kant in outlook. To illustrate his model of sensory perception and the indirect correspondence of idea and sensation, Locke invokes the *camera obscura*:

> the *Understanding* is not much unlike a Closet wholly shut from light, with only some little openings left, to let in external visible Resemblances, or *Ideas* of things without; would the Pictures coming into such a dark Room but stay there, and lie so orderly as to be found upon occasion, it would very much resemble the Understanding of a Man, in reference to all Objects of sight, and the *Ideas* of them.[425]

The *camera obscura* is a device used from antiquity as an aid to painters. It is a closed box, usually with one small opening (though Locke here speaks of eyes, metaphorically) through which

[424] Evidence that Nabokov has been reading Locke comes in Van's 'The Texture of Time': 'The indistinguishable inane (Locke) of infinite space is mentally distinguishable (and indeed could not be imagined otherwise) from the ovoid "void" of Time.' (A slight misquotation of Locke's 'undistinguishable *Inane* of infinite Space'). *Ada*, p. 542; Essay *Concerning Human Understanding* 2.13.10. The 'ovoid' is a punning reference to Locke's discussion of duration, in which he tries to account for the intuitive acceptability of eternity, but not of infinite space, by arguing that space without body is unimaginable while empty time seems plausible. *Essay Concerning Human Understanding* 2.15.4.
[425] *An Essay Concerning Human Understanding*, 2.11.17.

travel rays of light from all available directions outside the box, crossing one another in the aperture to form a picture on the interior wall opposite. Because light rays travel from the bottom of the outside image to the top of the inside image and the left to the right correspondingly, in the camera obscura things are upside down and back to front. Johannes Kepler, Locke's contemporary, also likens the eye to the *camera obscura*, hypothesising that the image on the retina is inverted both horizontally and vertically.[426] Locke, aware of both Descartes and Kepler's work on optics, knew the *camera obscura* represents things inverted on both axes. That our mind does not see things as they appear in the *camera obscura*, despite its mechanical similarity to the pupil and image on the retina, is evidence of our indirect perception; with this metaphor Locke demonstrates his separation between inner and outer worlds mediated by consciousness. This topsy-turvy picture of the world can also illustrate backwards time.

Evidence that Nabokov was interested in this phenomenon appears in at least two of his texts. It was the original title of *Laughter in the Dark* (1938); *Camera Obscura* (1936) was ditched only when Nabokov retranslated the novel, perhaps to avoid associations with the previous butchered work. Moreover, it is a recurrent theme in *Ada* which Nabokov playfully links back to Carroll with the hybrid title of the book Van receives from his father's former tutor: '*Alice in the Camera Obscura*'.[427] While both Alice books involve reversal of conventions (little girls more sensible than Queens, caterpillars larger than children, and so on) the obvious referent is *Through the Looking-Glass*. Both titles play on optics, and Nabokov's *Alice* surfaces in the midst of a meditation on time and the means by which memory assigns earlier- and later than tags to remembered events, a theme explored in Alice's encounter with the White Queen. Given that *Ada* is set in Antiterra where the normal rules of reality do not hold, this fictional *Alice* may take

[426] David C. Lindberg, *Theories of Vision from Al-Kindi to Kepler* (Chicago, IL: University of Chicago Press, 1981) pp. 202-208.
[427] *Ada*, p. 547.

its title from Lockean elements in the *Alice* books. It suggests, for example, that the topsy-turvy logic of the Mad Hatter is a form of Lockean madness: his logic is sound but his ideas are flawed, so when he claims Time is a '*him*' who can as a result be bargained with by those who 'k[eep] on good terms with him', he has clearly lost the plot, illustrating Locke's thesis that mad men reason right from wrong premises, and echoing Nietzsche's hypothesis about a primitive desire for agency in the natural world.[428] Consciousness, Nabokov suggests, is a matter of generating fictions and madness a consequence of forgetting this abstraction.[429] Here, then, are two reasons to look again at Nabokov's relationship to Carroll, and a suggestion that both are embroiled in epistemological issues thrown up by backwards time.

An epistemological agnosticism drives backwards time in *Ada* and *Look at the Harlequins!* For Nabokov, the significance of Locke's camera obscura and empiricism's irreducibility to direct evidence is this: time may be reversible in mathematics, logic and language, but this has no bearing on whether time itself is reversible. It may or may not be; owing to our sensory and cognitive limitations, we cannot know. Locke did not think his scruple about reality's mediation by the senses led to a crisis for empiricism – like Kant, he takes the external world on faith – but when it comes to explaining what the outside world is, we are engaging in conjecture, based on our experience of how it behaves. It is trivially true that a waterfall viewed in a *camera obscura* flows upwards, but only because the image reverses up and down. It is an illusion. Nabokov's conjuring theme, then, expands his critique of the formal constraints imposed on the self by Freudian psychoanalysis by likening it to a mockery of reversible deterministic physics. The magician-cum-psychiatrist Van Veen represents much that Nabokov hates. No surprise, then,

---

[428] In that event, the Mad Hatter goes on, Time would 'do almost anything you liked with the clock', fast forwarding you from mid-morning to dinner time on request. *Alice's Adventures in Wonderland*, p. 70. Whitrow, whose book *The Natural Philosophy of Time* Véra Nabokov gave her husband when he was writing *Ada*, chooses this episode as an epigraph. Cited in 'The Texture of Time', Whitrow's book is a masterly synthesis of philosophy and mathematics culminating in an affirmation of one-way time. *Ada*, p. 542; *The Natural Philosophy of Time*, p. 313.

[429] Cf. Lewes: 'The poet and the madman frame fantastic combinations, but the poet is aware of the fiction, and the madman relies on it as fact. The sane man is sane only when he can control the passing suggestion by some rapid intuition of its discordance with experience'. *The Physical Basis of Mind*, IV, p. 60.

that the first passage exploring backwards time in *Ada* is both illusory and circus-inspired, in a jibe putting determinists on a par with Freudian mountebanks. Van has learned 'topsy-turvy locomotion'.[430] Walking on his hands as stage persona Mascodagama, he can enjoy the spectacle of the materialist's backwards time:

> as a very old man, looking back at a life of unrecognized endeavor, Van did welcome with amused delight – more delight than he had actually felt at the time – the banal acclaim and the vulgar envy that swirled around him for a short while in his youth. The essence of the satisfaction belonged rather to the same order as the one he later derived from self-imposed, extravagantly difficult, seemingly absurd tasks when V. V. sought to express something, which *until* expressed had only a twilight being (or even none at all – nothing but the illusion of the backward shadow of its imminent expression). It was Ada's castle of cards. It was the standing of a metaphor on its head not for the sake of the trick's difficulty, but in order to perceive an ascending waterfall or a sunrise in reverse: a triumph, in a sense, over the ardis of time. […] Van on the stage was performing organically what his figures of speech were to perform later in life – acrobatic wonders that had never been expected from them and which frightened children.[431]

The expression of ideas in this passage, like the trick of standing a metaphor on its head, is extravagantly complex. It is not just a matter of producing a perspectival setup to make the obvious point that turning the viewer upside down inverts the horizon so a waterfall appears to flow upwards, though the image recalls Thomson's in 'The Kinetic Theory of the Dissipation of Energy' and so alludes to the Macmillan set's *reductio* of reversibility. Nabokov goes one better, suggesting that even if one saw a waterfall flowing upward, this would not be a firm ground upon which to establish reversibility. Van Veen sees backwards time as a refutation of

[430] *Ada*, p. 81.
[431] Ibid., pp. 184-5.

time's arrow, a way to triumph over the 'ardis' of time.[432] In the end, though, it is little more than a circus trick, indicating where Nabokov landed on Dunne's reverse memory: it was the illusion of a backward shadow, like the latent drives Freud claims cause dreams.

Perhaps this 'triumph' is only possible because of the authorial Van's omniscience. Narrative's epistemology, as the previous chapter argued, lends itself to idealism, which in turn makes room for backwards time. For Nabokov, memory plays a similar role: it allows the mind to triumph over time by isolating phenomena from their corresponding noumena, allowing new combinations as pure ideas. 'Imagination is a form of memory', he argues, with a nod to anamnesis,

> Down, Plato, down, good dog. An image depends on the power of association, and association is supplied and prompted by memory. When we speak of a vivid individual recollection we are paying a compliment not to our capacity of retention but to Mnemosyne's mysterious foresight in having stored up this or that element which creative imagination may want to use when combining it with later recollections and inventions. In this sense, both memory and imagination are a negation of time.[433]

Mental time travel theorists turn this on its head. Memory, they claim, is a subset of imagination, not a natural kind, so that our past and future are both simulations.[434] For Nabokov, memory like narrative separates experiences from time and, storing them symbolically, borrows the forward drive of conscious thought and applies it to a grammatically backwards but ultimately static picture of time. Setting experiences in the world of idea, the mind need not relive them in agreement with their original temporality, hence Van's notional 'triumph'. Van even characterises memories as 'backthought', underlining the ambivalence of

[432] Ardis is not just the Veen family home; according to the father of Carroll's child friend Alice Liddell, it is Greek for 'the point of an arrow'. Henry George Liddell and Robert Scott, *An Intermediate Greek-English Lexicon*, 7th edn. (Oxford: Clarendon Press, 1889). Nabokov, as Vivian Darkbloom, has simply 'arrow'. *Ada*, p. 605.
[433] *Strong Opinions*, pp. 66-67.
[434] *Mental Time Travel*, p. 17.

representational sequence as opposed to the ceaseless rush of consciousness checked only by death.[435]

In a development of the Kantian idea that our understanding of the noumenal is limited by hardwired aspects of cognition, Nabokov argues that it is this combinative mental system of timeless representations which allows backwards time to obtain. He is just as doubtful about the prospect as Carroll. The picture of backwards time above is a circus spectacle in two ways. First, in the literal sense that it involves looking at a sunrise or a waterfall from the perspective of a man walking on his hands, then, in the figurative sense that it reduces Van's narrative, as figures of speech cooked up for his family chronicle, to a double fiction: a confabulated representation of the representations in his mind. In doing so, this passage nests the view of Van as an unreliable narrator within the authorial overview of a hierarchically superior later Van so that three stages of Van's personality are postulated here. Young Van is clowning around, enjoying the attention of the crowd and the selfish entertainment of an optical inversion. As an old man lecturing on Bergsonian time, Van sees in this inversion an expression of the retrospective illusion of causal inspiration, which for him is imminent and progressive. Finally, the implied authorial Van considers even this philosophy to mean little beyond the linguistic acrobatics involved. But the ideas dancing upside down in this passage depict more than backwards time. Flattening out of the ontogenetic stages of Van as a person, the narrative kills time in the manner of reversible mechanics of determinism and the dead time of absolute idealism, warning of the pitfalls of ascribing diachronicity to personhood and treating it as an undivided whole stretching from birth to death as a single narrative self. There are three Van Veens in this passage, and they do not all agree.

To which one of them Nabokov referred when he said he loathed Van Veen is unclear. Whether Van the hebephilic lothario, Van the psychotherapist-cum-philosopher, or Van the

[435] *Ada*, p. 391.

memoirist, the implication of the above passage is clear: it will not do to fold them concertina-wise and treat them as a coherent whole. These are discordant voices representing distinct phases in the protagonist's life. Perhaps some are no more than confabulations. In a passage suggesting Nabokov is aware of construction models of memory – Ulrich Neisser's seminal *Cognitive Psychology* was published in 1967 – Nabokov writes, 'I suspect that Van Veen, having less control over his imagination than I, novelized in his indulgent old age many images of his youth.'[436] Rewriting history is a common trait of Nabokov's characters. Many have secrets to hide, and some, especially Van Veen, attempt to recapture the past through a rose-tinted lens. In Nabokov's writing, however, elision and confabulation are not reserved for mendacious memoirists in their 'dot-dot-dotage'; they are psychological defaults.[437]

On the view of cognitive psychology, it is unavoidable that memory is not characterised by direct recall. The classic expression of construction theory is Bartlett's *Remembering* (1932). While he never came out in favour of cognitive psychology per se, Nabokov was certainly after an alternative to the reductive explanations peddled by what he called 'the career boys in biometrics or in the rat-maze racket' in a thinly-veiled reference to behaviourism and Karl Spencer Lashley.[438] By the time Nabokov wrote *Ada* in the mid 1960s, Bartlett's alternative to the directly causal trace theory informing Freud's thinking was beginning to dominate and *Remembering* was reprinted five times between 1950 and 1967. For Bartlett, Nabokov's natural ally against Freud, the time-worn metaphors of memory as a recording device are defunct.[439] 'Remembering,' he explains,

---

[436] *Strong Opinions*, p. 104.
[437] *Ada*, p. 109.
[438] Nabokov, *Speak, Memory*, p. 226. Lashley failed to find the elusive physiological 'trace' upon which to base a positivist/materialist theory of memory with absolute causal links. The only definitive link he found between memory and brain tissue ablation was an obvious one: the more of a rat's brain he destroyed, the more poorly it remembered its way through a maze. K. S. Lashley, 'In search of the engram', *Society of Experimental Biology Symposium, No. 4: Psychological Mechanisms in Animal Behavior* (Cambridge: Cambridge University Press, 1950). pp. 454-482.
[439] See Anne Whitehead, *Memory* (Oxford: Routledge, 2009); Douwe Draiisma, *Metaphors of Memory* (Groningen: Historische Uitgeverij, 1995). Freud inverts some of these metaphors by referring to the photograph and gramophone as materialisations of memory. *Civilization and its Discontents* in *CWSF,* XXI, p. 91.

> is an imaginative reconstruction, or construction, built out of the relation of our attitude towards a whole active mass of organised past reactions or experience, and to a little outstanding detail which commonly appears in image or in language form. It is thus hardly ever really exact, […] and it is not at all important that it should be so.[440]

This constantly reimagined past is at odds with classically-inspired causal models of memory featuring recording metaphors like (Freud's magic writing pad) and their neuroscientific counterparts in behaviourism and trace theory (like Lashley's engram) which hold that direct links can be deduced between events and psychological states to objectively determine what constitutes a self.

In light of constructionism, Van Veen's artful approach to autobiography may be another trap for Freudians. For Freud, art is a palliative measure the civilised individual takes to cope with its discontent resulting from the repressive demands of society. Regarding reality as 'the sole enemy and […] source of all suffering', the individual rejects it and builds one from scratch, seeking to 're-create the world, to build up in its stead another world in which its most unbearable features are eliminated and replaced by others that are in conformity with one's wishes.'[441] Freud, no doubt, would consider Van Veen mad. His incestuous ardour for his sister, especially the memory of her as a pubescent girl, would have Freud casting about for causal explanations. For Nabokov, that means letting Van off the hook, laying blame at the door of abusive parents, or some other past cause, rather than holding the rational agent of now to account. That artfulness does not quite hide his hebephilic narrators' unsavoury behaviour is further evidence that Nabokov does not agree with Freud. Their constructed worlds lack authenticity. Whether or not the fictional confabulator is supposed to have deceived himself, Nabokov's readers remain sceptical about his conviction. Trying to cover a chequered past with

---

[440] Frederic C. Bartlett, *Remembering: A Study in Experimental and Social Psychology* (Cambridge: Cambridge University Press, 1961) p. 213.
[441] *Civilization and its Discontents*, p. 81.

verbal embroidery is, at least for Nabokov's characters, unlikely to succeed. The best that can be hoped for is a transformation with indistinct but recognisable links to the original: the same pattern from another perspective.[442] For Nabokov, the confabulated past is to memory as harlequin to chequerboard.

The search for a stable truth upon which to define Van Veen's character – or any straightforwardly causal diachronic personhood – is, Nabokov suggests, misguided. Because his past is confabulated we cannot know who Van is; because we cannot tell which of his narrative selves are fictions within fiction we cannot say which Van, if any, Nabokov loathes. Just as he layers fictions to thwart Freudian psychoanalysis, Nabokov uses the polyphony of narratorial voice to send literary detectives on a wild goose chase. With one voice Nabokov ironises the reversible time, with another he endorses it, compressing temporal perspectives in a demonstration of the mechanical versatility of narrative, as opposed to actual, time. As a result, it is impossible to pin down a coherent view of time in *Ada*.

For further evidence that such ambiguity is deliberate we might turn to *Look at the Harlequins!*[443] 'Nobody can imagine in physical terms the act of reversing the order of time', Nabokov writes, 'Time is not reversible.'[444] Maya Slater cites this as a challenge to which Martin Amis responds with *Time's Arrow.*[445] No doubt Nabokov was a great influence on Amis, and *Time's Arrow* certainly imagines the reversal of time in physical terms (perhaps the only way it can ever be imagined). Yet we cannot be certain Nabokov was serious when he threw down this gauntlet. He puts these words into the mouth of the narrator Vadim Vadimovich's wife, who offers an inverted Bergsonian explanation for her husband's madness (a pathological

[442] The same is true of *Time's Arrow's* narrator.
[443] Perhaps because Nabokov thought time too might exhibit chirality. Certainly, the idea that memory was affected by chirality was circulating following Oliver Sacks's *Awakening*s (1973). Sacks elicited narrative memories from patients previously unable to move or speak for years by injecting them with L-Dopa (L-3,4-dihydroxyphenylalanine), a molecule with left 'handedness'.
[444] *Look at the Harlequins!* p. 214
[445] Maya Slater, 'Problems When Time Moves Backwards: Martin Amis's Time's Arrow', *English*, 42, 143, p. 141-152.

confusion of space for time) and another suggestion that madness is characterised by reasoning right from wrong premises. Nabokov's treatment of backwards time here is nuanced enough to warrant closer inspection. He presents reversibility first as a commonplace of imagination with journeys, then as an impossibility with time and then again as a pithy Kantian rebuke, denying the possibility of certainty being reached about physical reversibility. Here is Vadim's thought experiment, (from a novel he is writing, entitled *Ardis*):

> A stroll from point H (Home, Hotel) to point P (Parapet, Pinewood). Imagining fluently the sequence of wayside events […]. The narrator reaches point P in his mind, stops – and is puzzled and upset […] by being unable to execute mentally the about-face that would turn direction HP into direction PH.[446]

Reducing the observations along the way to the distinction between the symbolic sequence HP/PH recalls the serialist approach Bergson attributed to the English school in his critique of backwards time.[447] Vadim's wife, more a mouthpiece for Bergson than Nabokov, has this to say in return:

> He speaks of space but he means time. His impressions along the HP route […] refer to a series of time events, and not to blocks of painted space that a child can rearrange in any old way. […] By the time he reaches P he has accumulated duration […] Nobody can imagine in physical terms the act of reversing the order of time. Time is not reversible. Reverse motion is used in films only for comic effects – the resurrection of a smashed bottle of beer […]'[448]

Denying reversibility because it entails a spatialization of time is a typical Bergsonian argument, as is the invocation of reversed film, but Nabokov inverts this for Vadim's malady in a Kantian

[446] *Look at the Harlequins!,* p. 214.
[447] *Time and Free Will*, pp. 99-100. This is the dead time of the Hegelians.
[448] *Look at the Harlequins!*, p. 214. The 'resurrection' at the end of this passage foreshadows *Time's Arrow*. See Chapter Four.

rejoinder to Mrs. N.'s objection, recognising that while we can imagine time without space, we cannot imagine space without time because ideas are durative.[449]

Nabokov's broader point is that narrative demonstrates the referential problem of the cognitive primacy of time. His method of composition – the Bristol cards on which he wrote his novels which allowed him to shuffle and splice narrative chronology at will – is roughly analogous to the 'blocks of painted space' scathingly referred to by Vadim's wife. It works because we represent time in narrative, but it takes time to read narrative. This is how narrative notionally compresses and dilates time, enabling time travel and even reversal. It can formally realise Dunne's proliferating time orders accounting for precognition. It does so by admitting that we already live in a hardwired cognitive fiction so mental representations of reality are just that: representations. There is no one-to-one correspondence. The upshot is that when we consciously construct a representation it is a secondary abstraction – fiction within fiction.

The way Nabokov chooses to end his novel suggests we should be wary about characterising his personal views on time as (broadly speaking) Bergsonian in the way Van Veen's and Vadim's wife's can be. 'That's all very well,' Vadim counters, irritated by her certainty,

> your explanation, however, is merely an exquisite quibble […] the notion of trying to twirl time is a *trouvaille*; it resembles […] the neat formula a physicist finds to keep people happy until […] the next chap snatches the chalk.[450]

In other words, backwards time is a nice illustration of one way to think about time but claiming that nobody can imagine backwards time does not solve any big metaphysical problems. All it does is return us to Locke's view, on which we can dismiss backwards time as something we do not encounter in practice and which, invoking Occam's razor, is best left out of our

[449] For Kant, time is the primary condition of perception; space is secondary. Immanuel Kant, *Dissertation on the form and Principles of the Sensible and Intelligible World*, trans. John Handyside in *Kant's Inagural Dissertation and Early Writing on Space* ed. John Handyside and Norman Kemp Smith (La Salle, IL: Open Court, 1929) §13-15.
[450] *Look at the Harlequins!* p. 214.

considerations. But quantum physicists in the mid-twentieth century had reason to conclude that, at least at subatomic level, backwards time might exist.[451] As a result, Vadim's quip about physicists and their blackboard relay reframes Van Veen's argument that 'Space thrives on surds' while 'Time is irreducible to blackboard roots and birdies' so that although it does not bring us any closer to absolute truth, the pursuit of enlightenment is not vanity.[452] Vadim's image may nod to Kuhnian revolutions, which challenge the idea of science as one-way progress towards absolute knowledge, instead presenting it as a series of illuminating cycles, providing a balance to his wife's absolutist presentation of one-way time.[453] Nabokov lived through many revolutions, both in the spheres of science and politics. He was well aware that paradigms, ideologies, and social systems are always subject to change, however engrained and stable they seem. Backwards time was later denounced by thinkers like the chemist Ilya Prigogine and his philosophical collaborator Isabelle Stengers, who helped to establish that order was not as simple as originally thought. Drawing on Prigogine's work on complex dynamic open systems, these authors advocate a synthesis of dynamics and thermodynamics, arguing that 'non-equilibrium is the source of order' which 'brings "order out of Chaos"' so

---

[451] Feynman's gloss is useful:

> [a] particle moving forward in time (electron) in a potential may be scattered forward in time (ordinary scattering) or backward (pair annihilation). When moving backward (positron) it may be scattered backward in time (positron scattering) or forward (pair production) […] This view is quite different from that of the Hamiltonian method which considers the future as developing continuously from out of the past. Here we imagine the entire space-time history laid out, and that we just become aware of increasing portions of it successively.

'The Theory of Positrons', p. 749. See also E. C. Stückelberg, 'Un nouveau modèle de l'électron pontuel', *Helvetica Physica Acta*, 14 (1941) pp. 588-594; E. C. Stückelberg, ' La mécanique du point materièle au théorie de relativité et en théorie des quants', *Helvetica Physica Acta*, 15 (1942) pp. 23-37.

[452] *Ada*, p. 542. 'The future,' Van later expands, in a critique of historicism and relativity making oblique reference to Carroll's article in *Mind*,

> is but a quack at the court of Chronos. Thinkers, social thinkers, feel the Present as pointing beyond itself toward a not yet realized "future" – but that is topical utopia, progressive politics. Technological Sophists ague that by taking advantage of the Laws of Light, […] we can actually see our own past […] and […] Future […]. This may be good physics but is execrable logic, and the Tortoise of the Past will never overtake the Achilles of the future, no matter how we parse distances on our cloudy blackboards.

Ada, p. 560. A present 'pointing beyond itself' justifies means by anticipated ends and has been used to legitimise totalitarianism.

[453] Thomas Kuhn, *The Structure of Scientific Revolutions*, 4th edn., intr. Ian Hacking (Chicago: Chicago University Press, 2012).

that 'irreversibility is a source of order at all levels'.[454] In doing so they rehabilitate ethics from its status as an at best arbitrary, at worst meaningless, system of values, restoring it as a legitimate consideration for all rational thinkers.[455] But there are shades of Kant in Prigogine and Stengers's thought (though they dismiss him as a superstitious overthinker), which speak to science's successionist approach to naming the unknown. The latest description is usually considered the best, until a better comes along. If Nabokov was invoking Kuhn's principle with this scene, his prediction was correct. Feynman's paper was a step on the way to understanding in the same way that all knowledge simply represents the best explanation we have now. It is a useful placeholder: a fiction which will do until we discover something wrong with it.[456]

3.9 Hell or Heaven, A Binary Choice?

> Th'expense of spirit in a waste of shame
> Is lust in action; and till action, lust
> Is perjured, murd'rous, bloody, full of blame,
> Savage, extreme, rude, cruel, not to trust,
> Enjoyed no sooner but despisèd straight,
> Past reason hunted, and no sooner had
> Past reason hated as a swallowed bait
> On purpose laid to make the taker mad;
> Mad in pursuit and in possession so,
> Had, having, and in quest to have, extreme;
> A bliss in proof and proved, a very woe;
> Before, a joy proposed; behind, a dream.
>
> All this the world well knows, yet none knows well
> To shun the heaven that leads men to this hell.
>
> ~ William Shakespeare, Sonnet 129.[457]

[454] Ilya Prigogine and Isabelle Stengers, *Order out of Chaos* (New York: Bantam, 1984) pp. 286-292.
[455] 'We can no longer accept the old *a priori* distinction between scientific and ethical values', they write, explaining that such a distinction rests on an outdated view of the internal and external as statistically independent, because 'time is a construction and therefore carries an ethical responsibility.' Ibid., p. 312.
[456] See also Waugh, 'Just-so Stories?', p. 236.
[457] 'Sonnet 129', *TNS*. Cf. *Measure for Measure* I. ii.108-110: 'Our natures do pursue, […] A thirsty evil; and when we drink, we die.'

Titles are important. Notionally autobiographical early novels like Laurence Sterne's *Tristram Shandy* summarise a life with a name. Others, like Jane Austen's *Persuasion*, invoke abstract nouns to suggest a thematic seam to be mined between the covers. Whatever else they might be, titles should be chosen carefully. The subversive Soviet author Sigizmund Krzhizhanovsky once wrote that a text depends absolutely on its title. Get it right, he said, and 'the whole text will hang on it like a coat on a peg'.[458] Nabokov's *Ada* (1969) is his longest novel by far. Perhaps it was this strain which meant later editions were graced with the more robust, if enigmatic *Ada, or Ardor*. Perhaps it was an attempt to recapture some of the scandal which proved so lucrative when *Lolita* was published by injecting a bit of desire into the title. Or perhaps Nabokov was simply torn between the biographical and the ruminative, opting for a halfway house between Sterne's proper- and Austen's abstract noun, foisting the choice on his readers instead; a toss-up borne out in the awkward internal balance between Van Veen the character's self-indulgent intellectualisations and the feigned omniscient objectivity of the narratorial Van Veen. A more illuminating possibility combines all three.

With Shakespeare's Sonnet 129 as our touchstone we might try a different way into the novel, taking the object of desire, Ada Veen, as interchangeable with desire itself. This sonnet is about lust, consonant with Nabokov's theme of ardor, but it is also a miniaturised meditation on time. Shakespeare describes the anticipatory zeal of the ardent, their capacity to put morals on hold to possess their prize, and the post-coital malaise accompanying such transgressions. In what might be considered a consequentialism of sorts, he compresses the lecher's mad behaviour across three tenses in a succinct expression of momentary bliss at the expense of eternal remorse. In *Ada*, the choice is not binary: Ada is more than a name; *ada* is also Russian ('of hell'; 'out of Hades'), contributing to a system of interconnections within the text which

[458] Sigizmund Krzhizhanovsky, 'The Bookmark' in *Memories of the Future*, trans. Joanne Turnbull (New York: New York Review of Books, 2009) p. 27.

retrospectively impregnate the title with semantic ambiguity, altering the significance of our choice in a way that resonates with Sonnet 129's concluding couplet.[459]

Another aspect of this interchangeability turns on Russian pronunciation. Ada's mother, Marina Durmanov, 'pronounced [Ada] the Russian way', writes Nabokov, 'with two deep, dark "a"s, making it sound rather like "ardor."'[460] The upshot is that Nabokov's revised title could be pronounced 'Ardor, or Ardor'. This is not mere sophistry. The symmetrical sounds of the title's Russian pronunciation fly in the face of the visual difference of the Roman characters on the book's spine. On the surface, 'Ardor, or Ardor' is a choice between two of the same. The difference in writing, if not pronunciation, reveals this as a choice between two ways of perceiving the same thing: a matter of perspective, like harlequin and chequerboard. The first is reversible: the palindromic *Ada*, engaging with Norbert Wiener's discussion of ancient conceptions of reversible time and their expression in classical mechanics.[461] Further evidence that Nabokov has been reading Wiener is found in the mechanics of the dorophones replacing telephones on Antiterra after the 'L disaster'. The dorophone, hinting at a Russian pronunciation of 'durophone', carries 'vibrational *vibgyors*' which 'produced, of course, only one-way messages'.[462] Wiener famously argued that '*Within any world with which we can communicate, the direction of time is uniform*' so that it would be impossible to communicate with a being whose experience of time ran counter to our own.[463] This leads to the second way of

---

[459] Van, for example, refers to Ada in the diminutive as 'Adochka, *adova dochka* (Hell's daughter)'. Cf. Nabokov's self-quoted concluding couplet in *Lolita*:

> The moral sense is the duty
> We have to pay on mortal sense of beauty.

Ada, p. 403; *The Annotated Lolita*, p. 283.

[460] *Ada*, p. 39.

[461] I have not invented the analogy between palindromes and reversible time for this argument:

> The music of the spheres is a palindrome, and the book of astronomy reads the same backward as forward […] if we were to take a motion picture of the planets [and] run the film backward, it would still be a possible picture of planets conforming to the Newtonian mechanics.

Wiener, *Cybernetics*, pp. 31-32.

[462] *Ada*, pp. 83-84. Vibgyor inverts the mnemonic for the visible spectrum of light.

[463] Wiener's experiment, with an 'intelligent being whose time [runs] the other way to our own' resembles those of the late-nineteenth-century philosophers. pp. 34-5. On Wiener's view, Amis's narrator in *Time's Arrow* is a liar – to have access to the narrative we must share the same temporality, so narrator's testimony cannot convey the

parsing the sounds in the title, *Ardor*, which is irreversible, corresponding to everyday lived experience.

Kermode's discussion of eschatology and the eternity of heaven and the realm of angels ('*aevum*') may also be a source for Nabokov's engagement with the choice between reversible and irreversible worlds. For Kermode, heaven is the eternity of the Judeo-Christian God and the source of the Western tradition of conceiving time as linear.[464] We live, and we die, Kermode says, in the middle of things, in the present, but in order to make sense of our lives we impose upon it the fiction of an end to make sense of our 'intermediary preoccupations'. This too is a totalising process: 'We project ourselves […] past the End, so as to see the structure whole, a thing we cannot do from our spot of time in the middle.'[465] *Ada*, a novel full of inversions, may be a stylised counterpart.[466] *Ada* ('Of Hell') might in the years in which the novel is set at the end of the nineteenth century have been mistaken for a theological text and the novel the sort of hell explored in Sonnet 129: the mental torment of a lonely old man whose forbidden love affair with one sister made the other commit suicide, a Funes-like total-recaller who can neither forget nor move on because the narrative is fixed in print. The reflection of heaven in hell is an obvious one – and a timeworn theme in literature, at least since *Paradise Lost* – but the teleological certainty implied by Christian eschatology does not have an obvious counterpart in the reversible *Ada* because heaven and hell are both eternal realms. If *Ada* is a sort of hell, and hell is eternal, why does it include the substitutive duration of narrative time?

---

earnest misgivings of a naïve soul living backwards – it is the codified memoir of an unregenerate Nazi. See Chapter Four.

[464] When it comes to ''making sense' of the world', he argues, 'we still feel a need, […] to experience that concordance of beginning, middle, and end which is the essence of our explanatory fictions, and especially when they belong to cultural traditions which treat historical time as primarily rectilinear rather than cyclic.' Frank Kermode, *The Sense of an Ending* (Oxford: Oxford University Press, 1967) pp. 35-36.

[465] This end beyond experience is a 'figure' for our deaths. Ibid, p. 7; p. 8.

[466] Perhaps also a glib reference to Kingsley Amis's *New Maps of Hell* (1960). Amis appears in *Ada* as Sig Leymanski, an 'anagram of […] a waggish British Novelist keenly interested in physics fiction'. *Ada*, p. 340. Waggish indeed; Amis senior later dismissed Nabokov as a show-off while in his private correspondence he let fly with extraordinary vitriol, telling Philip Larkin he considers Nabokov's pretentious style to have 'fucked up' his son Martin. Kingsley Amis, 'Sacred Cows', *The Amis Collection: Selected Non-Fiction 1954-1990*, intr. John McDermot (London: Hutchinson, 1990) p. 19; Kingsley Amis, Letter to Phillip Larkin, 22 March 1982 in *The Letters of Kingsley Amis*, ed. Zachary Leader (London: Harper Collins, 2000) pp. 938-939.

Nabokov's point is likely about justice. If ardor is sinful then it leads to hell, both in the figurative sense of mental anguish in Shakespeare's sonnet and the biblical sense of eternal punishment. If Carroll's prose was a hermetic vault for his child friends to prevent them aging, Nabokov leverages the eternity of prose to imprison his most detestable narrators and immortalise their crimes.[467] The trouble is that for such punishment to mean anything, hell, paradoxically, must have duration for the sinner to perceive that the torments are endless. Otherwise there is nothing terrifying about the prospect of them continuing.[468] As William Blake puts it, 'Eternity is in love with the productions of time.'[469] There are, then, two ways to construe Nabokov's title in light of Sonnet 129: either we take 'ardor' as lust ('the heaven that leads men to this hell') or we take it that Nabokov had something like the Romanticism inculcated by this thinking in mind when writing *Ada*, playing with the idea that the intuitively hellish consequences of reversibility (firemen passing children from hand to hand up a ladder and in through the window of a burning building and so on) could be avoided if only we gave up on the notion of eternity.[470] Trying to bring eternity to Earth by mastering physical laws only brings trouble.

The alternatives in Nabokov's title, then, represent a choice between two types of universe, open and closed and a choice between reversible and unidirectional time. If we include the subtitle (*Ada, or Ardor: A Family Chronicle*) the choice becomes even more stark. Either we choose *Ada* and ambivalence about time's arrow, causality and the significance of ontogenetic development (hence also sexual maturity) or we choose *Ardor: A Family Chronicle*, an irreversible title promising enough dry historicism to bury the sexual thrill of its abstract noun. It is a choice between, on the one hand, an aestheticised view of time as fatidic and beyond

---

[467] As Amis does in *Time's Arrow*.
[468] A similar issue is discussed by Borges, who eventually decides Hell is eternal without much heed to this paradox. Jorge Luis Borges, 'The Duration of Hell', trans. Susan Jill Levine and Eliot Weinberger in *The Total Library: Non-Fiction 1922-1986*, ed. Eliot Weinberger (London: Allen Lane, 2000) pp. 48-51.
[469] William Blake, 'Proverbs of Hell', *The Marriage of Heaven and Hell* (Boson, MA: John W. Luce and Company, 1906) p. 14.
[470] The notion of eternity certainly informs Einstein's closed universe of fixed laws.

morality and, on the other hand, an ethical view of time as a causal chain strung together from meaningful choices.

3.10 'Madness lies that way': Chess, Deduction and Probability

As a result of his conviction that chance is an expression of human ignorance, not a physical principle, Einstein famously insisted that God does not play dice.[471] What game might tempt Him to sit down and try his hand? Einstein might not have had the same qualms about a chess-playing God, whose universe would unfold according to a preordained design with pieces and rational agents interacting only in pre-programmed ways.

Of the eternal principles in physics, only one timeless concept remained after relativity theory: the law. Relativity seemed to restore the mathematical certainty undermined by the thermodynamic challenge to classical Newtonian mechanics – in which Nietzsche recognised the will to conceive the world as a timeless whole – in the nineteenth century.[472] Again, it was laws which linked events rather than causality and unlike causality the notion of law does not imply a direction for time's arrow. Ultimately, it was by combining faith in the principle of physical laws with his conviction that God could not be responsible for an incoherent universe of chance that Einstein came to embrace determinism. However, by threatening to relegate causality to the status of an epiphenomenon, relativity alienated many ordinary people who felt it was impossible to reconcile the inevitability of physical laws to the indeterminacy demonstrated by unpredictable events in everyday life. Even if the only evidence for contingency were this partial ignorance, it is difficult to see how that would strengthen the argument that the total knowledge of a hypothetical omniscient like Laplace's demon could ever be attained.

---

[471] 'Nature doesn't know chance, it operates on mathematical principles […] God doesn't play dice with the world.' quoted in William Hermanns, *Einstein and the Poet: In Search of the Cosmic Man* (Wellesley, MA: Branden Books, 1983) pp. 57-58.
[472] *The Will to Power*, §521.

One scientific test for precognition might be to have a subject predict a hand or run of cards before they are dealt. This is a good test because card games are games of chance.[473] We play them because the outcome of the deal is different every time, presenting different possible combinations of plays. If players could compute all possible permutations of the deck it would suck the fun out of the game, reducing it to the status of arbitrary ritual. Chess is not like this at all, although play of any kind assumes indeterminate outcomes. In chess, every 'deal' is the same: the rules dictate that the pieces are laid out in the same initial constellation each time. The actualisation of a particular play in chess, each step towards disorder, is governed not by chance, but by choice. Predicting the future in chess is more about predicting an opponent's behaviour. Nevertheless, because the rules of chess only allow a set range of moves, such prediction ought to be possible, if only the correct formula can be found. Nabokov has noticed this solution assumes a fictional universal opponent as well and the attempt to find it is characterised by a desire to remove the contingency of free will which accounts for different players' choices in a given constellation. He is not alone in levelling a similar criticism at would-be calculators of human intention beyond the chessboard.

Gillian Beer draws attention to a suggestive passage in George Eliot's *Felix Holt: The Radical*.[474] In it, Eliot portrays the belief that rational agents can be accurately predicted as an expression of arrogance:

---

[473] Carroll themed the *Alice* books by notionally constructing them around games: for *Wonderland*, cards; for *Looking-Glass*, chess. The significance is in part the importance of inductive and deductive logic in both games. Winning at either is less likely if a player relies on one logic alone. Nabokov accords similar thematic roles to two early novels: *King, Queen, Knave* (cards) and *The Luzhin Defense* (chess). Cards and chess have different probabilistic outcomes. Cards is a game of chance: games vary based on the shuffle. There are fifty-two factorial combinations in a deck, meaning the chances of an individual playing exactly the same arrangement of cards twice are vanishingly small. Once play begins, possibilities diminish as cards are sorted into order by the game's rules and the players' decisions. In effect, a deck of cards is at maximum entropy immediately after shuffling. It becomes more ordered as the game progresses. Chess, on the other hand, begins with one possible constellation. It is at its lowest level of entropy when the game begins. There are then twenty possible arrangements when both players have made their first move, four hundred in the next, eight thousand nine hundred and two in the next, and so on, so that the number of possible combinations in chess increases with every interaction of the players. Probability in cards and chess works in opposite directions.

[474] Beer's readings focus on the allegorical significance of chess as social game-playing, and the question of power thrown up by a system of rules binding both player and pieces. Introduction to *Open Fields*, p. 1; *Alice in Space*, p. 69.

> Fancy what a game at chess would be if all the chessmen had passions and intellects […]: if you were not only uncertain about your adversary's men, but […] also about your own […] You might be the longest-headed of deductive reasoners, and yet you might be beaten by your own pawns. You would be especially likely to be beaten, if you depended arrogantly on your mathematical imagination, and regarded your passionate pieces with contempt.[475]

Eliot is criticising the application of a particular thought process – deductive logic – to problems for which it is not well suited. Manipulating a game's pieces according to a logically calculable plan in a closed system is one thing, says Eliot; managing people effectively in society is quite another. Like Carroll, then, Eliot points to the madness (in this case perhaps megalomania) of ruling using only deductive logic, an approach whose disastrous consequences are played out in *Time's Arrow*.[476]

In 1873, Maxwell wrote an essay illustrating this problem, its inapplicability for social matters, and the illusion of determinism – of tamed chance – which comes from treating people as statistically calculable. Arguing against investigating social questions on the basis of grouped data, Maxwell identifies two methods: the statistical and the dynamical. The first takes people grouped by a common characteristic and investigates them in terms of numbers, extrapolating generalised laws. The second takes people one at a time, considering their pasts and analysing their aspirations and motives, and comparing expected with actual behaviour. For Maxwell, however painstaking, the second method is the only legitimate way to proceed. At bottom, although he would not have put it like this, his argument is that statistical deduction depends

---

[475] George Eliot, *Felix Holt the Radical*, ed. Fred C. Thomson (Oxford: Oxford University Press, 1988) p. 236. Cf. Einstein's claim that '[t]he supreme task of the physicist is to arrive at those universal elementary laws from which the cosmos can be built up by pure deduction.' Albert Einstein, *The World as I See It* (London: John Lane The Bodley Head Limited, 1935) p. 125.

[476] Eliot's manuscript of *Felix Holt* reads 'Cambridgeans' for 'deductive reasoners'. Contemporary Cambridge was at the mathematical apex of English society. One commentator saw Carroll as more of a Cambridge man than an Oxford man insofar as his work is more rooted in Boolean logic than his Oxford contemporaries'. *Felix Holt the Radical*, n. 407; Introduction to *Lewis Carroll's Symbolic Logic*, p. 19.

too much on the mathematical imagination, on the fiction of the 'average' person. But humans and their behaviour, he says, 'are not symmetrical functions of the time. It makes all the difference in the world whether we suppose the inquiry to be historical or prophetical – whether our object is to deduce the past state or the future of things from the known present state.'[477] Human affairs, then, are good evidence that determinism is not universal and that statistical inference, while useful, invites misleading deterministic interpretations when it makes slapdash generalisations about things like individuals, whose essence lies in their contingence. For this reason, Maxwell says,

> If […] those cultivators of physical science from whom the intelligent public deduce their conception of the physicist […] are led […] to the study of the singularities and instabilities, rather than the continuities and stabilities of things, the promotion of natural knowledge may tend to remove that prejudice in favour of determinism which seems to arise from assuming that the physical science of the future is a mere magnified image of that of the past.[478]

To reiterate, Maxwell's quarrel is with the fiction of the mean. Particular things are neither stable nor continuous, he explains, mischievously suggesting that the public deduces intellectuals incorrectly. It is only in general that such patterns emerge, patterns which no more accurately reflect their constituent parts than the observation that all books have two covers and pages between them reflects their contents.

Eliot's title underlines her call to make room for contingency in the social sphere. The Latin *felix*, from which one earnest young character takes his name, means 'happy' but also 'lucky' or 'fortunate'. In a calculable world of deterministic relations, whether social or physical,

---

[477] Contrasting astronomy with thermodynamics he goes on to observe that, while in astronomy time is reversible, thermodynamic time admits of mathematical solution only one way, suggesting that memory, insofar as it allows us to reason backwards towards historical certainties, might be an exception. If so, Freud's method ought to be more successful. James Clerk Maxwell, 'Does the progress of Physical Science tend to give any advantage to the opinion of Necessity (or Determinism) over that of the Contingency of Events and the Freedom of the Will?', *The Life of James Clerk Maxwell,* p. 440.
[478] Ibid. p. 444.

luck does not signify. Similarly, that Felix Holt is a 'radical' suggests he is an original, literally 'of the root', not derivative. Originality is precluded from all but the moment of creation in a world of pure deduction, and even that is problematic given that this approach rewinds causality to stage one and then cannot deduce a causal account for stage one's existence. Returning to Eliot's allegorical chess game, while winning a game of chess requires the application of logic, contrary to her suggestion, victory is rarely achieved by deduction alone. Trying to win a game of chess by deduction is like attempting to break a code by brute force, considering all possible legal moves of an opponent and eliminating them one by one. Inductive logic – for instance, recognising the patterns in an opponent's play and calibrating strategy accordingly – is an essential part of reacting to the plays of a real adversary. That neither form of reasoning is likely to win a game on its own is shown by experiments with artificial intelligence which have often taken chess as a good indicator for whether or not 'intelligent' programming has been achieved.[479]

In *The Luzhin Defense*, Nabokov illustrates the potentially disastrous consequences of regarding chess as a deductive problem and life as analogous to chess. Grandmaster Luzhin (it 'rhymes with "illusion" if pronounced thickly enough to deepen the "u" into "oo"', Nabokov explains) suffers a breakdown during the final of a chess tournament.[480] For years, Luzhin has been losing track of the boundary between the chess world and the world around him, but the tournament tips him over the edge. Convinced his opponent Turati will employ the opening with which he has swept past all challengers on his way to the final, Luzhin constructs an elaborate defense to counter the threat, employing the 'stunning clarity of thought' and

[479] 'By working backward from the end', writes Claude Shannon, describing the lack of efficiency of a strictly deductive approach to chess, 'one can determine whether there is a forced win, the position is a draw or is lost. It is easy to show, however, even with the high computing speed available in electronic calculators this computation is impractical.' Shannon describes two strategies that might be usefully boiled down to logical methods recognisable as deductive ('pure') and inductive ('mixed'), arguing that the latter is more effective. Claude E. Shannon, 'Programming a Computer for Playing Chess', *Philosophical Magazine*, Vol 41., No. 314 (1950) p. 259.
[480] Vladimir Nabokov, Foreword to *The Defense*, trans. Michael Scammell (London: Weidenfeld and Nicholson, 1964) p. 7

'merciless logic' which brought him this far. Turati's tournament, on the other hand, is marked by the 'boldness of his imagination' and his 'chess luck'.[481] The stage is set for a showdown between determinism and contingency, between the 'far-sighted Russian' and his improvising Italian opponent.[482]

Turati does not attack as expected, rendering Luzhin's planned defence useless. As the game develops, the language of probability begins to creep in: 'new possibilities developed,' Nabokov writes, though 'no one could say which side had the advantage'.[483] The deadlock continues, but ultimately the fruitless search for 'the secret move' leading to inexorable victory proves too much for Luzhin who, in the throes of a mental breakdown, manages to articulate at once his utter dependence on chess and his mental incompatibility with its competitive strain, which does not allow time to deduce every possible combination. '[T]ime is merciless in the universe of chess', Nabokov writes, but to this mercilessness Luzhin is drawn like a moth to a flame, unable to take a chance on inductive reasoning.[484] His chess reverie is broken by a sharp pain – Luzhin has forgotten to light his cigarette and the match has burned down to his fingers. The pain is incidental but,

> in the fiery gap he had seen something unbearably awesome, the full horror of the abysmal depths of chess […] the chessmen were pitiless, they held and absorbed him, There was horror in this, but in this also was the sole harmony, for what else exists in the world besides chess? Fog, the unknown, non-being…[485]

The 'pitiless' chessmen are roughly synonymous with the 'merciless' time of the rule-based chess universe, so that in a sense chess and time are interchangeable in Luzhin's mind. His desire for harmony marks him as a determinist: for him, every aspect of the world should be

---

[481] *The Defense*, p. 134.
[482] Ibid., p. 135.
[483] Ibid., p. 139.
[484] Ibid., p. 138.
[485] Ibid., p. 139. This fog, like the fog in Dickens's *Bleak House*, stands for all that is irresolute, hazy and indefinite. Nabokov did not read *Bleak House* until his American phase, but this coincidence shows both authors reaching for the image of fog to describe entropic and chaotic processes.

calculable, given long enough. He extends this thinking beyond the chessboard, even appealing to it when proposing to his wife: 'therefore in continuance of the above I have to inform you that you will be my wife, it was impossible to go away, now everything will be different and wonderful.'[486] The fragmentary speech is deliberate; Luzhin's reasoning often seems truncated, extrapolating precarious certainties from nodes of contingence. He refers to his decision to remain at the hotel in which he met her, from which it follows that he cannot do without her, from which it follows that she will agree to be his wife and they will live happily ever after in keeping with the conventional certainty of classical comedy and the nineteenth-century novel. At first, Luzhin seems to be right. She does marry him, they do live happily, and he is able to hide the all-encompassing importance of chess in his mental life. Until, that is, the game with Turati.

The Defense is not a comedy, but a tragedy, though Luzhin does not know it. Although the end of the narrative leads to a particular fate, he is not far-sighted enough to glimpse it. There is no hope, either, in the 'retrograde analysis' Nabokov mentions in the foreword, referring to backwards induction.[487] In 1912, Ernst Zermelo claimed backwards induction could be used to discover the optimal mode of playing a chess game by reading it backwards because only three outcomes are possible: Black wins, White wins, or a draw is forced.[488] However, backwards induction relies on the notion that the game of chess is finite. It is not.[489] Chess is a closed system, in that there is a limit to the number of legal moves available to each player at the start of their turn, but there is no accounting for which of these moves the opponent will make. An infinite number of possible combinations leads to each outcome. Hence Turati's unpredictability is Luzhin's undoing. The human element of the game defies

[486] Ibid., p. 103.
[487] Foreword to *The Defense*, p. 10.
[488] Ernst Zermelo, 'Uber eine Anwendung der Mengenlehre auf die Theorie des Schachspiels,' in *Proceedings of the Fifth Congress Mathematicians, Cambridge 1912* (Cambridge: Cambridge University Press, 1913) pp. 501-504.
[489] Christian Ewerhart, 'Backward Induction and the Game-Theoretic Analysis of Chess', *Games and Economic Behaviour* 39 (2002), pp. 207-208; pp. 211-213.

calculation. The certainty in reversibility of backward induction is an illusion of retrospect – it only works by assuming a game has already occurred up to the point of analysis. Luzhin's madness is to attempt anterograde analysis, predicting the future using deductive logic. In the end, driven to despair by a world which refuses to behave in accordance with his rules and predictions, Luzhin takes matters into his own hands. Finally arriving at an unanswerable defense against life's contingencies, he imposes eternity upon himself by committing suicide. A suspicion remains, however, that Luzhin may be right to despair. For him life is like a game of chess, but the odds are stacked against him. He was never going to win the final because behind Turati was a mightier opponent: the calculating omniscience of the author, for whom all contingency is artifice. The suggestion is that even if we hold determinism to be true, owing to our limited knowledge we ought to behave as if it were not or risk driving ourselves to madness.

Joining Carroll, Eliot and Nabokov in warning that madness lies that way is Stefan Zweig, though, like them, he does not condemn it outright. Inductive logic underpins most empirical cognition. It is garden variety human reasoning, with a solid history as a selective evolutionary advantage. Moreover, it forms the basis of modern stochastic theory; just because it is flawed does not mean it should be thrown out in the pursuit of perfect calculus. In his 1942 novella *Chess*, Zweig describes a sea voyage from New York to Buenos Aires. The anonymous narrator and his friend McConnor challenge a fellow passenger, Grandmaster Czentovic, to a game of chess. The first has an air of inevitability: 'it ended, as it was bound to end, in our total defeat.'[490] Things do not go this way for long. McConnor demands a rematch. A crowd has gathered: this is now chess by committee, everyone in the group analysing the arrangement of pieces before calling Czentovic back to the table, increasing possible permutations by increasing the number of rational agents involved beyond the conventional opposing two. Just when the narrator and McConnor are about to risk a move, a stranger emerges from the crowd to stop

[490] Stefan Zweig, *Chess*, trans. Anthea Bell (London: Penguin, 2011) p. 22.

them, noting the similarity between the constellation and a game played between professionals in Pistyan in 1922, and warning that if they go ahead they will have been mated in nine or ten moves. Aided by their mysterious saviour, Dr. B., the pair manage to draw the game against the grandmaster.[491]

Dr. B is a lawyer who fled Europe to escape the Gestapo. He did not experience the concentration camps but was subjected to psychological torture in an effort to extract information. Kept in isolation without any of his effects, he lost track of time. '[Y]ou were,' he explains, 'surrounded everywhere, all the time, by the void, that entirely spaceless, timeless vacuum.'[492] Chancing upon a book of chess problems stolen from a coat hanging in the antechamber of the interrogation room, he fills the void with chess.[493] After four weeks he is 'easily able to play any game in the book from memory'.[494] This is timeless chess, in Nabokov's view, since both imagination and memory represent the death of time. The game gives him something to do but weakens his bond to the present, to consensual reality.

Soon Dr. B. tires of replaying the Grandmasters' games and starts inventing his own. Now Zweig introduces a different kind of madness, to which Nabokov returns in *Ada* and Amis in *Time's Arrow*. Again, the problem begins with an argument drawn from deduction:

> as chess is a game of pure thought involving no element of chance, it's a logical absurdity to try playing against yourself. […] the attraction of chess resides entirely in the development of strategies in two different brains […] If Black and White were one and the same person, you'd have the ridiculous state of affairs where one and the same brain simultaneously knows and doesn't know something […] My dreadful situation forced me at least to try splitting myself into a Black self and a White self[495]

[491] Ibid. pp. 24-8.
[492] Ibid. p. 41. This duration without measure was the worst horror of his torture, challenging the notion that eternal damnation is a deterrent to sin.
[493] Ibid. p. 49
[494] Ibid. p. 54.
[495] Ibid., pp. 57-8.

Of course, Dr. B. is wrong about chess involving no element of chance unless he is a fatalist. He neither accounts for the unpredictable – perhaps irrational – moves of an opponent, nor the game's existence beyond any two opponents; probability calculations arguably begin beyond the board, with the selection of opponents from the population at large. Only once opponents are known and first moves made does the element of chance begin to dwindle, as each player seeks to limit the number of moves open to the opponent or, through sacrifices, trick them into thinking a different strategy is being pursued. Luzhin, for example, might have fared better against Turati had he put himself in his shoes and considered that playing the same opening all through a tournament would give the illusion that he was certain to do so in the final. Dr. B. goes one better, imagining each move as if he is his own opponent and thwarting his own strategies at every turn, incurring 'artificial schizophrenia'.[496]

In the end, Dr. B.'s mastery of this self-splitting is his undoing. Because he can calculate the fixed possibilities of each constellation much faster than Czentovic he becomes increasingly agitated as he waits for a rejoinder. Eventually, Czentovic begins to use this to his advantage, taking his time to provoke the impatient and unstable Dr. B., who succumbs to temptation and begins inventing other games to amuse himself while Czentovic considers his next move. In the end, Dr. B. is beaten because he cannot tell the difference between the games invented in his head and the game on the table in front of him. He has defaulted from consensual reality's present moment or, in Vonnegut's words, 'come unstuck in time'. He moves a piece on the table, claiming to have Czentovic in check, but without reference to the board he has forgotten a pawn protecting Czentovic's king. Sensing an impending mental breakdown on the order of

[496] Ibid. pp. 61. Nabokov explores schizophrenia, previously '*dementia praecox*' in *Ada*, where narrative consciousness is split between Van and Ada (their father: Demon, 'a form of Demian or Dementius'), the latter often appearing in parenthetical intrusions. This is part of a broader meditation on the mental schism of all narration, producing a narrated 'I' which is and is not the narrating 'I'. See also Krzhizhanovsky's warning as early as 1927 that 'given the least carelessness in dealing with this text, you may confuse several "I"s. This is because of an oversight by the author, who allowed his character to narrate the story in the first person, who lent him his own personal pronoun […] and now doesn't know how to get it back so as to finish in his own name.' *Ada*, p. 4; Krzhizhanovsky, 'Someone Else's Theme' in *Memories of the Future* trans. Joanne Turnbull (New York: New York Review of Books, 2009) p. 83. Cf. Borges, 'Borges and I' (1960) and 'A New Refutation of Time' (1944-1946).

Luzhin's, the narrator grabs Dr. B. and forces him to forfeit the game. Dr. B. is shaken, and vows never to play another game of chess.[497]

Luzhin and Dr. B. exemplify the dangers of trusting deduction to provide certainties about the external world. Whatever your genius, Nabokov and Zweig agree, you will not succeed. Both Czentovic and Turati use the contingency of the world outside chess to achieve victory. For Turati it is a pattern of predictable openings which unpredictably stops before the final game of the tournament; for Czentovic, the unexpected possibility that an opponent will arbitrarily lengthen moves, taking as much time as he can to aggravate his opponent's state of mind.

Nabokov and Zweig's exploration of the madness of deduction in chess raises a question about justice. Does influencing an opponent using methods outside the remit and regulations of the game count as cheating? Like narratives, games are rule-bound systems allowing limited combinations of plays. To cheat is to impose individual will upon a game, limiting the role of chance to make the outcome more predictable. Loading the dice is a quick and dirty way of engineering a limited determinism in a game of chance. Nabokov expands Carroll's use of games as a means of exploring determinism by lifting them out of the arena of (mostly) innocent play and throwing them into a world of Machiavellian scheming in which narrators and characters conspire to deceive would-be decipherers of the text.

For Carroll, using games as a thematic and structural device in the *Alice* books is a way to surreptitiously introduce probability theory and inductive logic to the popular consciousness. His narratives bring out the more interesting consequences of mathematical and logical problems, making puzzles fun. Nabokov takes games further by bending the rules and making fun of, rather than for, readers. In *Through the Looking-Glass*, mirrors signal inversion and opposition – transformations with fixed rules. In *Ada*, meanwhile, mirrors have no uniform

[497] *Chess*, p. 83.

purpose, and are the preserve of illusionists, con artists and '*shulers*' ('sharpers'). Van Veen is schooled by a Mr. Plunkett, from whom he learns 'the tricks of an art now become pure and abstract, and therefore genuine'. In the art of rigging a game of chance, Mr Plunkett reckons, 'the use of all mechanical media, mirrors and vulgar "sleeve rakes" [lead] inevitably to exposure'.[498] Instead, he favours sleight of hand, cheating by memory and feel of the cards. We might see this as an allegory for Nabokov learning cryptic composition from Carroll during his translation work but later adapting his methods, realising that by relying on fixed physical rules to deceive (in this case the optics of mirrors) the 'crystal cretin' is exposed to the attentive player or reader.[499] The keys to inconsistent internal mental codes, on the other hand, are buried with their authors. When Van runs into Dick C., a sharper with whom he previously picked a row after catching him cheating, Dick seems to agree, claiming he has 'given up all that looking-glass dung'.[500] Plainly Dick has not learned his lesson; he marks cards with a mechanical device instead.

Nabokov's dazzling imagery combines with his almost paranoid wariness of hostile hyper-analytic readers to give his writing a hazy, shifting quality. You can find almost anything in Nabokov, if you look hard enough, giving rise to a sense that the patterns mean something, that the riddles must have answers. All too often, they do not. Perhaps this is what Updike meant when he described Nabokov's style as a 'unique legerdemain'.[501] Yet while Nabokov's late novels are complex and deceitful, they do not wholly eschew rule-based play. *Ada*, as Barabtarlo notes, is structured according to a reducing ratio of time compression, undermining Van Veen's Bergsonian theories.[502] The point is not that one method of elaboration is better

[498] Nabokov translates this as 'gaming conjurers', a 'polite' euphemism, he claims, in England and America. *Ada*, p. 172.
[499] *Ada* p. 173.
[500] Ibid., p. 176.
[501] John Updike, introduction to 'The Best American Short Stories of the Century' ed. John Updike and Katrina Kenison in *Higher Gossip: Essays and Criticism*, ed. Christopher Carduff (London: Hamish Hamilton, 2012) p. 100.
[502] '*Ada*'s five parts are sized in inverse proportion to the time period they span. "Time is rhythm," pronounces Van; but rhythm is the spacing of time.' *Insomniac Dreams*, p. 164. Cf. Nabokov's evisceration of another critic on

than the other; rather, both should be employed to ensure maximum opportunities for play (games require rules of some kind) whilst avoiding detection as the author of any particular textual meaning. Nabokov's prose style, like Turati's chess style, chops and changes on a whim, destabilising the evidence upon which would-be decipherers must found their arguments. For Nabokov, trying to work people out definitively is a fool's errand. Anyone who says otherwise is a charlatan, no matter how much they charge for a forty-five-minute session. Refusing to hold fast to coherent opinions and positions, Nabokov draws his readers into a maddening pursuit of coherence dramatising the intellectual follies of rationalism.

3.11 Referential Paradoxes

Nabokov's *camera obscura*, and its significance for Van Veen, show the epistemological instability at the heart of the empirical endeavour exposed by Locke and later developed by Berkeley, Hume and Kant. Insofar as he can be said to reveal his own views at all in his fiction, Nabokov is agnostic about the possibility of backwards time, but the fact that it is never observed is fairly good evidence that it is probably not the case. It may come down to hedging, or plain indecision but, as with *Look at the Harlequins!*, no single understanding of time dominates *Ada*. Instead, there are many, each representing an ideological construct of a momentary iteration of Van Veen's intellect in a realisation of one of the dizzying multilingual puns Nabokov makes with his protagonist's name.

Perhaps the most revealing example is borne out in a seemingly throwaway soliloquy: '"Van *ist auch* one," murmured Van, sounding the last word as "*wann*."'[503] This, however, is a philosophically dense and linguistically playful sentence to which justice can be done only with some patient academic plodding. First, this passage echoes the editorial Ada's earlier

this point: 'it is all a structural trick: Van's theory of time has no existence beyond the fabric of one part of the novel'. *Strong Opinions*, p. 251.

[503] *Ada*, p. 404.

parenthetical pun: '(Nor did you, wise Van. Her note.)', calling attention to the ghost of a '*v*' in the Russian pronunciation of the English 'one' and the 'deep, dark' Russian 'a' so that Ada might equally be saying 'wise one'.[504] Second, the passage foregrounds the issue of personal identity over time. Taking the ambiguous pronunciation of 'Van' as 'one' we might see Van's meditation as a joking reflection of Ada's accent. However, the German '*ist auch*' ('is also') favours reading *wann* not with an English approximant 'w', but with the German voiced labiodental '*w*', resulting in 'Van' ('when'). Depending on pronunciation, there are many ways to interpret Van's meditation. To illustrate, we can break down the transliterating wordplay further to reveal some light joking and philosophical puzzles in the shape of mystic axioms:[505]

1) 'Van is also when' – taking *wann* in the straightforward German sense: 'Van' refers to one instantiation of a character, a slice of spacetime rather than a diachronic whole in the way that 'when' refers to a specific time or period.
2) 'Van is also one' – '*wann*' pronounced with a soft 'w' but a playful German accent: a pronominal pun identifying the major narrative voice with the third person singular.
3) 'One is also when' – taking 'Van' as the Russian pronunciation of 'one', like Ada's pun: a metaphysical statement, meaning that to isolate any object or event is to arbitrarily slice the space-time continuum. On this view, a human body is an object only by dint of convenience in everyday parlance; on the long view of Einsteinian space-time it is also the atoms which were diffuse on the planet before forming the body, and the diffuse state in which the atoms of its final state will end up.[506] Or we can take 'one' as the

[504] Ibid., p. 77.
[505] This list is not exhaustive. Future Nabokov scholars may find other Van Veen puns in Van Veen – Nabokov doubtless planted many more. One example would be Ada's husband Andrey Andreevich Vinelander demanding the 'cart de van' in a restaurant, which Nabokov glosses as an American mispronunciation of *carte des vins* ('wine menu'), suggesting a *carte de Van* ('map of Van'), in turn suggesting a counterpart map of Ada/*Ada*, leading to cartographic paradoxes (perhaps another reference to Kingsley Amis's *New Maps of Hell*). Re-reading the novel, scenes like that in which Mademoiselle Larivière reads to Marina when the latter 'had *le vin triste*', (was 'maudlin drunk'), take on new significance: Marina is unhappy Van's true birth mother, who 'had' him in sense of giving birth to him. *Ada*, p. 513; p. 604; p. 154.
[506] This represents one of the metaphysical problems Lotze was struggling with when he tried to untangle the one from the many.

third-person singular again so that the knowledge of the narrator is a snapshot from a single moment (the moment of utterance), drawing attention to a falsehood: narratives are constructed continuously. Only when finished do they exhibit static order or resemble closed systems.

4) 'One is also one' – parodying Ada's Russian accent (with the spectral voiced labio-dental 'v') and gently correcting her with the soft English approximant 'w'. On the Russian pronunciation, 'Van Veen' might be a phonetic rendering in English of the German *Von Wien* ('from Vienna'); appropriate, given that Van and Freud share a profession. [507]

5) 'When is also when' – a meaningless tautology, perhaps. Or a referential paradox acknowledging the irreducible difference between the deictic 'when' uttered and the 'when' spoken about. Affecting an American accent, this '*wann*' has a soft 'w' and a twanged vowel ('when'), while 'Van' is a phonetic transcription of the German *wann*.

6) 'Van is also Van' – another referential paradox disguised as tautology. Here is an observation that the identity of the narrator who writes 'Van did welcome with amused delight […]' corresponds with that of the authorial Van Veen yet they remain meaningfully distinct, speaking to the narratological schism Borges, Krzhizhanovsky, and others identify.[508] This reading hangs on the *auch* ('also'), without which the rest of the sentence is redundant; with it comes a paradox of identity in diversity.

Slicing the semantic prism of 'Van' into multilingual phonetic chunks allows Nabokov to show why holistic diachronic interpretations of personhood are misguided: personhood is irreducible; it means different things to different people at different times. That some of these statements hinge on reversals of phonetics in transliteration (e.g. 'Van' for 'one' and '*wann*' for 'Van') is

[507] See *Ada*, p. 341 & p. 363.
[508] Cf. §.4.4

evidence that Nabokov uses language to explore reversibility's significance for broader concerns at the micro- as well as the macro linguistic level.

Laughter in the Dark does not contain backwards time but, with an art critic protagonist, resonates thematically with Nabokov's original title. If this laughter is in the dark of the *camera obscura*, it highlights the illusions we can fall into if we forget the difference between signifier and signified, internal and the external. Again, there is a connection to Carroll, traced through writers interested in the philosophy of language from Umberto Eco to Jorge Luis Borges, Alfred Korzybski to Josiah Royce. All share a fascination with referential paradoxes. While Renée Magritte's 'The Treachery of Images' (1929) famously juxtaposed image and text to call attention to the farcical nature of the realist endeavour, these thinkers use the paradox of a one-to-one scale map to demonstrate the irreducible difference between signifier and signified.[509] Essences, they recognise, are nominative.

For Borges, like Nabokov, referential paradoxes are games played with intra- and intertextual references: paperchases to nowhere. Wittingly or not, Eco plays along, quoting a Borges forgery containing the map paradox but botching the title. Eco refers to 'Et Cetera' (1935) but his epigraph is actually from 'On Exactitude in Science' (1946). The quotation is doubly wrong, because Borges was not really quoting a historical source but aping Carroll's map-maker paradox from *Sylvie and Bruno Concluded*.[510]

---

[509] Although only Borges cites Carroll, the likeliest flow of influence runs from Carroll to Royce to Korzybsky. *Sylvie and Bruno Concluded* appeared in 1893; Royce's Gifford Lectures in Aberdeen followed five years later; Korzybski cites Royce, while Eco cites Borges. Umberto Eco 'On the Impossibility of Drawing a Map of the Empire on a Scale of 1 to 1' in *How to Travel with a Salmon and Other Essays* (London: Secker and Warburg, 1994) pp. 84-94; Jorge Luis Borges, 'On Exactitude in Science' in *Collected Fictions*, p. 325; Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*, 5th edn. (Brooklyn, NY: Institute of General Semantics, 2000) p. 751; Josiah Royce, *The World and the Individual* (London: Macmillan & Co., Ltd., 1900) pp. 501-507. Royce, who convinced his doctoral student George Santayana to write a thesis on Lotze, saw teleological idealism as the best philosophical solution to the problem of being, allowing people to have meaningful and complete lives as opposed to hard materialist systems which threaten to abolish free will and meaningful individuality.

[510] Borges returned to this idea many times, particularly in connection with the infinite regress of self-representation, e.g. Jorge Luis Borges, 'Partial Magic in the Quixote', trans. James E. Irby in *Labyrinths* (London: Penguin, 2000) pp. 230-231. The passage from Carroll, in which the narrator is conversing with Mein Herr (waking world counterpart to The Professor) runs as follows.

If Eco is in on it, this is a playful extension of the referential aporias crisscrossing the fictions of Nabokov and Borges. Borges's revealingly titled essay 'When Fiction Lives in Fiction' explains that this is one of the enchanting infinitudes which inspired him. Infinity first caught his attention when he came across a (possibly fictional) biscuit tin in childhood, featuring a 'Japanese scene' in which 'the same biscuit tin reappeared', along with 'one of Russell's works' in which Borges says he found 'an analogous invention by Josiah Royce, who postulates a map of England dawn on a portion of the territory of England' and Diego Velázquez's painting *Las Meninas*, which famously seems to feature the artist himself, calling into question who is painting whom.[511] All of these inspirations are iterations of referential paradoxes.

In 'On Exactitude in Science', Borges quotes a historical source which turns out to be spurious.[512] Given the title, it is almost certainly a deliberate irony.[513] Borges tells us he came to the idea of a one to one scale map by way of Bertrand Russell in the early 1920s, calling it 'an […] invention by Josiah Royce'.[514] It was a theme he returned to many times. A year later we find him mulling over the idea that language is a closed system and so, if literary culture lasts long enough, there will come a time when every possible book will have been written, an idea he claims to have gleaned from Carroll's *Sylvie and Bruno Concluded*, in which Carroll's map paradox also appears.[515] In Carroll's version, which extends to music and wordplay, this becomes an absurd pronominal tautology 'Instead of saying "*what* book shall I write?" an author will ask himself "*which* book shall I write?" A mere verbal distinction!'[516] This long view

> We actually made a map of the country, on the scale of *a mile to the mile!* […] It has never been spread out, yet […] the farmers objected […] So we now use the country itself, as its own map, and I assure you it does nearly as well.

Sylvie and Bruno Concluded, p. 608.

[511] Jorge Luis Borges, 'When Fiction Lives in Fiction', *The Total Library*, p. 160. A similar problem is posed at the end of *Through the Looking-Glass*: Who was dreaming whom?

[512] 'On Exactitude in Science', p. 325

[513] Perhaps also a blithe reference to Korzybski's dry, no-nonsense approach to language, though Borges is unlikely to have had much sympathy for the project of General Semantics.

[514] 'When Fiction Lives in Fiction', p. 160.

[515] Jorge Luis Borges, 'The Total Library', *The Total Library*, p. 215.

[516] *Sylvie and Bruno Concluded*, p. 594.

of endless time coupled with a closed system conjures a world in which action is not creative, but iterative. In 1941, Borges developed the total library into a short story exploring these philosophical riddles of probability and open and closed ('limited' and 'unlimited') universes explicitly.[517]

Borges's infinite library, and perhaps Carroll's iterative literature, were on Nabokov's mind when he wrote *Ada*. 'That library [at Ardis]', Van muses, 'had […] promised a long idyll of bibliolatry; it might have become a chapter in one of the old novels on its own shelves; a touch of parody gave its theme the comic relief of life.'[518] The tone here suggests a jibe at those who entertain this idea seriously. Nabokov, like Carroll before him, mocks the dazzling but ultimately fruitless labyrinths of idealist metaphysics. Commenting on both writers in an article on literary polysemy, Steiner makes a similar point:

> Like Borges – whom he cheaply and self-betrayingly mocks in *Ada* – Nabokov […] works very near the intricate threshold of syntax; he experiences linguistic forms in a state of manifold potentiality and, moving across vernaculars, is able to keep words and phrases in a charged, unstable mode of vitality.[519]

Steiner's description borrows charge and instability, concepts familiar from quantum physics, to make of Nabokov's diverse literary tongues (Russian, English, French, German) so many semantic worlds. The author can dip in and out of them as he pleases by twisting phrases into shapes resembling alternatives in other languages, each phoneme akin to a causal node in an ever-forking narrative universe.

To counter our initial reading of Nabokov taunting this view, and to temper Steiner's indignation on Borges's behalf, we should recall that Nabokov nests his description of a total library within Van Veen's narrative, with whom he does not always see eye to eye. On top of

[517] Jorge Luis Borges, 'The Library of Babel', *Collected Fictions*, p. 118.
[518] *Ada*, p. 137.
[519] 'Extraterritorial', p. 10.

that, Nabokov has seen Steiner's comments and advises him to 'read *Ada* more carefully', observing that 'it is a little cheap on his part to chide my Van Veen for sneering at my *Lolita* (which […] I magnanimously turned over to a transposed fellow author)'.[520] This cryptic comment makes two points. First, Van Veen is responsible for any sneering, not Nabokov. Second, Nabokov refers here to a passage in *Ada* where, playing on the popular misconception that Borges wrote *Lolita*, the anagrammatic 'Osberg' becomes its author on *Antiterra*.[521] Attributing *Lolita*, Nabokov's personal favourite of his novels, to Borges is more compliment than castigation, suggesting that Steiner is hasty in leaping to Borges's defence.

Add to that Nabokov's argument that Borges has nothing to do with the argument(s) of *Ada* and Steiner's suggestion that he mocks Borges is in trouble. *Ada* is not about poking holes in Borgesian fables, and Nabokov's response to another critic's suggestion that *Ada* was inspired by Borges goes beyond licking his wounds. 'I owe no debt whatsoever', he writes, 'to the famous Argentine essayist and his rather confused compilation 'A New Refutation of Time.' Mr. Leonard would have lost less of it had he gone straight to Berkeley and Bergson.'[522] In other words Leonard's essay is a wasted effort; he has missed the point of Ardis.[523] Nabokov uses his characters and his mastery of languages to showcase diverse, even contradictory, worldviews. The choice in *Ada* is between the reversible universe of Berkeley and the one-way universe of Bergson, between time-denying idealism and process philosophy.

Borges invokes referential paradoxes to knock empirical science off its mid-twentieth century perch by showing its fallibility. Owing to the difference between signifier and signified,

---

[520] *Strong Opinions*, p. 250.

[521] The book is transfigured into a skirt: 'lolita (thus dubbed after the little Andalusian gipsy of that name in Osberg's novel [...]), a […] black skirt, with red poppies or peonies, "deficient in botanical reality," as she grandly expressed it, not yet knowing that reality and natural science are synonymous in the terms of this, and only this, dream.' *Ada*, p. 77. The dream of which Van speaks is idealist epiphenomenalism – life as dream.

[522] *Strong Opinions*, pp. 251-252. He means Jeffrey Leonard, who claims that 'Anti-terra is a remembered land, an imagined land' in which 'Space-Time is both anti-terror and anti-tyrannical.' Leonard goes on to argue that Van Veen's 'Texture of Time' is an ordering principle for the novel (an idea Nabokov eviscerates in response). Jeffrey Leonard, 'In place of lost time', *Triquarterly*, 17 (Winter 1970) p. 139.

[523] Similarly, Nabokov misses Borges's point. 'A New Refutation of Time' is not confused, but an ironisation of serialism.

there is always a limit to the accuracy of measurement, representation and communication. On this view, 'invention' drips with irony, chiding Royce for not crediting Carroll in his 'map' thought experiment and highlighting both the inaccuracy of Borges's own assertion that he found the map via Russell's reference to Royce, and Russell's suggestion that Royce invented the puzzle.[524] At the same time, Borges's forgery explains why a perfect map is self-defeating: such a map would not only be as big as the territory it depicted, it would have to include a picture of itself, and so on and so forth, in infinite regress. The same is true of memory, as Borges shows in 'A New Refutation of Time' – exactitude would mean direct repetition of mental experience, an obvious fallacy leaving us nothing with which to distinguish 'now' from 'then'. The best testimony of selfhood, then, is not memory dredged up in an attempt to narrate the past from any arbitrarily chosen moment, but the person in front of you, active and conversant, representing all that she is. The quest for 'exactitude' is doomed from the start, a point put more simply by Magritte's painting. Borges's title, then, is illusory on two fronts. Perhaps Korzybski puts it best, foregrounding the transformative magic of the verb to be in the enigmatic axiom that 'a map *is not* the territory'.[525] Nabokov's reluctance to side with one view of time is in part a rejection of the idea that science progresses towards absolute knowledge: this, for him, would mean accepting an end to scientific progress and a closed universe model in which nothing new could be known beyond a certain point: it presupposes a completed process within a time without end.

3.12 Fictions of Thought

Nabokov uses backwards time in an analogous way to the Macmillan set, setting it up as a *reductio* of material reversibility and the idealist metaphysics which legitimate it, though without

[524] Bertrand Russell, *Introduction to Mathematical Philosophy* (London: George Allen & Unwin, 1920) p. 80.
[525] *Science and Sanity*, p. 750.

rejecting it out of hand. This is troublesome, because Nabokov does not venture a coherent opinion on the nature of time in either *The Luzhin Defense*, *Ada*, or *Look at the Harlequins!* This is both a necessary consequence of his refusal to be pinned down, whether as a diachronic entity linking 'serial selves' or as a recognisable causal origin for the personalities of his characters, and evidence of his agnosticism about a distinction between inner and outer worlds. Nabokov outlines his personal view in a lecture given at Cornell University in the mid-twentieth century, in which he seems to reject reversible time along with the appeals to common sense which have been used against it so far. Carroll tended to channel Locke in his fight against idealism. Nabokov's agnosticism puts him closer to Kant.

Although willing to concede its argumentative utility, Nabokov is against common sense as epistemological doctrine. One example of the reductive power of common sense is Thomas Reid's rejection of Locke's thesis that personal identity could in theory be transposed from body to body because '*self* is not determined by Identity or Diversity of Substance, which it cannot be sure of, but only by identity of consciousness'.[526] If all we know of the outside is mediated by ideas, we cannot hold the self to exist as anything other than consciousness.[527] Neither the unconscious, nor the 'nonconscious' recent research identifies as part of the field of extended cognition, is part of the constitution of selfhood.[528] Locke's view, then, is diametrically opposed to Freud's idea that dreams are the royal road to a knowledge of the unconscious activities of the mind. Reid disagrees. Personal identity must rest on more than just consciousness, because '[i]dentity can only be affirmed of things which have a continued existence' and consciousness is 'transient and momentary.' If personality were just consciousness, Reid argues, 'no man is the same person any two moments of his life', removing the rationale behind justice and

[526] *An Essay Concerning Human Understanding*, 2.27.23. See also 2.27.24-25.
[527] For Reid, to posit such ideas – as Locke, Berkeley and Hume do – is a misstep. Thomas Reid, *Essays on the Intellectual Powers of Man*, intr. Baruch A. Brody (Cambridge, MA: MIT Press, 1969) pp. 153-185.
[528] N. Katherine Hayles, *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago Press, 2017)

punishment because 'no man could be responsible for his actions.'[529] Leaving aside, for the moment, Reid's argument that justice could not be served without diachronicity, what he objects to is just what Nabokov defends: the right to transient personhood.[530] Reid goes on to argue that Locke's view implies that every time we wake up we are a different person.[531] At first glance, Nabokov agrees. Jenefer Shute, for instance, argues that '[u]nlike Freud, Nabokov considers consciousness […] psychology's proper realm', whereas '[u]nconsciousness for Nabokov is a kind of death'.[532] It seems to follow that each awakening into consciousness is a kind of rebirth and that this is the source of the Nabokovian self's transience. The dream experiment alone proves this cannot be so. That Nabokov considered dreams a valid empirical source of evidence for precognition, if it were to exist, shows that he regarded his identity as unchanged between waking and dreaming. The future was the cause of these dreams, if they were indeed 'reverse memory', so that the perceptions of waking consciousness caused the unconscious perceptions we call dreams, turning the Freudian model upside down. Still, Nabokov rejected the notion of stable personal identity. For him it is a matter of creation: like Bartlett's theory of remembering, Nabokov holds that personal identity is not a coherent diachronic whole but an ever-shifting construct of consciousness.

Nabokov's attempt to slay the beast of 'commonsense' [sic.] is evidence that he is not a straightforward realist, certainly not of the common sense variety. His argument is roughly the opposite of Reid's. 'Commonsense is fundamentally immoral,' he claims,

> for the natural morals of mankind are as irrational as the magic rites that they evolved since the immemorial dimness of time. […] there is not a single person […] in the world,

[529] *Essays on the Intellectual Powers of Man*, p. 360.
[530] This objection is easily swatted. See Galen Strawson, 'Episodic Ethics', *Royal Institute of Philosophy Supplement*, Vol. 60 (2007) pp. 85-116.
[531] *Essays on the Intellectual Powers of Man*, p. 362.
[532] Jenefer Shute, 'Nabokov and Freud' in *The Garland Companion to Nabokov*, ed. Vladimir E. Alexandrov (Abingdon: Routledge, 2014) p. 418.

> who, at some nicely chosen point in historical space-time would not be put to death there and then, here and now, by a commonsensical majority in righteous rage.[533]

Like Kant, Nabokov appeals to higher ideals from which morals proceed.[534] His tone is righteous, even arrogant, and the sneer at Minkowski space-time cannot be attributed to a fictional character-narrator. This strong opinion is Nabokov's alone, or at least, it belongs to one instance of him.

In this lecture Nabokov takes up either an idealist or, more likely, a pragmatist position, in which good exists beyond experience as an *a priori* concept, or we should at least act as if it were so. For him, '"goodness" is something that is irrationally concrete', something we intuit, whereas '"badness" is a stranger to our inner world; it eludes our grasp' so that badness is derivative, characterised by the absence of good.[535] As a result, what is important in life is not so much its structure, which we all share and which may represent nothing beyond hard-wired cognitive faculties, but what we make of our experiences:

> we are all crashing to our death from the top story of our birth […] and wondering with an immortal Alice in Wonderland at the patterns of the passing wall. This capacity to wonder at trifles – no matter the imminent peril – [is] the highest [form] of consciousness, and it is in this childishly speculative state of mind, so different from commonsense and its logic, that we know the world to be good.[536]

Good is in the imminent, the fleeting, and the half-glimpsed. Rarely is it found in the meticulous and painstaking workings of logic and mathematics. This is halfway to an affirmation of intuitionist ethics, showing that the allusion to Carroll is no mere ornament.[537] There is a contrast here between the innocence of Alice's fall down the rabbit hole and the Fall from

---

[533] Vladimir Nabokov, 'The Art of Literature and Commonsense' in *Lectures on Literature*, ed. Fredson Bowers (London: Picador, 1983) p. 372.
[534] *Critique of Judgement*, §63.
[535] 'The Art of Literature and Commonsense' pp. 375; pp. 375-376. Cf. Bruno's observation that 'evil' is just 'live' backwards, which haunts *Time's Arrow*.
[536] Ibid., pp. 273-274.
[537] See §2.7.

Edenic Ardis – and the innocence of a predominantly Christian Europe that took one-way time for granted – Ada and Van experience as a consequence of their ardor. Ardis as the place of childhood suggests the innocence of a world in which one-way time is taken for granted. Backwards time only arises because of abstractions from the present, without whose contrast it cannot exist. Backwards time threatens to invalidate that which we intuit to be good; we do not need to be told that there is a dangerous casuistry in a nympholeptic's attempts to prove the existence of backwards time. Nabokov's 'childishly speculative state of mind' recall's Nietzsche's argument that childish play represents the height of maturity.[538] One way to see this is as a disregard for the concerns of the past or the future and for the exigencies of the social world: to be totally immersed in the present. Alice is a prime example: she does not think about the direction of travel or the earth towards which she is plummeting. Instead, she focuses on the here and now. Van, on the other hand, agonises over time's arrow and obsesses over Ada, to whose youthful memory he is drawn by desire; most of his thought is bent on the past.

This juxtaposition of Carroll and Nietzsche, for whom memory and even time can work backwards, suggests that such 'crashing' need not be one way. Death comes before birth here ('crashing to our death from the top story of our birth') in a rhetorical flourish emphasising Nabokov's point about the teleological certainty of death, but which also points to another childishly playful source of inspiration. Graham Greene was instrumental in introducing *Lolita* (1955) to the rest of the world after its relatively obscure initial release in Paris.[539] He also, on at least one occasion, attended the Hysteron-Proteron Club, a little-known society at Balliol College, Oxford, recorded by Greene and his contemporary Evelyn Waugh.

---

[538] 'A man's maturity– consists in having found again the seriousness one had as a child, at play.' *Beyond Good and Evil*, §93. McEwan is certainly aware of this passage. 'Wasn't that Nietzsche's idea of true maturity,' asks Stephen, pondering his friend Charles's sudden regression, 'to attain the seriousness of a child at play?' *The Child in Time*, pp. 105-6.

[539] Nabokov wrote to Greene thanking him for his assistance in widening *Lolita*'s audience. Letter to Graham Greene, 31 December 1956, *Vladimir Nabokov: Selected Letters*, ed. Dmitri Nabokov and Matthew J. Bruccoli (New York: Harcourt Brace Jovanovich, 1989) pp. 197-198.

Members of this society went to extraordinary lengths to live backwards for one day per term. Greene recalls that 'meals… started with toast and marmalade, then bacon and eggs, and lastly porridge. We then returned backwards to Balliol… This morning started with bridge in dinner jackets… before working backwards through dinner.'[540] Walking backwards, ungainly at the best of times, was further complicated by an alcoholic breakfast bowdlerised in this letter to his mother. Hysteron-Proteron members, according to Waugh, '[got] up in evening dress, [drank] whisky, [smoked] cigars and [played] cards, then at ten o'clock [dined] backwards starting with savouries and ending with soup.'[541] There is no evidence that Greene mentioned this episode to Nabokov, though Nabokov may have read Waugh's account, published in the year he took up Dunne's dream experiment. Regardless, Greene and Waugh's experiences show the spread of backwards time from the thermodynamic debates of the previous century, through Carroll's stories and Oxford idealism, into the realm of juvenile play and back into the thoughts of literary authors.

The group's name is present in Nabokov's rhetoric, comparing life to Alice's fall. *Hysteron-proteron* ('[the] last [thing] first') is a Greek term from classical rhetoric, referring to a figure of speech in which what should follow comes first: an inversion. A classic example comes from Virgil's *Aeneid*: '*Moriamur et in media arma ruamus!*' ('Let us die, and let us rush into the thick of the fight!').[542] Nabokov's sentence is kinder on the eye but equally potent; it shocks by foregrounding 'crashing to our death' before explaining that the 'crashing' occurs at the comfortable pace of ordinary life. With *hysteron-proteron*, a sentence reveals its ideas out of turn. It allows a sort of micro prolepsis, inviting the addressee to frame the next words in a new context and reconstrue causality in retrospect. In the example from Virgil, it foregrounds the speaker's exhortation to pursue a noble death in battle, whereas conventional sequence would

[540] Norman Sherry, *The Life of Graham Greene*, 3 vols. (London: Jonathan Cape, 1989) I, p. 120.
[541] Evelyn Waugh, *A Little Learning* (London: Chapman & Hall, 1964) p. 196.
[542] Roland G. Kent, 'Hysteron-Proteron in the Aeneid I-IV', *The Classical Weekly*, Vol. 3, No. 10 (1909) p. 74. Kent's translation.

place the battle at the beginning with death seemingly contingent, rather than a pre-acknowledged likelihood (masquerading as heroic certainty). It is also an instantiation of a paradox common to all linguistic renderings of backwards time: if what is last comes first, it is no longer last. *Hysteron-proteron* performs syntactically what catachresis achieves semantically: it implies an alternative sentence in which the statement runs as it 'ought' to.

Nabokov's lecture does more than suggesting kinship between Alice's fall into a world where hitting the ground does not necessarily follow and the rhetorically reversible journey from birth to death. It also criticises mathematics, in terms which hint at conflicting theories in contemporary physics, pitting art against common sense and suggesting that mathematics owes its existence to the primary art of conscious representation.[543] In the mind, Nabokov says, 'mathematical symbols do not thrive'; however tidy and efficient their representaitons of 'the convolutions of our dreams and the quantums of our mental associations', they fail to name directly. This leads to an excoriation of commonsense in which Nabokov explains that by doing away with mathematical axioms and statististics we can rid ourselves of the idea that things are as they are because it was 'necessary'. This, he says, is 'a matter of habit' in an 'artificial logical world'. In his fiction, Nabokov prefers to 'invite [his] numbers to a giddy picnic' where it does not matter if two and two do not make four because they do not have to. This is closer to a natural truth, he reckons, because primitive humans created arithmetic to impose order on a world 'ruled by gods' which introduced 'inevitable indeterminism' as a matter of caprice. Over time, humans forgot that these numbers were explanatory fictions, so that,

> mathematics transcended their initial condition and became […] part of the world to which they had been merely applied. Instead of having numbers based on certain phenomena that happened to fit because we ourselves happened to fit into the pattern we apprehended, the whole world gradually turned out to be based on numbers[544]

[543] Another Kantian idea.
[544] 'The Art of Literature and Commonsense' pp. 373-374.

Nabokov's giddy picnic where numbers need not abide by mathematical rules invites parallels with the picnics the logic-bending Carroll hosted for his child friends. As a florid origin myth accounting for the demise of gods and the rise of science, this passage also echoes Nietzsche, who famously blamed God's death on the progress of human knowledge.[545] Nietzsche also argued that numbers were merely 'invented on the basis of the initially prevailing error that there are various identical things (but actually there is nothing identical) or at least that there are things (but there is no "thing"). This early Nietzsche is recognisably Kantian; 'To a world that is *not* our idea,' he concludes, 'the laws of numbers are completely inapplicable: they are valid only in the human world.'[546] Kant's position is not far from the Christian belief that after the Fall humanity cannot but name things imperfectly. Mathematics, meanwhile, claims to 'name the world in exact terms' even as it invents new methods for describing it.[547] In other words, mathematics represents a projection of our inner ideas onto the outer, which we cannot be sure is really there. That is, mathematics, like narrative, lends itself to depicting idealism.

What Nabokov is describing in the above passage is an idealist world which by projecting symbols back onto the external and forgetting their fictional status shows the 'strange metamorphosis undergone by exact science from objective to subjective'.[548] He is channelling Nietzsche and, perhaps unwittingly, Vaihinger here, arguing that we use fictions to make sense of the world but that when we do not let them fall away afterwards, we are apt to mistake them for real things.[549] If Nabokov's playful use of 'exact' to discuss the unconscious projection of

---

[545] *The Gay Science*, §125.

[546] *Human, all too Human*, §19. This is a slimmed-down version of the creation myth in which he argues mathematics are a subset of metaphors which have been forgotten – the fictionalist Nietzsche at white heat. Friedrich Nietzsche, *On Truth and Lie in an Extra-Moral Sense*, trans. A. K. M. Adam (Oxford: Quadriga, 2019) esp. p. 8. Cf. Nietzsche's strange argument that this trust in mathematics might lead us away from idealism on p. 11. Probably he means Kantian idealism in which 'a law of nature […] is not known to us in itself', hinting at his motivation for developing a holistic absolute idealist metaphysics. Cf. Vaihinger's portrait of Kant as arch-fictionalist in his discussion of mathematics: Kant realises that the '*ding an sich* is a fiction'. *The Philosophy of 'As-If'*, pp. 50-53; p. 151.

[547] 'Just-so Stories?' p. 226.

[548] 'The Art of Literature and Commonsense' p. 375.

[549] Nietzsche's anti-essentialist argument for creating one's own description:

> What started as appearance in the end nearly always becomes essence […]! What kind of a fool would believe that it is enough to point to this origin and this misty shroud of delusion in order to *destroy* the world that counts as 'real', so-called 'reality'! Only as creators can we destroy!

subjective to objective puts us in mind of Borges's meditation on referential paradoxes in 'On Exactitude in Science' it is no coincidence: both recognise that symbols incorrectly interpreted as direct objects result in fictions within fictions. Here, the statistics which trouble the mind's notion of good by reintroducing determinism and hence backwards time, first in Boltzmann's reversed 'worlds' and then again in Feynman's interpretive 'switchback', seem to derive from what Nabokov calls the 'quantums of our mental associations'.[550] With his use of *hysteron-proteron* in this allusion to *Alice*, Nabokov puts cart before horse to demonstrate the absurdity of determinism, which he unusually attributes to a straw-man Hamiltonian commonsense idealism in this quasi-Kantian critique.

Nabokov's agnosticism about the outer world here runs counter to his self-identified status as an 'indivisible monist'.[551] For him to hold that the certainties of mechanical calculations based on numbers are an unwarranted projection of the inner onto the outer, Nabokov must first hold that such a distinction exists. Because he at least entertained the idea of reverse cognition, because he denies being a Platonist, and because he loathes Van Veen, who vacillates between the subjective idealism of Berkeley and the process philosophy of Lotze and latterly Bergson, Nabokov has backed himself into a corner. Either he is with Hegel and the objective idealists, or he is not a monist after all. On balance, the latter is more likely. As a transcendental idealist Nabokov can have his cake and eat it, remaining sceptical about the outside world without denying it outright, a position maintaining epistemological realism alongside a tentative ontological realism.

Not that the 'art' of fictions within fictions is limited to mathematics. Consciousness, for Nabokov as for Locke, is the first artifice. Because of this, Nabokov reckons the notion of determinism is something we introduce to the world having first found it in narrative. In a

---

The Gay Science, §58.

[550] 'The Theory of Positrons', p. 749.

[551] *Strong Opinions*, p. 73. Cf. 'Monism […] is […] divisible when, say, 'mind' sneakily splits away from 'matter' in the reasoning of a muddled monist or half-hearted materialist.' Ibid., p. 106.

meditation on composition recalling Poe's (§2.3), Nabokov argues that even before anything is set in writing, time does not exist in books because the author sees it whole in the 'initial vision'. For this reason, the 'ideal way of appreciating a novel', he says, would be to read it 'the same way as a painting is taken in by the eye': all at once.[552] The wholeness Nabokov describes can be read as a fuller expression of his argument that 'both memory and imagination are a negation of time'. Narrative exists at the nexus of memory and imagination, drawing on both and taking for its time the consciousness of whoever is involved in the narrative event (speaker, hearer, reader, writer). This time is slack: it has no bearing on the intricacies of the plot, as Poe explained, and is free to luxuriate or make haste as it sees fit, allowing temporal compression, dilation, jumping and reversal. The 'absurdity' attributed to beginnings and ends is, despite Nabokov's conception of narrative as a 'whole', an obvious rejection of the Aristotelian conception of plot as a definite beginning and an end linked by a causally coherent middle.[553] This is ostensibly because Nabokov rejects the notion that beginning and end have a meaning in a creative form marked by a lack of intuitive sequence at the moment of creation. It follows that while narrative may arbitrarily impose beginnings and ends there is no justification for applying this form to either time or selfhood.

Perhaps, then, Nabokov subscribes to the Coleridgean model of narrative which resembles an Ouroboros, the ancient symbol of a serpent devouring its own tail to represent eternity: 'The common end of all *narrative* [and] Poems', he says, 'is to convert a *series* into a *Whole*: to make those events, which in real or imagined History move on in a *strait* [sic.] Line, assume to our Understandings a *circular* motion – the snake with it's [sic.] Tail in it's mouth.'[554] That way, we can come closer to seeing the world as God does: 'Past and Future in one eternal

[552] 'The Art of Literature and Commonsense' pp. 379-380.
[553] Aristotle's concept of plot as a 'whole' consisting of a 'beginning, a middle and an end' might be geometrically construed as linear. Aristotle, *Poetics*, trans. Malcolm Heath (London: Penguin, 1996) 50b
[554] A causal cycle turned into a smutty joke by a time traveller who has sex with himself in David Gerrold's, *The Man Who Folded Himself* (1973).

Present'. This means the best understanding of nature lies in our past, when we were closer to the divine, so that 'as the *re*ceding from *him* is to *pro*ceed towards Nothingness and Privation, [one] must still at every step turn back toward him to *be* at all –' Deploying the language of cartography again ('what the Globe is in Geography […] such is a Poem to that Image of God'), Coleridge points out that it is impossible for us to comprehend all time at once.[555] In contrast, the author is to narrative as God is to the temporal world: omniscient, outside time, eternal.

This God's eye view was explored by Ted Chiang's 'Story of Your Life' and Dennis Villeneuve's blockbuster adaptation *Arrival* (2016) in which an alien language removes the time of uptake entirely, presenting information all at once. It is not glottographic, like human language, but 'semasiographic', conveying meaning without reference to sounds through logograms with visual syntax. By shifting communicative acts from the temporal to the eternal, it approaches the direct naming of the divine.[556] For Nabokov, the same is true for memory and imagination which apprehend things whole first and add time later. We (re)create scenarios in the present but cannot make them live. The best we can do is lend our time to the story and make do with the machinations of plot, whether juddering (e.g. *durée*) or smooth (e.g. conventional 'realist' chronology). In this sense, backwards time is symptomatic of a desire to return to oneness with God – a deep-rooted longing for nature to turn back from the chaos of transient experience to the stable and divine order of eternity.[557] This is one way to interpret the 'inner voice' assuring Einstein that he was right about determinism without shaking his faith that he was not pursuing the intuitionist apriorism he saw in Bergson.[558]

---

[555] Samuel Taylor Coleridge, Letter to Joseph Cottle, 7 March 1815 in Earl Leslie Griggs, ed., *Unpublished Letters of Samuel Taylor Coleridge*, (London: Constable and Co LTD, 1932) II, pp. 128-129. Coleridge builds his idiosyncratic quasi-Platonism on Kant. J. H. Muirhead, *Coleridge as Philosopher* (London: George Allen & Unwin, 1930) pp. 260-261.

[556] Ted Chiang, 'Story of Your Life' in *Stories of Your Life and Others* (Easthampton, MA: Small Beer Press, 2010) p. 108.

[557] That is, to reverse the Fall which followed humanity's original transgression: lust/ardour.

[558] 'Quantum mechanics is certainly imposing', Einstein begins in a letter to Max Born dated 4 December 1926, 'But an inner voice tells me that it is not yet the real thing. The theory […] does not really bring us any closer to the secret of the 'old one'. I, at any rate, am convinced that *He* is not playing at dice.' Born was disappointed with this response to quantum mechanics. He singles out the 'inner voice' which was the basis for Einstein's rejection

If Carroll derides idealism as a hyper-rational flight of fancy, Nabokov finds fewer reasons to object. The mature Nabokov seems to reject reversibility for the sake of parsimony after his inconclusive dream experiment. There is no precise philosophical analysis. The rough-and-ready decisiveness with which he removes the 'tumor' of space from spacetime in *Ada* is more Occam's razor than surgical scalpel. Whatever metaphysical model Nabokov's own views might cleave to, the aesthetic of subjective idealism becomes, in his late novels, a way to toy with readers, constructing elaborate mazes for them to run through like rats in the behaviourist laboratories he scorned. In his fiction he could create an internally coherent world in which the search for the author and his thoughts is reduced to half-baked conjecture. Nabokov's work, then, can be seen as a recognition of narrative's descriptive limits. It deals exclusively in ideas, so idealism is readily accommodated. It is a finite form, and determinism is always present however well hidden. His work can also be seen to be a trap for psychoanalysts. Nabokov the author is everywhere and nowhere in his fiction; his words simultaneously hint at the mind that penned them and serve as a warning that even as they were written they had already ceased to reflect the author's thoughts. For Nabokov, the view from inside is a personal truth unattainable to the outsider and an affirmation of the essential privacy of experience, but he refuses to be sucked into solipsism by adopting any outright version of subjective idealism.

of the theory as little more than a 'difference of philosophical attitude'. Here it is Einstein, not Bergson, who resorts to intuition. *The Born-Einstein Letters*, trans. Irene Born (London: MacMillan, 1971) p. 91.

Chapter Four

Amis's Demon: Reversing Wrongs with *Time's Arrow*

4.1 Introduction

> E-V-I-L. 'Now, Bruno,' she said, 'what does *that spell*?'
> [...]
> 'Why, it's "LIVE", backwards!'
> ~ Lewis Carroll, *Sylvie and Bruno Concluded*.

Backwards time can be uncomfortable as well as funny. It is pleasant enough when the irony of what is described points to deeper truths about logical coherence and reasoning right from wrong principles, as it does in Carroll and Nabokov. When it forces us to challenge received ideas about right and wrong in the context of one of the world's most heinous atrocities, toes curl. Amis inherits the earlier use of backwards time to critique mechanism, despotism and totalitarianism but makes it his own in *Time's Arrow* with a lavish illustration of the evil that may come of Bradley and Nietzsche's backwards beings by turning the life of a Nazi doctor on its heel and marching it back to first principles.

That a self can be narrativized, an idea popularised by Alasdair Macintyre, Charles Taylor, Paul Ricœur, Jerome Bruner and others, is nowadays a critical commonplace.[559] Amis shows that even if this were so such a description is only partly successful because we cannot be certain that that is how things are. The story of a life is not simply a matter of telling events as they occurred from the point of view of the person who lived them (its author). While we cannot get away from explaining things in narrative terms, Amis seems to argue, this is only one of many possible views of the story. Not that this relativism means we should give up on truth and

[559] Though contested, e.g. Galen Strawson, *The Subject of Experience* (Oxford: Oxford University Press, 2017).

morality. Amis is no nihilist. Behind the iconoclasm and cynical swagger is a serious attempt to understand the mindset which legitimates violent nationalism and which perpetrates atrocities by compartmentalising or dividing the self and reducing human beings to statistics, justifying the extreme negative eugenics of genocide as benefitting society as a whole.

Such utilitarian rationales for killing are often critiqued by invoking the example of the death penalty which cannot, of course, be revoked.[560] Killing, so the argument runs, would only be justified if we could be sure the majority would benefit. Absolute certainty requires a closed universe and an infallible judge. If evidence exonerating the accused comes to light after the execution, the sentence was incorrect. Nobody benefits, least of all the accused. Worse, the wrong is irreparable. Reversing the outcome would mean reversing time, which would mean invoking the closed universe that would render all such sentences infallible, should a suitably knowledgeable judge be available. Amis wants no truck with this calculable world, seeing in it the seeds of totalitarianism. This chapter explores the historical and ideological themes with which *Time's Arrow* deals to examine why Amis chose backwards time as the vehicle for them and the techniques he uses to establish it in the first full-length backwards novel in English.

Far from an infallible judge, it is we as readers who sit in judgment in *Time's Arrow*, both of the reliability of the narrative's eyewitness testimony and of its consequences in terms of the world we construct from it. The narrator is compromised by an inability either to be distinguished from or subsumed within the identity of the Nazi doctor who assisted Mengele in the killing of thousands. Which story we prefer is up to us. On the one hand, a unitary identity covering his tracks with a cryptic inverted biography or seeking karmic absolution; on the other, a split identity divorced from the actions in forward time. There also a choice between tensed and untensed views of time, the 'dead' serial time of Buddhism and absolute idealism more generally, or the directed time of Christianity, thermodynamics and enactivism. With his ironic

[560] E.g. Condorcet: 'The penalty of death is the only one that makes an injustice irreparable'. Quoted in *The Taming of Chance*, p. 90.

critique of the Nazi biomedical ideology, Amis signals that he chooses the latter, and with it an open society and an open universe.

So far, I have spoken of backwards time as a pithy rejoinder to absolute idealism's odd but largely benign results. This chapter shows that when taken seriously and allowed to play out in social and political spheres idealism can have grave consequences. Helmuth Plessner argues that Europe wrought its own nihilism in the nineteenth century, replacing it with mythologies to make sense of a newly godless world. The prominence of absolute idealism in Europe during this time was correlated with the demise of Christianity not because Buddhism was a preferable religious tradition but because it came with a framework of myths and scripture describing an alternative model of time to Christianity's teleological eschatology.[561] For thinkers like Nietzsche, the runaway success of natural science in the nineteenth century had vanquished God. It had not, however, dimmed belief in eternal laws, nor the desire to explain why things are as they are.

The mysticism which filled this vacuum was not always pious. Anxiety about the trends expressed by the rise of social statistics (increased suicide rates, diagnoses of madness, etc.) coupled with pessimistic and sociologically inflected forms of evolutionary thought like Spencer's and Francis Galton's led to talk of degeneration: an intellectual, moral and racial regress.[562] Such anxieties are given voice by Joseph Conrad's allegorical story of backwards time in *Heart of Darkness*, in which steaming up the Congo river is like 'travelling back to the

[561] Helmuth Plessner, 'On the Relation of Time to Death', trans. Ralph Manheim, in *Papers from the Eranos Yearbooks* (New York: Pantheon, 1957) p. 243.
[562] Daniel Pick, *Faces of Degeneration: A European Disorder, c.1848-1918* (Cambridge: Cambridge University Press, 1996) pp. 11-27. Both were known to the Macmillan set and critiqued by Carroll. Galton based his eugenic endeavour on the finding that in any population left to its own devices, extraordinary individuals tend not to produce more of the same. Instead, families which produce them tend to revert back to mediocrity. See Francis Galton, *Hereditary Genius: An Inquiry into its Laws and Consequences* (London: Macmillan and Co., 1869). Carroll owned a copy, along with Spencer's hugely influential *First Principles*. Cf. a more recent view of evolution as 'Wellsian time travel' so that 'the general upward progress of evolution, the perfecting and enrichment of teleonomic apparatus' represents a biological 'mechanism for moving backward in time' at the macroscopic level. Strangely, given that description, this author considers evolution a biological expression of the second law of thermodynamics. Jacques Monod, *Chance and Necessity*, trans. Austryn Wainhouse (London: Collins, 1972) p. 119.

earliest beginnings of the world' and the moral corruption of white colonials blamed on the natives to whose savage condition they are returning. The solution: 'exterminate all the brutes'. Like the other authors here, Conrad sees the ironies of this idea and draws them out with relativism. To the Romans, he points out, the inhabitants of Britain must have seemed equally backwards.[563] Still, degeneration was a popular narrative which meant one could no longer yoke evolution to Christian progress, as Darwin had done, and go on believing that evolution tends towards the perfection of biological forms just as humanity's historical progress inevitably leads to absolution. God was dead or dying, and there was increasing evidence humanity was not far behind.

In the early twentieth century, several quasi-eschatological political ideologies sprung up to succour the faithless. Two proved ruinous: National Socialism and Marxism. Plessner says both arose as responses to the 'fatal meaninglessness of the empty future' following the demise of Christianity in Europe. Especially National Socialism, which bears some of the hallmarks of mythical time reversal, and whose

> regressive mythology banished collective historical fear and also the individual fear of death as life grown meaningless. If the individual is nothing and the nation is everything […], the practical survival of the individual in the nation guarantees the fulfilment of his existence and prescribes his political line. The same […] is true of the mythology of class struggle.'[564]

In both National Socialism and Marxism, autonomy is suppressed and history rewritten to suit ideological narrative while individuals fade into the background, sacrificing personal wants and needs for the good of the collective. Couched in these terms, neither is an attractive prospect yet both were initially popular compensatory fictions. Plessner's gloss on these two

[563] Joseph Conrad, *Heart of Darkness*, ed. Paul B. Armstrong, 4th edn. (New York: Norton, 2006) p. 35; p. 51; p. 4. Cf. §3.5.
[564] 'On the Relation of Time to Death', p. 244. Cf. §3.2.2.

totalitarianisms shows what the individual gets in return: meaning. Admittedly, a meaning prescribed from without, but the sense of purpose the individual gets from her status as an essential part of the mechanism of the state provides a substitute for the teleological purpose of being in Christianity. Far from putting people off, such sacrifices were a draw for these two ideologies. By removing the contingency of individual personhood and limiting choice, totalitarianism offered protection from the chaos and decay people saw around them and promised to forge a new order. The key to this, however, was removing the individual's right to deviate from a path drawn by the state. Such rigidity gave National Socialism and Marxism strength in the short term but proved brittle under sustained stress. For Amis, totalitarianism's dissolution of the self ends by removing individual responsibility. *Time's Arrow* shows us the consequences of adopting a Nazi's point of view: in a world whose individuals cannot be held to account there is little chance of justice. In doing so, it makes a powerful argument for moral pragmatism. So what if the foundations of morality are fictions? Now that we have seen what the world looks like without them, we know better than to bulldoze them with Nietzschean scepticism. Fictions have their place.

4.2 Context

> "there's the King's Messenger. He's in prison now, being punished: and the trial doesn't even begin till next Wednesday: and of course the crime comes last of all."
> "Suppose he never commits the crime?" said Alice.
> "That would be all the better, wouldn't it?"
>
> ~ Lewis Carrol, *Through the Looking-Glass*

Composing these lines in the late nineteenth century, Carroll could hardly have imagined the extent to which the absurd blend of material mechanism and utilitarian justice he caricatured would be realised under the Nazi regime in policies like the Gestapo's preventative arrest. He might, however, have appreciated the resurgence of backwards time as an ironic critical tool.

Amis's reversal of time shows that life is not just a language game – if it was, we would end up in the uncomfortably irresolute moral contortions of *Time's Arrow* – and that adopting some level of ontological realism on faith is justified by the costs of epistemological relativism taken too far. To understand how he does so, it is best to begin with a survey of the literature which helped seed the idea of the novel. In his (wryly titled) afterword, Amis lists authors whose work was particularly influential. Amongst them is a reference to 'a certain paragraph […] by Kurt Vonnegut'.[565] The passage Amis is thinking of describes a film seen backwards by *Slaughterhouse-Five*'s temporally incontinent narrator Billy Pilgrim:

> American planes, full of holes and wounded men and corpses took off backwards from an airfield in England. Over France, a few German fighter planes flew at them backwards, sucked bullets and shell fragments from some of the planes and crewmen. […]
>
> And Hitler turned into a baby[566]

The misapplication of causal and ethical thinking here shows the predictive biases exploited by the type of writing that backwards time encourages. We know what is going on here and can fill in the blanks, however nonsensical it seems. Given those themes, it is no surprise that this passage links Amis to Carroll. At the beginning of this scene Billy finds half a bottle of champagne on a table. 'Drink me', it seems to say, recalling the label on the bottle whose potion shrinks Alice to fit through Wonderland's tiny door.[567] Again, idealism is the butt of the joke. Vonnegut's quarry is moral relativism, the kind that accompanies dodgy interpretations of Einsteinian physics coupled with blind adherence to deontological creeds.

Time reversed by film speaks to another influence. Wellsian time travel too relies on visual effects. David Wittenberg argues that Wells's description of visual effects may have been

---

[565] *Time's Arrow*, p. 175.
[566] Kurt Vonnegut, Jr., *Slaughterhouse-Five or The Children's Crusade: A Duty Dance with Death* (London: Vintage, 1991) pp. 53-54.
[567] *Slaughterhouse-Five*, p. 53.

influenced by the development of cinematic techniques at the end of the nineteenth century, contending that 'the real innovation of [Wells's] machine is its capacity to provide a concrete, visual confirmation of the evolutionary continuity of all history […] in the guise of a quasi-cinematic special effect.'[568] Similarly, Amis thinks it worthwhile to spell out time travel's cinematic basis. At the beginning of the novel he writes, 'The mad are said to keep a film or stage set in their heads, which they order and art-decorate and move through. But Tod is sane, apparently, and his world is shared. It just seems to me that the film is running backwards'.[569] Later, describing Tod's nightmares, the narrator says 'I know he's only dreaming. I just settle back, and […] give witness to the late show screened by Tod's head […] by his future.'[570] The dreams are not of Tod's future though. They only so because 'the film is running backwards'. The nightmares are about Tod's secret past, drawing on memories. Perhaps this is the crucial point: Wells, Vonnegut, and Amis all rely on film's dynamic representation of reality to an observer whose deictic orientation is key to generating backwards time. By doing so, they conceive time in a particular way. The analogy between film and time was one of the key disagreements in a debate between two of the early twentieth century's most respected figures. The tone with which these authors present cinematographic time reveals their conceptual allegiances.

After the Lumiere brothers invented the motion picture camera in 1895, Bergson and Einstein both began to use film as an example of how time progresses. They had radically different ideas about what that meant. While cinematography and Einstein's relativity shared a model in which past, present and future were all objectively real and could be represented spatially, Bergson argued that film could not hold the key to understanding time. It was, he

---

[568] David Wittenberg, *Time Travel: The Popular Philosophy of Narrative* (New York: Fordham University Press, 2013) p. 86.
[569] *Time's Arrow*, p. 16. Cf. Freud's madman who 'try[s] to re-create the world, to build up in its stead another world in which its most unbearable features are eliminated and replaced by others that are in conformity with [his] own wishes' *Civilization and its Discontents*, p. 81.
[570] *Time's Arrow*, p 54.

thought, only a representation which borrowed real time from the motion of the reel and its perception by the consciousness of the viewer – film was just another way of representing time spatially. Yet film had its uses. Brownian motion theories were tested using the cinematographic method. 'According to statistical and molecular theories of thermodynamics,' writes historian of science Canales, 'our sense of the "arrow of time," […] was actually based on reversible effects at the microscopic, molecular level. Physicists used Brownian motion films to study this basic reversible form of movement, one not marred by the "arrow of time."'[571] On the back of this, Einstein used film as evidence to support relativity theory's dismissal of time's arrow as a psychological epiphenomenon. For Bergson, such usage was fine provided nobody forgot that the medium was distinct from the thing measured. Film was not just a convenient technology for testing theory, he said, it also influenced how physicists thought about time.[572]

4.3 Selfhood in *Time's Arrow*: The Double Negative

> 'If the killer thinks that he kills, if the killed thinks that he is killed, they do not understand; for this one does not kill, nor is that one killed.'
>
> ~ *Katha Upanishad*, trans. Friedrich Max Müller.[573]

Robert Jay Lifton reports that Dr B. repeatedly used the phrase 'within the context of Auschwitz' to frame logical choices, or uses of language, which might seem strange at the time of interview.[574] He argues, for example, that the affective difference between two or three people being sent to the gas chamber on any given day was negligible and was not even considered. There is something to be gained from a more literal translation of Dr B.'s words.

---

[571] *The Physicist and the Philosopher*, p. 286.
[572] Scientific films showing microscopic phenomena and time-lapse effects were quite well known by the public by 1910. In the following decade they became a genre in their own right. Films shown in reverse, with their absurd effects, leant weight to Bergson's argument that time is irreversible. Ibid., p. 289.
[573] *Katha Upanishad* in *Upanishads*, trans. F. Max Müller, rev. Suren Navlakha (Hertfordshire: Wordsworth, 2000) 1.2.19.
[574] Robert Jay Lifton, *The Nazi Doctors: Medical Killing and the Psychology of Genocide* (New York: Basic Books, 1986), p. 290.

'*Unter dem Aspekt von Auschwitz*' should read 'under the aspect of Auschwitz'. What this makes explicit is that Dr B. is talking about switching viewpoint. While it might seem to anthropomorphise Auschwitz, then, in the context of *Time's Arrow*, where the narrator can be interpreted as the Auschwitz self of a Nazi doctor, this is a more illuminating translation. What is an 'Auschwitz self' if not an anthropomorphisation of the values reified by Auschwitz? Lifton uses the term to describe the Nazi doctors' compartmentalisation of the self to excuse atrocity. Invoking the concept of doubling, he argues that the Auschwitz self explains the apparently contradictory nature of a Nazi doctor displaying equal parts caring and brutal behaviour: 'one part of the self "disavows" another part', he explains, '[w]hat is repudiated is not reality itself – the individual Nazi doctor was aware of what he was doing via the Auschwitz self – but the meaning of that reality.'[575] Under the aspect of Auschwitz, then, reality has an alternative semantic frame.

To make a distinction, as Dr B. does, between the aspect of the world as it is now and the aspect of the situation at Auschwitz is to insist that although Auschwitz was of this world it entailed an alternative reality. Making sense of actions there requires a different orientation towards them. The sentiment is echoed by the Israeli dentist whose words form the epigraph for Lifton's introduction: 'this world is not this world'.[576] Initially this seems like a paradox, but the dentist means that under the surface of this world there are potentialities which, while not currently actualised, remain ever present realities. Linguistically, the apparent paradox comes from the fact that 'this' is a unitary determiner. There is only one world; it cannot be and not be concurrently. It is a deictic clash between proximal and distal.[577] More natural would be to say this world is not that world but that would be to semantically differentiate between numerically indexed worlds, which is not what the speaker is getting at. This is about the

[575] Ibid., p. 422.
[576] Ibid., p. 3.
[577] Proximal deixis: *here/now/this/is*. Distal deixis: *there/then/that/was*.

difficulty of expressing identity in diversity – of quality against quantity. In an important sense, that world (the past) is this world. It still exists for this holocaust-surviving dentist as his memories, as physiological and emotional damage and as his habits and ethical predispositions. He still lives his experience of it. Equally, since he has not switched worlds, although the world now outwardly seems different it is still the same world which allowed the holocaust to take place. He and the world have changed but both retain their quiddity.

Amis plays out a formal vision of the statement 'this world is not this world' through catachresis of temporally relative linguistic features. There is the hint of a pun in his method. Presenting temporality backwards means manipulating grammatical aspect so that *Time's Arrow* is the story of Odilo Unverdorben's life *unter dem Aspekt von Auschwitz*. This also partially accounts for the narrator's claim that in Auschwitz 'the world is going to start making sense'.[578] To most readers, however, the notion of Auschwitz as a Jew creation centre borders on the nonsensical. We need a different viewpoint in order to find meaning in a situation whose logic corresponds to the reversed direction of time. That different viewpoint Amis supplies with his narrator in the shape of an Auschwitz self.

For Lifton, the explanation for how the same people and the same world could be so different then and now is given by psychological doubling. The Nazi doctor, he explains, 'needed a functional Auschwitz self to still his anxiety', this double 'had to assume hegemony on an everyday basis' so it could take responsibility for actions within the camp.[579] It is not clear that such an explanation is necessary, and if Amis is anything like Nabokov in his attitude to psychoanalysis he might see this as letting the culprit off by placing causal emphasis on environmental factors. We could just as easily explain the Nazi Doctors' behaviour without doubling by saying that Auschwitz simply changed people. Doubling may allow one to kill without identifying with one's actions, but it is not a necessary condition for the behaviour of

[578] *Time's Arrow*, p. 124
[579] *The Nazi Doctors*, p. 422.

Nazi doctors. Why not credit them with a little emotional inconsistency? Doubling not only seems to prevent us from attributing blame to those who perpetrated the crime, it keeps the rest of their conscience clear.

4.4 Dualism: The Case for Irony

Presenting the holocaust in reverse was always likely to provoke controversy. The topic demands respect. For his treatment of it in *Time's Arrow*, Amis has been accused of a lack of empathy and of sensationalist profiteering.[580] Such critics typically level two charges at the novel. The first is that its methodical and dispassionate reversal of atrocity shows Amis is insensitive. Here Amis is a victim of his success. In his effort to capture the essence of Nazi ideology in the form, structure and language of his novel he has reversed time so meticulously and unscrupulously that it offends. Partisans of this latter view apparently see *Time's Arrow* as evidence in favour of Theodor Adorno's famous maxim that 'to write poetry after Auschwitz is barbaric'.[581] Amis is one step ahead. 'Well, how do you follow that?' he writes, immediately after the novel's Auschwitz episode, 'The answer is: you can't. Of course you can't.'[582] This is no white flag. The statement is made by a narrator whose putative moment of utterance comes before the holocaust in external time, indicating that 'after' is a matter of perspective. Teasing Adorno with ironic literalism, Amis slips in the suggestion that such intellectual and artistic censorship might be agreed with by the Nazi mind.[583] Adorno's maxim, he whispers, is hypocritically totalitarian.[584]

---

[580] Notably by James Buchan of the *Spectator.* See Will Self and Martin Amis, 'An interview with Martin Amis', *Mississipi Review*, 21, 3 (1993) pp. 144-145.
[581] Theodor Adorno, 'Cultural Criticism and Society' in *Prisms* (Cambridge, MA: MIT Press, 1983) p. 34.
[582] Time's Arrow, p. 146.
[583] Perhaps mindful of the Platonic Socrates's suggestion that in order to create the perfect society it is necessary to ban poetry (as with backwards time/degeneration in *Politicus*, it is worth questioning how serious Plato was about this). *Republic*, §607.
[584] Cf. Popper's charge that 'the emotionally satisfying appeal for a *common purpose* […] is an appeal to abandon all rival moral opinions […] to abandon rational thought.' *The Poverty of Historicism*, p. 159.

The second charge is that Amis's satire is distasteful. The gallows humour of his temporal reverse invites his reader to laugh at the absurd logic which caused the deaths of millions of people. Partisans of this view apparently believe Amis favours ethical relativism. Both charges miss the mark. Even the title of *Time's Arrow* is self-effacingly ironic, portraying the opposite concept to which Eddington famously referred. To view its humour in the face of atrocity as a moral outrage is to be guilty of the hyperrational wrongheadedness which allows the Nazi ideology to obtain. The novel works idealism out formally to demonstrate its logical and ethical absurdities. Amis plays devil's advocate, poking fun at the desire to undo the holocaust by showing us the harm which must be done to the living for that to occur and the hypocrisy of upholding a metaphysics which would allow it to obtain.

Amis's approach to dualism is more nuanced than the classical division of soul and body. The experience of *Time's Arrow*'s narrator has more in common with the Cartesian Theatre: 'the mad are said to keep a film or stage set in their heads, which they order and art-decorate and move through.' Why mad? The whole novel can be seen as a formal development of the Cartesian Theatre conceit critiqued by Daniel Dennett. Dennett shares with Ryle (his PhD supervisor) a deep scepticism for dualism. Like Dennett, Amis has doubts about a mental centre upon which all perception converges, though it is not clear that he is any more convinced by Dennett's 'multiple drafts' hypothesis. Roughly, this view entails that there are at any one time many parallel models of experience being processed which are eliminated on the basis of utility – the alternative spaces interpretation of *Time's Arrow* I develop in this chapter suggests that Amis considers this type of partial realisation an unnecessary philosophical loophole that might be exploited by war criminals like Tod Friendly to produce the Orwellian or Stalinesque revisionism Dennett uses to lance the boil of the Cartesian soul.[585] This is no surprise since, as

[585] Orwellian revisionism on Dennett's view is characterised by 'post-experiential contaminations or revisions of memory' which give the illusion that things happened differently while Stalinesque revisionism involves 'carefully scripted presentations of false testimony and bogus confessions, complete with simulated evidence.' Dennett points out that when either of these is successful we cannot tell which mode was responsible. In a show trial about which

Amis shows, a diachronic view of the Cartesian Theatre turns out to be rooted in idealism, which legitimates many other totalitarian principles. It is not Descartes' notion of the soul that concerns Amis, but his reasons for positing it in the first place: mechanism. Unlike theatre, cinema can turn time backwards because the light which enters our eyes does not come directly from the physical events depicted, but from the projection apparatus. In cinema, we are passive recipients of time. Whether it is the passive sagittal mapping referred to by cognitive linguists, Bradley's fish feeding by facing upstream, or *Time's Arrow*'s narrator for whom 'time […] pours past unpreventably', the implication is determinism.[586] The film precedes our experience of it. The tomorrow's water is already there, somewhere upstream.

In the case of memory, the Cartesian theatre represents an aestheticization. But Amis's irony shows he does not favour moral relativism, however much his narrator argues that in the end everything 'evens out' and 'measures up'.[587] The absurdity of the temporal reverse needed to make the actions at Auschwitz look 'good', in which killing is curing, healing is harming, and so on is evidence that this equivocation does not amount to shoulder-shrugging amorality. Rather, *Time's Arrow* seems to present the case that moral frameworks which hold inflexibly to ideological values are doomed from the outset. In doing so, Amis sails perilously close to the wind. His argument here is Nietzschean, but his semantic inversions are too. There is a dark humour in the narrator's flipped perspective of time. Presenting concentration camps as places where human beings are created, and crisis centres as places where calm women go to receive rape as a treatment to provoke crisis illustrates Nietzsche's troublesome realisation that '*what things are called* is unspeakably more important than what they are'.[588] Out of context, this could be read as an endorsement of the make-your-own-truth approach to reality taken by the Nazis.

---

all historical evidence had been destroyed, he points out, those of us who were not present 'would have no way of knowing whether a fabrication happened *first*, culminating in a staged trial whose accurate history we have before us, or rather, *after* a summary execution, history-fabrication covered up the deed: No trial of any sort actually did take place.' Daniel Dennett, *Consciousness Explained* (Boston: Little, Brown, 1991) pp. 116-117.

[586] *Time's Arrow*, p. 67.

[587] Ibid., p. 16.

[588] *The Gay Science* §58.

While Nazis might see this as a seal of approval, such a reading is superficial. Here Nietzsche is lamenting the tendency to conceive the names and conceptions of things as their timeless essence. This is wrong, he says, we ought to take reality as we find it, not conceive things based on what we are told. Making room for this pure empiricism, however, means out with the old. 'Only as creators can we destroy!' Nietzsche writes, recognising that in order to progress, science must periodically do away with old concepts and conceive things anew.[589] It is hard to bring oneself to laugh at Amis's construction of a camp where the inverse is true. 'Only as destroyers can we create!' would be a legitimate axiom for the Nazi biomedical ideology. By reversing time Amis creates a world which makes sense to the 'Auschwitz self' of a Nazi doctor. Killing as curing is a paradigm this self can understand.

Similarly, reversing time at the point of death and putting a consciousness in the viewing seat of the Cartesian theatre without memory of the forward performance reinforces the dualist position which got us into this mess in the first place. One problem with dualism is that the moral value we place on not doing harm to the body of others seems irrational in light of its argument that the soul is inviolable and independent of the body. If the essence of personhood (soul) cannot be harmed and the body is simply its vehicle it makes little sense to prohibit bodily harm. It gets even worse if we believe in the Christian afterlife – murder might be an express ticket to paradise. So if we accept without caveat Seymour Chatman's verdict that the narrator of *Time's Arrow* is Odilo's soul we are forced into an uncomfortable acceptance of the death camps as logically coherent.[590] This, perhaps, is the nature of the offence alluded to in the novel's subtitle. The holocaust could be seen as morally right by its perpetrators since it is internally consistent within the Nazi moral framework. This does not mean *Time's Arrow* endorses the Nazi ideology. The fact that its backwards logic is coherent does not make it any less absurd.

---

[589] Ibid., §58.
[590] Seymour Chatman, 'Backwards', *Narrative*, 17, 1 (2009) pp. 31-55.

4.5 A Question of Identity.

> 'Who […] wonders not […] at the operation of two souls in those little bodies?'[591]
>
> ~ Thomas Browne, *Religio Medici*

Amis once said that *Time's Arrow's* narrator is 'the soul of one of Mengele's lesser assistants at Auschwitz-Birkenau'.[592] This should not be taken at face value for two reasons. First, Amis's irony invites us to see the immaterial soul as an absurdity. Second, we need not assume that, just because in both the forward and backward aspects of the story there is a subject who experiences the same events, in each case the subject is 'the same'. Taking the narrative as it comes, it makes little sense to conceive the narrator as the subject whose actions make up the alternative narrative in forwards time – plainly there is no choice involved in a story progressing into the past. There is also pronominal differentiation: Tod is 'him' while 'I' remains distinct. Besides, we all continually construct memories on the fly so that, as Paul Eakin puts it, 'the self that is the center of all autobiographical narrative is necessarily a fictive structure.'[593] This apparently puts us in the uncomfortable position of having to agree with Bradley that in a universe of serial time, personhood is not meaningfully connected with the causality of our acts. Suppose '[t]here is a man who traverses the same history with ourselves, but in the opposite direction' Bradley enjoins,

> that the successive contents, which make up my being, are the lives also of one or more other finite souls. The distinctions between us would remain, and would consist in an additional element, different in each case. And it would be these differences which would add to each its own way of succession, and make it a special personality. The

[591] Thomas Browne, *Religio Medici: Urn Burial, Christian Morals, and Other Essays*, ed. John Addington Symonds (London: Walter Scott, 1886) p. 28. Browne is speaking of the ontogenesis of the fly and its metamorphosis from larva into insect.
[592] Martin Amis, *Experience* (London: Jonathan Cape, 2000) p. 289.
[593] Paul John Eakin, *Fictions in Autobiography* (Princeton, NJ: Princeton University Press, 1985) p. 3.

differences, of course, would have existence; but in the Absolute, once more, in some way they might lose exclusiveness.[594]

While the difference of experience is enough to constitute different personalities, on this view, that is not solid evidence they exist. Can a soul be amphicheiral? Perhaps, but this would mean either metempsychosis, bringing us back round to Buddhism or Platonism, or the sort of compartmentalisation Nabokov decried as a let-off for murderers.[595] Amis would see Bradley's example as a *reductio* – though Bradley did not intend it as one – showing that while opposites are linked and have a reciprocal relative identity, they are not 'the same'. His narrator disagrees.

For evidence that this logic is meant to influence our reading of the text we need only look to the title of Chapter One: 'What goes around comes around'. *Time's Arrow's* alternative title 'The Nature of the Offense' and thematic focus on Nazi doctors suggest we might see this aphorism as the colloquial 'eye for an eye' cycle of retributive Old Testament justice, or a crude Westernised view of Buddhist karma. Beyond this, backwards time indicates that we are meant to take 'what goes around comes around' as a general rule of opposition, or antonymic logic, so that $A \prec B \rightarrow A \succ B$ and $P(x) \leftrightarrow P(\neg x)$ where x is any temporally relative variable.[596] Since the propositions of the narrator are inverted in respect to everyday experience but presented as positive statements, *Time's Arrow* actually presents a double negative: $P(\neg x) \leftrightarrow P(\neg\neg x)$.[597] This seems like a paradox. The variables ought to cancel themselves out, indicating opposing movements by an identical object in the same tense.[598] Yes, in classical

[594] *Appearance and Reality*, p. 217
[595] Nabokov would likely have had mixed feelings about Lifton's 'doubling'.
[596] 'If A precedes B then A succeeds B' and 'If it is the case that P(x) then it is the case that P(not-x)'. In this case: 'If it is said that it is the case that a thing goes around then it is the case that the same thing comes around (i.e. *un-goes*)'.
[597] 'If it is the case that P(not-x) then that semantically entails that P (not-not-x).' Therefore it is (also) the case that P(x).
[598] Amis does not want his readers distracted by such potential paradoxes. They are part of the plan. 'This is a world of mistakes,' he explains, 'diametrical mistakes.' Everything is bound by the logical error of reversing time's arrow. *Times Arrow*, p. 15.

logic, we must treat the propositions simultaneously. But in narrative, as in intuitionist logic, which disallows this move, it is not a case of straightforward negation but sequential apprehension of opposites. Taking into account this double negative structure, *Time's Arrow* might be seen as a dialectical narrative with one voice only implied by the other's obvious inversion. Again, going and coming derive their meanings relative to an implicit observer's deictic ground (expressed genitively: one man's going is another man's coming). In *Time's Arrow*, the comings and goings of backwards time can all be explained by idealism and the viewpoint of an experiencing subject.

Time's Arrow's narrative causality incurs knee-jerk rejection. Readers make a linguistic distinction between two moments for each one described. While the deictic centre of the narrative is doubly populated by a backwards (explicit) and forwards (implicit) viewpoint, the reader can only progress, with the narrative, backwards. The upshot is that at the sentence level 'what goes around' is apprehended before '[what] comes around' even though the anaphoric presence of 'what' – a metonym for life events and/or karma in the retributive justice metaphor – indicates that they are cotemporal, two distinct and opposing temporalities reflecting the tensed and block views of the universe. First, there is the tensed viewpoint in which goes and comes are sequential and in which we interpret semantic content literally and denotes the narrative's deictic ground. It is from this viewpoint that the relative directions of go and come take their meaning. The default interpretation is a sequential story so that what goes later comes but there is also an implicit viewpoint on which goes and comes represent contemporaneous indefinite processes. Hence the paradox: one cannot go and come at the same time from a single relative viewpoint. Such talk violates the established deictic ground. The solution is to postulate a second viewpoint sharing the same spatial location but experiencing time backwards, so that coming and going occur simultaneously as positive and negative interpretations of the same spatiotemporal process.

There are, then, two ego viewpoints accounting for temporal experience in *Time's Arrow*. What seemed like paradox collapses into cognitive dissonance. Both viewpoints remain equally valid in the context of the story and both must be maintained, diametrically opposed but simultaneous, so that narrative statements are Janus-faced. Each statement is apprehended as a thesis connoting its own antithesis (the event as it would appear in standard time) before a synthesis – a view from outside, from neither 'face' – can be constructed, embracing both forwards and backwards time. In a formal realization of Hegelian thought, reality is dialectical. Consider the following example.

❖ *Thesis* (narrative statement):

> Later in the dusk I entertain a perplexed perfecto as I walk back up the hill to the castle, to Schloss Hartheim. Above its archways and gables the sky is full of our unmentionable mistakes, hydrocephalic clouds and the wrongly curved palate of the west, and the cinders of our fires. I can see a lock of snow-white human hair drifting upwards, then joining the more elliptical and elemental rhythm of the middle air.[599]

The narrator walks up the hill to Schloss Hartheim for work. Above, the sky contains the soon-to-arrive human beings that will come out of the fires. Some will be imperfectly made – creators make mistakes. A lock of hair defies gravity.

❖ *Antithesis* (-ve viewpoint of narrative statement):

Odilo Unverdorben has just finished work at Schloss Hartheim and walks down the hill. The sky above is full of the Nazi doctors' mistakes (transgressions of the Hippocratic oath and the logical error of interpreting evolution as reversible): the incinerated remains of patients they killed. The sense of the patients themselves as mistakes persists, however, since the reason for killing them is that they are considered regressive evolutionary mistakes. A lock of hair, not quite burnt due to the sheer volume of human matter incinerated, drifts to the ground. This

[599] Ibid., p. 155.

striking image is a recognisable reversal of a passage from *The Nazi Doctors*: 'At full capacity… [the chimneys at Hartheim] smoked day and night. Locks of hair went up through the chimneys and landed on the street.'[600] Amis has taken real history and inverted the sense.

❖ *Synthesis*:

Destruction is creation, from the opposite temporal viewpoint – a nod to Nietzsche's 'only as creators can we destroy'. Both viewpoints are valid: the narrative testimony is internally coherent and represents the same sequence of historical events. The difference in moral quality of those events is all the more striking for the fact that the negative image is apprehended first while what actually happened requires reconstruction.

Two stories are told. Within the context of the narrative, both are true in an extra-moral sense. It is an uncomfortable fact that we cannot discount the testimony of the narrator of *Time's Arrow* as a lie. Its truth relies on the subjective ability to bear witness. If the narrator is a liar then the holocaust did not happen because he did not see it un-happen. This, then, is not quite the liar paradox, though it resembles it. Instead, narrative truth is revealed as a construct resting on an agent's experiential relation to an intuitively divined semantic frame. On the God's eye view of retrospect, in which all story events are taken into consideration along with their (double) negative counterparts which make up the known track of history, killing is curing and curing is killing. We must see things from a Nazi's point of view to reconstruct history. A terrible duty is borne.

4.6 Karmic Purging: Backwards Time, 'Royal Road of Deliverance'

On the face of it, *Time's Arrow*'s first-person narrator is not the author of his own life, so cannot be culpable for his actions. There is something suspiciously mechanical in the narrator's tone from the get-go, suggesting the reversible mechanics informing the closed systems of the Nazi

[600] *The Nazi Doctors*, p. 75.

ideology. On the other hand, the backwards causality the narrator presents can be seen as an attempt to rewrite history, an inverted interpretation of events exchanging death for life, bad for good. It is this which leads Chatman to identify the narrative voice he calls 'Soul' as the homodiegetic narrator of his own story and the heterodiegetic narrator of Tod/John/Hamilton/Odilo.[601] While it is useful, insofar as it underlines the tensions arising from Cartesian dualism, mechanism, and psychological narrative that Amis is exploring, calling the narrator 'Soul' means ignoring a host of complications. The moral stance of the novel is at stake.

The religious historian Mircea Eliade notes that backwards time in Buddhism is an established path to salvation.[602] 'The irreversibility of cosmic time, a terrible law for all those who live in illusion, no longer counts for Buddha', according to Eliade. Instead, 'time is reversible […] the Buddha can pass through it backward […] effect[ing] a "return backward," which enables them to know their previous existences.'[603] This ultimate self-knowing by returning to previous lives comes through rigorous training to transcend the ephemera and contingencies of everyday life. 'The physiology and psychomental life of the profane man resemble a chaos,' Eliade notes:

> Yogi practice begins by organising this chaos, by "cosmifying" it. […] prānāyāma, the rhythmization of breathing, forms the yogi into a cosmos: breathing is no longer arrhythmic, thought is no longer dispersed [604]

That is, yoga begins by attempting to return to an ideal order. Breathing in and out are aligned with the rhythmic cycles of the universe so that

[601] 'Backwards', p. 38.
[602] Eternal return is distinct from Nietzsche's eternal recurrence. Eliade's phrase expresses performative, as opposed to literal, cycles of time in human history.
[603] 'Time and Eternity in Indian Thought', p. 188.
[604] Ibid., pp. 195.

> the yogi […] repeat[s] Great Cosmic Time, the periodic creations and destructions of the universe […] realiz[ing] the relativity and ultimate unreality of time. But […] he obtains the reversibility of the temporal flux (*sāra*): he returns backward […] and […] "burns" the consequences of his former acts […] to escape from their karmic consequences.[605]

This is a zero sum. If Carroll is right in saying that (to) live backwards is evil, then a good life plus a life evil in the same proportion (i.e. that life lived backwards) equals net moral neutrality. 'It evens out', as *Time's Arrow*'s narrator says, acknowledging the palindromic morality the preterite affords when describing how the devil lived. It is easy to see this doctrine's appeal to people who have done wrong. At one stroke, Buddhahood promises to absolve responsibility and provide immunity from punishment. While there is no evidence that *Time's Arrow*'s narrator has been converted to Buddhism, a mind living backwards through its previous existence and thereby escaping the consequences of past crimes is one possible interpretation of the text. [606] Another is that Odilo has entered eternity and can live his life forwards and backwards equally as a chain of causation without any karmic significance. Both options allow Odilo to wriggle out of accepting culpability by appealing to a determinist viewpoint coupled with absolute idealism. For Carroll, this reasoning was absurd. For Nabokov, it was aetiological sharping. Amis agrees. It is one thing to hold to Buddhism as a set of religious beliefs. To cynically invoke millennia-old religious practice as a get out of jail free card is quite another.

---

[605] Ibid., pp. 196-7. Eliade is drawing on Vasubandhu's *Abhidharmakósa* here.

[606] There is a suggestion of chirality too, via Max Müller's questionable interpretation of the swastika. The *Hakenkreutz* (Nazi swastika, angled at 45 degrees) is a chiral object, spiralling to the right. A swastika spiralling to the left is called a *sauwastika* and signifies something different. According to Edward Thomas, the *svastika* is mostly used in connection with the motion of the sun. Max Müller, who quoted this essay in his personal correspondence, suggests thinking of the *svastika* as a wheel symbolising Spring: light, life, health and wealth. Its counterpart, the *sauwastika*, would then represent Autumn which, though he does not say so, would signify the opposite: darkness, death, ill health and poverty. Edward Thomas, *The Indian Swastika and its Western Counterparts* (London: Unknown, 1880) p. 2. Monier-Williams's personal copy of this edition is accessible via the Bodleian Library. Letter to Heinrich Schliemann (undated), in Heinrich Schliemann, *Ilios, Ville et pays des Troyens : résultat des fouilles sur l'emplacement de Troie et des explorations faites en Troade de 1871 a 1882* (Paris: Librarie Firmin-Didot et cie., 1885) p. 520.

Time reversal is not just a harbinger of Buddhahood. As Eliade shows, it also promises to restore order where chaos reigns.[607] For this reason it appeals to the National Socialist ideology, and hence *Time's Arrow*'s (anti/ante)hero, as a way of arresting and reversing moral, social and racial decline. There is something perverse about a Nazi being attracted to backwards time, a teaching with roots in a peace-loving religious doctrine like Buddhism, which shares with Hinduism and Jainism the concept of *ahiṃsā* ('non-violence', 'non-harm') but the common ground is undeniable. Both totalitarianism and Buddhism share the idea that the individual does not exist – it is a subordinate and illusory aspect of the collective.[608] Both derive this idea from absolute idealism but proceed in utterly different directions. For Buddhists, the oneness of all things means that we cannot do harm to another being without doing harm to ourselves. For Nazis, harming individuals is perfectly admissible if it benefits the state as a whole. For individual and collective alike, backwards time in Buddhist thought represents an 'escape from time', a transcendence of the trivial directedness of *māyā* and a chance to erase transgressions, marking backwards time as the 'royal road of deliverance'.[609] Accepting the story as the genuine testimony of Odilo's soul, then, threatens to absolve him by allowing him to annul his crimes. If he is to get his just deserts time must go one way.

4.7 All Relative? Personal Timelines and Ontogenesis

> 'I know of a Greek labyrinth that is but one straight line. So many philosophers have been lost upon that line that a mere detective might be pardoned if he became lost as well.'
>
> ~ Jorge Luis Borges, 'Death and the Compass'.[610]

[607] It does this through absolute idealism. See Chapter One.
[608] For Macintyre, this means there can be no coherent calibration of the virtues in either setup. Against this it might be argued that narrative merely presupposes a certain form of morality which happens to be teleological. Even coupled with the idea that lives can only be understood in terms of narrative, that is not enough to establish Aristotelian ethics.
[609] 'Time and Eternity in Indian Thought' pp. 199-200.
[610] Jorge Luis Borges, 'Death and the Compass', *Collected Fictions*, trans. Andrew Hurley (London: Allen Lane, 1999) p. 156.

The advent of relativity sparked renewed hope that the rational universe could be restored. By invoking non-Euclidean geometry and insisting that time and space were inseparable, however, relativity made itself vulnerable to misleading simplifications. With its uncritical acceptance of the time-as-space metaphor, Dunne's *An Experiment with Time* was one of the worst offenders. In his zeal to press on with validating precognition, though, Dunne sees that Wellsian time travel taps into a pre-existing conceptual overlap in the popular consciousness: 'that Time should be a length travelled over is, all said and done, a rather elaborate conception; yet that this is the way we do habitually think of Time is agreed by everyone'.[611] Certainly, the idea becomes overcomplicated in Dunne's work. Not so in common speech.[612] The inference of duration from models of motion and vision is clearly mirrored in everyday diction. In this respect, language reflects the inductive mental habits of millennia. Gilles Fauconnier and Mark Turner corroborate Dunne's assertion with more recent research indicating that 'time as space is a deep metaphor […] profoundly entrenched in thought and language', so that 'the ordering of space is projected to the ordering of time'.[613] For this reason, units of measurement which are empirically viable only in space are applied to time which is imagined to be structurally congruent.

This, as Lotze, Bergson and other advocates of the tensed view of time would say, is an illusion of absolute time and space. That may be, but it has its uses. In Christian thought, it has a rich history as an expression of deviance from or adherence to social and ethical norms. 'Let thine eyes look right on,' says Lady Wisdom in Proverbs, 'and let thine eyelids look straight before thee. Ponder the path of thy feet, and let all thy ways be established. Turn not to the

---

[611] *An Experiment with* Time, p. 161.
[612] George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 2003).
[613] Gilles Fauconnier and Mark Turner, 'Rethinking Metaphor' in *The Cambridge Handbook of Metaphor and Thought*, ed. Raymond W. Gibbs, Jr. (Cambridge: University Press, 2010) pp. 53-66. See also Mark Johnson, *Moral Imagination: Implications of Cognitive Science for Ethics* (Chicago: University of Chicago Press, 1993); Mark Turner, *The Literary Mind* (Oxford: Oxford University Press, 1996).

right hand nor to the left: remove thy foot from evil.'[614] The good life means keeping on the straight and narrow. We contrast it with one that has gone off the rails. This is no matter of determinism but of teleology. The good Christian must choose the path of righteousness. In reality, however righteous or wicked our actions, we are not 'travelling' along a spatially realised 'path' of time. The path and the journey are not separate. There is only life and the continuity of experience. The path is an ideal form expressing diachronicity. Recognising this allows us to distinguish once again between two intuitively separate but corresponding temporalities. For David Lewis, such a distinction is a necessary condition for time travel. If subjective time agrees with objective time no one is going anywhere. That, Lewis argues, is why we need personal time. Personal time 'occupies a certain role in the pattern of events that comprise the time traveler's life […] it isn't really time, but it plays the role in his life that time plays in the life of a common person' so that the subject is still subject to entropy, still ages, but 'memories accumulate'.[615] With its steady accretion of episodes, narrative cannot help but create personal time, putative or otherwise, as it goes along.

Stories bearing this out are all around us. Perhaps the best example is the individual herself. On the one hand, there is the temporality of her body, measured by its physical ontogenesis: first comes birth, then infancy, childhood, adolescence, and sexual maturity, followed by physical decline and eventually death. That is the default biological story of the human body, shot through with a teleological drive from womb to tomb.[616] Its counterpart is psychological ontogeny, which can be thought of as the story of how we came to be who we are. First comes the immediate awareness of needs, next the development of self-awareness, then the ability to conceive narrative timelines and intersubjective stance (usually between age two and five – Amis's narrative ends when the narrator is 3 years old – also the moment of

[614] Proverbs 5. 25-27. Cf. Mathew 7. 3-14.
[615] David Lewis, 'The Paradoxes of Time Travel', *American Philosophical Quarterly*, 13, 2 (1976) p. 146.
[616] Obviously, there are exceptions e.g. pathology, accident, or the intervention of Nazi doctors.

Lacan's mirror phase as entry into the symbolic order of the law where we 'recognise' ourselves through the norms/laws of our social order), followed by a gradually increasing sense of self identity which may alter significantly over time.[617] There are, then, two conceptual histories for every individual: the mental and the physical, each with its own independent chronology. No wonder dualism has retained intuitive appeal.

Pulp fiction solidified these metaphors. Robert Heinlein's first published story, 'Life-line' (1939), gives a flavour of how relativity physics can be combined with this concept of life story to manipulate the possibilities of self-knowledge. In the story, a professor constructs a machine that allows him to accurately predict the death of an individual. He performs these predictions, for a modest price, so people can plan more effectively for the future, eliminating chance from their lives by, say, taking out a timely life-insurance policy (to the chagrin of risk assessors). A relativity-inflected block universe is presented as the rationale behind a conception of human life as a discrete geometric shape:

> In time, there stretches behind you more of this space-time event, reaching to, perhaps, 1905, […] At the far end is a baby, smelling of sour milk and drooling its breakfast on its bib. At the other end lies, perhaps, an old man some place in the 1980s […] there is physical continuity in this concept to the entire race […] like a vine whose branches intertwine and send out shoots. Only by taking a cross section of the vine would we fall into the error of believing that the shootlets were discrete individuals.[618]

An extract of the above quotation from Heinlein is briefly discussed in relation to the cultural assimilation of four-dimensionality by James Gleick in his recent history of time travel.[619] It is

---

[617] J. Russell, D. M. Alexis and N. S. Clayton, 'Episodic future thinking in 3- to 5-year-old children: The ability to think of what will be needed from a different point of view', *Cognition*, 114 (2009) pp. 56-71. Thomas Suddendorf, *The Gap* (New York: Basic Books, 2013) pp. 119-120; 'The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience' pp. 75-81; *Time's Arrow*, p. 170.

[618] Robert Heinlein, 'Life-Line' in *Expanded Universe: The New Worlds of Robert Heinlein* http://www.baen.com/Chapters/0743471598/0743471598___2.htm [accessed 3 July 2019].
Cf. Vonnegut: 'When a Tralfamadorian sees a corpse, all he thinks is that the dead person is in a bad condition at that moment, but […] fine in plenty of other moments.' *Slaughterhouse-Five*, p. 20

[619] James Gleick, *Time Travel: A History* (New York: Pantheon, 2016) p. 96.

probably more useful to think of it as an illustration of the popular metaphysics of relativity, and a resurrection of the mystic four-dimensionalism at which Maxwell scoffed when he wrote 'My soul's an amphicheiral knot'.[620] I have extended the quotation (and restored the subject's name) because Gleick omits relativity's problem of identity in diversity explored in the following sentences. If we think of life as 'physical continuity' it becomes difficult to think of 'an' individual human being at all. Physical ontogenesis is revealed as postulating an arbitrarily parsed biological beginning and end – an Aristotelian emplotment of biological development. We might go further, though Heinlein does not, and argue that phylogenesis, the development and diversification of species, is also an arbitrary distinction based on a tensed temporal viewpoint which only exists in our minds. On this view, 'human being' ceases to be meaningful. There is simply unilateral being as a mode of existence participated in by all living organisms.

Such is the implication of the block view. There is little appetite for it. Our experience of other beings in the world tells us that we are differentiated from one another in meaningful ways. On the whole, common sense inclines us to accept the first premise that our whole lives exist from a particular point of view in the abstract – a personal life story, perhaps – and reject the second premise that we are all part of a continuum of life differentiated only by point of view or, more abstractly, a story of life in general.[621] Leaving aside the question of whether or not Heinlein's hypothesis is true – to avoid circling the philosophical drain – its existence shows

[620] Thomas Pynchon's invocation of Maxwell's demon as a 'the linking feature in a coincidence' in *The Crying of Lot 49* is a bit unfair. In the story, John Nefastis, another backwards time aficionado with a taste for little girls, builds a perpetual motion machine, offsetting entropy with gains in information. Pynchon is critiquing the mid-twentieth-century idea that information theory might present a way to reconcile thermodynamics with the other reversible laws of physics. Nefastis is a crackpot inventer and his work obviously hinges on some form of idealism (is it my hyper-rational paranoia to suggest he chose a workshop in Berkeley on purpose?). The demon in the machine passes on 'energies' to 'the sensitive' at 'some deep psychic level' and these sensitive molecules return the information in equal quantities. The result: '[e]ntropy is a figure of speech', Nefastis explains, 'a metaphor. It connects the world of thermodynamics to the world of information flow. The machine uses both. The Demon makes the metaphor not only verbally graceful, but also objectively true.' Paranoid critics might see a foreshadow of Vonnegut in the three-word shoulder-shrug, 'So it went.' Thomas Pynchon, *The Crying of Lot 49* (London: Vintage, 2000) P. 91; p. 79. P. 93.

[621] This eternal external viewpoint or 'God's eye view' is what is postulated as the third series of time by Kermode (*aevum*). It also corresponds to McTaggart's C series.

that we think of lives as being divided by beginnings and ends even when faced with mathematical evidence to the contrary.

Conscious thought is often caught in a struggle to decide between these two modes, which Bruner describes as the paradigmatic and the narrative. The narrative mode prevails when the paradigmatic mode's logical scrupulousness and strict adherence to literal meaning fails to express the tone of reality as experienced. Explanations in the narrative mode bridge the gap between what we know and what we experience. For this reason, he writes, 'the anomaly of personhood – its consequential alternatives – cannot be caught save through the vehicle of narrative.'[622] Rationally superlative it may be, but the block view and other mechanist outlooks struggle to articulate a base upon which to found the reality of the individuals we encounter every day, instead consigning personhood to a mouldering heap of intellectual playthings we ought to have grown out of. Moreover, dismissing the arbitrary division of life in general into discrete spatiotemporal quanta just because it is arbitrary comes at the price of invoking either idealism or nihilism. The physical continuity of the race upon which Heinlein constructs his life-line says nothing of individual minds, and to get rid of those means either postulating a ur-mind of which we are all parts, or doing away with mind altogether. While it may be a fiction, then, the projection of the basic Aristotelian plot (a beginning and an end joined up by a directed middle) to mental experience in the concept of psychological narrative expresses an otherwise hard to articulate truth behind our rejection of relativity's implicit challenge to personal identity: the intuition of discrete selves.

It has been suggested by Kermode (and, latterly, MacIntyre, Charles Taylor, Paul Ricœur and others) that narrative teleology shapes the way we see our lives, giving an eschatological inflection to our understanding of the progress of events. On this view, we live according to how our life might look from somewhere near its end in an extension of Aristotle's

[622] Jerome Bruner, *Actual Minds, Possible Worlds* (Cambridge, MA: Harvard University Press, 1986) pp. 41-42.

Eudaimonia. For Aristotle, living well is the highest goal, and everyone should aspire to it. For Kermode, *Eudaimonia* is teleological and end directed, bringing with it the idea that good should be done with a view to having had a good life – an imaginative projection into the future to consider what one's life will look like as a whole. This imaginary retrospective ('*aevum*') sees everything *sub specie aeternitatis* ('under the aspect of eternity') so it can be evaluated as a whole. The trouble is that this gives the illusion of life as some sort of balance sheet on which bad deeds can be repaid by good ones.[623] Perhaps this is an unavoidable tendency of memory. Like narrative, a memory has no time other than that which it borrows from the subject who is remembering. So, as Kermode says, we cannot know how our life will be evaluated from the very end because we will not be there to know it. We continually revise the plot of our lives as we generate more story by living. Only stories about others can be total and so consolatory.[624] By postulating an end, however, we also anticipate a point from which retrospection might occur, tacitly acknowledging the already-there-ness of the future in the block view. When it comes to our own lives, this creates a paradox: we anticipate looking back on our 'life stories' from the end. But since that end is death, this begs the question: Who or what is looking back? The answer, Amis suggests, is an unacknowledged Cartesian observer. 'We cry and twist and are naked at both ends of life', he writes – echoing Heinlein's description of the block view and Nietzsche's witticism that '[a] man is either born for his doctor, or else he perishes by his doctor' – 'We cry at both ends of life, while the doctor watches'.[625] In both the homodiegetic narrative of the narrator's experience and its heterodiegetic reference to the life of Odilo Unverdorben, the protagonists of *Time's Arrow* fulfil the role of doctor, though one has free will and has chosen

[623] This is not such a problem if, like Aristotle, you think nobody actually wants to do bad deeds.
[624] George L. Mosse sees this in the Nazi ideology's mythological roots. The ideological opposition between modern nationalism and the industial revolution (industrialisation favours progress, nationalism is naturally conservative), he argues, forged a formidable dialectical alliance in which the nation 'appropriated the past, preindustrial myths and symbols […] to veil the actual speed of time'. In this way, nationalism 'pointed backward to a usable past and forward to an arcadia of unspoilt nature and recaptured innocence', substituting 'fairy tale' for modern psychology because, Romantically, the 'psychological novel was symptomatic of a lack of soul.' George L. Mosse, *Masses and Man: Nationalist and Fascist Perceptions of Reality* (New York: Howard Fertig, 1980) p. 2; p. 77.
[625] *Human, all too Human*, §573; *Time's Arrow*, p. 129.

to do so and the other, in his version of the tale, has not. On the one hand 'we' refers to a shared humanity, on the other, to the double subjectivity inhabiting the deictic ground of the narrative. The doctor is both separate and within.

4.8 Racial Time

> To every thing there is a season,
> and a time to every purpose under the heaven:
> A time to be born, and a time to die;
> A time to plant, and a time to pluck up
> that which is planted;
> A time to kill, and a time to heal […]
> ~ Ecclesiastes, 3. 1-3.

So runs the opening of a famous chapter of Old Testament wisdom. The speaker is grappling with the concept of cyclic time, seemingly concluding that cycles are not comforting but nihilistic. The 'times' referred to correspond to Kermode's *kairos* – moments defined by their quality, rather than their relation to other moments or to any particular person's experience. Chronology is secondary. The tone, moreover, is mocking – this is an ironic reiteration of the wisdom of Proverbs and its prescriptive rules about when to do what. 'All is vanity', says the preacher, invoking a concept of illusion with similarities in Buddhist *māya*, and 'Man hath no preeminence above a beast': both are destined to die.[626] Ecclesiastes meets Proverbs's sure-footed path to the good life with dark scepticism, its gloomy fatalism suggesting all such efforts are in vain. Who decides which time is for killing and which for healing? Can such a distinction ever be more than arbitrary if biological destiny always ends in death? On what basis do we consider human death more deplorable than animal? By posing these questions – regardless of the intention – Ecclesiastes anticipates Nietzschean nihilism, where reversible time inculcates a

[626] Ecclesiastes, 3. 10. A similar attitude inheres in Vonnegut's 'so it goes'.

universe in which the time for killing and the time for healing is one and the same.[627] A similar kind of fatalism underpins the mechanistic rationalism ultimately used to justify mass slaughter in early twentieth century Germany. The terrible irony that such a parallel could be found in the Jewish wisdom of the Old Testament would not be lost on Amis, whose use of backwards time is motivated by a critique of Nazi ideology. The Nazis had an unusual understanding of biology which, combined with a hyperrational bureaucracy they made infamous, led to the logic of genocide.

Arborized genealogies, such as a family trees, predate Darwinism by thousands of years and belong, philosophically speaking, to the realm of Platonic Ideas. Yet, as the quotation from Heinlein's 'Lifeline' shows, the development of evolutionary theory and physical theories of the fourth dimension led to an assimilation of this concept into the material sphere of physiology. In the late nineteenth- and early twentieth century, prominent biologists, naturalists and physicians such as Alexis Carrel, Francis Galton, and Ernst Haeckel and Alfred Wallace, combined evolutionary theory with vitalist principles to argue that distinctions of race could be equated to distinctions of species.[628] The genealogical tree, they argued, had hitherto unrecognised branches. The generic Human Race was an expression of this ignorance. Such views were the foundations of the Nazi biomedical ideology.

---

[627] While I do not suggest Ecclesiastes is the source of such views, the scepticism and fatalism it evinces (encapsulated in the refrain, 'all is vanity') challenges conventional Christian morality from within, further evidence that blame for Europe's moral collapse cannot be laid wholly at the door of Buddhism, whose arrival in Europe merely coincided with the disintegration of its existing moral framework. Kant counters Ecclesiastes (indirectly) by arguing that 'everything in nature is some way good for something: nothing is vain in it', a conviction we get from our perception of order in nature. While purpose is something we add to nature to make sense of such order, this for Kant is evidence in favour of God as supreme conditioner. *Critique of Judgement* §67.

[628] Spencer's more pessimistic Lamarckian model of evolution, not Darwin's, dominated this thinking. For Spencer, the development of organisms was a matter of mechanistic laws – his grand project was to devise a scheme explaining evolutionary laws for everything, not just biology – rather than hodgepodge natural selection. Like all classical laws, Spencer's was reversible. Species could become weaker, degenerate and regress. Herbert Spencer, *First Principles* (London: Williams and Norgate, 1863) pp. 146-148; p. 334. Cf. George Rousseau who sees Bergson as arch-vitalist in opposition to the post-Enlightenment materialism Spencer tries to incorporate with this vast synthesis. George Rousseau, 'The perpetual crises of modernism and the traditions of Enlightenment vitalism: with a note on Mikhail Bakhtin' in *The Crisis in Modernism: Bergson and the Vitalist Controversy*, eds. Frederick Burwick and Paul Douglass (Cambridge: Cambridge University Press, 2010), pp. 15-75.

The concept is perhaps best articulated by Carrel in an image prefiguring Heinlein's 'Life-Line':

> Each man is bound to those who precede and follow him. […] Humanity does not appear to be composed of separate particles, as a gas is of molecules. It resembles an intricate network of long threads extending in space-time and consisting of series of individuals. Individuality is doubtless real. But it is much less definite than we believe. And the independence of each individual from the others and from the cosmos is an illusion.[629]

Unlike Heinlein and Gleick, Carrel is acutely aware of the difference between psychological and physiological individuality and the problems this poses. But the purpose of thinking in this way, for him, is less about the possibility of precognition or time travel and more a means of illustrating his thesis that the whole of mankind is essentially one body: human being. From here it is a small step to think of operating upon it. This is how the Nazis came to view the killing of Jews as curing. It was seen as analogous to the removal of a gangrenous limb: an excision of obsolete and infectious tissue, a sacrifice necessary to ensure the survival of the eternal patient.[630] On the Nazi view of time, then, immediate suffering is inconsequential. It must be endured in order to preserve and regenerate the body and soul of the eternal German.

This is part of a dialectical notion of life: death and life are linked by opposition.[631] To live through antitheses is to work towards the eternal in which 'death is constantly dissolved into a higher synthesis; it is part of the sacrifice for the *Volk*, the true vessel of God.'[632] Amis

---

[629] *Man, the Unknown*, p. 266.

[630] Lifton records Dr. Fritz Klein, challenged about his contravention of the Hippocratic oath through his actions at Auschwitz, saying "My Hippocratic oath tells me to cut a gangrenous appendix out of the human body. The Jews are the gangrenous appendix of mankind. That's why I cut them out."' *The Nazi Doctors*, p. 232.

[631] Cf. Nietzsche:

> Let us beware of saying that death is opposed to life. The living is only a form of what is dead, and a very rare form. Let us beware of thinking that the world eternally creates new things. There are no eternally enduring substances; matter is as much of an error as the god of the Eleatics.

The Gay Science, §109.

[632] *Masses and Man*, p. 75.

seems to view linear conceptions of phylogeny as one of the major contributing factors to the Nazi genocide: 'Tod's cruelty, his secret, had to do with a central mistake about human bodies. Or maybe I just discovered something to do with the style or the *line* of his cruelty. Tod's cruelty would be trashy, shitty, errant, bassackward'[633] The '*line*' of Tod's cruelty can be interpreted at least three ways. First, it may simply be an idiomatic reiteration of 'style' – a valid but boring reading ignoring Amis's emphasis. Second, the '*line*' may be an allusion to the Platonic ideal of the German race viewed diagrammatically as genealogy. Tod's cruelty inherits the legacy of cruelties past, in the genealogy of morals. Third, and most importantly, it speaks to the linear sequence of time in the narrative and the fact that a line AB is also line BA viewed from another aspect. This gives the illusion that life, too, is reversible, reducing humans to natural automata, an error Kant tried to avert when he wrote that 'it is absurd for men to make any such attempt or to hope that another Newton will arise in the future, who shall make comprehensible by us the production of a blade of grass according to natural laws which no design has ordered.'[634] The garbled 'ass-backward' of 'bassackward', indicating orthographical corruption and inviting us to interpret sequence with an intelligible design, suggests Amis agrees.

The Nazi genocide can be viewed as a society's attempt to take control of its biological destiny, to tame chance, taking a stand against the (largely imaginary) degeneration of humankind that had inspired such handwringing in medical circles during the nineteenth century by controlling 'a deviant subpopulation' with obsessive measurement.[635] The reasoning was as follows. Civilisation removed crucial criteria for natural selection by improving the basic conditions of human life. Modernity had made humanity weak. Liberal materialism, at the time irrationally associated with Jews, made people narcissistic and wastefully selfish. Women were

[633] *Time's Arrow*, p. 48. Original emphasis.
[634] *Critique of Judgement*, §75.
[635] *The Taming of Chance*, p. 3. To an extent, this was an attempt to determine physical defects accounting for the moral degeneracy of modern Man. See Robert A. Nye, *Honour, Impotence, and Male Sexuality in Nineteenth Century French Medicine*, *French Historical Studies*, Vol. 16, No. 1, (Spring, 1989) pp. 48-71. Others, like Spengler, saw this as the inevitable destiny of Western civilisation.

more interested in fashion and their figures than in bearing children. Sickly children who would not have attained adulthood were now able to survive and procreate. Agriculture negated hunting, reducing the environmental need for physical prowess. Medicine cured those who would otherwise die. Charity clothed and housed the destitute, easing the hardship of poverty. All were taken as signs that humankind had not only achieved its evolutionary zenith but was now in decline.

Outside Germany, Carrel championed this view. In the modern world 'the weak are saved as well as the strong', he argues, so that 'natural selection no longer plays its part'. The unprecedented success of modern medicine was cause for anxiety: 'No one knows what will be the future of a race so well protected by medical sciences.'[636] He was not alone. 'The first warning which biology gives to statesmanship is that the advanced races of mankind are going backward', writes the American eugenicist Albert Edward Wiggam, '[Man has] turned his face backward toward the jungle from which he so painfully emerged.'[637] The notion of backwards progress through evolutionary or phylogenetic time is at the heart of the Nazi biomedical ideology. Stopping the rot meant reversing this reverse. Going forwards meant going backwards.

The solution was an extreme form of negative eugenics. Carrel proposed the gassing of unwanted elements of the population four years before the Nazis began gassing as part of their T4 'euthanasia' program.[638] He suggested that criminals, deceivers of the public, and the mad 'should be humanely and economically disposed of in small euthanasic institutions supplied with proper gases', adding that modern society 'should not hesitate to organize itself with reference to the normal individual. Philosophical systems and sentimental prejudices must give

[636] Alexis Carrel, *Man, the Unknown* (New York: Harper and Brothers, 1935) pp. 19-20.
[637] Albert A. Wiggam, *New Decalogue of Science* (Indianapolis: Bobbs-Merrill, 1923) p. 23; p. 104.
[638] This program implemented the organised killing of adult patients with chronic conditions. Almost all psychiatric patients already in hospital were scheduled for T4.

way before such a necessity.[639] It is difficult to say exactly which characteristics Carrel considered constitutive of the 'abnormal' individual. What is certain is that he was a homophobe and a racist, whose ambition was to implement eugenics in the name of 'salvation of the white races'.[640] Carrel invokes a tripartite conception of time (ontogenetic physiological time, phylogenetic physiological time/physical time, and psychological time) to propose practices foreshadowing genocide. In October 1939, when the Nazis began to gas mental patients, they were implementing this cold logic on a national scale. They acted not to save humanity but to promote the German race. Nazi eugenics was bound to nationalism.

Nationalism is a society's attempt to protect itself from the decaying effects of time. It is a bid either for ideological stasis or for a return to an (often fictional) ideal past. By achieving this, it promises to install order and stability where before there was disarray and flux, assuaging national anxiety. Land, cultural traditions, history, pre-industrial myth and social statistics were the immutable foundations upon which the Nazis proposed to build their *Tausendjäriges Reich* ('thousand-year Reich'). Longevity was important, but more important was the return to a romanticised higher culture. So culturally, as well as phylogenetically, National Socialist ideology implied a paradox: to progress, society had to return to a previous culture. Eugenics was seen as a means to restore both the culture and the strength of the German race. It was a logical step, under the rubric of negative eugenics, to kill defectives in the name of protecting 'normal' racial lineage.[641] The Nazi biomedical vision was based on a notion of an ideal and eternal *Volk* (people) which fed into the broader concept of *Gemeinschaft* ('total community, oneness'). *Volk*, in turn, is a transcendent picture of an eternal biology in which the living are a continuation of those who went before and those yet to come, a 'scientistic' view, treating the group of individuals as if it were one body.[642] It is not tangible, because it exists in time, but it

[639] *Man, the Unknown*, pp. 318-319.
[640] Ibid., p. 291.
[641] See Hacking's discussion of the geometric aspects of 'normal'. *The Taming of Chance*, p. 162.
[642] *The Poverty of Historicism*, p. 109.

contributes to an ideal form in eternity (like Heinlein and Carrel's space-time races). Since a Nazi doctor's primary role is as a physician to the *Volkskörper* ('national body') treating the eternal patient became a rationale for killing individuals – it was no more than a kind of pruning of the arborized race.[643] Under this aspect, killing could be viewed as curing.

A Nazi doctor's duty, then, was to treat the individual's biological well-being as subordinate to that of the *Volkskörper*, which resembles Heinlein's 'worms branch[ing] off from other pink worms' to form a botanically inspired structure. Such actions involve a teleological suspension of the ethical in which killing is sublimated into a sacrificial paradigm for the good of the master race.[644] Additionally, Jews could be viewed as exempt from the terms of the Hippocratic Oath under the rubric of entelechy because they had been designated for killing. I said earlier (§4.7) that the default biological story of the human body can be characterised as a progression from birth through infancy, childhood, adolescence, to sexual maturity, followed by physical decline and eventually death. This story now contains an intervention calling for the premature (on an individual biological basis) death of Jews at such time as they are considered to be of net negative worth to society. This is an important point. Jews were kept alive as long as they were useful. I. G. Farben's use of concentration camps for labour, for example,

> reduced slave labor to a consumable raw mineral, a human ore from which the mineral of life was systematically extracted. When no usable energy remained, the living dross was shipped to the gassing chambers and cremation furnaces of the extermination center at Birkenau, where the SS recycled it into the German war economy – gold teeth

[643] Heinrich Himmler – whose last name becomes a grotesque polgyglot verb for turning Jews into 'hydrocephalic clouds' in light of *Time's Arrow* – extended this arboreal metaphor, taking inspiration from Christian Creation and his agricultural training to paint the surreal picture of a 'botanical garden of Germanic blood'. Quoted in *The Nazi Doctors*, p. 279.
[644] Cf. *Fear and Trembling*, p. 107.

> for the *Reichsbank*, hair for mattresses. … Even the moans of the doomed became a work incentive, exhorting the remaining inmates to greater effort.[645]

The brute materialism of the Nazis is evident in this entropic attitude towards life, ignoring the fact that life is capable of replenishing (certain kinds of) energy for useful work. A similar image is reversed when Amis writes that the 'preternatural purpose' of the Nazi doctor, as seen by the narrator, is 'to dream a race. To make a people from the weather. From thunder and lightning. With gas, with electricity, with shit, with fire.'[646] Here, to 'dream' is to 'remember', and 'from' is 'into' so that 'make' can be interpreted as a chemical change of state. It is simultaneously a picture of brute materialism and romantic idealism, a contradictory picture of thermodynamic processes in an effort to reverse history. The Nazis did dream a race: The Aryan.[647] That race, too, came from the weather. It had been present, diluted but essentially preserved within the gene pool, since the first Aryans had descended from the 'Nordic iceclouds', but had nearly been lost with 'Atlantis'.[648] Their vision was to heal/restore/re-enthrone it. Just as in backwards time the destruction of the Jews is seen as the creation of a race from clouds (not explicitly recognised as smoke), in normal time the Nazi ideology rationalised the murder as necessary for the (re)creation of the master race. Zooming out to the level at which the backwards and forwards construal can be appraised alongside one another reveals the dark irony of this story: the Nazi ideology does make sense, insofar as it is not nonsensical, but only in backwards time.

---

[645] *The Nazi Doctors*, p. 180.
[646] *Time's Arrow*, p. 128.
[647] Cf. §1.2.2, §2.6, §3.5.
[648] Both are associative images turfed up by the free indirect discourse of Amis's narrator. *Time's Arrow*, p. 68. Again, Amis seems to be drawing on Lifton, who glosses Himmler's, Hitler and Göring's 'absurd' belief that the Aryan race was originally from the lost continent of Atlantis, and 'had not evolved from monkeys or apes like the rest of mankind but had descended to earth from the heavens where they had been preserved in ice since the beginning of time.' *The Nazi Doctors*, p. 279.

4.9 Alternative Spaces: A Response to Seymour Chatman

> '… style *is* morality: morality detailed, configured, intensified. It's not in the mere narrative arrangement of good and bad that morality makes itself felt. It can be there in every sentence.'
>
> ~ Martin Amis, *Experience*.[649]

With this quasi-Nietzschean claim that moral character need neither be explained nor described if enacted in linguistic style, Amis defends Nabokov from a typically incendiary attack by his father Kingsley.[650] He walked the walk, too. *Time's Arrow* brings morality into each sentence in an ironic indictment of the ethical relativism Nietzsche derived by reworking Hegel. By doing so, Amis hints at agreement with Macintyre. The Enlightenment project to establish morality on purely rational grounds may have failed, but events like the holocaust and Hiroshima show the price of doing away with moral fictions is too great.[651] Macintyre's rallying cry to post-war Europe is something like 'back to Aristotle!' Similarly, Amis's critique shows that whatever our doubts about noumenal time, the sense of an ending ought to inform our moral judgements.

Suppose the following three numbers, following an appeal to relativism metonymically represent historical dates: '1066, 1789, 1945'.[652] Suppose they stand for historical events familiar from school history classes: Norman Conquest; French Revolution; Atomic Age. All reduce time to sequence. All can be seen as revolutions.[653] All suggest the beginning and end of an era.[654] But Macintyre's observation that the atomic bomb began a new age, and that some events, like this, 'are both endings and beginnings' is no relativist equivocation, and Amis knows

---

649 *Experience*, p. 121.
650 Amis senior considered Nabokov a fanciful aesthete lacking in moral fibre.
651 Macintyre sees the atomic bomb as the beginning of a new age, pointing out that 'many events […] are both endings and beginnings'. Alasdair Macintyre, *After Virtue*, 3rd edn. (London: Bloomsbury, 2007) p. 246.
652 'It evens out', the narrator begins, 'What goes around comes around.' *Time's Arrow*, p. 16.
653 The Nazis, too, regarded themselves as embodying a 'revolution of the spirit'. *Masses and Man*, p. 77.
654 *After Virtue*, p. 246.

it. With *Time's Arrow* he shows that taking this literally is a mistake which undermines the moral enterprise. Endings might be beginnings, but not of the same events.

'In the novel', writes Lukaćs, in his Hegelian phase, 'ethic – the ethical intention – is visible in the creation of every detail and hence is, in its most concrete content, an affective structural element of the work itself.'[655] Amis has spotted that this reduces an ethic to a set of values shaped by a particular worldview. He does not approve. That backwards time is the view with which he points this out is testament to the rationalist argument he confronts. Backwards time is formulaic, founded on *a priori* reasoning. It is a holistic system which cashes in teleology for a stable rational sequence of chronology. No surprise, then, that its rhetorical bedrock can be represented by McTaggart's tripartite schema.[656] I do not conclude, with McTaggart, that as a result time must be unreal. Instead, I argue that his schema is a masterpiece of *a priori* reductionism pointing to an irreducible gap between signifier and signified in our talk about time revealing two incompatible ways of looking at the world.[657]

That backwards time can be reduced to McTaggart's schema does not prove anything about the nature of time, but it does show that language symbolises time according to tensed sequences of symbols, piggybacking historical time on the time of whatever consciousness happens to apprehend it. One consequence of this application of McTaggart is that a coherent interpretive approach to *Time's Arrow* emerges, *pace* Chatman, showing that language can look both ways in time. This Janus face only exists if we hold to something like McTaggart's series, in which time is reduced to sequence. To animate it we need something else: the notional subjectivity of narration plus the subjective time of its recipient. *Time's Arrow* is full of examples of how it is done.

---

[655] *The Theory of the Novel* p. 72.

[656] For a more linguistically analytical treatment of this material in *Time's Arrow* see 'Backwards Time: Causal catachresis and its influence on viewpoint flow'.

[657] This gap allows expressions of inverted sequence like $x_n y_n z_n t_1 \succ x_n y_n z_n t_2$ (spacetime 1 succeeds spacetime 2). McTaggart notes this ambivalence of the A and B series in contrast to the C series when he writes of numerical sequence that 'we equally keep to the series in counting backward.' 'The Unreality of Time', p. 462.

In his elegant dissection of *Time's Arrow*, Seymour Chatman argues that temporal reversal in Amis's novel relies on a 'sustained' principle of 'antonymiz[ing]'.[658] By this he means that the correct interpretation of *fabular* events (for example, the translation necessary when confronted with an Auschwitz whose purpose is to 'make a people from the weather') often relies on the reader being able to '*semantically reverse*' the meaning of the description in *sjuzhet*.[659] Chatman's approach, broadly speaking, is to antonymise passages 'on the *strength* of the evidence'; for him it is 'a question of *degree*' as to whether or not a passage should be interpreted forwards or backwards.[660] While the terminology of semantic reversal is helpful, it is too vague. A better interpretive rule ought to be established for at least two reasons. First, Chatman's contention that Amis's reportage of backwards time is inconsistent is incorrect. Amis is only inconsistent within the confines of the terms Chatman has dictated. These are not his own. Amis is perfectly consistent in his approach and his consistency represents a linguistic realisation of the mad hyperrationality he ironizes. Second, Chatman assumes that the narrator is straightforwardly identifiable as the soul of the Nazi doctor whose life the plot follows in reverse. It need not be. The moral nuance afforded by the available alternatives and which one we eventually prefer means the novel has at least two different metaphysics on offer and two different moral resolutions. Moreover, such a straightforward approach to narrative identity risks trivialising both Amis's thoroughgoing treatment of Nazi logic and his exploration of the compartmentalised self the Nazi doctors invoked to alleviate their consciences.

Too often, Chatman's piecemeal deductive approach ends in confusion. In what follows I will discuss the passages Chatman finds problematic and offer a solution which seems more in keeping with Amis's overall theme: holistic induction. Consider the following passage in

[658] 'Backwards', p. 33.
[659] *Time's Arrow,* p. 128; 'Backwards', p. 35.
[660] 'Backwards', p. 44.

which the Hippocratic Oath makes an implicit cameo:[661] 'One day Tod took from the trash a framed certificate and went and hung it on the toilet doornail. With amusement he surveyed the wrought script – for several minutes.'[662] Here is Chatman's assessment:

> not only stasis statements prove indifferent to backwards or antonymic orientation. Even certain process statements may be. And that gives rise to another kind of uncertainty perhaps endemic to backwardism […] Soul reports "One day Tod took from the trash a framed certificate and went and hung it on the toilet doornail." But shouldn't that go backwards – shouldn't he "remove" the certificate "from" the doornail and *then put* it in the trash?[663]

To answer Chatman's question, 'No'. It is him, not Amis, who is confused. In the context of the story as a whole there is no problem with this passage. It is here that Chatman's nebulous rule of applying antonymic interpretation on the basis of strength/degree falls down, lending itself to infelicitous and unnecessary interpretations. We might, he suggests, antonymise 'amusement' in the above passage ('did Tod laugh or did he cry?') and presents extraneous story events as justification for both hermeneutic perspectives.[664] Perhaps Chatman is thinking of Kierkegaard's *Either/Or*. 'What if everything in the world were a misunderstanding,' writes the aesthete A, 'what if laughter were really tears?'[665] This possibility seems quite natural from the perspective of the aesthete, for whom time is a series of discrete moments and for whom quality is relative, but it is not clear that this 'what if' applies in *Time's Arrow*.

---

[661] The Hippocratic Oath is as follows. 'I swear by Apollo physician, by Asclepius, by Health, by Panacea, and by all the gods and goddesses, making them my witnesses, that I will carry out, according to my ability and judgement, this oath and this indenture.… I will use treatment to help the sick according to my ability and judgement, but never with a view to injury and wrongdoing. I will keep pure and holy both my life and art. In whatsoever houses I enter, I will enter to help the sick, and I will abstain from all intentional wrongdoing and harm.…' *Time's Arrow*, p. 32. Cf. the SS oath, which highlights the Nazi doctor's conflicting 'duties': 'I swear to you, Adolf Hitler – as the Führer and Chancellor of the Reich – loyalty and bravery. I pledge to you and to my superiors, appointed by you, obedience unto death, so help me God.' *The Nazi Doctors*, p. 435.
[662] *Time's Arrow*, p. 32.
[663] 'Backwards', p. 45.
[664] 'Backwards'. p. 43.
[665] *Either/Or*, p. 44.

Whether Tod is crying or laughing is a moot point. While the narrator's interpretation of temporally determined properties (viz. intention, causality, etc.) may be in question, the two experiencing subjects share in affect: 'I have no access to his thoughts – but I'm awash with his emotions. I am a crocodile in the thick river of his feeling tone'.[666] That a body is shared between both experiencing subjects means actions such as laughing and crying, with their attendant emotional and physical responses, are unlikely to be incorrectly reported. On top of that, given that this scene occurs towards the end of Tod's life in America, he may simply be indulging in a bit of rueful/ironic/defiant laughter before binning the oath as an unwanted, unrecognised and unfulfilled ideal. It is not uncommon for heterodiegetic narrative to withhold characters' psychological machinations.

A second example will suffice to show that Chatman's simplistic approach to the issues of narrative identity and the linguistic inversion ends by overcomplicating matters. Amis writes: 'We eased in under the city: Grand Central, where the train sighed, and the passengers sighed, one by one. The first people to leave went off hastily, while others lingered, girding themselves for the streets.'[667] Chatman notes that we are supposed to read this as the train leaving Grand Central in terms of the 'broader story context': '"easing in" must really mean "easing out" or "away from," that is, *leaving* New York City for Boston, under duress, with a new identity.'[668] Up to this point Chatman's piecemeal interpretive schema is effective. But the indecisive quality of his subsequent thoughts makes the case for a more stringent set of interpretive rules:

> If Tod is leaving, rather than arriving in New York, aren't his co-passengers entering rather than exiting the terminal? And are we supposed to read their "sighing" as its opposite, say "sucking in their breaths" or "cheering?" Do the "first people" "enter

[666] *Time's Arrow*, p. 15.
[667] Ibid, p. 75.
[668] 'Backwards', p. 46.

> lingeringly," while the others do so hastily? Clearly, Amis's backward/antonymic reporting is selective.[669]

This is a bit of a cop-out. Selective on what principle? The 'strength of the evidence' is not a satisfactory answer. True, we keep ordinary diegetic narrative in mind but the passage to which Chatman refers does not quite illustrate this. Besides, the confusion can be resolved by sticking resolutely to an ego viewpoint and antonymising only those aspects of the narrative falling under McTaggart's tripartite schema in a causally coherent alternative mental space. We can narrow this down because only the B series (earlier-/later than relations) and the orientation of the C series (sequence) will need to change – the A series (past, present, and future) is attributed retrospectively. As a result we can rule out nonsensical antonymic interpretations like 'we eased out *over* the city' (Grand Central Station is underground whichever way you look at it), unnecessary recharacterizations of motion like 'we laboured out under the city', and Chatman's infelicitous suggestion that we read crying for laughing in the previous example.

If this is correct, then while Chatman is right that Amis's antonymy is selective it is so according to a consistent principle: the logic of dead time. Amis separates personal from external time; experience follows diegesis but runs counter to the progress of historical events. From the ego viewpoint the passage begins to make more sense. The following is an antonymic interpretation of events as they are postulated in the alternative space which constitutes the hypothetical testimony of a subject with 'normal' temporal experience (Tod/John/Hamilton/Odilo).[670] I have numbered each of my changes (italics):

> (1) We eased *out* under the city: Grand Central, (2) where the train [*had*] sighed, and the passengers [*had*] sighed, one by one. (3) The *last* people (4) to *arrive* (5) *got on* hastily, while others lingered, (6) *making themselves comfortable for the journey*.

---

669 Ibid.

670 It is reproduced for a different purpose in my 'Backwards Time: Causal Catachresis and its Influence on Viewpoint Flow'. There, the focus is finding a coherent linguistic rubric for *Time's Arrow*. That found, this section explores its consequences in terms of the plot and the styles of thought the novel critiques.

The rationale is as follows. (1) The train leaves New York City. This is a deictically determined relative statement. In terms of the story, the ego viewpoint of the narrator is travelling from Boston to New York. The deictic ground for the narrator is initially outside New York whereas for Tod/John/Hamilton/Odilo it is in Grand Central Station. I antonymise the adverbial of direction ('in') and leave the verb of movement since it is bi-directional, the adverbial direction denoting relative position in sequence and belonging to the C series of time.

(2) The relative adverb 'where' indicates the construction of a new narrative space containing the following action of both the train and the passengers. Since Grand Central is the deictic ground in this space I transcribe the sentence into the pluperfect tense to indicate the relative change in the A series from the ego viewpoint of Tod/John/Hamilton/Odilo. For him, the current deictic ground is *after* the events at Grand Central. This is simply to make the difference explicit; the pluperfect is not actually necessary for an antonymic reading. Chatman suggests confusion over the verb 'sighed'. Perhaps we ought to antonymise it: 'are we supposed to read [the passengers'] "sighing" as its opposite,' he asks, 'say, "sucking in their breaths" or "cheering"?'[671] Again, we can dismiss this kind of hard antonymic reading under the rubric of ego viewpoint. The train makes some kind of aspirate noise (we do not really care what this figurative language refers to – maybe pneumatic doors which would make such a noise whether opening or closing so it is immaterial in terms of time direction) and so do the passengers.

(3) 'First' is an ordinal. It indicates sequence in the C series and it also provides reference for the calibration of the B series. I antonymise it because from Tod/John/Hamilton/Odilo's point of view these are the *last* people to get on the train.

(4) Following previous clauses, the direction of 'leave' must be antonymised: if the train is leaving, the people are arriving at the station in order to board the train.

[671] 'Backwards', p. 46.

(5) The directional verb phrase 'went off' becomes 'got on' in keeping with the sense of arrival. As a bi-directional adverb, 'hastily' may be left as is. The conjunction 'while' indicates cotemporality for other events but is otherwise timeless. Similarly, 'lingered' is a durative verb and without a clear beginning or end to this activity we need not antonymise it – it makes perfect sense for other passengers to linger (wait) while the last passengers to arrive get on hastily so as not to miss the train.

(6) This is arguably the most difficult of the antonymic interpretations to justify. In this case, a whole hypothetical scenario based on the ego viewpoint narrator's theory of mind must be constructed in reverse. 'Girding themselves for the streets' is an attribution of intention based on an interpretation of implicit activity (we do not know what this 'girding' consists of) relative to an anticipated activity: in this case, arriving in New York. For Tod/John/Hamilton/Odilo the anticipated event at this point is leaving New York. I translate 'girding themselves for the streets' in its entirety, conceiving it antonymically as making oneself comfortable on a train (taking a coat off, stowing a bag, etc.). A more poetic but less informative translation might be 'girding themselves for the seats.'

Where all this leaves us, if I am correct, is with a rule of antonymisation in which ego viewpoint is key to backwardness. The subjective time of the narrator is the organising principle by which events are construed in plot and their corresponding alternative spaces make sense only in relation to the hypothetical agent whose story the narrator tells in reverse. This relativity of viewpoint is tied to the notional premise that time is mechanical. All that is needed in order to reconstruct events as they would be in forward time is to flip the passive sagittal mental metaphor of time so that time flows the other way in a construal built from the bottom up in what I have called causal catachresis.[672] Everything which goes for Tod comes for the narrator,

[672] 'Backwards Time', pp. 417-438.

and vice versa. Far from the inconsistency Chatman suggests, every event in the novel is meticulously reversed from the point of view of a narrator experiencing time backwards.

Beyond proving that it is Chatman's approach, not Amis's technique, that is wanting, the fact that causal catachresis can be mapped with McTaggart's schema suggests absolute idealism is the hand guiding backwards time. The Nazi point of view it ironically legitimates shows that Amis takes a dim view of the empty time given mathematical expression in McTaggart's serial schema. Here, the only sense in which time exists is as sequence; everything else is merely a tensed expression from a particular point of view. McTaggart is not alone in pointing out the inherent subjectivity of all but the most symbolic aspects of time. Kermode has something similar in mind when he writes that,

> in 'making sense' of the world we still feel a need […] to experience that concordance of beginning, middle, and end which is the essence of our explanatory fictions, and especially when they belong to cultural traditions which treat historical time as primarily rectilinear rather than cyclic […] it is ourselves we are encountering when we invent fictions.[673]

In other words, something like a narrative self or at least a narrative of self or selves is the outcome of the form we habitually use to make sense of experience. It is a natural response to the flux of everyday life that we should seek to set the story straight. But while for McTaggart such tensing is only ever arbitrary Kermode argues that the meaning we get by projecting teleology into a sequence of events is of paramount importance. Novels, and by extension autobiographies, cannot avoid the Aristotelian concept of narrative as a middle joining a beginning to an end which has led us, in the modern world, to 'concern ourselves with the deterministic pattern any plot suggests, and the freedom of persons within that plot to choose

[673] Frank Kermode, *The Sense of an Ending: Studies in the Theory of Fiction* (New York: Oxford University Press, 1967) pp. 35-6.

and so to alter the structure, the relations of beginning, middle, and end.'[674] The notion of choice does not lose its force in a purposeful narrative. In an ambivalent set of untensed spacetime events the most meaningful aspects of our moral, social and emotional life fall away. Amis is with Kermode. Where we start and where we end up do matter, and attempts to reason choice away legitimate atrocity and let its perpetrators off the hook. While it is unlikely that McTaggart was in Amis's thoughts as he put pen to paper, the rational and perfectly reversible universe of his metaphysics in which all is relative is ironically realised in the language of *Time's Arrow*. The hyper rationalist world view used to legitimate the gas chambers is its cipher.

4.10 Narrative Timelines: Idealism in Action

> 'The way up and down is one and the same'.
>
> ~ Heraclitus.[675]

In the Grand Central example, below-conscious prediction makes sense of Amis's writing without wading through it word by word to perform the one-to-one semantic antonymisation Chatman sought to justify. This game with prediction biases makes *Time's Arrow*'s irony all the more potent. McTaggart's idealism solves Chatman's problem by translating the qualia of experience into a mechanical sequence of quantified moments, each of which can be seen two ways. That we can read *Time's Arrow* and intuit the two teleological drives of its protagonists' lives without such pedantry suggests something more basic is at work when we do.

---

[674] Ibid., p. 30. Perhaps Kierkegaard would attribute this to the influence of Christianity, which places emphasis on 'the good news' (i.e. change) as opposed to the more conservative desire to return to the Forms or Ideas of ancient Greek tradition (*anamnesis*). Stanley Fish points out that this idea of change revealed through storytelling seems to diminish in the seventeenth century when rationalist holism became the dominant view. 'In Aristotelian terms,' Fish explains, during this period lives are conceive such that '*everything is middle*, even when there are […] all the formal signs of a beginning and an end.' Stanley E. Fish, 'Sequence and Meaning in Seventeenth Century Narrative' in Earl Miner, Paul Alpers, Stanley E. Fish and Richard A. Lanham, *To Tell a Story: Narrative Theory and Practice* (Los Angeles: University of California Press, 1973) p. 72.

[675] Charles H. Kahn, *The Art and Thought of Heraclitus: An Edition of the Fragments with Translation and Commentary* (Cambridge: Cambridge University Press, 1979) §CIII.

The cognitive linguist Mark Turner invokes the following riddle attributed to the gestalt psychologist Karl Duncker to demonstrate 'blended' mental spaces as solutions to complex temporal problems:

> A Buddhist monk begins at dawn to walk up a mountain. He […] varies his pace as he pleases, and reaches the mountaintop at sunset. […] At dawn, he begins to walk back down, again moving as he pleases. He reaches the foot of the mountain at sunset. Prove that there is a place on the path that he occupies at the same hour of the day on the two separate journeys.[676]

The riddle is dastardly only if approached as journeys separated in time. It can be solved much more simply by imagining a blended space in which the monk makes both journeys at once. Duncker's original solution involves imagining two people travelling on the same day ('let ascent and descent be divided between *two* persons on the *same* day. They must *meet*').[677] Turner's definite article asks a bit more of the solver's imagination but his solution works the same way. Turner's 'blend' is a way of superimposing the timeline of one day onto another. Since in this version each person is 'the' monk two individuals are bound by a concept of identity in a way that recalls my Heraclitean epigraph about the unity of opposites. Clearly, this is not a clear-cut Leibnizian numerical identity (the kind we express with ' = '). This is something more abstract: an ideal synthesis, binding things of the same essence though perhaps radically changed.[678] The identity of the monk corresponds to an intuitive doubling of the typical concept of personhood over time commonly expressed as rectilinear in the Western

---

[676] *The Literary Mind*, p. 72. The riddle is borrowed from an arch-dualist. Arthur Koestler, *The Act of Creation* (New York: Macmillan, 1964) pp. 183-189. Koestler lifted it from Duncker, who studied under the seminal figures of gestalt psyschology: Kurt Koffka, Wolfgang Köhler, and Max Wertheimer, and worked with Bartlett at Cambridge. His work straddles constructionism and gestalt.

[677] Karl Duncker, 'On Problem-Solving', trans. Lynn S. Lees in John F. Dashiell, ed, *Psychological Monographs*, 58, 5 (Washington D.C.: The American Psychological Association, 1945) p. 56.

[678] Bosanquet took the unity of opposites as vindicating absolute idealism. 'Identity [...] cannot exist without difference. […] The element of identity between two outlines can be accurately pointed out and limited, but the moment they cease to be two, it ceases to be an identity.' Bernard Bosanquet, *Science and Philosophy and other Essays* (London: George Allen & Unwin, 1927) p. 37. He is drawing on Lotze's work on perception and predication. *Lotze's System of Philosophy*, vol. I, *Logic* (Oxford: Clarendon Press, 1884) pp. 54-60.

tradition. His Buddhism is not just narrative colour, but a recognition that solving this riddle amounts to letting go of individual personhood and instead conceiving personhood as something spread across many, perhaps all, things – absolute idealism in action. It also means relinquishing the telos of death so that time's arrow becomes a matter of perspective. Though they differ in expression, both Duncker's and Turner's solutions to this problem do away with the reality of time by conceiving it as sequence to solve the riddle spatially.

Idealism alone will not get us there. True, we need to imagine one monk, split in two, traversing the same path but the solution itself is arrived at by inductive reasoning, conscious or otherwise. The monk goes up and he comes down within a set number of hours between dawn and dusk. The probability that he reaches the summit is one. The probability that he reaches the foot is one. In between he must pass though all hours between dawn and dusk, so the probability that he will be at a certain point at the same time of day during both journeys is one, though it is impossible to say where or when because his pace is a matter of caprice. We solve the riddle by invoking a statistical fiction.

The Buddhist Monk thought experiment can be extended to the metaphor of life as travel along a path. The spatial domain of the journey inherits the geometry of the path which is then projected to time. At its most basic, the 'path' of a life takes the form of a line *AB* where point *A* represents birth and point *B* represents death (see fig. 1.).

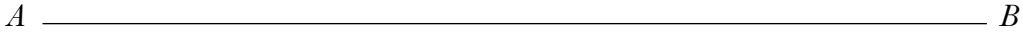

Fig. 1.

The line itself might, following Currie, be thought of as representing the untensed block of information constituting a life story.[679] *AB* is an infinitely divisible continuum which

[679] Currie argues that written narrative's future anteriority coupled with the already-there-ness of the book constitutes a literal realisation of a post-relativity block universe. Mark Currie, *About Time* (Edinburgh: Edinburgh University Press, 2012) pp. 15-17.

diagrammatically represents that of the human subject's identity in diversity. In *Time's Arrow* the default biological story is inverted – from tomb to womb. One life is experienced in two directions, the two narrative vectors (experiencing subjects = travelling presents 'living' the story) begin their journey at different ends of the same line. Properties linked to their personal time are inversely proportional. The narrator's memories accumulate at the same rate as Tod/John/Hamilton/Odilo's dissipate: 'He forgets. I remember.'[680] The significance of the Heraclitean unity of opposites alters when time is reversed because the unity joining the way up and the way down is the person taking them. If the ideal form of the lifeline suggests progress along it (i.e. time) is relative, Heraclitus is perfectly justified in saying '[t]he same…: living and dead, the waking and the sleeping, and young and old. For these transposed are those, and those transposed again are these.'[681] Neither paradox nor fallacy ensues when what separates these opposites is the personal time of a subject.[682] Of course, Heraclitus was not writing about backwards time but about the reality of change and its relation to the continuous identity of a subject. Yet if the ideal form of personhood he implies is a reality, there is no reason change should go one way.

4.11 Narrative Vectors and Selfhood

Mathematics has much to answer for. The assumption that it reflects real features of the world is one of the primary motivations for Platonic idealism. But the rectilinear form which helps solve the monk riddle, and which we project to humanity in the lifeline metaphor, is limp without the teleological drive of life. How does that get into narrative? Chatman is right to say the directionality of time is an inherent feature of narrative. 'Like music', he writes, 'narrative

[680] *Time's Arrow*, p. 162. Both narrator and reader, then, are absorbing information in the usual way; the 'unknown' future decreases as life continues. There is also a punning sense of remembering as learning (Platonic anamnesis again).
[681] *The Art and Thought of Heraclitus*, §XCIII (p. 71).
[682] Cf. Strawson's idealism-derived rejoinders in *The Subject of Experience*.

is also vectored. It directs us from one moment to the next. The direction is usually forward, from an initial state of affairs to a final one. But narrative discourse need not trace a straight path'.[683] True, narrative is vectored, but as well as directing us from one moment to the next, an ordering principle is introduced by the personal time we bring to the text as readers (Bergson would call it *durée*, Genette the 'metonymically borrow[ed]' time of reading).[684] *Time's Arrow* has two distinct narrative vectors, roughly equivalent to plot, though only one is directly activated by the reader's time. Two vectors, two plots and two selves, then, on the narrative view of selfhood exemplified by Dennett, who sees the self as an organised agglutination of the information structuring a body's responses to the world. 'Our tales are spun,' he argues, 'but for the most part we don't spin them; they spin us. Our human consciousness, and our narrative selfhood, is their product, not their source.' In other words, most of what makes us who we are (actions, metacognition, forgetting, etc.) goes on in the background, below the level of consciousness. It is when we come to make sense of it all that the tale is visible. More recently, Jacob Hohwy has described the self as a causal trajectory inseparable from decision-making (and so, we might add, moral agency). Moreover, the way we make sense of the world and our understanding of causality plays a part in that trajectory's construction: '[w]ho we end up being – what trajectory we end up describing – is […] in part shaped by the way we manage the balance between perceptual and active inference: we get different trajectories if we tend to act on a loose bound on surprise than if we tend on act on a tighter bound on surprise'. In other words, who we are is linked to the predictive methods we use to calibrate our actions in the world. For Hohwy, then, the mind is 'nothing but a prediction error minimization mechanism' while the self is 'an agent-bound sensory trajectory.'[685] Reintroducing the second vector, then,

[683] 'Backwards' p. 32.
[684] Gérard Genette, *Narrative Discourse: An Essay in Method*, trans. Jane E. Lewin (Ithaca: Cornell University Press, 1983) p. 34.
[685] Jacob Hohwy, *The Predictive Mind* (Oxford: Oxford University Press, 2013) pp. 255-256.

removes the illusion of identity which confuses Chatman. Considering the narrator and Tod as two distinct selves reveals additional ethical considerations.

It is tempting to identify narrator and Tod because their narrative vectors have the same magnitude and follow the same path – the text. What this means in practice is that while the experience of both subjects is represented by opposing relative temporal sequences in all three of McTaggart's series in plot, the referent of both the narrated plot and its connotative inverse comprises the same story events or information. What is referred to is a postulated infinite series of discrete entities (temporal slices of the character-cum-biological-being) A_1, A_2, A_3 et cetera which, at both the sentence level and at higher levels, take the shape of episodes related to a particular spatiotemporal subject by pronouns. Rafael Nuñez suggests that mathematics typically conceives of functions in terms of motion: each number on the continuum $(A_1, A_2, A_3 \ldots)$ progresses toward and approaches, but never reaches, B.[686] Dynamic language is often used to represent trends in samples of discrete data. In terms of narrative and the lifeline of Odilo Unverdorben, this means that while each textual episode can be thought of as point representing a life event, it is understood that the points contribute to an overall spatiotemporal continuum, or hypothetical line through all points accounting for the block view, or story, of his life. The two temporalities established by the backwards plot and its implicit inverse are understood as opposing vectors on that path. Accordingly, while it is not easy on the eye, in this section I will refer to the narrator as $\overrightarrow{AB}$ and the alternative space, in which the postulated experiences of the self inhabiting the body in the other 'direction' (Tod/et cetera), as $-\overrightarrow{AB}$.

[686] Rafael Nuñez, 'Conceptual Metaphor, Human Cognition, and the Nature of Mathematics' in Raymond W. Gibbs, ed., *The Cambridge Handbook of Metaphor and Thought* (Cambridge: Cambridge University Press, 2008) pp. 341-344; p. 351. This paper was met with mixed feelings in mathematical circles; its consequences in terms of theoretical approach are disputed.

Amis's title, *Time's Arrow*, is ironic. It invites us to think of time as a vector in the singular, while the novel presents two vectors running in opposite directions between the same two points: the birth and death of a man. These vectors correspond to the psychological time's arrow outlined by Hawking, with psychological ontogeny represented as a sequence of episodic memories. The dualism implied by introducing an observer whose temporal experience differs from our own extends to the narrative so that an alternative plot emerges: the same story events in the other direction, $-\overrightarrow{AB}$. This other plot, the life of the Nazi doctor, only exists in the imaginary as an alternative mental space. The story is processed in parallel as $\overrightarrow{AB}$'s direct testimony and as the indirect and reversed testimony of $-\overrightarrow{AB}$. Time as we know it is relegated to the quasi-presence of negation. What happened in Odilo's life is not explicit, but for a bit of mental effort it is semantically available.

Difference lies in the 'direction' of the function, not in the points (events) covered, which is only the unity which connects the opposites in Heraclitus's sense. The line which would constitute the trace left by this movement, and which makes up the path in the source-path-goal schema, is an ideal form implied by such transformations. Recalling Nuñez, it is the 'movement' of the function which gives to narrative its teleological drive but in backwards time this implies its opposite. In this way, *pace* Turner, a vector and its negative may be conceptually superposed without losing their distinct identities and becoming 'blended' (see fig. 2.) This means we are not obliged to accept the narrator as Odilo's soul.

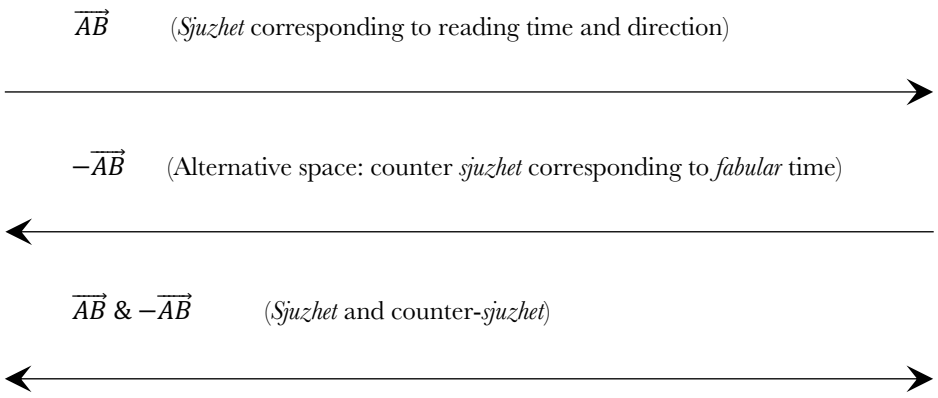

Fig. 2.

Chatman's passive construction 'narrative […] is vectored' avoids an important question: By what? Gérard Genette offers a distinctly Bergsonian answer. 'Books are a little more constrained than people sometimes say they are by the celebrated *linearity* of the linguistic signifier', he writes:

> The temporality of written narrative is […] conditional or instrumental; produced in time [it] exists in space and as space, and the time needed for "consuming" it is the time needed for *crossing* or *traversing* it […] The narrative text […] has no temporality than what it borrows, metonymically, from its own reading.[687]

The linear time of the text is dead until it is animated by a reader's *durée*. The metonymy of the reader's personal time and narrative temporality can account for the peculiar dual temporality in *Time's Arrow*. While the inversion of the narrator's causal construal notionally provides its direction, it is a reader's personal time which vectors the plot.

That the two narrative vectors, travelling presents, or experiencing subjects, traverse the same space in opposite directions means that in Duncker's terms 'they must *meet*'. This inevitable collision represents the climax of *Time's Arrow*. 'Time is heading on now towards something' says the narrator, in vague apprehension, 'our ticket, dispensed with a

[687] *Narrative Discourse: An Essay in Method*, p. 34.

contemptuous flick by the station trashcan, bears the name of our starting-point, not our destination. I feel that something similar applies to me and Tod, to our identity.'[688] The logic of identity is expressed in the transition of personal pronouns as the novel progresses. Initially, $\overrightarrow{AB}$ refers to himself in the first-person singular while $-\overrightarrow{AB}$ is present in the third person possessive determiner: 'Look around, I say. But his neck ignores me.'[689] Tod's neck will not respond to the narrator's will because it is part of the causal chain of a narrative that has already unfolded in a particular way. Around halfway into the novel this pronominal dichotomy is reconciled every so often by the first person plural for mundane actions: 'We tried to eat.'[690] The result, perhaps, of $\overrightarrow{AB}$'s growing store of episodic memories and the feeling tone they share with $-\overrightarrow{AB}$ so that he now does not consider him fully other. When the narrative eventually reaches $-\overrightarrow{AB}$'s primary identity, Odilo Unverdorben, at a fully functional Auschwitz, the identities coalesce and Amis explicitly drops the Cartesian observer who has been relating the narrative so far: 'Was there a secret passenger on the back seat of the bike, or in some imaginary sidecar? No. I was one.'[691] At this point Amis forces his narrator to take ownership of the atrocities he perpetrates, though the order of their presentation in the narrative remains reversed so that the camp is understood, twistedly, as a Jew creation centre.

The collision of $\overrightarrow{AB}$ and $-\overrightarrow{AB}$ in a narrative episode marks the solution of the monk riddle as refigured by Amis: the story events of Auschwitz. This is the inevitable part of the continuum where the two travellers in time, experience vectors $\overrightarrow{AB}$ and $-\overrightarrow{AB}$, meet. $-\overrightarrow{AB}$'s regret (past-directed affect) that $\overrightarrow{AB}$ always found incomprehensible begins to make more sense. So too does $\overrightarrow{AB}$'s own inarticulate nagging dread (future-directed affect). Both are replaced, for the reader at least, by immediate horror. The events at Auschwitz are encoded as episodic

[688] *Time's Arrow*, p. 67-71.
[689] Ibid., p. 13.
[690] Ibid., p. 76
[691] Ibid., p. 124.

memory at the same point in the story as it is understood that they became episodic memories for $\overrightarrow{AB}$. Not without a sense of dismay, we realise that the end of the Auschwitz period marks the end of $-\overrightarrow{AB}$'s episodic memory of it and, hence, his haunting. He becomes a blissfully innocent and ignorant child: Odilo Unverdorben (as Chatman points out, *unverdorben* is German for 'unspoiled').[692] The joint-ownership of the events, then, seems only to be a product of $\overrightarrow{AB}$'s assimilation of $-\overrightarrow{AB}$'s life as part of its own. The narrative vectors remain as Amis puts it in a German compound of his own devising '*Die… die Auseinandergeschrieben*', that is, 'they who are written apart'.[693] Like the monk riddle, the two are really one. The idealism which allows backwards time to obtain is a fiction, Amis suggests, introduced by writing.

4.12 'Because ducks are fat': A Challenge to Rationalism

> 'You go not till I set you up a glass
> Where you may see the inmost part of you.'
>
> ~ Shakespeare, *Hamlet*.[694]

Narrative is the form we habitually use to explain events, yet explanations and reasons are ultimately arbitrary in a world pre-programmed to unfurl in a particular way.[695] Everything is end-directed because it has already been written, leaving the way open to a teleological suspension of the ethical more credible than might be possible in real life because it is a matter

---

[692] A dismay shared by Nabokov, no doubt, who would see in this an arbitrary and suspiciously Freudian causal separation of childhood from the responsibilities of adult life. If we blame Odilo's corruption on his being born in a Nazi state then we exonerate him. It was not his fault he committed these crimes, it was the result of malevolent external forces. Nabokov had something of the sort in mind when he wrote that 'the Freudian faith leads to dangerous ethical consequences, such as when a filthy murderer […] is given a lighter sentence because his mother spanked him too much or too little'. *Strong Opinions*, p. 99.

[693] Or, more explicitly but less exactly, 'they who are separated by writing'. Perhaps with a punning sense of 'written out of one man' via the Greek *άνδρας* ('man').

[694] *Hamlet*, III. iv. 19-20

[695] This is what it offers us beyond, say, the atemporal world of photography: 'one never understands anything from a photograph […] understanding is based on […] functions. And functioning takes place in time, and must be explained in time. Only that which narrates can make us understand.' Susan Sontag, *On Photography* (London: Penguin, 1973) p. 23.

of convention that in narrative things work themselves out in the end – i.e. tend from a state of disorder towards a state of order.[696] That tense expresses this teleology so succinctly shows that in narrative tense is always relative to the fixed set of events related within the story, yet that order, unlike events in real time, is arbitrarily chosen by the narrator. The deictic centre of the narrator's here and now dictates the relationship between the events which have passed, and which are yet to come. This grammatical expression of time stands in for the progress of actual time which comes at the moment of comprehension. The reality of time, essential to moral systems, does not exist.

Both Amis and Vonnegut are well aware of the dangers introduced by moral relativism, whether or not it is inculcated by a particular physical system. Their agreement on this issue is manifest in *Time's Arrow*'s refrain 'here there is no why'.[697] Immediately after the reverse sequence in *Slaughterhouse-Five* one of the Tralfamadorians sums up the seeming incompatibility of ethics and aesthetics (which is really the problem of signifier and signified) when it comes to narrative: 'Well, here we are, Mr. Pilgrim, trapped in the amber of this moment. There is no *why*.'[698] What we want when we ask 'why?' is a reason, and a reason implies a purpose or end. On the Tralfamadorian view of time, as with that of, for example, Heinlein's 'Lifeline' and Chiang's 'Story of Your Life', all the events in Pilgrim's life have in some sense already occurred. There are no means and ends any more, just happenings, jumbled in associative anagrams to suit the whims of mind.

Pilgrim, the authorial first person narrator of the preface would lead us to believe, is a retrospective re-naming of a now alien and in any case primarily confabulated personal past

---

696 Cf. Kierkegaard, esp. *Fear and Trembling*.

697 The phrase forms the title of Chapter 5 of *Time's Arrow* and appears once more in English and twice in German: '*Hier ist kein warum*. Here there is no why.' *Time's Arrow* p. 128; '*Hier ist kein warum*…' p. 133. There is, in both Amis and Vonnegut, an echo of Tennyson's 'Theirs not to reason why, / Theirs but to do and die' Alfred Lord Tennyson, 'The Charge of the Light Brigade' in Robert W. Hill, Jr., ed., *Tennyson's Poetry*, 2nd edn. (London: W. W. Norton, 1999) 14-15. Like Tennyson, these anti-war authors sneer at Kant's deontological ethics. Performing one's duty cannot by itself form the basis of a coherent moral framework. It allows for too many conflicts, not least that between the Hippocratic Oath and that sworn to Hitler.

698 *Slaughterhouse-Five*, p. 55.

'All this happened, more or less […] I'm an old fart with his memories and his Pall Malls'.[699] The narrative attributes its own origin to the author's lack of memories of the war. The theme, though, is time travel. Pilgrim is an appropriate name. In an anonymously published review in *The Spectator* on the 13th July 1895, R. H. Hutton labels Wells's time traveller a 'pilgrim of eternity' while Turner identifies John Bunyan's *The Pilgrim's Progess* as a metaphorical inscription of the traveller's tale onto the journey of a soul, that is to say, its 'progress' through time.[700] The conceit alluded to is well-established in the literary canon. What is perhaps less obvious is the teleological meaning of Tralfamadore, the fictional planet to which Billy Pilgrim claims he is taken by a flying saucer in 1967 (although this claim is made after implied brain damage in an aeroplane crash). A Tralfamadorian is an inhabitant of this place. It is also an anagram of the uncontracted clause from the preface: 'I am an old fart' (with his memories etc.), suggesting that the Tralfamadorian view of time as a block arbitrarily and subjectively tensed derives from a wry anagrammatic acknowledgement of the future anteriority of past tense narratives and the ever-shifting nexus of emplotment in memory construction.

If, despite his own and Vonnegut's insistence that 'why' does not exist 'here' (in the block universe of text), Amis's reader persists in asking 'Why?' he does give an answer: 'Because ducks are fat.'[701] The decision to kill babies at Auschwitz is compared by the narrator, fast losing grammatical prowess and vocabulary in his regress towards infancy, to the intuitive moral principle of killing chickens, but not chicks for food.[702] Even this is arbitrary, for Amis, since what one is really saying is not that one will not kill the chick but that one resolves to wait until it no longer outwardly resembles the chick it once was. In Heraclitus's words, 'these transposed are those, and those transposed again are these.' The chickens are still the same

[699] Ibid., pp. 1-5.
[700] R. H. Hutton, Unsigned review in *Spectator* reprinted in H. G Wells, *The Time Machine: An Invention* (London: Penguin, 2012) p. 101; Turner, *The Literary Mind*, p. 44.
[701] *Time's Arrow*, p. 171. Again, to distinguish a 'here' implies a 'there' – the world outside narrative.
[702] Perhaps a dig at the hypocrisy of the meat industry's concentrated animal feeding operations (CAFOs) and humanity's endorsement of one type of industrialised killing but not another. This harks back to Plato's warning in the *Politicus* to beware making hard and fast distinctions between man and beast.

individuals. They will still die. That much is determined by their being bred for meat. Vonnegut had this idea in mind when he subtitled *Slaughterhouse-Five* 'The Children's Crusade'. If we accept Einstein's argument that past, present and future are not meaningfully distinct, we have nothing but fictions and convention with which to justify sending adults to war as opposed to children. A similar logic was invoked by the Nazi doctors to justify genocide via *Sonderbehandlung*, 'part of the mystical imperative to kill all Jews' – something like Lewis's 'obsession of mechanical *betterment*' – so that 'any Jewish arrival or prisoner could be experienced by the Nazi doctor's Auschwitz self as designated for death […] as already dead. Killing someone already dead need not be experienced as murder.'[703] Again, mechanistic entelechy is used to worm out of responsibility. The decision has been made bureaucratically so the agent can appeal to a consequentialist conception of ethics to rationalise murder. Not following orders in this situation does not change the outcome. Jews will still be killed.

The fatalism of the Nazi ideology which allows doctors to get away with killing is realised in backwards time's unhidden anterior future. There can be no volition since there is no free will. As a result, we cannot hold the narrator to account for the crimes to which he bears witness. Besides, he is not committing them, he is uncommitting them. On his view, the medical work he did in America was more harm than the killings at Auschwitz. Backwards time brings mechanism to the fore. With it, Amis parodies a typical Nazi doctor claim that they were following orders or convention, were coerced or under duress, and ought therefore to be excused from moral accountability for their actions.[704] The argument appeals to deontological ethics in a warped interpretation of Kant: doctors are obliged to kill because it is their duty to

[703] By 'Auschwitz self' Lifton means a distinct part of a Nazi doctor's personality capable of performing the killings in the name of duty and which carries the can so the rest of the personality can go about its business guilt free. *The Nazi Doctors*, p. 151; *Time and Western Man*, p. 139.

[704] This was at least partly true. In a famous experiment, the psychologist Stanley Milgram. gave ordinary U.S. citizens the power to administer ever more severe electric shocks to a (fictional) person in another room giving wrong answers in a learning exercise. There was nothing special about Germans – the average American was just as likely to comply. Obedience trumped moral reservations. Stanley Milgram, 'Behavioural Study of Obedience', *Journal of Abnormal and Social Psychology*, 67 (1963) pp. 371-378. Milgram's methodology, as well as his results, remain controversial.

cure the *Volk*. In Kantian terms, '[w]hoever wills the end also wills […] the indispensably necessary means to it that are within his power.' For the Nazi doctor, who has it within his power to cure the *Volk* via negative eugenics, killing Jews is an imperative of skill. 'Whether the end is rational and good is not at all the question', on this view,

> only what one must do […] to attain it. The precepts for a physician to make his patient healthy […], and for a poisoner to be sure of killing his, are of equal worth insofar as each serves perfectly to bring about his purpose.[705]

To the non-Nazi observer, there is a conflict between a duty to uphold the Hippocratic oath and a duty to uphold the oath made to Hitler. Not so in the Nazi biomedical ideology, as Amis's ironic take on the killing-as-curing paradigm in backwards time shows. Odilo offers this kind of moral casuistry to the Irish priest at the Vatican in supplication for a new identity – Hamilton(!) de Souza: 'the situation was mad and impossible', he explains, 'certain acts suggested themselves'.[706] Here the passive voice indicates the moral separation of ego from action while 'certain' acts seem necessary and rational choice maddeningly limited. The Nazi doctor abdicates personal responsibility by introducing fatalism, but Amis rejects this mechanistic perversion of Kant. Such killing was in the end performed by rational agents of their own choosing.

There is another possibility. 'Because ducks are fat' is also Amis's title for the final chapter of his novel. Such prominence suggests that this is more than just a nonsense phrase. At the end of the chapter, and the novel, time seems to reverse once more: 'I see an arrow fly – but wrongly. Point-first. Oh no, but then… We're away once more […] Odilo Unverdorben and his eager heart. And I within, who came at the wrong time – either too soon, or after it was all too late.'[707] The arrow, by the end of Amis's story stands for the supposed irreversibility of

[705] *Groundwork of the Metaphysic of Morals*, AK 4: 418; 415.
[706] *Time's Arrow*, p. 120.
[707] Ibid., p. 173.

thermodynamic time. It stands for the directionality of the stream-of-consciousness and the orientation of deictic terms that this brings. It stands for the famous arrow of Zeno's paradox. Most importantly, it stands for the directedness of life under the teleology of the Judeo-Christian world view. Again, the narrator echoes Nietzsche. 'I come too early', says the atheist bringing tidings of God's death, 'my time is not yet.'[708] The crumbling Christian morality Nietzsche identified as the result of God's death is horribly apparent in the killings at Auschwitz. The suggestion in this passage of *Time's Arrow* is that in doing away with Christian morality before a serviceable alternative was in place, Europe sowed the seeds of its own destruction.[709]

The spectre of Nietzsche here points to a second reversal of time. Seeing the arrow flying point-first means either it flew backwards in external time or normal temporal service has been resumed. The latter is more likely for two reasons. First, Amis cryptically alludes to 'a certain short story by Isaac Bashevis Singer' when listing his influences for the novel.[710] He is probably thinking of 'Jachid and Jechida' (1961), a tale of two souls, the counterparts of Platonic love, sent to earth as punishment for heavenly sins. In eternity, the damned are sentenced to death and are buried in the wombs of Earth women. Death and life are semantically reversed in Singer's tale (though time is not) so that 'death is a laboratory for the rehabilitation of souls'.[711] The souls lose all their memories upon entering their bodies but in sleep they are again freed from 'the illusion of time and space, cause and effect, number and relation'.[712] The technique of semantic reversal and the theme of Platonic idealism are both present in *Time's Arrow*, but Amis seems to combine Gardner's superficial reading of the *Politicus* with Popper's line that Plato (especially in the *Republic*) is largely responsible for the totalitarian ethos.

---

[708] *The Gay Science*, §125.
[709] Nietzsche may also be prominent in *Time's Arrow* because he spans the gap between determinism and random chance. Nietzsche, on Hacking's view, understood better than most how '[n]ecessity and chance are twinned and neither can exist without the other.' *The Taming of Chance*, p. 148.
[710] *Time's Arrow*, p. 175.
[711] Isaac Bashevis Singer, 'Jachid and Jechida', in *Collected Stories: Gimpel the fool to The Letter Writer*, ed. Ilan Stavans (New York: Library of America, 2004) p. 401.
[712] Ibid. p. 404.

This cycle, like those of Ecclesiastes, is not comforting. If the soul of the Nazi doctor is indeed the narrator of *Time's Arrow*, and if Jachid and Jechida is the Bashevis-Singer tale to which he refers, backwards time in *Time's Arrow* may represent a botched Dantean punishment. In the eighth (penultimate) circle of hell at Bolgia Four those who sought to alter God's laws to manipulate or to perceive the future are punished by having their heads twisted round on their torsos so that they must face backwards for eternity. Here, Dante tells us, the fraudulent men of hell were 'so wrenched from true that teardrops from the eyes / ran down to rinse them where the buttocks cleave'.[713] That the transformation is designed to reflect the crime is expressed by their falsity in life becoming physically manifest in their bodies which are no longer 'true', or correctly positioned: '[a]s once he wished to see too far ahead, / his tread is backward, and he stares to rear.'[714] Typically, this circle of hell is reserved for augurs, sorcerers and false prophets. However, using eugenics to master biological destiny – doctors playing God – is just the sort of crime that might land Odilo a place in Bolgia Four. Forcing a Nazi doctor's soul to live the story of his life backwards, turning his temporal perception round so that his gaze is backwards, would be an appropriately refigured Dantean punishment for a perpetrator of extreme negative eugenics. Yet this too would be ironic, since the punishment would require a block universe in which to effect such a reverse, incurring the nihilism recognised in Ecclesiastes. The punishment fails to satisfy.

The second reason time is likely to be reversed in the final passage is that 'because ducks are fat' is an odd title for a final chapter. Yes, it draws attention to the passage illustrating the arbitrary nature of certain decisions about killing, but it is hardly a fitting epigraph for the final chapter of a story encompassing the holocaust. Given the prominence of anagrams in Amis's literary influences (viz. Vonnegut, Nabokov and, derivatively, Carroll) it is not too much of a stretch to venture an anagrammatic answer to the 'why' question: 'because ducks are fat' =

[713] Dante Alighieri, *Inferno*, Trans. Robert Kirkpatrick (London: Penguin, 2006) XX, 23-24.
[714] Ibid., XX, 38-39.

'*durée* faces back at us'. That is, the narrative is a temporally encrypted account of the stream-of-consciousness of Odilo Unverdorben. Time is encoded orthographically and grammatically in a reversed confession. Choice is occluded by inevitability so that the narrator of *Time's Arrow* cannot give a rational response to explain 'why' he is performing the actions he recounts. 'Here there is no why', because neither aesthetic nor teleological judgment can exist in an unconditioned, determinate world where sensory information cancels out.[715] Odilo acts because he must, because he already has. He creates Jews with the same hands that destroyed them, revealing the Janus face of temporal experience in a reversible universe.[716]

This reading is supported by the narrator's self-admonition, '*Still, sprich durch die blume*. Hush now, speak through a flower.'[717] The literal translation is disingenuous. In English we more commonly borrow from Latin and express this concept as *sub rosa* (literally 'under the rose'), meaning to speak in a roundabout manner, concealing meaning with indirect language.[718] The narrator has let slip that there is something hidden in the testimony: the 'soul' narrating is Odilo's Auschwitz self and is therefore not straightforwardly the 'soul' of the Nazi doctor because it has been compartmentalised. Amis's technique suggests he does not feel this separation is justified. The indirect language here is encoded in a consistent way – backwards time. The cipher, as argued in §4.9, requires steady chronological progress to be perceived as a more than a random assortment of episodic memories. Such chronological coherence and the just-so causality it implies is a sign of either fiction or fraud.[719] While the narrator of *Time's*

[715] For Kant, while fate and purpose are at home in both idealism and realism, the 'undesigned' universe without purpose is always a form of idealism. We need a '*designedly-working* supreme cause', i.e. God, for the world to make sense. *Critique of Judgement* §68; §72; §75.
[716] Again recalling Nietzsche: 'Only as creators can we destroy!' Amis is with Bergson here, finding such 'unmaking' absurd. *Creative Evolution*, p. 245.
[717] *Time's Arrow*, p. 165.
[718] Jack Goody, *The Culture of Flowers* (Cambridge: Cambridge University Press, 1993) p. 57.
[719] Chronology in autobiography cheats realistic self-expression because 'it is read as an intelligent concatenation of events, and temporal sequences are effortlessly raised into causal ones. […] A life story so organized is the counterfeit integration of a random life into a convenient fiction.' John Sturrock, 'The New Model Autobiographer' *New Literary History*, 9, 1 (1977) pp. 54-55. Cf. Eakin, *Fictions in Autobiography* pp. 168-170.

Arrow is not its author, the conceit rests on the testimony being an accurate inversion of what happened. The narrative is fraudulent by design.

If I am correct, Amis answers two 'Why?' questions here. The first is directed at the motivation for the actions carried out at Auschwitz. The fact that things 'make sense' at Auschwitz is evidence that the logic employed is that of the Nazi biomedical ideology. Amis once said Auschwitz was predicated on a 'psychotically inverted world, and if you did it backward in time, it would make sense.'[720] On what basis would it make sense? To a normal observer the creation of Jews at the expense of the lives of those born since the holocaust is an uncomfortable trade-off. But 'sense' is linked to direction, especially two opposite directions.[721] To a Nazi doctor, Auschwitz makes sense in both directions of time; to the rest of us, backwards time reveals the absurdity of its logic. The second question is directed at the motivation for writing the novel. It is dangerous to make definitive statements about authorial intent but Amis shows concern for the problems of administering justice in the case of a Nazi doctor by illustrating some hypocrisies of retributive punishment. However appealing it might be to imprison a soul in a Nietzschean cycle in which it must eternally say yes to its misdeeds, the punishment requires the model of time that led to the rationalisation of the crime in the first place. Similarly, a Dantean reversal of the head so that a soul looks backwards for eternity results in a relativism that partially legitimates Nazi logic. Whatever conception of justice we cleave to, amends for the holocaust cannot be made.

Time's Arrow warns that after Auschwitz spurious logic can no longer be viewed simply as an object of ridicule. If the worldview expressed by the narrator's stylistic choices is correct and time is cyclical then no harm goes unhealed, no wrong un-righted. Worse, both the Dantean and the quasi-Nietzschean punishment become meaningless because backwardness is already present, though not perceived, in experience. *Time's Arrow* shows that we must persist

---

[720] Anthony DeCurtis, 'Britain's Mavericks', *Harper's Bazaar*, November 1991, p. 146.
[721] *OED*.

with moral fictions – whether Vedic *ahiṃsā* or Judeo-Christian virtue is less important for Amis – or risk slipping into amoral nihilism. While the narrator's absolute idealism would, if true, exonerate Odilo, the irony of the narrative in context suggests Amis remains sceptical. He seems to agree with Kermode that 'it is ourselves we are encountering when we invent fictions'.[722] In *Time's Arrow*, as in the *Politicus*, 'the Universe is held up as a mirror to exhibit on a large scale the condition of man', only here it is the psychological arrow of time, not the cosmological arrow, which is inverted.[723] If part of us is time-directed consciousness it is little wonder that when time is 'looking-glassed', the resulting 'world-drama' is not Eddington's 'nonsensical farce' but horrifying tragicomedy.[724] Time is not a reversible sequence, warns *Time's Arrow*, on pain of legitimating the Nazi doctors' atrocities *unter dem Aspekt von Auschwitz*. Amis joins with Carroll and Nabokov in finding that backwards time not only makes for a difficult and unpalatable style, but one whose morality is singularly askew. We should not be surprised, then, when we gaze into Amis's temporal mirror to find that *durée* faces back at us.

[722] *The Sense of an Ending*, pp. 35-6.
[723] Campbell, Introduction to *Politicus*, p. xxxviii.
[724] 'If space is "looking-glassed" the world continues to make sense', says Eddington, referring to *Sylvie and Bruno* 'but looking-glassed time has an inherent absurdity which turns the world-drama into the most nonsensical farce.' *The Nature of the Physical World*, p. 67.

Conclusion

For the last two hundred years backwards time has been bound up with prediction. This helps separate an unusual strand of thought from the thick weft of intellectual history. It is about memory. It is about power. It is about time. Out of the twenty-four-hour news cycle issues an endless stream of headlines proclaiming ever-increasing political, economic, and climate instability. There is even a (relatively) new social class: the precariat, working on casual contracts in jobs whose existence is increasingly uncertain in the face of encroaching mechanisation and automation. In fact, though, there are two competing modes of prediction here and the causality of one is symptomatically more pessimistic than the other's. Mechanisation and automation, timeless symbols of the rationally calculable, show that humans continue to slowly lose the labour war against machines. One reason for this is that machines are reliable, honest workers who do not demand onerous and rationally baseless concessions like human rights. Another is that it is easier to forecast productivity when the workforce is uniform. Best of all, while both types of workers require oversight and occasional repairs, machines do not ask for payment to attend to this themselves or to contribute to leisure activities. The doom-mongers are right about one thing – as it stands, the safe bet is against humanity.

These two competing models of prediction develop into two ways of seeing the world. On the one hand is deterministic modelling with which, given enough information about initial conditions, the outcome of just about anything is calculable – outcomes are determined by parameter values and initial conditions. On the other hand is stochastic modelling, with which random chance is incorporated into any calculation so that the same parameter values and initial conditions might result in a variety of outcomes. The uniformity of machines means that while they are subject to the contingency of the natural world, they lend themselves to

deterministic modelling. Human beings, on the other hand, are infuriatingly (but also creatively and adaptively) unique. Tracking their behaviour, recording their properties and attempting to exert control over some or all these factors is the business of politics and the juridical law. Modern states have increasingly turned to data-driven stochastic modelling from demographic statistics in order to achieve some measure of control. More recently there has been a turn towards this thinking in electioneering, with attempts to influence voter behaviour through data analytics reported in elections in Argentina, Brazil, Canada, Catalonia, Chile, Colombia, France, India, Italy, Kenya, Malaysia, Mexico, the United Kingdom and the United States of America. This behaviour represents an attempt to 'tame chance' – to engineer social outcomes by winnowing individual free will. With such glittering prizes for those who can master it, prediction has understandable cultural cachet. It is also somehow reassuring, even when its predictions are overwhelmingly negative. Never mind that manipulation of elections by private data buccaneers seemed impossible until it was too late, someone should have seen this coming – such exploitation was inevitable.[725] Give us apocalyptic climate change, give us long-term financial decline, genetic degeneration and the inevitable heat death of the universe, but give us something to hang our hats on.

For all that, attempts to master human populations absolutely are continually thwarted by the beings who create, maintain, and usurp social orders. It is an odd truth that, while both physical and juridical laws allow us a modicum of control over our surroundings, these two types of law rely on utterly different conceptions of the universe. Physical laws, with their insistence on the constant interaction of matter and forces, require a largely static conception of the universe: a closed system in which laws govern outcomes and change is an epiphenomenon. Juridical laws, on the other hand, require a dynamic and open universe in

[725] Cf. Currie, who notes, as part of a discussion of inductive logic that '[t]he supposed impossibility of the unpredictable event is […] subject to a process of revision which seeks to establish its predictability in retrospect,' with 'a 'narrativisation' of the events after the fact.' *The Unexpected*, pp. 57.

order that they should have a purpose at all. It is difficult to see what use we would have for such notions as truth and justice if everything were determined. In that case, falsehoods should only ever be temporary or illusory, while justice might be done away with altogether by simply acknowledging that fate does not have favourites.

ii. Critiquing Nationalism: Backwards Time in the Present

In recent years, the narrative of social decline has returned. Ian McEwan has taken up backwards time to satirise the current political situation in Britain. The 'Reversalism' movement he describes is a pseudonym for Brexit, the '[c]lockwise yob pouring milkshake over a high-profile Reversalist' a thinly-veiled allusion to the dairy ambush that met Nigel Farage when he toured Newcastle Upon Tyne on 20th May 2019.[726] Rightly or wrongly, accusations of nationalism have never quite been silenced by those in the United Kingdom who favour leaving the European Union, and McEwan's Reversalism speaks to the backwards looking gaze of the nationalist agenda. Not that all, or even most, who voted 'leave' on 23rd June 2016 did so with misty-eyed nostalgia for a romanticised British past. Yet a minority remain who consider the good old days the end to strive towards, whatever the cost. It is the odd concept of being better off by losing money which McEwan turns into a political ideology and an economic strategy in *The Cockroach* (2019). The Conservative Government's mission, Prime Minister James Sams explains invoking a Boltzmann-like probabilistic fiction to justify Reversalism to the House of Commons,

> will be to deliver Reversalism for the purpose of uniting and re-energising our great country and not only making it great again, but making it the greatest place on earth. By 2050 it is more than possible, and less than impossible, that the UK will be the

[726] Ian McEwan, *The Cockroach* (London: Jonathan Cape, 2019) p. 16.

> greatest and most prosperous economy in Europe. We will lie at the centre of a new network of reverse-flow trade deals.[727]

However slim the chance that Britain will dominate Europe economically after severing ties with its biggest trading partner, it is probability non-zero. It could happen, though for McEwan it is about as likely as time going backwards. Setting United States President Donald Trump's incantatory 'make *x* great again' alongside such preposterous appeals to probabilistic reasoning is an obvious signal of McEwan's political leanings. He considers Trump a nationalist, likening the Brexit agenda to Trump's backward-looking policies of returning things to their former glory, making them great 'again' and 're-'*x*ing whatever superlative from the past suits the current political conversation.

Without wishing to draw comparisons between the nationalism of modern-day Britain and the United States and that of Nazi Germany, all of which are highly nuanced, there is a link between *The Cockroach* and *Time's Arrow*. Amis's refrain '*hier ist kein warum*' ('here there is no why'), bounces off veteran Vonnegut's invocation of mechanism to ironically 'heal' the wounds of WWII and to critique the arbitrary social convention of age requirements in war. McEwan returns Amis's serve. Now it is Britain, not Germany, that is in the grip of backwards ideology, and a baffled German Chancellor who asks '*warum?*' in search of a coherent purpose or telos behind Reversalism. She does not get one. 'Because,' replies the British Prime Minister tersely.

> Because that's what we're doing. Because that's what we believe in. Because that's what we said we'd do. Because that's what people said they wanted. Because I've come to the rescue. Because. That, ultimately, was the only answer: *because*.[728]

Because ducks are fat. There is no rhyme or reason, says McEwan, because Reversal is a foregone conclusion as far as Prime Minister Sams is concerned. Determinism has moved into

[727] Ibid., pp. 45-46.
[728] Ibid., pp. 86-87.

the political sphere. 'This is no time for faint Clockwise thinking', says Sams, showing that Reversalism in practice looks remarkably like backwards time,

> the money flow is about to change direction – and about time, too. […] On R-Day, for example, our newly empowered police might pull over a recklessly speeding motorist and hand through the window two fifty-pound notes. It will be that driver's responsibility, in the face of criminal charges, to use that money to work and pay for more overtime, or find a slightly better job.[729]

Usually, the speeding driver incurs a fine to be paid to the authorities. The law does not care whether or not she is able to pay for it. It is up to her to earn extra by doing overtime or finding a better job, or else face criminal charges. Turning the situation on its head, McEwan paints an absurd picture of what the world would look like if we benefitted from losing money.

The connection to *Time's Arrow* is even more blatant when McEwan recruits Popper to the cause of one-way progress towards a brighter future. 'It was a defining principle of an open society', he explains in the third person with a barely concealed sneer,

> that everything was lawful until there was a law against it […] in […] all the totalitarian states of the world, everything was illegal unless the state sanctioned it. In the corridors of the EU, no one had ever thought of excluding the reverse flow of money from acceptable practice because no one had ever heard of the idea. […] Everyone knew that in every single law of physics, except one, there was no logical reason why the phenomena described could not run backwards as well as forwards. The famous exception was the second law of thermodynamics. In that beautiful construct, time was bound to run in one direction only. Then Reversalism was a special case of the second law and therefore in breach of it! Or was it? [730]

[729] Ibid., p. 47. Backwards time is also present in the pun on 'about' here, recalling Currie's preface to *About Time*.
[730] *The Cockroach*., pp. 80-81.

McEwan joins Carroll, Nabokov and Amis in contrasting physical laws with juridical laws to point out the absurdity of behaving as if a society's destiny can be deduced and controlled absolutely. Controlling the social means appealing to laws of society which can be reversed like physical laws (bar one).[731] While this has often been invoked as a principle with which to sort out the problems facing a society in the present by setting wheels in motion towards a fixed goal, such projects cheerfully ignore the fact that for most social situations we cannot know at the beginning all the determinate factors feeding into them any more than we can definitively predict their outcomes.[732] Like Macintyre, McEwan sees that remaining unpredictable makes us less vulnerable to being used as a means to someone else's end. The Cambridge Analytica scandal of 2018, in which it emerged that social media giant Facebook had been used as a data source for tactical electioneering, not least (allegedly) 2015's Brexit campaign, is a timely reminder that the more information we divulge, the more susceptible we are to external coercion and control. Like *Time's Arrow*, *The Cockroach* uses backwards time to critique the backwards gaze of nationalism and the fictions of social law underpinning totalitarianism. Both authors recognise that unpredictability is not a weakness, but a strength, of the open society.

On a more positive note, it is also what keeps us moving forwards. One-way time is a feature of our capacity to be unpredictable, to change our behaviour, and to adapt. For this reason, as Popper argues, absolute '[h]olistic control […] would mean the end of progress.'[733] While big data can be used to forecast polls and manipulate electorates, it will never be wholly successful because people are unpredictable – sometimes deliberately. Humans can and do use predictions to fight this controlling influence, and to stay one step ahead of the machines. The very social statistics and big data gathered to 'den[y] to human reason the power of bringing

[731] A principle invoked by Émile Durkheim to account for the chance nature of individual actions within more stable social statistics. Such laws are 'analogous to cosmic or electrical forces', and broadly fall into the category of emergentism, in which the properties of complex systems are neither predictable from nor reducible to the smaller individual components producing them. *The Taming of Chance*, p. 158.
[732] *After Virtue*, p. 116.
[733] *The Poverty of Historicism*, p. 159.

about a more reasonable world' can be turned against this endeavour.[734] We can reason our way out of the historicists' corral by doing what is not expected of us. This, as critics of the deductive neo-classical economics of rational choice have pointed out, is one reason economic forecasts are rarely accurate: no sooner are they are released than they are turned against their object by financiers looking to exploit newly lucrative margins and trends. Equally, people do not always behave rationally.[735] Nor could free market capitalism coherently want them to. While this might make for completely accurate predictions, it would remove most incentives to trade stocks and currencies. Uncertainty is profitable – Einstein's God would not play the market. Maxwell, Thomson, Carroll, Nabokov, Amis and McEwan embrace the inductive sciences without being led down the blind alley of mistaking statistical trends for social laws, which for them are linguistic grandiosities constantly disproven by individual cases. All make the case for a pragmatic preservation of moral fictions in the face of epistemological relativism. On balance, we are better off holding the outside world to be real and the future as open, rather than a matter of epistemic ignorance. Not only does it provide useful results in, for example, eyewitness testimony, it gives us sure footing in the fight against logical confusion and prevents us from reasoning our way into atrocities.

* * *

In the spirit of open enquiry, I would like to end with some questions which might take research in this area forwards:

- What was the impact of Oxford idealism on British politics and law: how did these thinkers get absorbed by the state?

[734] Ibid., p. 50.
[735] Donald P. Green and Ian Shapiro, *Pathologies of Rational Choice Theory: A Critique of Applications in Political Science* (New Haven, CT: Yale University Press, 1996) p. 26.

- How far has stochastic modelling gone – and how far can it go – to controlling the British population? Is this a matter of giving up too much information? Might we end up with rival stories of our lives, one state-endorsed, the other intuitively authentic? Whose truth is likely to prevail?
- If the simulation theory of MTT proves correct and the past is as imaginary as the future, where does this leave fiction (and art more generally)? Does my imaginary *Hamlet* from before I read it gain the same epistemological status as my memory of *Hamlet* afterwards? If not, and assuming the difference is one of degree, not kind, what is the nature of this difference?
- If the personal past is a matter of providing useful schemas on which to base predictions, another area likely to yield provocative results is the relationship between cognitive models of prediction, narrative comprehension and fictional causalities. What kinds of universe can we imagine? What language produces them? Is the development of our socio-political present constrained by the limits of imagination or does chaos help us to push beyond them by accident?

Bibliography

Adorno, Theodor, 'Cultural Criticism and Society' in *Prisms* (Cambridge, MA: MIT Press, 1983) pp. 17-34.

Alighieri, Dante, *Inferno*, trans. Robert Kirkpatrick (London: Penguin, 2006)

Althusser, Louis, *Politics and History: Montesquieu, Rousseau, Hegel and Marx*, trans. Ben Brewster (London: NLB, 1972)

Amis, Kingsley, Letter to Phillip Larkin, 22 March 1982 in *The Letters of Kingsley Amis*, ed. Zachary Leader (London: Harper Collins, 2000) pp. 938-939.

---., 'Sacred Cows', *The Amis Collection: Selected Non-Fiction 1954-1990*, intr. John McDermot (London: Hutchinson, 1990) pp. 17-19.

Amis, Martin, *Experience* (London: Jonathan Cape, 2000)

---., 'Nabokov and the Problem from Hell', *The Rub of Time: Bellow, Nabokov, Hitchens, Travolta, Trump and Other Pieces, 1986-2016* (London: Jonathan Cape, 2017) pp. 9-20.

---., 'Nabokov's Natural Selection', *The Rub of Time: Bellow, Nabokov, Hitchens, Travolta, Trump and Other Pieces, 1986-2016* (London: Jonathan Cape, 2017) pp. 125-136.

---., *Time's Arrow* (London: Vintage, 2003)

Anonymous, 'Science and Positivism', *Saturday Review of Politics, Literature, Science and Art*, 25 (1868) pp. 455-456.

Aristotle, *Nicomachean Ethics*, trans. David Ross (Oxford: Oxford University Press, 2009)

---., *Poetics*, trans. Malcolm Heath (London: Penguin, 1996)

Auden, W. H., 'Books of the Year: A Personal Choice', *Observer* 19 December 1965, reprinted in *The Complete Works of W. H. Auden*, ed. Edward Mendelson (Princeton, NJ: Princeton University Press, 2015) V.

Augustine, *Confessions*, trans. Henry Chadwick (Oxford: Oxford University Press, 1998)

Barabtarlo, Gennady, ed., *Insomniac Dreams: Experiments with Time by Vladimir Nabokov* (Princeton: Princeton University Press, 2018)

Barrett, William, *Irrational Man: A Study in Existential Philosophy* (New York: Anchor, 1962)

Bartlett, Frederic C., *Remembering: A Study in Experimental and Social Psychology* (Cambridge: Cambridge University Press, 1961)

Bartley, William Warren, ed., *Lewis Carroll's Symbolic Logic* (New York: Harvester, 1977)

Bashevis Singer, Isaac, 'Jachid and Jechida', in *Collected Stories: Gimpel the fool to The Letter Writer*, ed. Ilan Stavans (New York: Library of America, 2004) pp. 398-405.

Beer, Gillian *Alice in Space: The Sideways Victorian World of Lewis Carroll* (Chicago: University of Chicago Press, 2016)

---., *Open Fields: Science in Cultural Encounter* (Oxford: Oxford University Press, 1996)

Bergson, Henri, *Creative Evolution* trans. Arthur Mitchell, (New York: Henry Holt and Company, 1911)

---., *Time and Free Will,* trans. F. L. Pogson (London: Swan Sonnenschein & Co., 1910)

Berkeley, George, *A Treatise Concerning the Principles of Human Knowledge*, ed. Jonathan Dancy (Oxford: Oxford University Press, 1998)

Berlin, Isaiah, *Historical Inevitability* (Oxford: Oxford University Press, 1954)

Bernecker, Sven, *Memory: A Philosophical Study* (Oxford: Oxford University Press, 2010)

Blacklock, Mark, *The Emergence of the Fourth Dimension* (Oxford: Oxford University Press, 2018)

Blake, William, 'Proverbs of Hell', *The Marriage of Heaven and Hell* (Boson, MA: John W. Luce and Company, 1906) pp. 13-21.

Boltzmann, Ludwig, 'Über das Wärmeglechgewicht zwischen mehratomingen Gasmolekülen', *Wiener Berichte* 63, 397 (1871). English translation in S. G. Brush, *The Kind of Motion We Call Heat: A History of the Kinetic Theory of Gases in the 19th Century*, (Oxford: North Holland Publishing Company, 1976) II, p. 362

---., 'Weitere Studien über das Wärmegleichgewicht unter Gasmolekülen' *Wiener Berichte* 66, 275 (1871) 62–100.

---., *Wissenschaftliche Abhandlungen*, ed. F. Hasenöhrl (New York: Chelsea, 1969) I.

---., 'Zu Hrn. Zermelo's Abhandlung': Über die mechanische Erklärung irreversibler Vorgänge', *Wiedemannsche Annalen (Annalen der Physik)*, 60 (1897), pp. 392-398.

Borges, Jorge Luis, 'Death and the Compass', *Collected Fictions*, trans. Andrew Hurley (London: Allen Lane, 1999) pp. 147-156.

---., 'On Exactitude in Science', *Collected Fictions*, trans. Andrew Hurley (London: Allen Lane, 1999) p. 325.

---., 'Partial Magic in the Quixote', trans. James E. Irby in *Labyrinths* (London: Penguin, 2000) pp. 230-231.

---., 'The Duration of Hell', trans. Susan Jill Levine and Eliot Weinberger, *The Total Library: Non-Fiction 1922-1986*, ed. Eliot Weinberger (London: Allen Lane, 2000) pp. 48-51.

---., 'The Library of Babel', *Collected Fictions*, trans. Andrew Hurley (London: Allen Lane, 1999) pp. 112-118.

---., 'The Total Library', *The Total Library: Non-Fiction 1922-1986*, ed. Eliot Weinberger (London: Allen Lane, 2000), pp. 214-216.

---., 'Tlön, Uqbar, Orbis Tertius' in *Collected Fictions*, trans. Andrew Hurley (London: Allen Lane, 1999) pp. 68-81

---., 'When Fiction Lives in Fiction', *The Total Library* pp. 160-162.

Bosanquet, Bernard, *Science and Philosophy and other Essays* (London: George Allen & Unwin, 1927)

Boyd, Brian, *Vladimir Nabokov: The American Years, 1940-1977* (London: Chatto & Windus, 1992)

Bradley, F. H., *Appearance and Reality* (London: Swan Sonnenschein, 1893)

Breuer, Josef and Sigmund Freud, 'On the Psychical Mechanism of Hysterical Phenomena: Preliminary Comunication', *Studies on Hysteria* in *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) II. pp. 3-17.

Broad, C. D., *The Mind and its Place in Nature* (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1947)

Brooks, Peter, *Reading for the Plot* (New York: Vintage, 1985)

Browne, Thomas, *Religio Medici: Urn Burial, Christian Morals, and Other Essays*, ed. John Addington Symonds (London: Walter Scott, 1886)

Bruner, Jerome, *Actual Minds, Possible Worlds* (Cambridge, MA: Harvard University Press, 1986)

Burke, Sèan, 'The Responsibilities of the Writer' in *Literary Theory and Criticism* ed. Patricia Waugh (Oxford: Oxford University Press, 2006) pp. 486-496

Canales, Jimena, *The Physicist and the Philosopher: Einstein, Bergson, and the Debate that Changed our Understanding of Time* (Princeton, NJ: Princeton University Press, 2015)

Carré, Meyrick H., *Phases of Thought in England* (Oxford: Oxford University Press, 1949)

Carrel, Alexis, *Man, the Unknown* (New York: Harper and Brothers, 1935)

Carroll, Lewis, *Alice's Adventures in Wonderland* in *The Works of Lewis Carroll*, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968) pp. 19-110.

---., 'Isa's Visit to Oxford', *The Works of Lewis Carroll*, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968) pp. 720-721

---., Letter to Edith Blakemore, 30th November 1879, *The Works of Lewis Carroll*, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968) p. 707.

---., Letter to G. F. Stout, 25 August 1894, *Lewis Carroll's Symbolic Logic*, ed William Warren Bartley pp. 472-474.

---., Letter to James Langton Clarke, December 4 1882 in Morton N. Cohen, ed., *The Life and Letters of Lewis Carroll* (Cambridge: Cambridge University Press, 1979) I, pp. 471-472.

---., *Sylvie and Bruno* in *The Works of Lewis Carroll*, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968) pp. 377-533.

---., *Sylvie and Bruno*, intr. Martin Gardner (New York: Dover, 1988)

---., *Sylvie and Bruno Concluded* in *The Works of Lewis Carroll*, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968) pp. 535-698.

---., *Through the Looking-Glass* in *The Works of Lewis Carroll*, ed. Roger Lancelyn Green (Middlesex: Spring Books, 1968) pp. 111-214.

---., Untitled, 3rd May 1854, Reproduced in Cohen, *Lewis Carroll: A Biography*, pp. 539-540.

---., 'What the Tortoise said to Achilles', *Mind*, IV, 14 (1895) pp. 278-280

Centerwall, Brandon S. 'Hiding in Plain Sight: Nabokov and Pedophilia', *Texas Studies in Literature and Language*, Vol. 32, No. 3 (Fall 1990) pp. 464-484.

Cercignani, Carlo, *Ludwig Boltzmann: The Man Who Trusted Atoms* (Oxford: Oxford University Press, 1998)

Chatman, Seymour, 'Backwards', *Narrative*, 17, 1 (2009) pp. 31-55.

Chatterton, Thomas, 'The Jabberwock Traced to its True Source', *Macmillan Magazine*, 25 (1871) pp. 337-338.

Chiang, Ted, 'Story of Your Life' in *Stories of Your Life and Others* (Easthampton, MA: Small Beer Press, 2010) pp. 91-145.

Clark, Andy, *Surfing Uncertainty: Prediction, Action and the Embodied Mind* (Oxford: Oxford University Press, 2016)

---., 'Whatever Next? Predictive Brains, Situated Agents, and the Future of Cognitive Science', *Behavioural and Brain Sciences* 36, 3 (2013) pp. 181-204.

Clausius, Rudolf, 'On the second fundamental theorem of the theory of heat', *Philosophical Magazine* 4, 35 (June 1868) pp. 417-419.

Cohen, Morton N., *Lewis Carroll: A Biography* (London: Macmillan, 1995)

---., ed., *The Life and Letters of Lewis Carroll* (Cambridge: Cambridge University Press, 1979)

Coleridge, Samuel Taylor, *Aids to Reflection* (London: Taylor and Hessey, 1825)

---., Letter to Joseph Cottle, 7 March 1815 in Earl Leslie Griggs, ed., *Unpublished Letters of Samuel Taylor Coleridge*, 2 vols. (London: Constable and Co LTD, 1932) II, pp. 128-129,

Collingwood, Stuart Dodgson, *The Life and Letters of Lewis Carroll* (New York: The Century Co., 1899)

Conrad, Joseph, *Heart of Darkness*, ed. Paul B. Armstrong, 4th edn. (New York: Norton, 2006)

Copleston, Reginald Stephen, *Buddhism Primitive and Present in Magadha and in Ceylon* 2nd edn. (London: Longmans, Green, and Co., 1908)

Cornforth, M. C., *Science and Idealism* (New York: International Publishers, 1947)

Croker, Thomas Crofton, *Fairy Tales and Traditions of Southern Ireland* (London: John Murray, 1928)

Currie, Mark *About Time* (Edinburgh: Edinburgh University Press, 2012)

---., *Postmodern Narrative Theory* (London: Macmillan, 1998)

---., *The Unexpected: Narrative Temporality and the Philosophy of Surprise* (Edinburgh: Edinburgh University Press, 2013)

DeCurtis, Anthony, 'Britain's Mavericks', *Harper's Bazaar*, November 1991, pp. 146-147.

Dennett, Daniel 'Are Dreams Experiences?', *The Philosophical Review*, 85, 2 (1976) pp. 151-171.

---., *Consciousness Explained* (Boston: Little, Brown, 1991)

Dever, Carolyn M., 'Broken Mirrors, Broken Words: Autobiography, Prosopopeia, and the Dead Mother in "Bleak House"', *Studies in the Novel*, Vol. 27, No.1 (1995) pp. 42-62.

Dick, Philip K., *Counter-Clock World* (London: Harper Voyager, 2008)

Dickens, Charles, *Bleak House*, ed. Stephen Gill (Oxford: Oxford University Press, 2008)

---., *Our Mutual Friend*, ed. Adrian Poole (London: Penguin, 1997)

---., *The Personal History of David Copperfield*, ed. Nina Burgis (Oxford: Oxford University Press, 1999

Douglas-Fairhurst, Robert, *The Story of Alice: Lewis Carroll and the Secret History of Wonderland* (London: Vintage, 2016)

Draiisma, Douwe, *Metaphors of Memory* (Groningen: Historische Uitgeverij, 1995)

Duncker, Karl, 'On Problem-Solving', trans. Lynn S. Lees in John F. Dashiell, ed, *Psychological Monographs*, 58, 5 (Washington D.C.: The American Psychological Association, 1945) pp. 1-114

Dunne, J. W., *An Experiment with Time*, 3rd edn. (London: Faber and Faber, 1958)

Dyer, Ray, PhD [sic.], *Lewis Carroll's Sylvie and Bruno with Sylvie and Bruno Concluded: The Neglected Victorian Fairytale, Annotated and Re-presented* (Leicester: Matador, 2015)

Eakin, Paul John, *Fictions in Autobiography* (Princeton, NJ: Princeton University Press, 1985)

Eco, Umberto, 'On the Impossibility of Drawing a Map of the Empire on a Scale of 1 to 1' in *How to Travel with a Salmon and Other Essays* (London: Secker and Warburg, 1994) pp. 84-94.

Eddington, Arthur, *The Nature of the Physical World* (Cambridge: Cambridge University Press, 1929)

Thomas, Edward, *The Indian Swastika and its Western Counterparts* (London: Unknown, 1880)

Einstein, Albert, Letter to Max Born, 4 December 1926, *The Born-Einstein Letters*, trans. Irene Born (London: Macmillan, 1971) pp. 90-91.

---., *The World as I See It* (London: John Lane The Bodley Head Limited, 1935)

Eliade, Mircea, 'Time and Eternity in Indian Thought', trans. Ralph Manheim, in *Papers from the Eranos Yearbooks* (New York: Pantheon, 1957) pp. 173-200.

Eliot, George, *Felix Holt the Radical*, ed. Fred C. Thomson (Oxford: Oxford University Press, 1988)

Eliot, T. S., 'Burnt Norton' in *Four Quartets* (London: Harvest, 1943)

Ewerhart, Christian, 'Backward Induction and the Game-Theoretic Analysis of Chess', *Games and Economic Behaviour* 39 (2002) pp. 206-214.

Fauconnier, Gilles, *Mental Spaces: Aspects of Meaning Construction* (Cambridge, MA: MIT Press, 1985).

---., and Mark Turner, 'Rethinking Metaphor' in *The Cambridge Handbook of Metaphor and Thought*, ed. Raymond W. Gibbs, Jr. (Cambridge: University Press, 2010) pp. 53-66.

Fernyhough, Charles, *Pieces of Light* (London: Profile, 2013)

Feynman, Richard P., 'The Theory of Positrons', *Physical Review*, 76 (1949) pp. 749-759.

Fish, Stanley E., 'Sequence and Meaning in Seventeenth Century Narrative' in Earl Miner, Paul Alpers, Stanley E. Fish and Richard A. Lanham, *To Tell a Story: Narrative Theory and Practice* (Los Angeles: University of California Press, 1973) pp. 56-76.

Fleming, John Ambrose, *Magnets and Currents: An Elementary Treatise for the use of Electrical Artisans and Science Teachers* 2nd edn. (London: E. & F. N. Spon, Limited, 1902)

Fox, David, 'The Tiniest Time Traveler' in *Astounding Science Fiction* (December 1952) pp. 83-95.

Freud, Sigmund 'Appendix A: A Premonitory Dream Fulfilled', *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001), V. pp. 623-625.

---., 'Beyond the Pleasure Principle', *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) XVIII. pp. 7-64.

---., *Civilization and its Discontents* in *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) XXI. pp. 64-145.

---., Letter to Wilhelm Fliess, 6 December 1896, *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) I. pp. 233-239.

---., 'My Views on the Part Played by Sexuality in the Aetiology of the Neuroses', *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) VII. pp. 271-279.

---., 'Project for a Scientific Psychology', *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) I. pp. 295-343.

---., *The Interpretation of Dreams* in *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) IV & V. pp. 1-621.

---., *The Psychopathology of Everyday Life* in *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001) VI. pp. 1-279.

---., 'The Unconscious', *The Standard Edition of the Complete Works of Sigmund Freud*, ed. James Strachey (London: Vintage, 2001), XIV. pp. 159-204.

Friedman, William J., 'The meaning of "time" in episodic memory and mental time travel', *Behavioural and Brain Sciences*, 30 (2007), p. 323.

Furniss, Harry, *The Confessions of a Caricaturist* (London: Harper and Brothers, 1902)

Gaby, Alice, and Eve Sweetser, 'Concepts and Approaches: Space and Time', *The Cambridge Handbook of Cognitive Linguistics*, ed. Barbara Dancygier (Cambridge: Cambridge University Press, 2017) pp. 625-634.

Galton, Francis, *Hereditary Genius: An Inquiry into its Laws and Consequences* (London: Macmillan and Co., 1869).

Gardner, Martin, *The Ambidextrous Universe* (London: Allen Lane, 1967)

---., *The Ambidextrous Universe: Mirror Asymmetry and Time-Reversed Worlds*, 2nd edn, (London: Penguin, 1991)

---., *The Annotated Alice* (London: Penguin, 2001)

Genette, Gérard, *Narrative Discourse: An Essay in Method*, trans. Jane E. Lewin (Ithaca: Cornell University Press, 1983)

Gleick, James, *Time Travel: A History* (New York: Pantheon, 2016)

Good, Irving John, 'Speculations Concerning Precognition' in Irving John Good, ed., *The Scientist Speculates: An Anthology of Partly-Baked Ideas* (London: Heinemann, 1962) pp. 151-157.

Goody, Jack, *The Culture of Flowers* (Cambridge: Cambridge University Press, 1993)

Green, Donald P., and Ian Shapiro, *Pathologies of Rational Choice Theory: A Critique of Applications in Political Science* (New Haven, CT: Yale University Press, 1996)

Gross, John, *The Rise and Fall of the Man of Letters: English Literary Life Since 1800* (London: Penguin, 1991)

Hacking, Ian, *The Taming of Chance* (Cambridge: Cambridge University Press, 1991)

Haeckel, Ernst, *The Riddle of the Universe: At the Close of the Nineteenth Century* (New York: Harper and Brothers, 1900)

Hamilton, William, *Lectures on Metaphysics and Logic* (New York: Sheldon and Company, 1858)

Hapgood, Charles H., *Earth's Shifting Crust: A Key to Some Basic Problems of Earth Science* (New York: Pantheon, 1958)

Hassabis, Demis, et al., 'Patients with Hippocampal Amnesia Cannot Imagine New Experiences', *Proceedings of the National Academy of Sciences of the United States of America*, 104 (2007) pp.1726-1731.

Hayles, N. Katherine, *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago Press, 2017)

Hegel, G. W. F. *The Phenomenology of Spirit*, trans. A. V. Miller (Oxford: Oxford University Press, 1977)

---., *The Philosophy of History*, intr. C. J. Friedrich (New York: Dover, 1956)

---., *The Philosophy of Nature*, trans. A. V. Miller (Oxford: Oxford University Press, 1970)

Heinlein, Robert, 'Life-Line' in *Expanded Universe: The New Worlds of Robert Heinlein* http://www.baen.com/Chapters/0743471598/0743471598___2.htm [accessed 3 July 2019].

Heisenberg, W. 'Über den anschaulischen Inhalt der quantentheoretischen Kinematik und Mechanik', Zeitschrift für Physik, Vol. 43, No. 3-4 (1927), pp. 172-198

Herbert, Christopher, *Victorian Relativity: Radical Thought and Scientific Discovery* (Chicago: Chicago University Press, 2001)

Hermanns, William, *Einstein and the Poet: In Search of the Cosmic Man* (Wellesley, MA: Branden Books, 1983)

Hohwy, Jacob, *The Predictive Mind* (Oxford: Oxford University Press, 2013)

Hume, David, *A Treatise of Human Nature*, ed. L. A. Selby-Bigge (Oxford: Clarendon Press, 1975)

---., *Enquiries Concerning Human Understanding and Concerning the Principle of Morals*, ed. L. A. Selby-Bigge, 3rd edn, revised by P. H. Nidditch, (Oxford: Clarendon Press, 1989)

Hutton, R. H., Unsigned review in *Spectator* reprinted in H. G Wells, *The Time Machine: An Invention* (London: Penguin, 2012)

Huxley, Aldous, *The Perennial Philosophy* (London: Chatto and Windus, 1946)

James, William, 'Bradley or Bergson?', *William James's Collected Essays and Reviews*, ed. Ralph Barton Perry (London: Longmans, Green and Co., 1920) pp. 491-499.

Johnson, Mark, *Moral Imagination: Implications of Cognitive Science for Ethics* (Chicago: University of Chicago Press, 1993)

Kahn, Charles H., *The Art and Thought of Heraclitus: An Edition of the Fragments with Translation and Commentary* (Cambridge: Cambridge University Press, 1979)

Kant, Immanuel, *Critique of Judgement* in *Kant's Critique of Judgement*, trans. J. H. Bernard, 2nd edn. (London: Macmillan, 1914)

---., *Critique of Pure Reason*, trans. Friedrich Max Müller (London: Macmillan and Co., 1881)

---., *The Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan, 1989)

---., *Dissertation on the form and Principles of the Sensible and Intelligible World*, trans. John Handyside in *Kant's Inagural Dissertation and Early Writing on Space* ed. John Handyside and Norman Kemp Smith (La Salle, IL: Open Court, 1929)

---., *Groundwork of the Metaphysic of Morals*, ed. Mary Gregor, intro. Christine M. Korsgaard (Cambridge: Cambridge University Press, 2006)

---., *Prolegomena to any Future Metaphysics that will be Able to Present Itself as a Science*, trans. Peter G. Lucas (Manchester: Manchester University Press, 1953)

Kent, Roland G., 'Hysteron-Proteron in the Aeneid I-IV', *The Classical Weekly*, Vol. 3, No. 10 (1909) pp. 74-78.

Kermode, Frank, *The Sense of an Ending: Studies in the Theory of Fiction* (New York: Oxford University Press, 1967)

Kern, Stephen, *The Culture of Time and Space, 1880-1918* (Cambridge, MA: Harvard University Press, 2003)

Kierkegaard, Søren, *Either/Or*, trans. Alastair Hannay (London: Penguin, 2004)

---., *Fear and Trembling* in *Fear and Trembling and the Sickness unto Death*, trans. Walter Lowrie (Princeton: Princeton University Press, 2013)

---., *Journals and Notebooks*, ed. Niels Jorgen Cappelørn, Alastair Hannay, David Kangas, Bruce H. Kirmmse, George Pattison, Vanessa Rumble, and K. Brian Söderquist, (Princeton: Princeton University Press, 2007)

---., *The Sickness unto Death* in *Fear and Trembling and the Sickness unto Death*, trans. Walter Lowrie (Princeton: Princeton University Press, 2013)

Klein, S. B., 'The Complex Act of Projecting Oneself into the Future', *Wiley Interdisciplinary Reviews: Cognitive Science*, 4, 1, (2013) pp. 63-79

---., 'The temporal orientation of memory: it's time for a change of direction', *Journal of Applied Research in Memory and Cognition*, 2, 4 (2013), pp. 222-234.

Koestler, Arthur, *The Act of Creation* (New York: Macmillan, 1964)

Korzybski, Alfred *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*, 5th edn. (Brooklyn, NY: Institute of General Semantics, 2000)

Krzhizhanovsky, Sigizmund, 'The Bookmark', *Memories of the Future*, trans. Joanne Turnbull (New York: New York Review of Books, 2009) pp. 15-51.

---., 'Someone Else's Theme', *Memories of the Future*. pp. 53-85.

Kuhn, Thomas, *The Structure of Scientific Revolutions*, 4th edn., intr. Ian Hacking (Chicago: Chicago University Press, 2012).

Lacan, Jacques, 'The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience' [1949] in *Écrits*, trans. Bruce Fink (London: W. W. Norton & Company, 2006) pp. 75-81.

Lakoff, George, and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 2003)

Lashley, K. S., 'In search of the engram', *Society of Experimental Biology Symposium, No. 4: Psychological Mechanisms in Animal Behavior* (Cambridge: Cambridge University Press, 1950). pp. 454-482.

Leonard, Jeffrey, 'In place of lost time', *Triquarterly*, 17 (Winter 1970) pp. 136-146.

Lewes, G. H. *The Physical Basis of Mind* (London: Trübner, & Co., 1874-1879)

Lewis, David, 'The Paradoxes of Time Travel', *American Philosophical Quarterly*, 13, 2 (1976) pp. 145-152.

Lewis, Wyndham, *Time and Western Man* (London: Chatto and Windus, 1927)

Liddell, Henry George, and Robert Scott, *An Intermediate Greek-English Lexicon*, 7th edn. (Oxford: Clarendon Press, 1889)

Lifton, Robert Jay, *The Nazi Doctors: Medical Killing and the Psychology of Genocide* (New York: Basic Books, 1986)

Lindberg, David C., *Theories of Vision from Al-Kindi to Kepler* (Chicago, IL: University of Chicago Press, 1981)

Locke, John, *An Essay Concerning Human Understanding*, ed. P. H. Nidditch (Oxford: Oxford University Press, 1979)

Lotze, Rudolf Hermann, *Lotze's System of Philosophy*, ed. Bernard Bosanquet (Oxford: Clarendon Press, 1884)

---., 'Philosophy in the Last Forty Years', *The Contemporary Review*, XXXVII (1880) pp. 134-155.

Lovett, Charlie, *Lewis Carroll Among his Books* (Jefferson, NC: McFarland, 2005).

Lukaćs, Georg, *The Theory of the Novel: A Historico-Philosophical Essay on the Forms of Great Epic Literature* (Cambridge, MA: MIT Press, 1987)

Macintyre, Alasdair, *After Virtue*, 3rd edn. (London: Bloomsbury, 2007).

Mansel, H. L., *The Philosophy of the Conditioned: Comprising Some Remarks on Sir William Hamilton's Philosophy and on Mr. John Stuart Mill's Examination of that Philosophy* (London: Alexander Strahan, 1866)

Max Müller, Friedrich, Letter to Heinrich Schliemann (undated), in Heinrich Schliemann, *Ilios, Ville et pays des Troyens : résultat des fouilles sur l'emplacement de Troie et des explorations faites en Troade de 1871 a 1882* (Paris: Librarie Firmin-Didot et cie., 1885) pp. 517-521.

---., trans., *Upanishads*, rev. Suren Navlakha (Hertfordshire: Wordsworth, 2000)

Maxwell, James Clerk, 'A Paradoxical Ode', *The Life of James Clerk Maxwell*, ed. Lewis Campbell and James Garnett (London: Macmillan and Co., 1882) pp. 649-651.

---., *A Treatise on Electricity and Electromagnetism* (Oxford: Clarendon Press, 1873)

---., 'Does the progress of Physical Science tend to give any advantage to the opinion of Necessity (or Determinism) over that of the Contingency of Events and the Freedom of the Will?', *The Life of James Clerk Maxwell*, ed. Lewis Campbell and James Garnett (London: Macmillan and Co., 1882) pp. 434-444.

---., 'Introductory Lecture on Experimental Physics', *The Scientific Papers of James Clark Maxwell*, ed. W. D. Niven (New York: Dover, 1965) II. pp. 241-255.

---., Letter to Herbert Spencer, 5 December 1873 in *The Scientific Letters and Papers of James Clerk Maxwell*, ed. P. M. Harman (Cambridge: Cambridge University Press, 1995) II. pp. 956-961.

---., Letter to Mark Pattison, 7 April 1868 in *The Scientific Letters and Papers of James Clerk Maxwell*, ed. P. M. Harman (Cambridge: Cambridge University Press, 1995) II. pp. 358-361.

---., Letter to William Strutt, 6th December 1870 in *The Scientific Letters and Papers of James Clerk Maxwell*, ed. P. M. Harman (Cambridge: Cambridge University Press, 1995) II. pp. 582-583

---., 'Molecular Evolution' *The Life of James Clerk Maxwell*, ed. Lewis Campbell and James Garnett (London: Macmillan and Co., 1882) pp. 637-638.

McEwan, Ian *The Child in Time* (London: Picador, 1988)

---., *The Cockroach* (London: Jonathan Cape, 2019)

McTaggart, J. M. E., 'The Unreality of Time', *Mind* (1908), XVII, 4 pp. 457-474.

Michaelian, Kourken, 'Against Discontinuism: Mental Time Travel and our Knowledge of Past and Future Events' in Kourken Michaelian, Stanley B. Klein and Karl K. Szpunar, eds., *Seeing the Future: Theoretical Perspectives on Future-Oriented Mental Time Travel* (Oxford: Oxford University Press, 2016) pp. 62-92.

---., *Mental Time Travel: Episodic Memory and Our Knowledge of the Personal Past* (Cambridge, MA: MIT Press, 2016)

Milgram, Stanley, 'Behavioural Study of Obedience', *Journal of Abnormal and Social Psychology*, 67 (1963) pp. 371-378.

Milton, John, *Paradise Lost*, ed. Alastair Fowler 2nd. rev. edn (Harlow: Pearson, 2007)

Monier-Williams, Monier, *Buddhism, in its Connexion with Brāhmanism and Hindūism, and in its Contrast with Christianity*, 2nd edn. (London: John Murray, 1890)

Monod, Jacques, *Chance and Necessity*, trans. Austryn Wainhouse (London: Collins, 1972)

Mosse, George L., *Masses and Man: Nationalist and Fascist Perceptions of Reality* (New York: Howard Fertig, 1980)

Muirhead, J. H., *Coleridge as Philosopher* (London: George Allen & Unwin, 1930)

Nabokov, Vladimir, *Ada or Ardor: A Family Chronicle* (New York: Vintage, 1990)

---., *King Queen Knave*, trans. Dmitri Nabokov (Oxford: Oxford University Press, 1988)

---., Letter to Graham Greene, 31 December 1956, *Vladimir Nabokov: Selected Letters*, ed. Dmitri Nabokov and Matthew J. Bruccoli (New York: Harcourt Brace Jovanovich, 1989) pp. 197-198.

---., *Look at the Harlequins!* (London: Penguin, 2011)

---., *Pale Fire* (London: Everyman's Library, 1992)

---., *Speak, Memory* (London: Penguin, 2016)

---., *Strong Opinions* (London: Vintage, 2011)

---., *The Annotated Lolita*, ed. Alfred Appel Jr. (London: Penguin, 2000)

---., 'The Art of Literature and Commonsense' in *Lectures on Literature*, ed. Fredson Bowers (London: Picador, 1983) pp. 371-380.

---., *The Defense*, trans. Michael Scammell (London: Weidenfeld and Nicholson, 1964)

---., 'The Visit to the Museum', trans. Dmitri Nabokov, in *The Stories of Vladimir Nabokov*, ed. Dmitri Nabokov (London: Penguin, 1997) pp. 277-285.

---., 'Ultima Thule', *Vladimir Nabokov: Collected Stories*, ed. Dmitri Nabokov (London: Penguin, 1995) pp. 500-522.

Nagel, Ernest, 'An Experiment with Time by J. W. Dunne' (review), *The Journal of Philosophy*, vol. 24, no. 25 (1927) pp. 690-692.

Nehamas, Alexander, *Nietzsche: Life as Literature* (Cambridge, MA: Harvard University Press, 1985)

Nietzsche, Friedrich, *Beyond Good and Evil: Prelude to a Philosophy of the Future*, trans. Walter Kaufmann (New York: Vintage, 1966)

---., *Human, all too Human*, trans. Marion Faber and Stephen Lehmann (London: Penguin, 2004)

---., *On the Genealogy of Morality*, trans. Carol Diethe, ed. Keith Ansell-Pearson (Cambridge: Cambridge University Press, 2000)

---., *On Truth and Lie in an Extra-Moral Sense*, trans. A. K. M. Adam (Oxford: Quadriga, 2019)

---., *The Dawn of Day*, trans. J. M. Kenny (New York: Dover, 2007)

---., *The Gay Science*, ed. Bernard Williams (Cambridge: Cambridge University Press, 2001)

---., *The Will to Power*, trans. Walter Kaufmann and R. J. Hollingdale, ed. Walter Kaufmann (New York: Vintage, 1968)

Nuñez, Rafael, 'Conceptual Metaphor, Human Cognition, and the Nature of Mathematics' in Raymond W. Gibbs, ed., *The Cambridge Handbook of Metaphor and Thought* (Cambridge: Cambridge University Press, 2008) pp. 339-362.

Nye, Robert A., *Honour, Impotence, and Male Sexuality in Nineteenth Century French Medicine*, *French Historical Studies*, Vol. 16, No. 1, (Spring, 1989) pp. 48-71.

Perrin, Denis, 'Asymmetries in Subjective Time' in Kourken Michaelian, Stanley B. Klein and Karl K. Szpunar, eds., *Seeing the Future: Theoretical Perspectives on Future-Oriented Mental Time Travel* (Oxford: Oxford University Press, 2016), pp. 39-61.

Pick, Daniel, *Faces of Degeneration: A European Disorder, c.1848-1918* (Cambridge: Cambridge University Press, 1996)

Pitcher, George, 'Wittgenstein, Nonsense, and Lewis Carroll', *The Massachusetts Review* 6, 3 (1965) pp. 591-611

Plato, *Phaedrus* in *Phaedrus & Letters VII and VIII*, trans. Walter Hamilton (London: Penguin, 1973)

---., *Politicus* in *The Sophistes and Politicus of Plato*, trans. Lewis Campbell (Oxford: Clarendon Press, 1867)

---., *Republic* in *The Republic of Plato* trans. John Llewyn Davies and David James Vaughan (London: Macmillan, 1921)

Plessner, Helmuth, 'On the Relation of Time to Death', trans. Ralph Manheim, in *Papers from the Eranos Yearbooks* (New York: Pantheon, 1957) pp. 233-263.

Poe, Edgar Allan, 'The Philosophy of Composition', Graham's Magazine, Vol. XXVIII, No. 4 (1846) pp. 163-167.

Popper, K. R. 'A Note on Berkeley as Precursor of Mach and Einstein', *Conjectures and Refutations: The Growth of Scientific Knowledge* (London: Routledge, 2002) pp. 224-236

---., 'A Note on Berkeley as Precursor of Mach', *The British Journal for the Philosophy of Science*, IV, 13 (1953) pp. 26-36.

---., *The Open Society and its Enemies*, 5th rev. edn. (London: Routledge, 1966)

---., *The Poverty of Historicism* (New York: Harper and Row, 1964)

---., *Unended Quest: An Intellectual Autobiography* (London: Routledge, 2002)

Prigogine, Ilya, and Isabelle Stengers, *Order out of Chaos* (New York: Bantam, 1984)

Proclus, *A Commentary on the First Book of Euclid's Elements*, trans. Glen R. Morrow (Princeton: Princeton University Press, 1970)

Pynchon, Thomas, *The Crying of Lot 49* (London: Vintage, 2000)

Reichenbach, Hans, *The Direction of Time*, ed. Maria Reichenbach (Berkeley, CA: University of California Press, 1956)

Reid, Thomas, *Essays on the Intellectual Powers of Man*, intr. Baruch A. Brody (Cambridge, MA: MIT Press, 1969)

Rorty, Richard, *Contingency, Irony, Solidarity* (Cambridge: Cambridge University Press, 1995)

---., 'Texts and Lumps', *New Literary History*, 17, 1 (1985) pp. 1-16.

Rousseau, George, 'The perpetual crises of modernism and the traditions of Enlightenment vitalism: with a note on Mikhail Bakhtin' in *The Crisis in Modernism: Bergson and the Vitalist Controversy*, eds. Frederick Burwick and Paul Douglass (Cambridge: Cambridge University Press, 2010), pp. 15-75.

Royce, Josiah, *The World and the Individual* (London: Macmillan & Co., Ltd., 1900)

Royle, Nicholas, *Veering: A Theory of Literature* (Edinburgh: Edinburgh University Press, 2011)

Ruskin, John, *The Seven Lamps of Architecture* in *The Works of John Ruskin*, ed. E. T. Cook and Alexander Wedderburn (London: George Allen, 1903), VIII. pp. 17-266.

Russell, Bertrand, *A History of Western Philosophy* (London: George Allen and Unwin Ltd. 1946)

---., *Introduction to Mathematical Philosophy* (London: George Allen & Unwin, 1920)

---., *The Analysis of Mind* (London: George Allen & Unwin, Ltd., 1921)

Russell, J., D. M. Alexis and N. S. Clayton, 'Episodic future thinking in 3- to 5-year-old children: The ability to think of what will be needed from a different point of view', *Cognition*, 114 (2009) pp. 56-71

Ryle, Gilbert, *The Concept of Mind* (London: Hutchinson, 1949)

Santayana, George, *Lotze's System of Philosophy*, intr. Paul Grimley Kuntz (Bloomington, IN: Indiana University Press, 1971).

Sartre, Jean-Paul, *Words*, trans. Irene Clephane (London: Penguin, 1985)

Schacter, Daniel L., and Donna Rose Addis 'The Cognitive Neuroscience of Constructive Memory: Remembering the Past and Imagining the Future', *Philosophical Transatctions of the Royal Society of London*, Series B, 362, pp. 773-786.

---., et al., 'Remembering the Past to Imagine the Future: The Prospective Brain', *Nature Reviews Neuroscience*, 8 (2007), pp. 657-661.

---., et al., 'The Future of Memory: Remembering, Imagining, and the Brain', *Neuron*, 76, 4 (2012) pp. 677-694.

Schivelbusch, Wolfgang, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Oakland, CA: University of California Press, 2014)

Self, Will, and Martin Amis, 'An interview with Martin Amis', *Mississipi Review*, 21, 3 (1993) pp. 144-5.

Shakespeare, William, *Hamlet* in *The Norton Shakespeare*, ed. Steven Greenblatt et al., 2nd edn. (London: W. W. Norton and Company, Inc., 2008)

---., *Measure for Measure Hamlet* in *The Norton Shakespeare*, ed. Steven Greenblatt et al., 2nd edn. (London: W. W. Norton and Company, Inc., 2008)

---., Sonnet 129 in *The Norton Shakespeare*, ed. Steven Greenblatt et al., 2nd edn. (London: W. W. Norton and Company, Inc., 2008)

Shannon, Claude E., 'Programming a Computer for Playing Chess', *Philosophical Magazine*, Vol 41., No. 314 (1950) pp. 256-275.

Sherry, Norman, *The Life of Graham Greene*, (London: Jonathan Cape, 1989)

Shute, Jenefer, 'Nabokov and Freud' in *The Garland Companion to Nabokov*, ed. Vladimir E. Alexandrov (Abingdon: Routledge, 2014) pp. 412-420.

Sibley, Brian 'The Poems to *Sylvie and Bruno*', *Jabberwocky*, 23 (1975) pp. 51-58.

Slater, Maya, 'Problems When Time Moves Backwards: Martin Amis's Time's Arrow', *English*, 42, 143, p. 141-152.

Sontag, Susan, *On Photography* (London: Penguin, 1973)

Spencer, Herbert, *First Principles* (London: Williams and Norgate, 1863)

Stanley Hall, G., *Founders of Modern Pyschology* (New York: D. Appleton and Company, 1912)

Steiner, George, 'Extraterritorial' in *Extraterritorial: Papers on Literature and the Language Revolution* (New York: Atheneum, 1971) pp. 3-11.

Stevens, Wallace, 'The Man with the Blue Guitar', *Selected Poems*, ed. John N. Serio (New York: Alfred Knopf, 2009)

Strawson, Galen, 'Episodic Ethics', *Royal Institute of Philosophy Supplement*, Vol. 60 (2007) pp. 85-116.

---., *The Subject of Experience* (Oxford: Oxford University Press, 2017).

Stuart Mill, John, *An Examination of Sir William Hamilton's Philosophy* (Longman, Green, Longman, Roberts & Green, 1865)

---., *A System of Logic, Ratiocinative and Inductive* (London: John W. Parker, 1843)

Stückelberg, E. C., ' La mécanique du point materièle au théorie de relativité et en théorie des quants', *Helvetica Physica Acta*, 15 (1942) pp. 23-37.

---., 'Un nouveau modèle de l'électron pontuel', *Helvetica Physica Acta*, 14 (1941) pp. 588-594.

Sturrock, John, 'The New Model Autobiographer' *New Literary History*, 9, 1 (1977) pp. 51-63.

Suddendorf, Thomas, *The Gap* (New York: Basic Books, 2013)

Sun [New York], 9 July 1872

Susskind, Leonard, *Black Hole War: My Battle with Stephen Hawking to Make the World Safe for Quantum Mechanics* (New York: Little, Brown and Company, 2008)

Szpunar, K. K., 'Episodic Future Thought: An Emerging Concept', *Perspectives on Psychological Science*, 5, 2 (2010), pp. 142-162.

Tennyson, Alfred Lord, 'The Charge of the Light Brigade' in Robert W. Hill, Jr., ed., *Tennyson's Poetry*, 2nd edn. (London: W. W. Norton, 1999)

Thompson, Evan, *Waking, Dreaming, Being* (New York: Columbia University Press, 2015)

Thomson, William, 'The Kinetic Theory of the Dissipation of Energy', *Nature*, 9 (1874) pp. 441-444

Toulmin, Stephen, and June Goodfield, *The Discovery of Time* (New York: Harper and Row, 1966)

Tulving, Endel, *Elements of Episodic Memory* (Oxford: Oxford University Press, 1983)

---., 'Episodic and Semantic Memory' in *Organization of Memory*, ed. Endel Tulving and Wayne Donaldson, (New York: Academic Press, 1972), pp. 381 – 403.

Turner, Mark, *The Literary Mind* (Oxford: Oxford University Press, 1996).

Updike, John, introduction to 'The Best American Short Stories of the Century' ed. John Updike and Katrina Kenison in *Higher Gossip: Essays and Criticism*, ed. Christopher Carduff (London: Hamish Hamilton, 2012) pp. 96-105

Vaihinger, Hans, *The Philosophy of 'As If': A System of the Theoretical, Practical and Religious Fictions of Mankind*, trans. C. K. Ogden (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1924)

Virdee, Douglass, 'Backwards time: Causal catachresis and its influence on viewpoint flow', *Cognitive Linguistics* 30, 2 (2019) pp. 417-438.

Voltaire, *Micromégas* in *Zadig et Micromégas* (London: Routledge, 1886)

Vonnegut, Kurt, Jr., *Slaughterhouse-Five or The Children's Crusade: A Duty Dance with Death* (London: Vintage, 1991)

Wakeling, Edward, ed., ed., *Lewis Carroll's Diaries* (Luton: L&T Press, 1993) I.

---., *Lewis Carroll's Diaries* (Luton: L&T Press, 2004) VIII.

Waugh, Evelyn, *A Little Learning* (London: Chapman & Hall, 1964)

Waugh, Patricia, 'Just-so Stories? Science, narrative, and Postmodern Intertextualities' in Rüdiger Ahrens and Klaus Stierstorfer, eds., *Symbolism: An International Annual of Critical Aesthetics*, Vol. 5 (New York: AMS Press, 2005) pp. 223-262.

Wells, H. G., *The Time Machine* (London: Penguin, 2012)

White, Hayden, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore: Johns Hopkins Press, 1980)

Whitehead, Anne, *Memory* (Oxford: Routledge, 2009)

Whitrow, G. J., *The Natural Philosophy of Time* (Edinburgh: Thomas Nelson, 1961)

Wiggam, Albert A., *New Decalogue of Science* (Indianapolis: Bobbs-Merrill, 1923)

Williams, Bernard, *Ethics and the Limits of Philosophy* (Cambridge, MA: Harvard University Press, 1985)

Wittenberg, David, *Time Travel: The Popular Philosophy of Narrative* (New York: Fordham University Press, 2013)

Zermelo, Ernst, 'Uber eine Anwendung der Mengenlehre auf die Theorie des Schachspiels,' in *Proceedings of the Fifth Congress Mathematicians, Cambridge 1912* (Cambridge: Cambridge University Press, 1913) pp. 501-504.

Zöllner, J. C. Friedrich, 'On Space of Four Dimensions', *The Quarterly Journal of Science*, VIII, lviii (1878) pp. 227-237.

Zweig, Stefan, *Chess*, trans. Anthea Bell (London: Penguin, 2011)