ABSTRACT
This article argues that scientific language and theory, combined with Samuel Beckett’s study of philosophy, helps to shape the representations of movement patterns in his post-war trilogy of novels. Taking its cue from Beckett’s engagement with scientific writing in the late 1920s and early 1930s, this article explores the physical and imperceptible forces that complicate the movements of characters in his prose fiction. The advances in quantum physics, which resonated with Beckett’s attraction to both ancient atomism and the seventeenth-century ‘Natural Science Period’ of philosophy, inform his prose style and structural principles. By making use of newly available material, including archival research, I show that the terminology of natural science frequently reverberates through his writing, especially in his peculiar descriptions of moving bodies. I suggest that, for Beckett, the artistic process becomes a contraction, reducing motion to its fundamental terms in an attempt to understand the processes that underpin it. Movement, nonetheless, remains unpredictable, ceaseless, and technically difficult to represent.

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The strange movements of Samuel Beckett’s characters in his inter-war to early post-war prose indicate an interest in the implications of natural science and the shifting paradigms of theoretical physics. The following sentence from Molloy (French 1951; English 1955), the peculiarity of which prompted this exploration into science and movement, exemplifies Beckett’s representation of mysterious motion and motivational inexplicability: ‘I knew the town well, for I was born there and had never succeeded in putting between it and me more than ten or fifteen miles, such was its grasp on me, I don’t know why.’ The critical irony is that the narrator knows ‘the town well’, yet is unable, or at least reluctant, to explicate this attachment. Why does the town exert a seemingly magnetic force over
Molloy? Relatedly, how are we to read the inexplicable ‘grasp’ that restricts his movement patterns? That characters, or literary ‘creatures’ as Beckett would have it, are mysteriously propelled by unspecified forces, here towards urban space, is a curious feature of many of his writings. Molloy finds a surprisingly specific maximum perimeter and trajectory of ‘no more than ten or fifteen miles’ from the town, as he periodically recalls swerving back upon the ‘familiar ramparts’ and the city ‘lights of Bally’, a linguistic allusion to the Irish name for Dublin (p. 26; p. 156). These ‘ten or fifteen miles’, a physical distance that could be walked in a day leaving time to return, establish an understated circadian rhythm in Molloy. In the English translation, ‘the town’ exercises a physical ‘grasp’ on Molloy, whereas the original French text, which helps us to understand more fully this strange ‘grasp’ of the city and its effect on Molloy’s restricted agency, reads, ‘tante elle exerçait d’attraction sur moi, je ne sais pourquoi’. Although ‘exercer de’ could be translated as ‘to exert control on’ or ‘to exercise an attraction over’, Beckett opts for a more bodily metaphor to convey an unidentifiable force. While ‘grasp’, etymologically related to ‘gropes’ (OED), is a conspicuously physical action, the French noun ‘attraction’ allows us to read along a different grain, since it evokes the ‘lois de Képler’ describing the motions of planets that Beckett had marked in Pierre Rousseau’s Exploration du ciel (1939), a work of popular science he read in the late 1930s. This minor discrepancy points towards a wider technical struggle in Beckett’s oeuvre, the difficulty of expressing and representing movement.

Exhibiting his keen and abiding translator’s interest in the connotations of language, Beckett conjures up gravitational and magnetic fundamental force through ‘attraction’, an association that is undone in the English. Together with the later connection between ‘bodies and trajectories’ (‘corps et trajectoires’), ‘perpetual motion’ (‘un mouvement perpétuel’), and ‘velocities’ (‘leurs vitesses de déplacement’) in The Unnamable (1953; 1958), which connote the paths of bodies under the action of given forces, these nouns call to mind the lexicon of celestial mechanics and the seventeenth-century scientific revolution (p. 318; p. 289; p. 293). The external forces seem to draw Molloy, who appears more atomic or astral than anthropoid, towards the clustered mass of urban space. In the so-called ‘trilogy’ of novels, Molloy, Malone meurt (1951; 1956), and L’Innommable, cities and bodies are recurrently foci of elliptical orbits, larger centres of mass to which smaller bodies are implacably ‘bound’ (p. 22). Toying with the conventions of a quest narrative, Molloy seeks ‘refuge near the centre’, as his ‘mother’s room’ and the ‘native town’ function as lodestones (p. 108; p. 3). The near stationary figure of the Unnamable, stirring and still capable of imagining revolving courses, visualises ‘the transit of Malone’ and can feel him ‘wheel’, ‘like a planet about its sun’, before wondering whether he can ‘work out to within a few inches the orbit’ (p. 289; p. 293). Reflecting the elusive concepts
of space and motion generated by relativity and quantum mechanics, Beckett’s
disorientating and porous narratives obliquely challenge the first Keplerian law
that fixes ‘la nature des trajectoires’. The mysterious theoretical developments
of twentieth-century physics have affinities with Molloy’s own spatial incom-
prehension, ‘I don’t know how I got there’, and the peculiar movement patterns of Beckett’s characters more broadly (p. 3).

Beckett appears to have been stimulated by Henri Poincaré’s reconcilia-
tion between the wider universe and the subatomic world, which the
former copied into his ‘Whoroscope’ Notebook in 1938: ‘Ces astres infini-
ment petits, ce sont les atomes’. Published in Poincaré’s philosophically
slanted 1905 work, La Valeur de la science, this metaphor builds on earlier
attempts to render the atomic world visible while also anticipating Ernest
Rutherford and Niels Bohr’s synecdochic orbital and solar models of the
atom. Expanding upon the comparison, which provides an intriguing
model for magnetic or polarised movement, the following line, which
Beckett copied out, reads: ‘Comme les astres proprement dits, ils s’attirent
ou se repoussent, et cette attraction ou celle repulsion, dirigée suivant la
droite qui les joint, ne dépend que de la distance’. Carrying this atomic-
astral simile and aesthetic model through to his fiction, Beckett’s figures,
impelled by imperceptible, gravitational forces, often oscillate unheedingly
between poles of ‘attraction’ and ‘répulsion’. Beckett’s ‘Whoroscope’ and
‘Dream’ notebooks, alongside the publication of Samuel Beckett’s Library
(2013), confirm that he read, copied, and underlined passages from at least
two French, twentieth-century works of popular science: Pierre Rousseau’s
Exploration du ciel and Henri Poincaré’s La Valeur de la science. Though
it is also widely known that Beckett was interested in evolutionary theory,
reading Charles Darwin’s On the Origin of Species (1859) in 1932, his engage-
ment with the rapidly changing disciplines of physics and astronomy has
hitherto been underestimated. Alongside his ‘awareness of contemporary
entomology’, Beckett also studied the advances in physical sciences,
reading Spencer Jones’s article ‘Is There Life in Other Worlds?’ (1939) in Discovery: A Monthly Popular Journal of Knowledge, and making notes on James
Jeans’s chapter ‘Exploring the Sky’ from The Universe Around Us (1929) in
his ‘Dream’ Notebook. In a letter of 1932 to his friend Thomas McGreevy,
Beckett impudently described Darwin’s book as ‘badly written catlap’, with
the peculiar colloquial categorisation identifying the prose as a kind of
weak drink, suitable only for felines. Implicitly, then, Darwin’s work lacks
the poetic style of works of popular physics, such as Poincaré’s more philo-
sophical scientific text. Poincaré’s examination of the ways in which scien-
tists attempt to translate mathematical physics into language shares
affinities with Werner Heisenberg’s later connection between microphysics
and linguistic possibility: ‘Can one speak about the atom itself? This is a
problem of language as much as of physics’. As Molloy’s admission to an
'interest in astronomy' indicates, Beckett’s dialogue with natural science continued through the 1930s and into the post-war ‘frenzy of writing’ that includes the trilogy (p. 35).11

From *Dream of Fair to Middling Women* (1932; hereafter *Dream*), through to *Murphy* (1938), *Watt* (written 1941–44; published 1953), and into the post-war trilogy, Beckett creates non-Euclidean worlds of flux, uncertainty, and discontinuity that progressively resist simplistic contextualisation, and obliquely respond to emerging concepts drawn from physics and astronomy. The twentieth-century quantum mechanics of leading physicists, such as Bohr and Heisenberg, including the latter’s renowned uncertainty principle, significantly reshaped perceptions of the workings of the universe, revealing the unpredictable behaviour of matter on the atomic scale. Continuously critical of classical mechanics, Poincaré had emphasised the validity of non-Euclidean geometry, whilst quantum theory had forcefully reintroduced discontinuity and chance into contemporary science. By reconstructing an inter-war Beckett as a receptive young artist, who recognised the importance of these paradigm shifts, we can better apprehend the movements of characters in his novels, which often allude to physical theory and mysterious principles of motion. This article challenges the chronology of Nikolai Duffy’s claim that

[f]or all Beckett’s early reading into the history of philosophy and science [...] it is not until later, and particularly starting from *The Unnamable*, that the interest in physics starts to shape the method of Beckett’s writing. The prose changes.12

By situating this present article in the body of criticism written in the light of the materials made available following the ‘archival turn’ in Beckett Studies – the publication of the *Letters, Samuel Beckett’s Library* (2013), and the ongoing Digital Manuscript Project – I show that this interrelation between literature and science is a far more nuanced and gradual process than Duffy proposes. Nonetheless, the suggestion that an ‘interest in physics’ changes the style and structure of Beckett’s prose is an argument that I wish to examine in closer detail.

In the ‘Ithaca’ episode of *Ulysses* (1922), James Joyce sifts material from mechanical law to directly contrast Leopold Bloom, ‘the centripetal remainer’, with Stephen Dedalus, ‘the centrifugal departer’.13 Tracing this para-scientific discourse through to *Dream*, we find Joyce’s fingerprints on the descriptions of Belacqua Shuah’s movement, a character who is ‘[c]entripetal, centrifugal and … not’.14 Distinguishing his own writing from Joyce’s, however, Beckett presents the mechanical terms only to negate them, following the teasing ellipsis, a punctuational feature that would become crucial in his dramatic writing.15 Beckett’s comparison of movement in the
‘Purgatories’ of Joyce and Dante’s work in the final paragraph of his essay ‘Dante … Bruno. Vico.. Joyce’ (1929) suggests an early relativity of motion:

A last word about the Purgatories. Dante’s is conical and consequently implies culmination. Mr. Joyce’s is spherical and excludes culmination. […] In the one, absolute progression and a guaranteed consummation: in the other, flux – progression or retrogression, and an apparent consummation. In the one movement is unidirectional, and a step forward represents a net advance: in the other movement is non-directional – or multi-directional, and a step forward is, by definition, a step back […] Purgatory a flood of movement and vitality.16

The confusing, ‘multi-directional’ movement described here offers an insight into Beckett’s reluctant choreographing of creatures in his early novels and beyond. The geometrical language of ‘conical’ and ‘spherical’ space is intertwined with the scientific discourse of ‘vegetation’ and ‘vitality’. While the twice-repeated ‘consummation’ implies sexual intercourse, the similar sounding noun ‘culmination’ is likely an astrological reference to the reaching of the meridian by a celestial body, which Virgil references in Dante’s Purgatorio.17 For Beckett, where there is a climactic point in Dante’s text, there is none in Joyce’s. The term ‘flux’ signals a conjunction between the Heraclitan state of constant change and the rate of flow of particles through a specified area, as Beckett contrasts the teleology of the former’s narrative with the continuous change and instability of the latter text. Reading this extract from ‘Dante’ in relation to Belacqua’s motion in Dream, and alongside the later trilogy, can help us to understand the mechanics of the post-war prose. That Belacqua is ‘centripetal, centrifugal and … not’ advertises an engagement with the ‘multi-directional’ and ‘non-directional movement’ of Joyce’s textual flux worlds. Corresponding to quantum theory and Bohr’s concept of complementarity, which impinge on the difficulty of expressing movement in fiction, Beckett reads a ‘step forward’ as ‘a step back’. Remembering Beckett’s ‘Ding-Dong’, an important early piece that works through the difficulty of expressing motion, the monosyllabic ‘gress’ is favoured over ‘regress’ or ‘progress’, suggesting Beckett’s desire to become a more performatively inexpressive artist than Joyce or Dante.18 Simply to step or to move holds sufficient interest, and is enough of a representational anxiety.

Alert to an age that demanded less straightforward conceptions and patterns of movement, Beckett parodies crudely mechanistic ‘clockwork’ explanations of literary figures who simply go through the motions. In Dream, the ‘quiet’ of Belacqua’s mind is ‘violated’ by the pretentious poet Chas, who is described as an automatised ‘clockwork fiend’, whilst in the second chapter, ‘the clockwork of rond-de-cuirdom’ is satirised in a bilingual attack on bureaucratised bourgeois motion (p. 202; p. 17). This preoccupation with perfunctory, mechanical movement is carried through to Molloy, where
facile motivation is parodied through the following humorous statements: ‘It’s so nice to know where you’re going, in the early stages. It almost rids you of the wish to go there’ (p. 15). If an action is predetermined by motive, it holds little interest and is hardly worth exploring in the novel. Instead, attentive to microphysical forces that activate muscles to generate movement, Molloy senses the ‘nameless things’ and ‘thingless names’ of barely perceptible ‘waves and particles’ (p. 27). Inviting a microcosmic, scientific reading, this conjunction seems to be a specific reference to quantum mechanical descriptions, especially Bohr’s complementarity, which asserts that two contrasted theories, such as the wave and particle theories of light, may be able to explain a set of phenomena. Drawing out the philosophical implications of the new physics, Heisenberg clarifies that ‘the situation of complementarity is not confined to the atomic world alone; we meet it when we reflect about a decision and the motives for our decision’.19 In the ‘Whoroscope’ Notebook, Beckett had recorded that the ‘human body’ is an ‘average of atom + star’, composed of ‘2 million ordinary microbes’ and ‘2 milliards of adrenalin molecules’.20 The opening novel of the trilogy establishes a corresponding scientific aesthetic, as A and C, letters that connote a mathematical equation or a philosophical thought experiment, move ‘slowly towards each other, unconscious of what they were doing’ (p. 4). The figures drift like particles moving in an ‘undulating’ and unpredictable landscape, ‘which caused the road to be in waves’ (p. 9). In *Malone Dies*, the narrator playfully recounts the sensation of a ‘hand delving feebly in my particles’, while Macmann is ‘without ulterior locomotive motive’, with an amusing play on words that foregrounds the madness of motive (if we split the adjective in two, another concealed adjective appears: ‘loco’, a borrowing from Spanish meaning mad or insane; p. 218; p. 239). Subtle forces and their effects, drawn from Beckett’s reading of scientific writing, are therefore foregrounded over the more conventional psychological or sociological incentives of the nineteenth-century novel, which are pared away, and replaced by an (at times farcical) attentiveness to motion itself.

Remembering his reading of Proust from 1930, Beckett’s novels display an enduring attentiveness to the ‘active, mysterious and invisible’ magnetising ‘current[s]’ that impel organisms to move and act (*Proust*, p. 40). Schopenhauer frequently uses ‘magnetism’ to demonstrate the notion that actions are essentially inexplicable, as beings are driven by an implacable will.21 Beckett’s writing displays a correspondingly universal approach to matter and movement, establishing what Daniel Albright has termed a ‘particle-aesthetic’, an apposite phrase for Beckett’s prose, which obliquely conveys ‘the strangeness of the quantum world’.22 Characters approximating subatomic particles blunder into magnetic fields of which they, and the reader, are barely aware. In ‘Ding-Dong’, for instance, the indolent Belacqua is ‘impelled by
some force that he did not care to gainsay’, while at the beginning of the trilogy Molloy recounts how ‘the desire to sit down came upon me […] from a vanished world’ (p. 18).\textsuperscript{23} Mindful of the vague determiner ‘some’, the force that impels Belacqua is left unspecified, evoking a kind of geotactic behaviour, the unavoidable motion of a motile organism in response to the force of gravity. The unknown biological impetus or intentionality is not denied by the protagonist, who, perhaps wisely, does not ‘care to gainsay’ the inexpressible force-motion relationship. In Beckett’s work, as Steven Connor observes, ‘gravity exerts its pull everywhere, though not always visibly’, as ‘the work creates its own artificial gravity system’.\textsuperscript{24} Beckett strips away the will and ‘desire’ from his devised creatures, as with Molloy, who hasn’t ‘much will left’ but still strives ‘in the absence of knowledge’ (p. 3).\textsuperscript{25} Though perhaps unaware of the biological term ‘geotaxis’, Beckett conceives and structures the ‘vanished world’ of quantum biological forces and processes that could underpin corporeal motion. His narratives hint at the anthropological capacity for magnetoreception: the way in which organisms unconsciously sense magnetic fields for navigation and orientation.

Beckett’s characters do not follow strict trajectories, but instead continuously change direction, moving with confusion and uncertainty. As James Knowlson observes,

\begin{quote}
Beckett renounced such easy control over both his plot and his characters for a variety of reasons. He clearly saw that in everything that matters, life is simply not like that – living creatures are too complex, mysterious and unknowable to be classified or controlled in such a crudely mechanistic way.\textsuperscript{26}
\end{quote}

Yet, Knowlson does not make explicit the influence of twentieth-century scientific writing on this renunciation of easy authorial control, the complication and deposition of Newtonian mechanics brought about by the new physics. Spencer Jones’s article in \textit{Discovery}, for example, had made known to Beckett the ever more ‘complicated molecular structures of living cells’.\textsuperscript{27} These kinds of microscopic discoveries led to the view that movements could not be plotted, relied upon, or easily followed. For instance, Molloy accelerates toward the ‘familiar monument’ of the town, before spiralling back out into the countryside, whilst in \textit{Malone Dies}, Sapo moves ‘unheedingly’ through the defamiliarized landscape (p. 55; p. 200). As in Beckett’s description of Cézanne’s paintings, this landscape is presented as an ‘unintelligible arrangement of atoms’\textsuperscript{.}\textsuperscript{28} In Beckett’s 1931 lecture series on French authors at Trinity College, Dublin, he undermined literature that reproduced a logical concatenation of cause and effect leading to a predictable conclusion. Rachel Burrows, one of Beckett’s students, recalls his concern with ‘human reality’, and, revealingly, how he ‘compared the characters of literature to individual atomic particles which operate unpredictably outside the laws of physics governing collective
Beckett draws a crucial parallel between the motion of subatomic particles, which do not obey deterministic laws, and ‘human reality’, which is expressed through his fictional creatures. His prose follows a scientific conception of reality that focuses on representational limitations, with an approach that entails rejecting mechanical or teleological confidence, removing real world referents, and eschewing Newtonian-Kantian causality.

Through the unexpected conjunction of ‘Rimbaud and Beethoven’ in *Dream*, two artists whose poetical and musical works are apparently ‘incoherent’ and ‘untouched by the teleological hypothesis’, Beckett endeavours to mark out and ‘delimit’ the novel in the uncertain atomic age brought about by the new physics (*Dream*, p. 119; *Proust*, p. 71). The narrator reflexively decides that he ‘shall write a book’, semaphoring writtenness with irony that recalls Henry Fielding’s narrative method, before praising the whirling aesthetic quality of Beethoven’s ‘earlier compositions’:

he incorporates a punctuation of dehiscence, flottements, the coherence gone to pieces, the continuity bitched to hell because the units of continuity have abdicated their unity, they have gone multiple, they fall apart, the notes fly about, a blizzard of electrons. (pp. 137–138)

Transferring the politics of W. B. Yeats’s ‘The Second Coming’ (1920) to musical aesthetics, things entropically ‘fall apart’, and the ‘coherence’ cannot hold. Beethoven’s notes become a microcosmic ‘blizzard of electrons’, forming Belacqua’s aesthetic desideratum of ‘will-less’ contemplation or ‘recueillement’, the ‘incoherent continuum’ (*Proust*, p. 70; *Dream*, p. 119). In the ‘Whoroscope’ Notebook, Beckett paid close attention to the ‘mouvements de […] électrons’, which undermine Newtonian laws, signifying that ‘the units of continuity have abdicated their unity’; as he recorded, ‘Newton’s principle of equal action + reaction [is] jeopardised by behaviour of electrons’. Demonstrating a knowledge of the new conceptual schemes offered by contemporary physics, the narrator employs a subatomic metaphor to convey the sensation of hearing these early arrangements, which are like ‘a cyclone of electrons’, a coil of potential patterns (*Dream*, p. 113). Continuing to combine Schopenhauerian musical aesthetics with subatomic physics that work against the grain of common sense, the listening experience is conveyed in physical language:

I think of the ultimately unprevisible atom threatening to come asunder, the left wing of the atom plotting without ceasing to spit in the eye of the physical statistician and commit a most copious offence of nuisance on his cenotaphs of indivisibility. (p. 139)

The curious pre-modifier, ‘unprevisible’, taken from a Spanish word meaning ‘unforeseeable’ or ‘unpredictable’, is assimilated into the metaphor, emphasising stochastic atomic oscillation. Evincing Beckett’s dual interest in contemporary approaches to physics and language, both words are foreign
additions in the sense that they alter the linguistic associations of the text, adding a fresh gloss. The Spanish adjective, combined with the ‘spit in the eye of the physical statistician’, evokes the unpredictability of a probabilistic world, most famously illustrated by Schrödinger’s cat. This dense sentence alludes to Rutherford’s research that led to the ‘splitting’ of the atom in 1917; however, Beckett teasingly avoids the verb ‘split’, by including the acoustically approximate ‘spit’. The overarching technical problem is that literature cannot replicate the aesthetic purity of music, which, for Beckett, in accordance with Schopenhauer and Proust, represents the highest form of art, existing ‘outside the universe’ (Proust, p. 71). The author, then, must be resigned to representational failure, and to the oblique but incomplete expression of movement in an uncertain and discontinuous world. If to succeed entails wielding conventional tools of the realist novel in a geometrical, Balzacian manner, then ‘to be an artist’, as Beckett famously observes in Three Dialogues (1949), ‘is to fail’, to create literature that is ‘weary of pretending to be able’.31

Unlike Honoré de Balzac, who is, according to Beckett’s narrator in Dream, ‘absolute master’ of his characters’ movement, Molloy knows ‘nothing, qua way’ (Dream, p. 119; p. 22). Likewise, in Malone Dies, it is accepted that movement is the manifestation of an irrational will, as Macmann is ‘incapable of picking his steps and choosing where to put down his feet [...] And even had he been so he would have been so not to great purpose, so little was he master of his movements’ (p. 237). Playing with representations of kinesis, Beckett elects unmotivated forces over naive theological explanations, complicating the relation of motive to action, as his helpless creatures are strangely stirred. Condemned to persistent movement through mysterious purgatorial settings, the characters of Beckett’s prose fiction, much like the figures of the ‘conical’ Purgatorio, often follow spiralling or geodesic courses.32 The trilogy advertises its closeness to Dante’s triadic epic without ever quite becoming assimilable to it.

In The Unnamable, for instance, the recollection of movement patterns in the narrator’s story is a constant cause of confusion for narrator and reader:

I was under the impression I spent my life in spirals round the earth. Wrong, it’s on the island I wind my endless ways [...] And my course is not helicoidal, I got that wrong too, but a succession of irregular loops, now sharp and short as in the waltz, now of a parabolic sweep that embraces entire boglands. (p. 320)

These reflexive, self-correcting sentences draw on, but remain distinct from, the spiralling movements of the figures in the conical world of the Divine Comedy (c.1320). With a series of representational U-turns, earth is miniaturised to ‘island’ and ‘spirals’ evolve into winding ‘endless ways’, whilst the semantically curious ‘helicoidal’ course is negated, before becoming ‘a succession of irregular loops’. These eventual loops and sweeps approximate
orbital motion, evoking the ‘elliptical curve’ of planetary bodies that Beckett
had recorded in the ‘Dream’ Notebook. The vacillating narrative voice,
which is ‘back at’ the ‘old aporetics’, lacks certainty, as descriptions of
place and movement, which are perpetually unstable and prone to revision,
are thrown as feints (Malone Dies, p. 175). There is evidently a joke about
conventional representations of movement at work, as consensus on direc-
tion and course is comically difficult to reach. Motion perplexingly oscillates
between a staccato dance, recalling the ‘serpentine writhings’ in Mercier and
Camier (written 1946; published 1970), and the quasi-mathematical sym-
metrical curve of a ‘parabolic sweep’. Beckett outlines a homogenous
space with ‘distant’ and ‘illimitable boundaries’, suggesting that movement
patterns are endless and spiralling because the travellers can find no edge
to the non-Euclidean space (Malone Dies, p. 234; Molloy, p. 60).

These orbital, para-Dantean movements evoke an attraction to helio-
centric and atomic models, as well as to ancient atomism, which is a perva-
sive force in Beckett’s writings. Interested in exploring the cyclical parallel
between Dante’s mystical conceptual universe and that of the new physics,
Beckett creates unsettling purgatorial spaces through which figures, or ato-
mised ‘things in motion’, move blindly and unpredictably. Beckett found
arguments for will-less movement in Schopenhauer’s quasi-Buddhist philos-
ophy, as well as Arnold Geulincx’s ‘mystic text’, Ethics (1675): ‘Ubi nihil
vales, ibi nihil velis [wherein you have no power, therein you should not
will]’ (Malone Dies, p. 256). This oft-quoted, Latin aphorism bears a
close relation to movement and intention, as well as to the Schopenhauerian
negation of the will, especially when read alongside Geulincx’s nomological
ation of the will, especially when read alongside Geulincx’s nomological
tribution of motion to another force, ‘when I want to walk, my feet are
flung forward. But I do not make that motion’. Put in distinctively Becket-
tian terms, the compulsion to ‘go on’ cannot be eradicated, even if motiv-
ation and will are abnegated. Flung forward by the author, the irregular
loops and oscillations of his creatures correlate with the Epicurean model
of the swerving movement of atoms, as in the Unnamable’s ‘vaguely circular
motion’ (p. 316). Lost in a dark wood, Molloy remembers and burlesques
René Descartes’ advice to proceed in a straight line, ‘I did my best to go in
a circle, hoping in this way to go in a straight line’ (p. 79). Running
rings around Descartes’ geometrical logic, the curved movements of bodies
in Beckett’s prose are informed by non-Euclidean conceptions of space.

In Beckett’s prose, descriptions of movement, of bodies as a part of the
world ‘being agitated by motion’, to borrow Geulincx’s Occasionalist
phrase, form an intersect of philosophical, mystical, and scientific
thought. In Wilhelm Windelband’s A History of Philosophy (1893),
which Beckett read and made extensive notes on between 1932 and 1933,
Science (Wissenschaft) is contrasted with Mythology. Windelband states
that the latter entails ‘any process of understanding (such as religion) not
subject to the rigour of physics’. Cognisant of this dividing line, which the new physics had provocatively blurred, Beckett draws a contrast between the ‘mystic’ and the ‘scientific investigator’ in his discussion of Vico, ‘the scientific historian’ whose theories reverberate through Joyce’s *Finnegans Wake* (1939).

In *Samuel Beckett’s Library*, Van Hulle and Nixon suggest that Beckett was especially interested in what Windelband termed “The Natural Science Period”, which includes Galileo Galilei, Descartes, Leibniz, Huygens, and Newton. These seventeenth-century thinkers, for whom understanding the physical world was a central preoccupation, developed theories of motion that are reconstructed and distorted in Beckett’s prose. Significantly, Windelband states, with reference to Galilean physics, that ‘philosophy is the doctrine of the motion of bodies!’ Beckett’s ‘Philosophy Notes’ from the 1930s correspondingly include a section titled ‘Philosophy of Renaissance’ with a sub-heading ‘Natural Science Period’. Galileo’s new science, and his ‘consecutive thirds’, find a place in Beckett’s 98-line poem ‘Whoroscope’ (1930), in which the first experimental scientist declares: ‘[t]hat’s not moving, that’s moving’. This Cartesian-Galilean line anticipates the famous ending of *Waiting for Godot* (1953), in which Estragon’s affirmative, motion-inducing imperative ‘let’s go’ is followed by the Zeno-nian, paradoxical stage direction, ‘*They do not move*’.

Alive to the Viconian ‘Corsi e ricorsi’ conception of a cyclical history of natural science, Beckett copied verbatim from Windelband: ‘The process began by Galileo of resolving motion into infinitely small impulses […] led Leibniz to the principle of infinitesimal calculus, to his conception of the “vis viva” [living force]’. Norbert Wiener’s article, ‘Quantum Mechanics, Haldane, and Leibniz’, published in *Philosophy of Science* in 1934, the year that Beckett published his first collection, *More Pricks than Kicks*, claims that the ‘mark of the greatness of Leibniz’ is ‘his idea of representing the laws of physics by principles of minimization’, an approach that forms ‘the source of the mechanics of Lagrange and Hamilton, from whom the line of inheritance to Heisenberg and Schrödinger is clear and direct’. Wiener’s article, written as a response to J.B.S. Haldane’s ‘Quantum Mechanics as a Basis for Philosophy’ (1934), makes clear that ‘Leibniz’s great principle of the identity of indiscernibles […] is retained in the modern view’ of the 1930s. In the same year, Paul Langevin, a prominent Parisian physicist working at the Collège de France, published the high-profile work *La Notion de Corpuscles et d’Atoms* (1934). Through his familiarity with Descartes’ corpuscular mechanics, which sought to analyse the body ‘into systems of mechanisms, and each mechanism into simpler mechanisms’, it is likely that Beckett recognised the resonances between Leibniz’s ‘principles of minimization’ and the contemporaneous methodology of twentieth-century quantum physics. More so than his previous novels, Beckett’s trilogy structures minute movements and the ‘infinitely small impulses’ of Leibniz’s
philosophy and the analogous world of quanta; it is a work in which, as Molloy acknowledges, ‘movements of an extreme complexity [are] taking place’ (p. 34). According to C. J. Ackerley, the new physics enabled Beckett to ‘distinguish between the behaviour of particles and impulses (Leibniz’s petites perceptions) in the little world of the mind, as opposed to motion in the Big World where classical laws hold’.50 These ‘petites perceptions’ are defined by Windelband as ‘unconscious mental states (Vorstellungen)’, an approximation of which appear in Henri Bergson as the molecular movements of cerebral substance, and are also embedded in Molloy as ‘the murmur of my little world’ (p. 11).51

In large letters that slant across a page near the end of the ‘Whoroscope’ Notebook, Beckett writes the intriguing phrase ‘unseen vicissitudes of matter’.52 This isolated and ambiguous phrase, which could be a reference to an as yet unidentified text or an independent idea, indicates Beckett’s attraction to the mutually illuminating scientific and philosophical approaches to the behaviour of particles and impulses.53 In Dream, Beckett writes that the process of Balzac, ‘the divine Jane [Austen] and many others’ seems ‘all falsity’ because it ‘consists in dealing with the vicissitudes, or absence of vicissitudes, of character in this [kind of centripetal] backwash, as though that were the whole story’ (Dream, p. 119). Thus, to read Balzac, the narrator continues, is ‘to receive the impression of a chloroformed world’, as the author ‘can foresee and calculate its [the work’s] least vicissitude’ (p. 119). Beckett’s note about the vicissitudes of matter being ‘unseen’ takes on significance because of this rejection of Balzac’s characters as predictable ‘clockwork cabbages’, who move ‘at whatever speed’ and in ‘whatever direction he chooses’ (pp. 119–120). Reading Beckett’s prose with an attentiveness to ‘miniaturization’, and to the notion of art as ‘a contraction’, can offer a useful way of approaching the curious movements and micromovements of his creatures (Proust, p. 47).

In ‘Ding-Dong’, a title onomatopeically connoting collision or the sound of a bell, Belacqua moves in ‘little acts of motion’, which once again seem more molecular and microphysical than anthropoid.54 This miniaturisation recalls Alvin Greenberg’s incisive reading of Watt as more ‘a thing in motion’ than a ‘sentient being’, or James Carney’s more recent interpretation of ‘the subject as insect’ in Molloy.55 Without the newly published letters and manuscripts, however, Greenberg could not point confidently towards Beckett’s engagement with natural science that colours this molecular aesthetic. In an autograph note to ‘Bing’ (‘Ping’ 1966; 1967), which, like ‘Ding-Dong’, titularly evokes both movement and sound, Beckett tellingly refers to the piece as a ‘miniaturization’ of ‘The Lost Ones’ (1966; completed 1970), pointing towards an approach to literature that shares an overlapping methodology with corpuscular mechanics and reductionist sciences that attempt to underpin microprocesses.56 Indeed, he similarly described The
**Unnamed as a work in which** ‘the area of possibilities gets smaller and smaller’, moving increasingly towards an atomised, ‘elementalistic language’ and the ‘molecular movements’ of the brain, the highly quantum mechanical space of the ‘little world’.\(^{57}\) Alongside Adam Piette’s outlining of ‘mute micromillisyllables’ in the prose, Steven Connor has drawn attention to the molecular quality of Beckett’s work: ‘later modernity sees its image, or rather loses it, in the imperceptible, in the nano-engineered processor based on a single molecule. Samuel Beckett participates in this miniaturisation; instead of epics and monuments […] Beckett scaled down’.\(^{58}\) The narrator of *Dream* makes an ‘astral’ connection that alludes to macroscopic and microscopic theories of attraction and repulsion: ‘Their movement is based on a principle of repulsion, their property not to combine but, like heavenly bodies, to scatter and stampede, astral straws on a time-strom, grit in the mistral’ (pp. 118–119). If read with an attentiveness to the sequence and sound of words, the micro-processes of the prose become apparent: ‘astral’ rhymes with the French ‘mistral’, while ‘astral-straws’ is almost palindromic. Comparable to this scattering ‘grit in the mistral’ micromovement, Molloy feels a ‘tiny sediment, incomprensibly stirring like grit at the bottom of a puddle’ in his mind (p. 18). The repeated comparison to ‘grit’ draws attention to minute particles produced by disintegration, while the phrase ‘incomprehensibly stirring’ outlines the enduring interest in the non-intentional microforces that impel movement and action.

These unintelligible stirrings and unseen vicissitudes bring to mind Bergson’s connection between perception and the ‘molecular movements of cerebral substance’. Having delivered lectures on Bergson at Trinity College Dublin, Beckett would have been familiar with his 1896 work, *Matière et mémoire* (translated to English in 1910), in which the French philosopher argues that ‘external objects’ cause disturbances in the brain, ‘the theater of very varied molecular movements’.\(^{59}\) Weaving this neurological material into *Dream*, Beckett’s narrator aligns the stellar universe with the workings of the mind, as the ‘crazy stippling of stars’ are ‘the passional movements of the mind charted in light and darkness’ (p. 16). The narrative voice addresses movement on a microscopic scale, outlining ‘the molecular agitation’ that ‘curiosity’ sets up, referencing the ‘molecular disturbance’ or quantum ‘agitation’ occurring between object perceived (‘percipi’), and subject perceiving (‘percipere’), which Beckett had recorded in the ‘Dream’ Notebook (p. 160).\(^{60}\) The verb ‘agitate’, deriving from the Latin to drive, connotes non-intentional movement, an unbidden striving that has a psychoanalytic resonance. These cerebral micromovements cannot be reconciled with conventional desires, as the mysterious molecular ‘movement of matter’ in the hippocampus cannot be stilled. In the Bergsonian description of a cab-horse in *Malone Dies*, for instance, the animal is ‘transformed […] perhaps because of the memories that motion revives’, while earlier, the
speaker imagines his ‘mind wandering […] among its ruins’ (p. 224; p. 210). Increasingly, Beckett portrays creatures who have exhausted desire and emptied out intentions; they are, in negative Deleuzian terms, not ‘desiring-machines’ but creatures in the process of abolishing the will, left only with the ‘circular movement of the mind’, or, like May in Footfalls (1975), the endless ‘revolving’ of ‘it all’ around a ‘poor mind’ (Dream, p. 17).  

Beckett’s writing bears out an increasing attraction to Leibniz’s exploration of unconscious and imperceptible forces that had anticipated the ambiguities of quantum mechanics. In Dream, Lucien, a character modelled on Beckett’s friend and philosopher, Jean Beaufret, alludes to a ‘passage in Leibnitz’, taken from section sixty-seven of the Monadology (1714), ‘where he compares matter to a garden of flowers or a pool of fish, and every flower another garden of flowers and every corpuscle of every fish another pool of fish’ (Dream, p. 47). This repetitious sentence reproduces Leibniz’s methodological reductionism, the ‘principles of minimization’, as identified by Wiener. The curiously old-fashioned biological noun ‘corpuscle’, which denotes a minute body or cell in an organism, is a mechanical attempt to explain movement through a process of minimisation, by studying the behaviour of the particles, or ‘corpuscles’, that constitute a body. In a letter of 1933, Beckett had expressed his admiration of the ‘splendid little pictures’ in Leibniz’s writing, and this ‘passage’ draws attention to the ‘aesthetic’, as opposed to the explicitly philosophic, quality of the prose (Dream, p. 47). Undoubtedly, Beckett would have recognised Leibniz’s refutation of Descartes’s philosophy, which is put forward in the Monadology: ‘the Cartesian view is extremely defective, for it treats as non-existent those perceptions of which we are not consciously aware’. Beckett seems to have been particularly alive to this dynamist critique that jeopardised mechanism, offering a challenge to his empiricist leanings and introducing the possibility of subliminal motives for movement; it follows that, as readers, we ought to be attentive to the representations of imperceptible, invisible forces that propel and complicate Beckett’s own literary representations of ‘locomotion’, as with ‘A and C’, who remain ‘unconscious’ of their movements (p. 84).

Allusions to natural science, which alter the movement patterns of his creatures, continue to reverberate through the post-war prose works. Writing at a time when leading scientists, most notably Erwin Schrödinger, recognised that for an accurate explanation of the workings of an organism a combination of classical mechanics, quantum physics, and biological research may be required, Beckett recognised the homologous need to complicate the manoeuvring of characters, and nuance his representations of the ‘so different motion of men’ (Malone Dies, p. 236). Having lectured at Trinity from February to April of 1943, Schrödinger subsequently published What is Life? The Physical Aspect of the Living Cell (1944), a book that marks a
significant attempt to combine quantum mechanics with pioneering biological science, and one which Beckett was ‘known to admire’. As Lois Gordon and James Knowlson have recorded, Beckett read Schrödinger’s work in the mid-1940s, and was sufficiently impressed that he gave his uncle, Dr Gerald Beckett, an inscribed copy of the book. In the final chapter of *What is Life?*, Schrödinger poses the weighty and unresolved question, ‘is life based on the laws of physics?’ Written at a similar historical moment, Beckett’s trilogy adopts a parallel form, trying and failing to answer analogously fundamental questions, beginning with Molloy’s interrogatives, ‘what was I doing there, and why come? These are things that we shall try and discover’ (p. 10).

Relating to his reading of Schrödinger and other popular scientific writings, Beckett made further connections between visual art and natural science in the mid-1940s. In his art-criticism essay of 1945, ‘Le Monde et le Pantalon’, Beckett draws a parallel between the paintings of the van Velde brothers and microscopic activity, demonstrating an enduring interest in molecular science and the limits of representation:

Comment parler de ces couleurs qui respirent, qui halètent? De cette stase grouillante? De ce monde sans poids, sans force, sans ombre? Ici tout bouge, nage, fuit, revient, se défait, se refait. Tout cesse, sans cesse. On dirait l’insurrection des molécules, l’intérieur d’une pierre un millième de seconde avant qu’elle ne se désagrége. C’est ça, la littérature.

This ekphrastic passage indicates a post-war application of the physical science material Beckett had recorded in the ‘Whoroscope’ Notebook. Struggling to relate the colours of the painting, he evokes stochastic motion, through the expression ‘the insurrection of molecules’. Beckett may have had in mind Spencer Jones’s article, which includes a Krapp-like statistical calculation: ‘In every cubic inch of the air that we breathe there are some five hundred million billion minute particles called molecules, flying about rapidly in all directions and colliding with each other’. To translate and rearrange Beckett’s metaphor, literature is atomic, ‘an insurrection of molecules, the inside of a stone a millisecond before it disintegrates’; it is rebellious, elemental, and attentive to microphysical force. In the context of the dawning nuclear age, however, Beckett’s readings have more catastrophic overtones. This awareness of molecular collision may have a bearing on what Beckett referred to as the ‘complete disintegration’ of *The Unnamable*. Marking out the limits of natural science over a century before, Schopenhauer had explained that ‘every scientific explanation must ultimately end up in an occult quality, and hence in something completely obscure: natural science must therefore leave the inner essence [Wesen] of a stone just as unexplained as that of a human being’. For Beckett, the ‘inner essence’ of the disintegrating stone remains unknowable despite the submicroscopic awareness of the aleatory movement of particles subject to
molecular collision. Evoking the imagery of Schopenhauer’s comparison, the narrator of *Malone Dies* recounts how ‘a good half’ of Macmann’s existence ‘must have been spent in a motionlessness akin to that of stone’ (*Malone Dies*, p. 236). Delimiting scientific explanation, heightened cognisance of the miniature elements of motion and intermolecular forces lead only to an inexplicable ‘occult quality’, failing to exclude the trace of spiritual force or the metaphysics of the will.

With the use of ‘[t]out cesse, sans cesse’ alongside ‘tout bouge’, Beckett’s language also echoes Poincaré and Schrödinger’s scientific writings, sounding decidedly similar to the ‘incessant, irregular ‘dance’’ of molecules described in *What Is Life?*, as well as the problematic ‘mouvements’ of electrons that ‘do not cease’ in Poincaré’s *La Valeur*.73 In a quasi-Schopenhauerian simile, Schrödinger poetically compares Brownian movement with what could well be a Beckettian creature, ‘a blindfolded person on a large surface imbued with a certain desire for ‘walking’, but without any preference for any particular direction, and so changing his line continuously’.74 Much like the erratic bombardment of particles known as Brownian motion, the movement patterns of Beckett’s creatures are often irregular. Although the mobility of the literary creatures becomes ever more restricted in the trilogy – as the possibility for movement, and the desire to move, gradually diminishes – traces of ‘swarming’ micromovements remain. Beckett tries repeatedly to access the ‘desire for walking’ in order to ‘still’ it, a process he foregrounds most explicitly in one of his last works, *Stirrings Still* (1988). Louis Le Brocquy’s lithographic drawings for the cover of *Stirrings Still* are evocative of the ‘unseen vicissitudes of matter’, illustrating that molecular micromovements are still stirring, as the speaker is incessantly set in motion, ‘flung forward’ by an inescapable force: ‘Start to go. On unseen feet start to go’.75

In *The Making of Samuel Beckett’s L’Innommable/The Unnamable* (2014), Shane Weller and Dirk Van Hulle show that Beckett ‘often revises descriptions of movement in the interest of pejoration’ in his redrafts, before thoroughly demonstrating how this ‘process of revision can pass through numerous stages, as it does in the translation of ‘mes tourbillonnements”’. These revisions signify that Beckett was ‘particularly attentive to words pertaining to movement’, supporting my contention that he found representation difficult because of the unpredictability of matter on a subatomic scale.76 The French verb ‘continuer’, for example, first becomes ‘to continue’, before undergoing a phonetic reduction, as Beckett opts for the famous ‘go on’ at the first typescript stage. The French phrase ‘tourbillonnements’ connotes the spiralling movements of dancers, a swirl or whirlpool (as in Mallarmé’s poetry), and a clockwork mechanism developed at the end of the eighteenth-century that counters the effects of gravity and magnetism. Though ‘tourbillon’ appears in the *OED* as a noun meaning ‘whirlwind’ or ‘a whirling storm’ (used by William Caxton as early as the fifteenth
century), Beckett is not content to leave the multivalent noun untranslated; it must, like the voices heard by the Unnamable, be ‘revised, corrected and then abandoned’ (p. 330). This process ‘takes Beckett four attempts to arrive at a satisfactory translation, the final form being achieved as late as the second typescript. The autograph manuscript reads:’ [...] in the first typescript, this becomes: ‘evolutions’; and, in the second typescript: ‘my course’.

The final revision is far removed from the original French, with the eventual arrival at the ambiguous ‘course’ showing how much can be lost in translation, but also gained in literary adaptation. Casting about for a term of ample connotation, Beckett orbits around possible expressions before being drawn to the blank onward movement of ‘my course’, perhaps owing to its proximity to the phrase ‘of course’, suggesting that an action is obvious or expected. Following the theories of ancient atomism, to which Beckett was certainly attracted, the natural ‘irregular course’ of the atom, like the Unnamable, who is subject to the same quantum laws, is that of a swerve (p. 218).

The modern physics of ‘uncertainty and quantum revolutions’ were, as Ackerley has suggested, seen by Beckett ‘through the lens of ancient Atomism’. Comparable to the causeless motion of atoms, Beckett’s translation evinces the groundless, naturally revolving ‘gress’ of an organism. This conception of reality aligns with Poincaré’s star and atom conflation, and with Rutherford’s (now outdated) atomic model, which represents the atom as a nucleus around which electrons circulate, much like planets revolving around the sun. Beckett’s process of undoing and paring away draws attention to his besetting preoccupation with movements, and the difficulties of expressing them satisfactorily; as the narrator of ‘Still’ phrases it, ‘this movement impossible to follow let alone describe’. Once again, this uncertainty points towards a central anxiety of representing movement authentically, which is especially acute in an age when, as Poincaré writes, ‘Nous ne pourrons savoir si un objet, très petit ou non, n’a pas changé de position absolue dans l’espace, et non seulement nous ne pouvons l’affirmer, mais cette affirmation n’a aucun sens et en tout cas ne peut correspondre à aucune représentation’.

Movement patterns can be read on two corresponding levels: the trajectories that characters follow in the prose fiction, and Beckett’s own literary movement from restlessness – the early Beethovenian ‘blizzard of electrons’ – towards the representation of near stillness. Imperceptible forces become increasingly pervasive in the trilogy, which can be read as a delimitation of physical motion, a transitional movement towards the motionless narrator in the mud and darkness of How It Is (1961). Reflexively drawing attention to his own lapse, the narrator of The Unnamable exclaims, ‘[e]nough concessions, to the spirit of geometry’ (p. 352). Yet, with this apophasis, the speaker addresses the subject of motion and motive by denying that it should be...
raised: ‘There will be no more from me about bodies and trajectories, sky and earth, I don’t know what it all is’ (p. 318). Beckett increasingly homes in on involuntary movement, activated only by automatic responses to external stimuli. Representations of motion in *The Unnamable* seem indebted to a Cartesian conception of organisms ‘whose motions are evoked and determined by the mechanism of the nervous system’.  

somewhere or other, and invariably unpredictable in direction, that is to say determined by the panic of the moment. But at the period I refer to now this active life is at an end, I do not move and never shall again, unless it be under the impulsion of a third party […] I am at rest at last (pp. 320–321).

Motivation, which Schopenhauer classified as causality from within, is contrasted with outer consciousness, an experience that moves one to action, the ‘impulsion of a third party’. The avowal of ‘I do not move and never shall again’, which moves from present inertia to future intention, is inserted in the middle of the sentence, with the final clause’s conjunction, ‘unless’, mitigating the falsifiable assertion. The ‘panic of the moment’ gestures towards Leibniz’s unconscious mental states, with the emphasis moving towards microcosmic biophysical reactions, while the unreal future motion comes close to what Ulrika Maude has called ‘negative intentionality’, ‘a movement triggered by evasion’. Perplexingly, movement still persists, without any obvious external ‘impulsion’: ‘I accuse myself of inertia, and yet I move’ (p. 327). As impetus dissipates, motion persists with a non-intentional striving will from the ‘outer world’, the ‘great life torrent streaming from the earliest protozoa to the very latest humans’, which evokes a kind of geotactic micromotion, ineluctably responsive to the force of gravity (p. 230; p. 315).

At the close of *The Unnamable*, the tension between rest and motion reaches an indeterminate end: ‘start again, in this immensity, this obscurity, go through the motions of starting again, you who can’t stir, you who never started, you the who, go through the motions, what motions, you can’t stir’ (p. 402). The disparity between the French phrase, ‘faire les mouvements’, and the English, ‘go through the motions’, draws attention to the ‘dilemma of expression’ regarding abstract motion, which becomes exacerbated in translation. As the French phrase is less passive, Beckett’s English rendering develops the sense that the ‘motions’ are submissively performed, suggesting an unstillable force that sets, and resets, the Unnamable in motion. Gradually dissecting the ability to move, the trilogy culminates with the inexplicable agency that force-feeds an ‘irresistible torrent’ of words impelling the narrator to ‘go on’ (p. 302). This marks a shift towards progressively refined experimentations with imperceptible movements, the traces of residual consciousness in ever more restricted settings. Recalling the town that mysteriously holds Molloy in its ‘grasp’, the elusive protagonist reflects on his ‘strange’ simulation of movement: ‘It
may seem strange that I was able to go through the motions I have described’ (pp. 35–36). For Malone, in some ways an extension of Molloy (who is held in the ‘grasp’ of the town), ‘motionlessness’ even becomes ‘a kind of groping’ that is itself a Zenonian paradox: ‘I whose every move has always been a groping, and whose motionlessness too was a kind of groping, yes, I have greatly groped stock still’ (Malone Dies, p. 218).

In the later plays, such as Ghost Trio (1975), Footfalls, and Rockaby (1980), amongst others, measured motion is a central feature, and my hope is that this research can contribute to studies of choreography in the dramatic works. To return to the initial question of how to read the strange movements of the trilogy, I have shown that, for Beckett, movement must be complex in the wake of the new physics of indeterminism, which were supplemented by his philosophical predilections. His concerns about the ‘impossible act’ of expressing movement patterns derive, at least in part, from Poincaré’s description of the subatomic uncertainties discovered by quantum physics, resonating with Schopenhauer’s notion of the blind will and Leibniz’s ‘petites perceptions’.85 Beckett does not adopt an overarching system of explanation but instead repeatedly demands the consideration of movement itself, which is reduced to its fundamental terms of ‘extreme complexity’. His scientifically-informed prose remains ‘[i]n search of the difficulty rather than in its clutch’, as the trilogy holistically delimits a pivotal movement from macroscopic ‘journeys’ to ‘unseen’ sub-microscopic forces acting on creatures.86 Heisenberg’s reminder that ‘every word may cause many only half-conscious movements in our mind’ is one that resonates with the experience of vigilantly reading, yet not fully apprehending, the innumerable associations generated by Beckett’s precise prose.87 The contractive pattern of ‘all stirring to their tiniest stir’ in Malone Dies offers a model for reading Beckett’s evolving, or perhaps devolving, attempts to represent movement in the age of quantum mechanics (p. 236). Just as microphysical forces persistently generate the movements and actions of his creatures, so too is there an imperceptible force pulling words out of the author; a stirring to express that is never quite stilled.

Notes

1. Samuel Beckett, Molloy, in Three Novels (New York: Grove Press, 1955), p. 26. Further references to this edition, abbreviated to the ‘trilogy’ hereafter, are given after quotations in the text, unless otherwise stated.
2. Beckett, Proust (London: Chatto & Windus, 1931), p. 2. Further references to this edition are given after quotations in the text.
3. Beckett, Molloy (Paris: Les Editions de Minuit, 1951), p. 45.
4. Beckett, L’Innommable (Paris: Les Editions de Minuit, 1953), p. 75; p. 16; p. 23. Beckett revised the translated text to make ‘speed’ into ‘velocity’ and ‘endless’ into ‘perpetual’. These changes were found through research carried out at the
Harry Ransom Center (hereafter HRC) in autumn 2019, with the support of an AHRC IPS Fellowship grant. See *The Unnamable*, typescript with author edits and note, 1958, HRC, the University of Texas at Austin, Box 5, Folder 10, pp. 4–5.

5. Pierre Rousseau, *Exploration du ciel* (Paris: Hachette, 1939), p. 39.

6. Henri Poincaré, *La Valeur de la science* (Paris: Flammarion, 1908), p. 172. Beckett, ‘Whoroscope’ Notebook, Beckett International Foundation, University of Reading, Special Collections, BC MS 3000. Further references will be to this unpaginated manuscript (quoted by kind permission). On page 39 of the *Watt* manuscript, Beckett writes ‘Poincaré?’ in large letters opposite the main text. See Beckett, *Watt*, seven holograph notebooks with author edits and additions, notebook 3, HRC, Box 6, Folder 7.

7. Poincaré, *La Valeur*, p. 172. Beckett, ‘Whoroscope’ Notebook, MS 3000.

8. See Dirk Van Hulle and Mark Nixon (eds.), *Samuel Beckett’s Library* (Cambridge: Cambridge University Press, 2013), pp. 206–10. James Carney, ‘The Subject as Insect in Beckett’s *Molloy*’, in James Carney et al. (eds.), *Beckett Re-Membered* (Newcastle: Cambridge Scholars, 2012), pp. 228–41 (p. 230).

9. *The Letters of Samuel Beckett* 1929–1940, ed. Martha Dow Fehsenfeld and Lois More Overbeck (Cambridge: Cambridge University Press, 2009), p. 111.

10. Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* [1958] (London: Penguin, 2000), p. 114.

11. James Knowlson, *Damned to Fame* (London: Bloomsbury, 1996), p. 356.

12. Nikolai Duffy, ‘Against Metaphor’, *Diacritics*, 41.4 (2013), pp. 36–58 (p. 44).

13. James Joyce, *Ulysses*, ed. Declan Kiberd (London: Penguin, 2011), p. 826.

14. Beckett, *Dream of Fair to Middling Women*, ed. Eoin O’Brien (Dublin: The Black Cat Press, 1992), p. 120. Further references to this edition are given after quotations in the text.

15. See Steven Connor, ‘Beckett’s Punctuation’, in S.E. Gontarski (ed.) *The Edinburgh Companion to Samuel Beckett and the Arts* (Edinburgh: Edinburgh University Press, 2014), pp. 269–81 (pp. 269–70).

16. Beckett, ‘Dante … Bruno. Vico.. Joyce’, in *Disjecta*, ed. Ruby Cohn (London: John Calder, 1983), pp. 19–35 (p. 33).

17. Dante, *Purgatorio*, Canto 4, *The Divine Comedy*, trans. Robin Kirkpatrick (London: Penguin, 2012), p. 177.

18. Beckett, ‘Ding-Dong’, in *More Pricks than Kicks*, ed. Cassandra Nelson (London: Faber and Faber, 2010), p. 33.

19. See Heisenberg, *Physics and Philosophy*, p. 123.

20. Beckett, ‘Whoroscope’ Notebook, MS 3000.

21. Schopenhauer, *The World as Will and Representation* [1818], ed. Judith Norman, trans. Judith Norman et al. (Cambridge: Cambridge University Press, 2010), passim. Hereafter *WWR*.

22. Daniel Albright, *Beckett and Aesthetics* (Cambridge: Cambridge University Press, 2003), p. 77. For a particle-model for reading modernist poetry, see also Albright’s *Quantum Poetics: Yeats, Pound, Eliot and the Science of Modernism* (Cambridge: Cambridge University Press, 1997).

23. Beckett, ‘Ding-Dong’, in *More Pricks than Kicks*, p. 32.

24. Steven Connor, ‘Shifting Ground’, [http://stevenconnor.com/beckettnauman.html](http://stevenconnor.com/beckettnauman.html) [Date accessed: 23 October 2020].

25. The phrase ‘striving in the absence of knowledge’ is from Schopenhauer’s description of ‘the will’ in *WWR*, Second Book, p. 174.

26. Knowlson, *Damned to Fame*, p. 146.
27. Spencer Jones, ‘Is there Life in Other Worlds?’, *Discovery*, 2.10 (1939), pp. 36–47 (p. 38).

28. Beckett, *Letters*, p. 223.

29. Beckett, qtd. in Dougal McMillan and Martha Feihsenfeld, *Beckett in the Theatre* (London: John Calder, 1988), p. 25. From an interview of 16 June 1982 with Burrows, who was enrolled in Beckett’s 1931 lectures.

30. Beckett, ‘Whoroscope’ Notebook, MS 3000. The source for these notes is Poincaré’s *La Valeur*.

31. Beckett, *Proust and Three Dialogues* (London: John Calder, 1965), p. 125; p. 103.

32. The manuscript of *L’Innommable* includes Beckett’s doodles of spiral shapes alongside the text. See *L’Innommable*, two holograph bound notebooks with author revisions and notes, 1949–1950, 302pp, HRC.

33. Beckett, ‘Whoroscope’, in *Collected Poems in English and French* (London: John Calder, 1977), p. 1.

34. Beckett, ‘Dante’, p. 20.

35. These ‘illimitable’ spaces offer a counterpoint to the confined settings of the later prose and drama explored by James Little in *Samuel Beckett in Confinement: The Politics of Closed Space* (London: Bloomsbury, 2020).

36. Wilhelm Windelband, *A History of Philosophy*, trans. James Tufts (London: Macmillan, 1901), p. 417.

37. Arnold Geulincx, *Ethics, With Samuel Beckett’s Notes*, ed. Han van Ruler et al., trans. Martin Wilson (Leiden: Brill, 2006), p. 33.

38. Compare Descartes’s advice to ‘travellers, who, finding themselves astray in some forest’: ‘walk always as straight as they can in a given direction’, in *Discourse on Method and Meditations* [1641], trans. F. E. Sutcliffe (Harmondsworth: Penguin, 1968), p. 46.

39. Geulincx, *Ethics*, p. 278.

40. See David Addyman and Matthew Feldman, ‘Samuel Beckett, Wilhelm Windelband, and the Interwar “Philosophy Notes”’, *Modernism/modernity*, 18.4 (2011), 755–70. Beckett, ‘Philosophy Notes’, TCD MS 10967.

41. Beckett, ‘Dante’, p. 20.

42. Van Hulle and Nixon, *Beckett’s Library*, p. 130. See Windelband, *History*, pp. 378–436.

43. Windelband, *History*, p. 389.

44. Beckett, ‘Whoroscope’, in *Collected Poems in English and French* (London: John Calder, 1977), p. 1.

45. Beckett, *Complete Dramatic Works* (London: Faber and Faber, 1986), p. 88.

46. Beckett, ‘Philosophy Notes’, TCD MS 10967, 190–92.

47. Norbert Wiener, ‘Quantum Mechanics, Haldane, and Leibniz’, *Philosophy of Science*, 1.4 (1934), pp. 479–482 (p. 482).

48. Ibid., p. 481.

49. Dennis Des Chene, *Spirits & Clocks: Machine & Organism in Descartes* (Ithaca and London: Cornell University Press, 2001), p. 154.

50. C. J. Ackerley, ‘Samuel Beckett and the Physical Continuum’, *Journal of Beckett Studies*, 25.1 (2016), pp. 110–131 (p. 115).

51. Windelband, *History*, p. 424. Henri Bergson, *Matter and Memory*, trans. Nancy Margaret Paul and W. Scott Palmer (New York: Zone Books, 1991), p. 22.
52. Beckett, ‘Whoroscope’ Notebook, MS 3000.
53. The source of the phrase ‘unseen vicissitudes of matter’ is uncertain. Amos Amadeus Abrahams suggests that this phrase is a reference to Robert Burton’s The Anatomy of Melancholy (1621), from which passages have been copied on the subsequent recto page. I have found no evidence to support this claim. Abrahams also notes that ‘the words “unseen vicissitudes of matter” could be taken as a fairly apposite description of one of the dominant issues within twentieth century physics.’ See Amos Amadeus Abrahams, ‘Modernist Theatre, Theatricality, and Twentieth-Century Physics’, unpublished PhD dissertation (University of Edinburgh, 2019), pp. 235–36.
54. Beckett, ‘Ding-Dong’, p. 31.
55. Alvin Greenberg, ‘The Death of the Psyche’, Criticism, 8.1 (1966), pp. 1–18 (p. 1). See Carney, ‘The Buzzing of B’.
56. Knowlson, Damned to Fame, p. 542. Knowlson is quoting from Beckett’s autograph note with the manuscripts of Le Dépeupleur and Bing.
57. Beckett, qtd. in John Fletcher, The Novels of Samuel Beckett (London: Chatto & Windus, 1964), p. 194. Duffy, ‘Against Metaphor’, p. 40.
58. Adam Piette, Remembering and the Sound of Words: Mallarmé, Proust, Joyce, Beckett (Oxford: Clarendon Press, 1996), pp. 197–245. Steven Connor, Beckett, Modernism and the Material Imagination (Cambridge: Cambridge University Press, 2014), p. 117.
59. Bergson, Matter and Memory, p. 22.
60. See Dream Notebook, p. 165. Beckett is paraphrasing Jules de Gaultier’s De Kant à Nietzsche [1900] (Paris: Mercure de France, 1930), pp. 28–29. Pilling suggests that this is ‘perhaps the most important of Beckett’s jottings’ from Gaultier’s book.
61. Gilles Deleuze, Anti-Oedipus [1972], trans. Robert Hurley et al. (London: Bloomsbury, 2013), p. 12. Beckett, Dramatic Works, p. 403.
62. Numerous studies have suggested that Leibnizian concepts inform Beckett’s work. See, for example, Garin Dowd, ‘Nomadology: Reading the Beckettian Baroque’, Journal of Beckett Studies, 8.2 (1998), pp. 15–49; Katrin Wehling-Giorgi, ‘“Splendid Little Pictures”: Leibnizian Terminology in the Works of Samuel Beckett and Carlo Emilio Gadda’, Samuel Beckett Today / Aujourd’hui, 22.1 (2010), pp. 341–54.
63. Wiener, ‘Quantum Mechanics’, p. 482.
64. Beckett, Letters, p. 172.
65. G. W. Leibniz, The Monadology and Other Philosophical Writings, trans. Robert Latta (Oxford: Clarendon Press, 1898), p. 224.
66. John Pilling, Samuel Beckett (London: Routledge and Kegan Paul, 1976), p. 131.
67. Lois Gordon, The World of Samuel Beckett 1906–1946 (New Haven, CT: Yale University Press, 1996), p. 24. See Knowlson, Samuel Beckett: An Exhibition (London: Turret Books, 1971), p. 52. Gerald, and two of his children, Ann and Peter, were prominent medical practitioners.
68. Schrödinger, What is Life? The Physical Aspect of the Living Cell [1944] (Cambridge: Cambridge University Press, 2013), pp. 76–85.
69. Beckett, ‘La peinture des van Velde’, in Disjecta, pp. 118–32 (p. 128).
70. Spencer H. Jones, ‘Is there Life in Other Worlds?’, Discovery: The Popular Journal of Knowledge, 2.10 (1939), pp. 36–47 (p. 40). Krapp’s Last Tape, in Dramatic Works, p. 218: ‘Statistics. Seventeen hundred hours, out of the preceding
eight thousand odd, consumed on licensed premises alone’. For Beckett’s use of facts and statistics, see also Steven Connor, ‘The Matter of Beckett’s Facts’, *Journal of Beckett Studies*, 28.1 (2019), pp. 5–18.

71. Beckett, qtd. in Fletcher, *Novels*, p. 194.
72. Schopenhauer, WWR, First Book, p. 107.
73. Schrödinger, *What is Life?*, p. 16.
74. Ibid., p. 15.
75. Beckett, *Stirrings Still* (New York: Blue Moon Books, 1988), p. 3. Louis le Brocquy, qtd. in *The Head Image: Interviews with the Artist* (Cork: Gandon, 1996), p. 25: ‘I was tremendously struck […] by something Schrödinger the physicist, said to me […] It was to the effect that matter could not be destroyed’.
76. Shane Weller and Dirk Van Hulle (eds.), *The Making of Samuel Beckett’s L’Innommable/The Unnamable* (Antwerp: University Press Antwerp, 2014), p. 225. The claim that Beckett revised descriptions of movement was confirmed by my own archival research at the HRC.
77. Ibid., pp. 225–27.
78. Ackerley, ‘Continuum’, p. 114.
79. Beckett, ‘Fizzle 7: Still’, in *The Complete Short Prose: 1929–1989*, ed. S. E. Gontarski (New York: Grove Press, 1995), pp. 240–42 (p. 241).
80. Poincaré, *La Valeur*, p. 78.
81. Windelband, *History*, p. 411.
82. Ulrika Maude, Beckett, *Technology and the Body* (Cambridge: Cambridge University Press, 2009), p. 93.
83. Beckett revised ‘animated’ to ‘life’ torrent, see *The Unnamable*, typescript with author edits and note, 1958, HRC, Box 5, Folder 10, p. 38.
84. Beckett, *L’Innommable*, p. 110.
85. Beckett, *Proust and Three Dialogues*, p. 120.
86. Ibid., p. 109.
87. Heisenberg, *Physics and Philosophy*, p. 115.

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