



3. Towards a Fatal University: Temporal (In)determinacies in Heisenberg and Derrida

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The university, what an idea! It is a relatively recent idea. We have yet to put it aside, and it is already being reduced to its own archive, to the archive of its archives, without our having quite understood what had happened with it.¹

Abstract: Many lament the poor state of the university as an effect of neo-liberalisation. The university, these critics say, has strayed from its ‘pure’ pursuit of knowledge, justice, and truth. This paper takes issue with this explanation. It suggests instead that this state signals a reversal of the principle of causality, which points towards the aporetic endeavour of certain ideals of academic research since their inception. What is more, it claims that the contemporary acceleration of this aporia through cybernetics has led to a situation in which especially the hard sciences start to deconstruct themselves. It will substantiate this argument by reading Jacques Derrida’s *Psyche* together with Werner Heisenberg’s *Physics and Philosophy*, and point out that Heisenberg’s defence of an uncertainty principle in quantum physics, marks the return of the auto-immunity of the university project and its embodiment in the conception of linear time, eventually calling for a ‘fatal’ university instead.

Keywords: university, physics, philosophy, time, acceleration, cybernetics, fatality

¹ Jacques Derrida, *Eyes of the University: Right to Philosophy 2* (Stanford: Stanford University Press, 2004), 83.

It appears that the university has irreparably strayed from its principles of pursuing justice and truth. Today, it seems more like a neoliberal machine in which the once-progressive performance of its ideals has mutated into all kinds of symbolic and real violence. This violence, as Oili-Helena Ylijoki and Hans Mäntylä show in “Conflicting Time Perspectives in Academic Work,” is by those within the university often felt as an intensified conflict of temporal structures and duties that make inconsistent and at times oppositional demands on university lecturers, researchers, and students.² In the area of physics for instance, the complaint is that ‘basic’ research is sidestepped in favour of ‘applied’ research that appeals to the fashion of the day in order to rake in large grants, thereby thwarting the ‘pure’ pursuit of knowledge. Also, as proper empirical research in physics is often tedious and slow, more and more ‘facts’ are gathered by way of speedy computer modelling with its selective biases and dubious extrapolations that rarely result in paradigm-shifting discovery. Similar grievances are felt in the humanities. The on the surface productive acceleration of research via new administrative and communicative techniques seems to be fuelling ever more instances of thoughtless repetition and irresponsible corner-cutting. The churning out of publications seems to have become an end in itself rather than an enlightening and civilising endeavour. Students too appear to jump thoughtlessly through hoops in order to finish their studies within the stipulated timeframe without much concern for acquiring knowledge or wisdom. A telling symptom also is the recent rise of the digital humanities; Richard Grusin in “The Dark Side of the Digital Humanities” notes that the rise of the digital humanities coincided with the deepening of the economic crisis that has negatively affected the critical strands within the humanities.³ He suggests that the digital humanities have fallen prey to the “neoliberal values that have been seen to be the cause of the current crisis.”⁴

The felt acceleration in academia curiously appears to go hand-in-hand with a certain slowdown; as Steven Ward illustrates in *Neoliberalism and the Global Restructuring of Knowledge and Education*, the neo-liberalisation of the university has in fact generated profound inefficiencies, as lots of money and manpower is put into endless performance assessments as a perverse way

² Oili-Helena Ylijoki and Hans Mäntylä, “Conflicting Time Perspectives in Academic Work,” *Time & Society* 12 (2003), 62.

³ Richard Grusin, “The Dark Side of Digital Humanities: Dispatches from Two Recent MLA Conventions,” *differences. A Journal of Feminist Cultural Studies* 25, no.1 (2014), 79.

⁴ Grusin, “The Dark Side,” 85.

of remaining accountable to the general public.⁵ As progressive academics, we hence find ourselves in a paradoxical situation in which the apparently productive and responsible acceleration of research via efficient communicative techniques fuels a state of social and innovative indeterminacy and inertia. But I propose that this paradox did not emerge with the onset of academia's neo-liberalisation, as Grusin suggests. Instead, my argument is that this paradox can be traced back to the problems especially around the concepts of time and space, as well as around the dialectic between calculation and narrative that shapes the sciences. Byung-Chul Han in *The Transparency Society* remarks for instance that "The crisis of our times is not acceleration, but the scattering and dissociation of temporality."⁶ This scattering, according to Han, is due to the ways in which narrative and calculative structures that make up modern institutions are incommensurable in their temporalities. Calculation, I concur, suggests addition and atomisation, thus leading to the loss of a determinate narrative. And yet, calculation and narrative are not oppositional, but are both methods that emerged out of the same ideals for truth, knowledge accumulation, and justice that ground the university's purpose. As Jean-François Lyotard illustrates in *The Postmodern Condition*, the empirical sciences that render the material world as data require linguistic narratives and concepts about the fundamental *knowability* of the world, while philosophy considers calculation and mathematics as only one aspect of the metaphysical *assumption* of the world as logical and coherent.⁷ The tension between narrative and calculation can therefore never be resolved due to the unequal relationship within the university between narrative and scientific knowledge games – science as denigrating narrative, while narrative encapsulating science. Wherever this dialectic is in place, the university can be envisioned as a harmonious gathering of scientists and philosophers as well as a progressive 'bastion' of knowledge, as long as the fundamental *unknowability* of the world remains obscured, and as long as this tension is projected on something 'outside' of itself – such as 'the neoliberal economy.'

This projection knows a long history. Immanuel Kant's *Conflict of the Faculties* for instance locates according to Jacques Derrida the tension in the game between the 'lower' and 'higher' faculties, whereby philosophy gets

⁵ Steven Ward, *Neoliberalism and the Global Restructuring of Knowledge and Education* (New York: Routledge, 2012), 111.

⁶ Byung-Chul Han, *The Transparency Society* (Stanford: Stanford University Press, 2015), 21.

⁷ Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, transl. Geoff Bennington and Brian Massumi (Manchester: Manchester University Press, 1984), 12.

romantically portrayed as the discipline in which pure thought, unfettered by the interests of the State or the larger social context, takes place. Derrida therefore comments in “Mochlos” (from the Greek μόχλος or ‘lever’) in *Eyes of the University* that Kant’s rendition presents us with “a powerful effort at formalization and discursive economy ... [it] tries to attain to pure legitimation, to purity of law, to reason as the court of final appeal ... and correlatively to the decision of a pure egological subject.”⁸ Alexander von Humboldt in turn projected the university’s irrational aspect onto the ‘uncivilised masses,’ thus securing the relative stability and determinate boundaries of its project for at least a century or two – a relative stability also noted by Lyotard.⁹ The various faculties of the university are in these ideal configurations fantasized as separate but complementary elements that together make a unitary and determined whole – the Latin *universitas* after all translates among others as ‘the totality.’

This attempted expulsion or resolution of the university’s immanent indeterminacy through all kinds of technological, communicative and simulatory techniques that, I suggest, stands at the base of the sensation of acceleration, can be seen in several knowledge games within the contemporary university. The fashionable knowledge game that this article gets itself into, is the push for interdisciplinary research straddling the humanities and the hard sciences. This push can be gleaned from the ubiquity of European Union grant calls that require that the humanities engage the sciences especially in areas of technological innovation, but also from certain fashions within the humanities, like the ‘new materialist’ engagement between feminist theory and quantum mechanics (see for instance Karen Barad’s *Meeting the Universe Halfway* from 2007 and Vicki Kirby’s *Quantum Anthropologies* from 2011), and between cultural studies and the biological sciences (see for instance Isabelle Stengers’ *Cosmopolitics* from 2011).¹⁰ I suggest that we should understand the rise of such fashions as well as the allocation of grants for multi-disciplinary projects in the way Grusin understood the rise of the digital humanities, namely as a spurious claim to an improved epistemic situation that will lift us closer toward total knowability. What is more, I propose that all these erudite crossovers between physics, biology and philosophy reproduce one

⁸ Derrida, *Eyes of the University*, 90.

⁹ Lyotard, *The Postmodern Condition*, 32–34.

¹⁰ Karen Barad, *Meeting the Universe Halfway. Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007); Vicki Kirby, *Quantum Anthropologies: Life at Large* (Durham: Duke University Press, 2011); Isabelle Stengers, *Cosmopolitics I*, transl. Robert Bononno (Minneapolis: University of Minnesota Press, 2010).

of the central concepts of the university and most, if not all, its research endeavours: the concept of linear time through the fantasy of progress. The felt tensions between acceleration and inertia that I discussed earlier, signal a reversal of the principles of linearity and causality – and with it the hope for determinate answers – that have been and still are foundational to Western science and philosophy. Usefully then, the scattered temporal structure of the present university also points to as well as pushes us towards the reality of the essentially *aporetic* endeavour of academic research and its grounding conceptions of time and temporality since its inception, so that the technological and conceptual performance of the hope for a better future and society now more obviously starts to cave. In other words, the academic institution is exceedingly in tension *with itself*, and critics that merely lament this stage as a recent onslaught of neo-liberalisation from the outside, as well as academics that keep adhering to a progressive notion of successor-science-philosophies like new materialism, run the risk of lapsing into a problematic nostalgia for an illusorily coherent and inherently progressive picture of Western science, philosophy, and the academic institution that never was.

To push this point even further, oppositions between truth and falsehood, progress and regress, and ‘true’ research versus research perverted by techno-capitalism, eventually also serve to strengthen the latter. As Derrida illustrates in *Eyes of the University*, the distinction between applied and basic research, where one is supposedly fast and the other one slow, is a problematic one, especially since today, “never before has so-called basic research been so deeply committed to ends that are at the same time military ends.”¹¹ This means also that the dichotomies that merely play off one epistemological assumption in a given field – whether this be the humanities or the hard sciences, or indeed productive crossovers between the humanities and sciences – for the presumed sake of progressive enlightenment effectively no longer make a real difference in the face of an exceedingly oppressive and splintering neoliberal and technological acceleration. Such oppositional arguments are themselves namely implicated in as well as produced by the speeding-up of precisely the immanent tension, and possibly signal gradations of privilege under threat. What is at stake therefore within the very conception of linear time and causality (which have given birth to cybernetics as a heuristic towards one determinate truth) in physics and philosophy, is nothing less than the mythical and violent grounding of the university as a supposedly progressive institution. I will mount this argument by teasing out the equivalences between proponent of linguisticism Jacques Derrida, and quantum physicist Werner Heisenberg in

¹¹ Derrida, *Eyes of the University*, 143.

relation to the ‘nature’ of time and matter. I take Heisenberg, and not Niels Bohr, as Derrida’s interlocutor because, even if both physicists agreed on many conceptual issues and are together known for the Copenhagen interpretation of quantum physics with its famous ‘indeterminacy principle,’ Heisenberg’s more formalistic “anti-realism” puts a slightly different spin (pun intended) on the celebrated argument by Barad of Bohr’s “anti-representationalist realism” in *Meeting the Universe Halfway*.¹² I also engage this different spin in order to investigate more closely the relationship between the university and the contemporary violence it may be implicated in, seeing that Heisenberg expressed increasing concern in his work about the harmful fallout of the nuclear technologies that university research helped develop.

Finally, by problematizing the rise of interdisciplinary research via a reading Derrida with Heisenberg, I also indict the widespread productivism that is the bedrock of academic neoliberal acceleration. In place of a straightforward appeal to pure truth and justice as is common in humanities theses, I want to make a case for not the progressiveness, but the essential *fatality* of academic argumentation and the university project. I do this despite as much as because of its own good academic conscience. I implicate here the university but also *this* article and its speedy delivery. This fatality should be understood, as Jean Baudrillard helpfully notes in *Revenge of the Crystal*, as “a type of objective irony.”¹³ Baudrillard here pinpoints a sort of indeterminable element endemic to the university that signals the inextricability of the Christian themes of salvation and apocalypse that provide the hidden yet formative grounds for Western science and philosophy. Fatality and apocalypse, Baudrillard suggests, are to be understood as the *result* of the reversibility of the fantasies of rationality, determinacy, and linear progression. The Enlightenment project that the university embodies is therefore doomed to failure in its very quest for the completion and unification of truth, knowledge, and humankind; its ruin, deepening Bill Readings’ excellent analysis in *The University in Ruins* from as early as 1997, is not so much only recently announced due to the onslaught of techno-science but was already fated from its onset due to its constitution in ideas of the essential communicability of truth as an expansive spatiotemporal reality.¹⁴ I hence suggest that the contemporary acceleration

¹² Barad, *Meeting the Universe Halfway*, 123–124.

¹³ Jean Baudrillard, *Revenge of the Crystal: Selected Writings on the Modern Object and Its Destiny, 1968–1983*, ed. and transl. Paul Foss and Julian Pefanis (London: Pluto Press, 1999), 17.

¹⁴ Bill Readings, *The University in Ruins* (Cambridge, MA: Harvard University Press, 1997).

of this aporia by way of the cybernetic tools of calculation and prediction has led to a situation in which especially the hard sciences start to deconstruct themselves – a situation that recently became obvious in the public crisis around ‘the science’ and scientific expertise concerning Covid-19. The result is that the university ‘succumbs’ to those violent theories, techniques, and technologies of acceleration that it itself has brought forth. The university today, one could say with Derrida, suffers from a peculiar “being-ill” or auto-immune disease.¹⁵ Baudrillard suggests that it would therefore be judicious to affirm this fatal element rather than try to exorcise it via all kinds of cybernetic, analytical, and simulatory techniques. Eventually namely, such attempts at exorcism only engender a haunting or even a vengeful return of what he calls the “accursed share” of the academic pursuit, finally leading to the ‘short-circuiting of thinking’ by as well as of time and temporality.¹⁶ So the technological acceleration of the university brings its auto-immunity ever more to the foreground, which in turn leads to an aggravation of fundamental tensions and blatant incompatibilities within its dominion that, as the Heisenberg-Derrida case will show, have always resided in physics’ and philosophy’s fundamental concepts.

Fundamental Indeterminacies and the Fatal Temporalities of Research

It is perhaps telling that in the realm of the philosophy of physics – that bedrock of the modern university – profound new insights about time and matter seem to come to a halt in the era of Heisenberg, Bohr, and Martin Heidegger. The Cold War powers of computational machines and methods that should have engendered the proliferation of new insights thus appear to have signed the death-warrant of philosophy (and of physics as generating new perspectives) – a paradox that of course Heidegger was well-aware of in his interpretation of cybernetics as the completion of metaphysics.¹⁷ Interestingly then, academic research of all kinds has certainly been engaging in the exorcism of its fatal and indeterminate ‘accursed share’ over the centuries, but the last century that heralded in cybernetic techniques spawned such exorcism with more

¹⁵ Derrida, *Eyes of the University*, 87.

¹⁶ Jean Baudrillard, *The Transparency of Evil: Essays on Extreme Phenomena*, transl. John Baddeley and James Benedict (London: Verso, 1993), 106.

¹⁷ Martin Heidegger, “The End of Philosophy and the Task of Thinking,” in *Basic Writings: from Being and Time to The Task of Thinking*, ed. David Krell (San Francisco: Harper, 1969).

vigour. A telling example of this ‘battle against fatality’ can be found in Paulo Freire’s *Pedagogy of the Oppressed* towards the “fatalistic attitudes” of his student-peasants.¹⁸ Donna Haraway’s recent *Staying with the Trouble*, goes to great lengths to stamp out what she calls the ‘game-over’ “fatalism” endemic to current research.¹⁹ This results in romantic declarations by Haraway for a feminist situation of near-total entanglement in the ever-more powerful techno-scientific endeavour, which is itself nonetheless marked by incessantly desperate forms of coding and over-coding. I have no space to go into the academic disdain towards fatalism here in more depth, but concur with Baudrillard that the seeming irrationality of fatalism mirrors the technological institution of the kinds of Christian and Enlightenment thought that has led to it. This means that the truly innovative role of academic theory today, as Baudrillard claims in “Symbolic Exchange: Taking Theory Seriously,” is to make the world more enigmatic and ambiguous, and not to analyse it, critique it, and break it into neat spatiotemporal segments and concepts that pretend to add up to a determinate picture of the world through time. Baudrillard insists that the situation in which critique finds itself has changed, so that in such a “system of total – and even totalitarian – explanation, exploration and investigation ... the real task of theory is to *complicate* the object” (italics mine).²⁰ This way, theory signs its death warrant as theory; to pull the rug from under itself in a game of ‘passionate indifference’ rather than to pretend to be internally coherent and representative of ‘reality.’ As Baudrillard puts it, “we have to find the possibility of playing in the very impossibility of being ourselves,” and this, I claim, starts with the acknowledgement that the clashing temporalities of the university mark the fact that it was never identical to its founding ideals and concepts.²¹

This acknowledgment of the fatality of theory – and the many deaths of the university that accompany it – mirrors Derrida’s proposition in “The Time Is Out of Joint” that the ways in which ‘time is out of joint’ in academic space past and present – the madness that resides at its heart – is precisely constitutive of the possibility of thought, and that such a constitution bears within it the technological and conceptual hallmarks of its moments past, present,

¹⁸ Paulo Freire, 1971. *Pedagogy of the Oppressed*, transl. Myra Bergman Ramos (New York: Herder and Herder, 1971), 37.

¹⁹ Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016), 56.

²⁰ Jean Baudrillard, “Symbolic Exchange: Taking Theory Seriously. Interview with Roy Boyne and Scott Lash,” in *Jean Baudrillard: From Hyperreality to Disappearance: Uncollected Interviews*, ed. Richard Smith and David Clarke (Edinburgh: Edinburgh University Press, 2015), 64.

²¹ Baudrillard, “Symbolic Exchange,” 72.

and future.²² Derrida's argument indeed jumps from past to present in ways that illustrate 'time' as a many-layered tapestry folded together at non-locatable instances. In short, Derrida proposes that time has no unified essence, and that this internal disjunction *is* precisely (its) deconstruction. 'Time,' just like 'deconstruction,' never occupy a specific time and place – time is never self-identical, just as being never 'is' but relies on endless diffraction not just 'in time' but as such. By working through this questioning of time in the jumbled-up time of the academic lecture-turned-chapter via the story of Hamlet, Derrida relates the attempt at unifying time and locating essence to the workings of memory, mourning, and amnesia. He suggests that the establishment of objective time relies on the repression of a certain violence or murder, as in Hamlet the succession of father by son is founded on a *madness* that cannot be properly mourned – a patriarchal patricide that is also the hallmark of Western science and philosophy. Therefore for Derrida, the "discourse of reason' is also on the side of this inhuman bestiality; it is a strategy of rationalisation destined to serve and hide the interests of a crime."²³ Derrida in turn proposes "What if what time gives is first of all the measurelessness of all madness?" as a way of suggesting that the concept of linear and objective time circles back upon itself with a vengeance when its foundational ideal also wants to uncover the essence of time as such.²⁴ The paradox of temporal clashes, also within the university (as we saw with Ylijoki, Mäntylä, and Han), is thus internal to time itself, "a certain difference within time." Acceleration therefore engenders deceleration since "depending on the place mourning assigns to one or to the other," the effect is that "the more it delays, the less time is long, thus the less it delays." Therefore disorganisation and disarticulation are according to Derrida "*both the thematic stakes and the form* of these out-of-joint remarks, the dis-junction at the heart of the 'is'" (emphasis in original).²⁵ In fact, says Derrida, "there would no longer even be a question without this disjoining of the 'is'," and taking this injunction seriously therefore requires being attentive to "spectrality" – an issue that Barad explores in "Quantum Entanglements and Hauntological Relations."^{26,27}

²² Jacques Derrida, "The Time is Out of Joint," in *Deconstruction Is/in America: A New Sense of the Political*, ed. Anselm Haverkamp (New York: New York University Press, 1995).

²³ Derrida, "The Time Is Out of Joint," 23.

²⁴ Derrida, "The Time Is Out of Joint," 15.

²⁵ Derrida, "The Time Is Out of Joint," 23–24.

²⁶ Derrida, "The Time Is Out of Joint," 29–30.

²⁷ Karen Barad, "Quantum Entanglements and Hauntological Relations." *Derrida Today* 3 no. 2 (2010).

It is noteworthy that Derrida translates the ‘out of joint’ with the German ‘aus den Fugen,’ as this translates to the project of reason ‘bursting at its seams’ – the university’s spatial and temporal borders are thus not-locatable, and today even less so than in the past. In other words, it is exceedingly indeterminable what, where, and for whom the university exists, but this undecidability of its proper time and place also presents the opportunity, “the chance and its ruin,” of a further displacement of the patriarchal and metaphysical ideals of the university.²⁸ Derrida eventually invokes Nietzsche on the potential of some sort of post-Dionysian artistic engagement via the sublime and comic as a way of ‘taming’ or ‘mobilising’ the ‘absurdity’ of the situation. I suggest that this injunction resembles Baudrillard’s call for fatal theory. It also resonates with Frank Ruda’s recent argument in the *Hong Kong Review of Books* that “Fatalism provides a provisory morality ... a form of orientation within a phase where one is on the lookout how to rethink political organisation.”²⁹ In *Abolishing Freedom*, Ruda indeed illustrates that fatalism is not merely the logical deconstruction of Western metaphysics since all “great philosophers of rationalism and freedom were at the same time fatalists,” but also that “fatalism ... [is] the very precondition for articulating the proper concept of freedom” in which freedom is no longer simply the oppressive injunction of freedom of choice.³⁰ Ruda too insists that fatalism is the only attitude that ‘prepares’ for the immanent and unpredictable event that lies await in our current era of accumulating and accelerating techno-scientific power.³¹ In light of the university’s ever accelerating and indeterminate tensions, fatalism is thus where the real game is today.

The Complicities of Physics and Philosophy in Nuclear and Cybernetic Violence

Having thus laid out the stakes, I now will trace back and provoke this fatality and the ways in which it is invested in contemporary thinking in and on the university, by reworking the echoes between Derrida’s enigmatic arguments on time and cybernetics in his 2007 *Psyche* and that of the equally baffling argument from Heisenberg’s interpretation of quantum physics. Heisenberg’s

²⁸ Derrida, “The Time Is Out of Joint,” 35 and 37.

²⁹ Frank Ruda, “HKRB Interviews: Frank Ruda,” *Hong Kong Review of Books*, September 13 (2016a), <https://hkrbooks.com/2016/09/13/hkrb-interviews-frank-ruda/>.

³⁰ Frank Ruda, *Abolishing Freedom. A Plea for the Contemporary Use of Fatalism* (Lincoln: University of Nebraska Press, 2016b), 9–10.

³¹ Ruda, *Abolishing Freedom*, 9.

remarkable *Physics and Philosophy*, published in 1958, in fact tackles, in its final chapter and after a long and elegant story about the evolution towards the so-called Copenhagen interpretation of quantum physics, the conundrum of modern science in the face of nuclear destruction. Heisenberg in this penultimate chapter states that he is sceptical of scientists being forced to take an official stance of non-violence when their profession by necessity has thrown them into collaborating with the possibility of global destruction. This conflict in the scientist's duty towards the *universitas*, where the trajectory of science, as if a force of nature pushes the scientist into an impossible 'politics,' has its parallel in what Heisenberg admits is that "... even in the most precise part of science, in mathematics, we cannot avoid using concepts that involve contradictions. For instance, the concept of infinity leads to contradictions that have been analysed, but it would be practically impossible to construct the main parts of mathematics without this concept."³² That such contradictions have been fundamental to physics research, emerges also from the ways in which Heisenberg understands that for instance "experimental research itself, carried out with all the refined equipment that technical science could offer, and its mathematical interpretation, provided the basis for a critical analysis of [classical physics'] concepts, and finally resulted in the dissolution of [its] rigid frame."³³ Throughout *Physics and Philosophy* then, Heisenberg shows that the emergence of quantum mechanics' indeterminacy principle (or the uncertainty principle) has its bedrock in physics' necessary assumptions about the nature of reality and observation; in short, that those statements about time, space, and matter that make truth-claims possible, precisely also lead to unknowability.

Allow me to digress into Heisenberg's indeterminacy principle in order to illustrate its relevance for the state of the university today. In short, the principle amounts to the quantum experiment never being able to fully know the position (location) and momentum (the product of mass and speed) of a nuclear particle simultaneously; in other words, it refers to the impossibility to "describe what 'happens' between this observation and the next."³⁴ This implies according to Heisenberg two things: namely firstly, that time, just as Derrida in "The Time is Out of Joint" proposes, cannot be described as the aggregate of separate points on an arc; and secondly, that there exists an interplay between presence and absence in the scientific

³² Werner Heisenberg, *Physics and Philosophy. The Revolution in Modern Science* (New York: Harper, 1958), 172.

³³ Heisenberg, *Physics and Philosophy*, 170.

³⁴ Heisenberg, *Physics and Philosophy*, 51.

experiment whereby the latter has to be constitutive of the former.³⁵ Bohr termed this phenomenon in “The Quantum Postulate” the ‘principle of complementarity,’ which implies that matter cannot be fully observed or measured as particle as well as wave at the same time (although nebulous combinations may occur).³⁶ Heisenberg says that this introduces a certain “subjectivism” to physics, since the apparatuses and moments of observation appear to constitute phenomena which would otherwise remain absent. Heisenberg is loath to admit that this introduces “the mind of the physicist as part of the atomic event,” but nonetheless concurs that the assumption in physics of “the division of the world into the ‘object’ and the rest of the world ... is arbitrary and historically a direct consequence of our scientific method.” In other words, Heisenberg acknowledges that physics always contains a “reference to ourselves and insofar our description is not completely objective.”³⁷

Now as Heisenberg discusses earlier, the truth of this interplay between object and ‘world,’ as well as presence and absence via the moment of observation, consists of the fact that Bohr proved that there exists a “principle of correspondence” between classical physics’ representationalist description of the atom and its electrons as resembling planetary orbits, and the formalist description of quantum states as a mathematical matrix.³⁸ Heisenberg assumes that the mathematical form contains a kind of un-representable truth, but only by virtue of its isomorphic relationship to Erwin Schrödinger’s rendition of quantum phenomena being expressible in waves as well as particles. Heisenberg nonetheless tries to escape this conundrum by concluding that the true nature of quantum phenomena remains un-representable since “atoms or elementary particles themselves are not as real; they form a world of potentialities and possibilities rather than one of things and facts.”³⁹ This echoes the general lingo of the nuclear and cybernetic era, and making a connection between the ideals of modern communication technologies and mathematical calculations, Heisenberg prefaces this ‘solution’ to the conundrum of un-representable isomorphism by stating in an earlier chapter that language remains a “vague” and imprecise way of describing reality; saying that classical physics seemed elegant because it reminds us of “poetry”, while mathematics and

³⁵ Derrida, “The Time Is Out of Joint,” 14–38.

³⁶ Niels Bohr, “The Quantum Postulate and the Recent Development of Atomic Theory,” *Nature* 121 (1928), 580.

³⁷ Heisenberg, *Physics and Philosophy*, 55.

³⁸ Heisenberg, *Physics and Philosophy*, 41.

³⁹ Heisenberg, *Physics and Philosophy*, 160.

the mathematical formalism of quantum states describes reality in its “pure” form.⁴⁰ But he admits later on that language is the best way to describe reality, since mathematics entails a “process of idealisation and precise definition [in which] the immediate connection with reality is lost.”⁴¹ So even if quantum theory shows such incommensurabilities while stressing isomorphism for the sake of truth, Heisenberg admits that “we cannot escape [its] paradox, namely, the necessity of using classical concepts ... this again emphasises a subjective element in the description of atomic events, since the measuring device has been constructed by the observer, we have to remember that what we observe is not nature itself but nature exposed to our method of questioning.”⁴²

It is at this moment which stages the Lyotardian tension between calculation and narrative that we can discern a telling correspondence – bearing in mind the reproductive causes for or effects of such transpositions – between Heisenberg’s re-introduction of the question of the subject with its methods and its fraught relationship towards any proclamation of truth, and Derrida’s complication of the ‘fact’ of acceleration – which I also mobilise – by way of modern technology in “No Apocalypse, Not Now” in *Psyche*.⁴³ Derrida starts this ‘missive’ – playing on the tendency in cybernetic research to equate communicative commands with language, as if these are ‘missiles’ – by asking whether we today are “having another experience of speed? Is our relation to time and to motion becoming qualitatively different?”⁴⁴ By obliquely referring to the indeterminacy in quantum physics around concepts of time and place, Derrida immediately suggests that our political, academic, and scientific situation is directly related to the globalising effects of the techno-sciences. Heisenberg’s indeterminacy principle thus echoes a political experience which is both new and not new; it seems as if everything has accelerated, but the question remains, says Derrida, “on what temporality we are relying when we put the question that way?” As Derrida remarks, it seems “as if the concept of speed, linked to some quantification of objective time, remained within a homogenous relation to every experience of time for the human subject.”⁴⁵ Referring to the complaint in the humanities that a certain dominance of the scientific method is destroying the field, Derrida indeed argues that by

⁴⁰ Heisenberg, *Physics and Philosophy*, 155.

⁴¹ Heisenberg, *Physics and Philosophy*, 171.

⁴² Heisenberg, *Physics and Philosophy*, 56–57.

⁴³ Jacques Derrida, “No Apocalypse, Not Now. Full Speed Ahead, Seven Missiles, Seven Missives,” in *Psyche: Inventions of the Other, Volume 1*, ed. Peggy Kamuf and Elizabeth Rottenberg (Stanford: Stanford University Press, 2007).

⁴⁴ Derrida, “No Apocalypse, Now Now,” 388.

⁴⁵ Derrida, “No Apocalypse, Now Now,” 388.

virtue of seeking to globalise a singular concept of understanding space, time, matter, and the human, the “nuclear age determines a certain ... rhythm of speech [and] demonstration procedures.”⁴⁶ The apocalyptic narrative around the unwarranted nuclear acceleration by techno-science is therefore *not* new insofar it bears within it the mark of the classical conception of time and space as exterior to the human subject, but it *is* new insofar it finally carries in it the power to erase the very limits of that experience, and with it humanity as such. We also see here the marks of a Christian narrative, in which, as Baudrillard points out, the apocalypse would also be the ultimate revelation of the truth about the universe. What we according to Derrida, with a nod to Einstein, have to “acknowledge gratefully,” is that “the nuclear age gives us to think this aporia of speed starting from the limit of absolute acceleration.”⁴⁷ The quest for ultimate truth through techno-science therefore shows the limits of techno-science to reside in the impossibility to universalise its claims about the universe and the assumedly objectifying role of human rationality or experience.

Heisenberg’s defence in *Physics and Philosophy* of an indeterminacy principle inherent to quantum measurement therefore marks the necessary return of the auto-immunity or reversibility of the university project of knowledge-gathering and its selective embodiment in the empirical sciences’ conception of subject versus object, and even reluctantly acknowledges its connection to political and imperialist violence. Modern physics of course remains on this collision course, and hence keeps seeking to ward off and ameliorate this self-deconstruction of physics by physics, as well as of the dissolution of the *universitas* and a society as a community of reason that applies globally. It does this by continuously globalising and communicating a narrative of linear progress and internal coherence with regards to contemporary physics, which paradoxically shows that the promise of physics resides in its grounding rhetorical and dogmatic violence which may prove fatal to itself, the university project, and even humanity as such. Derrida says on this point that “it is a matter here... of a structure getting absolutely carried away, a quasi-infinite acceleration that makes possible the ‘always-already’ in general.”⁴⁸ The major example of the paradoxical consequences of this being carried-away would be the attempts to find the missing particle by way of the expensive Large Hadron Collider (LHC), in which the acceleration of particles ‘towards infinity’ should result in providing the missing piece – hubristically called

⁴⁶ Derrida, “No Apocalypse, Now Now,” 390.

⁴⁷ Derrida, “No Apocalypse, Now Now,” 390.

⁴⁸ Derrida, “No Apocalypse, Now Now,” 388.

the ‘God particle’ – of the so-called Standard Model. The Standard Model, as the CERN website confidently proclaims, provides the ideal consolidation of Einstein’s theory of relativity and the quirks of quantum mechanics into a comprehensive ‘picture’ of the universe and all in it; but it does so by way of the ‘excuse’ that quantum mechanics only applies to the sub-atomic micro-level in which the influence of gravity can be ignored.⁴⁹ One could of course immediately object that Heisenberg’s rendition of quantum mechanics illustrates that objective space and time is a fabrication of human measurement, and hence presents a crumbling of scientific representationalism towards the hegemony of pure mathematical modelling out of which Cold War technology emerged. So the aporetic contradiction inherent in physics from its inception immediately returns in the Standard Model between the claim to universalism and the attempt to exorcise the peculiarities of quantum physics if one were to extrapolate from its formalist matrix towards infinity. All these attempts at exorcising uncertainty should however, as Heisenberg admits, understood as an effect of the fact that physics ‘cannot leave behind its classical concepts;’ these concepts constitute after all the a priori of any scientific truth-claim, even if at the same time they show themselves to be inadequate and even dangerous. As Derrida states in an obvious reference to the formalist matrix of Heisenberg’s quantum mechanics, in a manner that in turn illustrates the isomorphism between the humanistic and the scientific tradition of questioning: “This form of question constitutes perhaps the most formal matrix, the central, or if you will, nuclear component for any problematics of the ‘nuclear criticism’ type.”⁵⁰

The Standard Model therefore can be understood as a way to, as Derrida puts it, “metaphorize, allegorize, and domesticate the terror” brought about by nuclear physics and cybernetics, as is the way in which it tries to communicate such a domestication worldwide, as if to catch chance into a probabilistic technique of ‘missives as missiles.’⁵¹ This desperate idealisation that the CERN website confesses to was disseminated to a global audience via an expensive and intricate “Collider” exhibition that travelled Europe, Australia and Asia in 2013–2016. This exhibit – an excellent example of scientific propaganda – consisted of a display of several old and new instruments used for sub-atomic research; some of the writings by authoritative figures in 20th

⁴⁹ Sophie Hetherington, “Collider Exhibition Embarks on an International Tour,” CERN website, 2014, <https://home.cern/about/updates/2014/10/collider-exhibition-embarks-international-tour>.

⁵⁰ Derrida, “No Apocalypse, Now Now,” 388.

⁵¹ Derrida, “No Apocalypse, Now Now,” 389.

century physics, a spectacular artwork made of vanishing light; and a number of drawings explaining the details of the physics taking place in the LHC for a lay audience. Two of these drawings are particularly telling, namely “The Standard Model” drawing that portrays the universe as a jigsaw puzzle in which one piece remains to be discovered while little ghosts and question marks haunt the drawings’ periphery; and “The Collision,” which presents a ‘Newtonian’ visualisation of the LHC experiment in an aesthetically pleasing way by way of presenting an ‘explosion of particles’ via recognizable memes, like Einstein’s $E=mc^2$. Of course, Heisenberg would have strongly objected to such an elegant visualisation of quantum mechanics, even if he agreed that the internationalisation of physics is “part of a historical process that tends towards a unification and a widening of our present world.”⁵² Interestingly in light of the ‘explosion’ drawing, the very form of Derrida’s “No Apocalypse, Not Now” resembles the imagery of the “Collider” exhibition, in that it also ‘shoots out’ several ‘missives’ in various directions, wholly in, as Derrida admits, “the genre or rhetorical form of tiny atomic nuclei.”⁵³ By indicting techno-science, Derrida therefore also indicts the general violence of Western thought of which academic argument in the humanities is just as much part; as with nuclear physics and the Cold War standoff, the humanities are and have after all always been about dissuasion, persuasion, and the performative function of language and art, and are hence implicated in war as well. Therefore, the “historicity of literature is” according to Derrida “thoroughly contemporaneous with ... something like the nuclear ‘epoch’.”⁵⁴

Heisenberg’s narrative of the evolution of physics provides a perfect illustration of how the unknowable or spectral aspect necessary for any type of knowing does perforce return in the assumptions, concepts, and axioms of modern science and philosophy. It is in these that the deconstruction of the university project shows itself despite and because of its totalitarian and omniscient ambitions. As Ruda has it, the fatality of its project precisely concerns the “counter-history of rationalism” which should have us “embrace catastrophe, disaster, and the apocalypse.”⁵⁵ This ultimately illustrates how hope and despair – just like control and accident, determination and indeterminacy, presence and absence, speeding-up and slowing-down, as well as the visible and the invisible – are always immanent to one another, both in the performance as an academic, and in the academic pursuit as such. Scientific

⁵² Heisenberg, *Physics and Philosophy*, 176.

⁵³ Derrida, “No Apocalypse, Now Now,” 390.

⁵⁴ Derrida, “No Apocalypse, Now Now,” 401.

⁵⁵ Ruda, *Abolishing Freedom*, 13–14.

research that seeks and even arrogantly claims total understanding and visibility, notably in the sciences but also in the humanities, must therefore have fallen prey to a profound scientific and moral blindness that caters to the elites of the *universitas* and of global society – and we have indeed seen this happen during the Covid-19 pandemic. The digital technologies that emerged from Cold War research create what Paul Virilio in *Vision Machine* aptly calls a “sightless vision,” in which the exceeding cutting-off from the subject’s mnemonic capacities in turn creates an obsession in modern society with “fore-seeing” or prediction via computerized quantification.⁵⁶ It is such ‘fore-seeing’ that tries to close off the possibility of the unknown returning in the near-future, while paradoxically also producing more unknowability. This ghostly return of the unknowable aspect via the transformation of Newtonian physics to quantum physics took, as Heisenberg also agrees, place via Einstein’s theory of relativity; and interestingly of course, Einstein’s idea of relativity emerges precisely at the moment when the militaristic proliferation of virtual images generated both deception and confusion about the status of the real. This can hence be pinpointed as another distinctive moment of the deconstruction of science by itself. In this moment, as quantum theory admits, it becomes impossible to say with certainty whether the change, pattern, or energy observed is, as Virilio puts it, “observed energy or observation energy,” and this conundrum will indeed only become more profound in the sciences at large as they ‘progress.’⁵⁷ Roberto Torretti here comments on the fact that Einstein sought to domesticate “Zufall” or chance to no avail in a later article, after he first sought to unify his theory of general relativity with some of the baffling conclusions of quantum mechanics.⁵⁸ One could then say that this conundrum signals the fact that it is finally *the world as such* which contains a fatal amount of trickery that thinkers like Descartes sought to banish via a conception of a God that would not mess with the senses. The very attempt in physics to erase indeterminacy via the accumulation of knowledge that both follows and generates its fundamental theories of time and matter therefore fatally exacerbates uncertainty and indeterminacy. It is this fundamental logic of all science and philosophy that Baudrillard equally terms ‘the uncertainty principle,’ thereby extending the promise of Heisenberg’s enigmatic rendition through a theoretical and academic quest that becomes, and

⁵⁶ Paul Virilio, 1994. *The Vision Machine* (Bloomington: Indiana University Press, 1994), 61.

⁵⁷ Virilio, *The Vision Machine*, 73.

⁵⁸ Roberto Torretti, “Quantum Mechanics,” in *The Philosophy of Physics* (Cambridge: Cambridge University Press, 1999), 315.

has of course always been, fatal and aleatory. As Derrida notes, “an absolute missile does not abolish chance,” and this may be our only way out.⁵⁹

Whence or Whither the Future University?

As I hope to have illustrated, the university today is marred by an auto-immune disease that runs much deeper than its mere neo-liberalisation – it is instead marred by the tensions in the concept of time. Algorithmic techniques for measuring effective teaching and research for instance, as Adrian Mackenzie in “Protocols and the irreducible traces of embodiment” and David Beer in “Metric Power and the Production of Uncertainty” illustrate, seek to force a unifying temporal rhythm on institutional behaviour and agendas.⁶⁰ This forced unification exactly leads to the aggravation of uncertainty and anxiety in science, philosophy, the felt purpose of the university, and of lived labour conditions of its staff. We see the auto-immune aspect especially returning in the hard sciences, since the machinery of the acceleration of omniscience in many of its aspects – early cybernetic research, Cold War innovations like the ArpaNet, and engineering models of communication – have been carried out in large part *by* science faculties in universities often with the help of monies and establishments with a firm foothold in colonialist and militarist pursuits. This is also to stress that the ways in which academic research has historically been part of Western imperialist and capitalist violence should be borne in mind when examining the faux-nostalgic calls in many contemporary Western universities for a ‘return’ to the presumed ‘research autonomy’ of the sciences and humanities that supposedly preceded its neo-liberalisation. These nostalgic narratives show that, while predictive machines seek to close off the possibility of the unknown returning in the near-future, they paradoxically also produce more unknowability together with the promise of radical innovation. Such radical innovation may eventually only emerge, as Heisenberg rightly warns in his final chapter, as a major accident.

Derrida’s and Heisenberg’s works resonate with each other in ways intrinsic to the uncertain quantum rhythms of contemporary time, illustrating that the university project has fatally accelerated beyond its reversible point with the advent of the cybernetic convulsions of temporality. These convulsions

⁵⁹ Derrida, “No Apocalypse, Not Now,” 404.

⁶⁰ Adrian Mackenzie, “Protocols and the Irreducible Traces of Embodiment,” 2005, <http://www.lancaster.ac.uk/staff/mackenza/articles/mackenzie-algorithmic-time.pdf>; David Beer, “Metric Power and the Production of Uncertainty,” in *Metric Power* (London: Palgrave Macmillan, 2016).

show themselves in the crossovers between the sciences and the humanities, while basing its argument in persuasive techniques which attempt to exorcise fatality, only to implicate itself obliquely in contemporary oppressive social and material structures. There exists an illusory historical continuity in the scientific project all the way from its aspirational beginnings up until today that persists, even if that continuous element has been slowly but steadily displaced towards the imperatives of productivity, free-market ideals, and efficiency. This also means that the imbrication of academia with technology is one of a continuous and ever-growing constitutional yet dialectical relationship, in which these technologies turn out to be much more than simply a means through which research and teaching is carried out. Instead, they expose themselves, also in Heisenberg's work, as facilitators *and thwarts* of the academic ideal of total knowledge. The problem of the university today therefore consists not of a neo-liberalisation, but of the intensification of academia's unfinishable ideals through its enmeshment with techniques of communication, calculation, and prediction. The quest for transcendence through technologically-aided omniscience and universalism – the Latin *universitas* also means 'total community' – has resulted in this totalising quest running up to its hard limitations to which staff and student feelings of stress and burnout attest.

Eventually, it is the acknowledgement of the auto-immunity underlying the promise of the university that makes Heisenberg the exemplary counterpart to Derrida's rigorous displacements of Western philosophy. It also marks the transgressive performance of this article's narrative towards another university. Baudrillard on this point insists in "Symbolic Exchange: Taking Theory Seriously" that "We aren't in the Enlightenment anymore," and that it would be prudent to accept that "The whole nature of the problem has changed."⁶¹ Because after all, my claim that there is an isomorphic and temporal relation between Derrida and Heisenberg suggests yet another commensurability between two disparate eras or experiences of acceleration, so that the form this new 'fatal' university may take, will perforce remain indeterminable and maybe even infinitely vanishing. Academic production corroborates with the aggravation of uncertainty and anxiety among university staff and students, leading to overblown claims of epistemic breaks and a frantic production of articles like mine that seem quick to torpedo their humanist allies (like Grusin and Freire) in true auto-immune fashion. In light of all this accelerated complexity and obscure mourning, perhaps university anniversaries should be named *Dies Fatalis* rather than *Dies Natalis* and embrace their

⁶¹ Baudrillard, "Symbolic Exchange," 63 and 76.

Dionysian elements – that is, invite all those lawless and ‘irrational’ others that were the fatalities of Western scientific and technological colonialism and imperialism. But since the problem of the university lies not merely in its neo-liberalisation, there *is* of course no circumscribed fatal object, other, or lever (μόχλος), that can be used as such – a lever that proves fatal is after all not much of a lever. And who is not to say that my mobilisation of ‘cumulative auto-immunity’ by showing the equivalences between physics and literary theory for the sake of a ‘better’ university fashions itself not too on an illusion of a linear aggravation that can be known or at least objectively felt? Derrida illustrates this aleatory conundrum of impossible (academic) duty in “The Time is Out of Joint” in the ways in which Hamlet is problematically yet productively ordered to forget about mourning and get on with things, to “take advantage of time” and transcend his ‘passionate apathy,’ thus choosing ‘being’ over the memory of its violent constitution.⁶² My argument, bridging quantum physics and literary theory as per popular demand, hence enthusiastically constitutes a connective quantum particle in the large hadron collider that is inter-disciplinary research in the university. Yet it also constitutes an elaborate and cunning ruse towards some kind of illusorily standard model transcending the faculties towards a superior *universitas*. Which one is it to be? Only time can tell – but what (academic) time *is* or where it *goes*, must forever remain indeterminable.

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⁶² Derrida, “The Time Is Out of Joint,” 19.

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