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Frank Ruda / Jan Voelker

Introduction: Science and Thought

Martin Heidegger famously criticized science and scientific practice for being part of what he called *Ge-Stell*. *Ge-stell* was the name he gave to that which he saw to be at the very kernel of a structure that determined the metaphysical structure of the Occident. This metaphysical structure – *Grundstellung* as Heidegger called it – led in Heidegger's view to complete obliviousness with regard to the most crucial question, the question of being. One of the motors behind this forgetting, if not the most essential, was science. And the nature of science in this account has to be understood as a very refined version of technology. It is technology that empowers human beings – namely as subjects – to put any thinkable *being* in front of themselves (this is the operation of *Vor-Stellung* typical of *Ge-Stell*) and force it to take the form and shape they desire. Via scientific technology, being has come to be at subjects' disposal, and subjects themselves become, as already Protagoras contended, the measure of all things. But at the same time, these subjects, being also subjected to this procedure of a metaphysical tailoring of being, are also subjected to a radical forgetting – the forgetting of being qua being (which in the last instance even implies forgetting that one has forgotten). Science, which is, according to Heidegger, just a condensed embodiment of technology, is nothing more than one of the worst outcomes of this subjectivizing process that is essential for western metaphysical subjectivity and its peculiar obliviousness. The slogan Heidegger found for this analysis was: science does not think.

The present issue of *Filozofski Vestnik* starts from a concatenation – science and thought – that at first sight is the radical opposite to Heidegger's diagnosis. The title of this issue, "Science and Thought", already suggests that there is or at least there can be such a relation. With regard to Heidegger, this implies two options here: either Heidegger was wrong in his criticism of metaphysics or he was wrong with his equation of *Ge-Stell* (as the essence of technology) and science. Simply put: either metaphysics still contains some sort of valuable thought (and hence there could be some sort of metaphysical science that thinks) or science

is simply not reducible to the metaphysics or to the being of a mere technology in the sense that Heidegger criticized. Then the (metaphysical) question of being could be separated from technology and metaphysics, but perhaps it still finds its locus rather within science. Heidegger's claim about metaphysics and technology then would find itself inverted through the suggested relation of science and thought. Such an inversion of Heidegger's critique of the very status of science is itself conditioned by the recent developments in philosophy that we take as the starting point for the present issue of *Filozosfki Vestnik*.

While for the analytic tradition of philosophy and specifically the philosophy of mind – a tradition which one might contend has developed in opposition to Heidegger's critique of technology – science has played an important role more or less throughout, the continental philosophy following Heidegger only rarely broke with his hostility towards the sciences. The sciences have been attacked under the name of positivism (even by self-proclaimed Anti-Heideggerians, such as Adorno) for presenting simple state-of-affairs accounts of things as they are and thereby (even worse) politically served any conservative apologetics (by diminishing practical freedom, as well as freedom of thought). In recent developments, though, science has taken a step forward into the focus of continental streams of philosophy. Philosophy therein seeks to understand science as a proper means of its reasoning, an adequate resource for actualizing its own structures and tools or even (again) as the ideal discourse from which philosophy has to learn how to proceed. The sciences – not only mathematics (for example, in the case of Alain Badiou), but also quantum physics (for example, in the case of Slavoj Žižek) and other scientific disciplines – started again to play a crucial role in and for philosophy. Thus, either this marks a return of metaphysics to philosophy or things are different than what one might think according to Heidegger.

From here on, two questions can be asked: if one does not want to understand philosophy as the sole explanation of the given, but rather as a thinking of the inexistent, potential, virtual, unseen – how can philosophy rely on science without giving in to its insistence on the factual? And does science necessarily refer to a factual and objective foundation on which it operates? Thus, the question of science and thought fundamentally appears as a question of philosophy and science, but not only this: it also becomes a question of what place philosophy has in its relation to science. One might even be tempted to ask if there is

something more in science than science alone that only philosophy is able to uncover.

All this offers three possible options: (1) Science does not think and thus has endorsed this obliviousness, perhaps even obstruction of thought. Science could therefore still become an object of thought, but will never be an active thought in itself. To think science, then, is to comprehend what interrupts thinking, what hinders or endangers thought as such (as Heidegger did); thus the question of science and thought finds itself reduced to the question of thought and its object. One of the objects of thought might be science, but science itself cannot think. (2) Science is thought and what needs to be explained is the how and why of its practice. This account entails that "science" is not just another word for "thought" in general, but rather that science is one specific way, one peculiar kind of thought. To think science, then, is to think a specific and particular manner of thinking. (3) This leads to the third option: Science is thought, but there are also other versions of thought and not only scientific ones (e.g. philosophical or political thoughts). This means that to think science is to think not only one specific manner of thinking, but also the *relationship* between different forms of thought. It implies having a more general concept of thought in which the specificity of scientific thought can be thought in its difference and compossibility with other forms. This third option may be expanded to a fourth, generalized option: (4) There is a science of thought. This then either implies (4.1) that science does not think but it has thought; thinking processes are its object (one might here refer to certain neurosciences, for example), or (4.2) that science does think and what it thinks is thought itself – in its generality. In this version the very model of scientific thought becomes the paradigm for thinking thought tout court, which is also why this option has been a widespread definition of philosophy; philosophy being the only form of practice of thought that is able to fulfill this very definition (recall, for example, Hegel's *Science of Logic*).
The articles collected in this issue will take very different paths through the aspects considered above. Nevertheless, they all share a common point of departure: There is a relation between science and thought that needs to be rethought.

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Graham Harman*

Concerning Stephen Hawking's Claim that Philosophy is Dead[1]

The relations at present between philosophy and the sciences are not especially good. Let's begin with Stephen Hawking's famous words at the May 2011 Google Zeitgeist conference in England:

> [...] almost all of us must sometimes wonder: Why are we here? Where do we come from? Traditionally, these are questions for philosophy, but philosophy is dead. Philosophers have not kept up with modern developments in science. Particularly physics. Scientists have become the bearers of the torch of discovery in our quest for knowledge.[2]

According to Hawking, philosophy is dead. Others are more generous and claim only that philosophy will be dead in the near future, and only partly dead. For example, brain researcher Wolf Singer tells us that he is interested in philosophy for two reasons: first because "progress in neurobiology will provide some answers to the classic questions in philosophy," and second because "progress in the neurosciences raises a large number of new ethical problems, and these need to be addressed not only by neurobiologists but also by representatives of the humanities."[3] In other words, Singer is interested in philosophy as a potential takeover target for the neurosciences, though he reassures us that philosophers should not fear this ambition, since Singer still needs ethics panels that will "also" include representatives of the humanities alongside neurobiologists. Having escaped its medieval status as the handmaid of theology, philosophy will enter a new era as the ethical handmaid of the hard sciences.

[1] This article was originally presented as a lecture on August 17, 2012 at the dOCUMENTA (13) art festival in Kassel, Germany. The occasion was a public discussion with the Austrian physicist Anton Zeilinger that took place in the Ständehaus.

[2] Matt Warman, "Stephen Hawking tells Google 'philosophy is dead'", *The Telegraph*, May 17, 2011. http://www.telegraph.co.uk/technology/google/8520033/Stephen-Hawking-tells-Google-philosophy-is-dead.html.

[3] Wolf Singer, interviewed in Thomas Metzinger, *The Ego Tunnel: The Science of the Mind and the Myth of the Self*, New York: Basic Books, 2009, p. 71.

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Nor is it only scientists who dream of this program; some philosophers are eager for it as well. Consider the structural realists James Ladyman and Don Ross, who take pleasure in announcing that "Special Relativity ought to dictate the metaphysics of time, quantum physics the metaphysics of substance, and chemistry and evolutionary biology the metaphysics of natural kinds."[4] The philosopher Peter van Inwagen opens his book *Material Beings* with the words of physicist Richard Feynman:

> What is an object? Philosophers are always saying, "Well, just take a chair for example." The moment they say that, you know that they don't know what they are talking about any more. What *is* a chair? Well, a chair is a certain thing over there... certain? How certain? The atoms are evaporating from it from time to time – not many atoms, but a few – dirt falls on it and gets dissolved in the paint; so to define a chair, precisely, to say exactly which atoms are chair, and which atoms are air, or which atoms are dirt, or which atoms are paint that belongs to the chair is impossible.[5]

Van Inwagen believes that nothing exists except the tiniest physical particles (whatever those might be) and living creatures, so that mid-sized non-living entities such as tables and chairs do not really exist. How triumphant he must have felt when including Feynman's remarks in the epigraph to his book. Yet van Inwagen forgot to include the following remark from the philosopher of science Paul Feyerabend: "The younger generation of physicists, the Feynmans, the Schwingers, etc., may be very bright; they may be more intelligent than their predecessors, than Bohr, Einstein, Schrödinger, Boltzmann, Mach and so on. But they are uncivilized savages, they lack in philosophical depth..."[6] Nor did van Inwagen include the following words from physicist Carlo Rovelli, a sort of anti-Hawking in his view of philosophy's relation to science:

> If a new synthesis is to be reached, I believe that philosophical thinking will be once more one of its ingredients... As a physicist involved in this effort, I wish that philoso-

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[4] James Ladyman and Don Ross, with David Spurrett and John Collier. *Every Thing Must Go*, Oxford: Oxford University Press, 2007, p. 9.

[5] Taken from the epigraph to Peter Van Inwagen, *Material Beings*, Ithaca, NY: Cornell University Press, p. vi.

[6] The passage can be found in Imre Lakatos and Paul Feyerabend, *For and Against Method: Including Lakatos's Lectures on Scientific Method and the Lakatos-Feyerabend Correspondence*, Chicago: University of Chicago Press, 2000, p. 385.

> phers who are interested in the scientific conceptions of the world would not confine themselves to commenting [on] and polishing the present fragmentary physical theories, but would take the risk of trying to look ahead.[7]

In what follows, I would like to talk about how philosophy might once again take the risk of looking ahead, rather than willingly accepting a new handmaid's status centuries after it escaped that role in the religious context.

1. The Division of Labor

Let's begin with some general considerations before zeroing in on a specific philosophical problem. To a large extent, the natural sciences in the modern period have been separated from the arts, humanities, and social sciences according to a division of labor. The two types of disciplines seem, at first glance, to deal with two completely different kinds of reality. Nature is objective, works according to immutable law, and is a question of mindless physical matter that should be calculated with exact mathematical precision. By contrast, the human realities dealt with by the other type of discipline are subjective, consisting of the projection of arbitrary values and perspectives onto inert matter. If René Descartes's dual ontology of *res extensa* and *res cogitans* is not the cause of this modern split, it remains an exemplary milestone along the modern path, with its taxonomy of just *two* basic kinds of entities: the natural and the human.

This division has held up fairly well, with shifting levels of prestige for the two sides. In classical education the liberal arts were king; gaining a command of Greek and Latin was considered to be nobler than grubbing around in dealings with physical nature. Today, the situation is largely the reverse. An astonishing series of breakthroughs over the past four centuries has established the revolution in mathematical physics as one of the most important events in human history. Ingenious insights have awakened the human race to universal gravitation, a unified electromagnetism, the laws of chemical elements and the origin of species, special and general relativity, the quantum theory, and facts about neighboring planets, distant exploding stars, and the origin of the universe itself. New insights are surely just around the corner, but even those already ob-

[7] Carlo Rovelli, "Halfway Through the Woods," in J. Earman & J. Norton (eds.), Pittsburgh: University of Pittsburgh Press, 1997, p. 182.

tained have generated a familiar roster of practical breakthroughs running from penicillin and the automobile through lasers, computers, and atomic energy. By contrast it might seem that metaphysics, once known as queen of the sciences, has made little conceptual progress and achieved no practical results, so that Stephen Hawking might not even seem rash when he says that philosophy is dead. Governments and funding agencies can hardly be blamed for taking more interest in the tangible results of the hard sciences than in the seemingly aimless speculations of the philosophers.

In 1959, C. P. Snow spoke of the "two cultures" separating the humanities and arts from the natural sciences.[8] But not everyone has accepted the idea of a division of labor here, and frequently one side has claimed supremacy over the other. Attempts have sometimes been made to reduce science to social facts about scientific practice, scientific texts, or scientific politics. The annoyance of scientists at this tendency was expressed in the famous 1996 Sokal Hoax, in which a nonsensical parody article about quantum gravity evaded the watchdogs and was published in the postmodernist journal *Social Text*, supposedly proving that recent French philosophy is nothing but meaningless jargon.[9] Working in the other direction, there have been numerous attempts to reduce all human reality to facts about tinier physical things. The sciences of the brain are making the latest aggressive attempt to commandeer or eliminate philosophical problems, and perhaps they too will someday be infiltrated by a Sokal-like prank.[10]

Now in one respect, there must always be a division of labor in intellectual life. It takes long study and a certain polished expertise to make cutting-edge discoveries about tectonic plates, or the genetics of viruses, or the teleportation of photons, or the chemistry of acids, or the history of capitalism, or the story of Captain Ahab's hunt for the white whale, or the morphology of the Turkic languages, or the stylistic features of analytic cubism, or metaphysics. None of these fields can be turned into the handmaid of the others, but each has a

[8] C. P. Snow, *The Two Cultures*, Cambridge (UK): Cambridge University Press, 2012.

[9] For an explanation of the hoax and the text of the hoax article, see Alan Sokal and Jean Bricmont, *Fashionable Nonsense: Postmodernist Intellectuals' Abuse of Science*, New York: Picador, 1998.

[10] For a prominent recent example of exaggerated philosophical claims based on neuroscience, see Thomas Metzinger, *Being No One: The Self-Model Theory of Subjectivity*, Cambridge, MA: Bradford Books, 2004. A detailed critique of Metzinger can be found in my article "The Problem with Metzinger," *Cosmos and History,* Vol. 7, No. 1, 2011, pp. 7–36.

certain autonomy, a local texture and color not masterable from the outside. None can be entirely reduced to some master discipline that explains it away as the derivative product of some deeper and tinier layer of things whose workings might explain it. This is why philosophy has a task, and why philosophy *is not* dead, the glowing public reputation of Hawking notwithstanding. Philosophy is both the most ambitious and the humblest of activities – ambitious because it aspires to talk about everything, and humble because in it is etymology philosophia is only a *love* of wisdom, not a wisdom that exhausts things all the way to the bottom. Philosophy must make room for every topic that exists, while also not claiming to master or reduce or master any of these topics. No other discipline can make both claims, just as only the maker of globes addresses the entire world without claiming an exhaustive model of any part of the planet.

It is a triviality to say that philosophy is the most general form of inquiry, but this claim becomes more interesting once we specify just why it is general. In 1894, the underrated Polish philosopher Kazimierz Twardowski wrote as follows:

> metaphysics must be definable as the science of objects in general, taking this word in the sense here proposed. And this is indeed the case. The particular sciences, too, deal with nothing else but the objects of their changes, their properties, as well as the laws according to which objects affect each other. Only, the particular sciences always deal with a more or less limited group of objects, a group which is formed by the natural context or a certain purpose. The natural sciences, in the widest sense of the word, for example, are concerned with the peculiarities of those objects which one calls inorganic and organic bodies; psychology investigates the properties and laws characteristic of mental phenomena, of mental objects. [But] metaphysics is a science which considers all objects, physical – organic and inorganic – as well as mental, real as well as nonreal, existing objects as well as nonexisting objects; investigates those laws which objects in general obey, not just a certain group of objects.[11]

For Twardowski (and I am in agreement here), philosophy is not restricted by any division of labor, but must consider all objects: from fictional characters, to organic and inorganic bodies, to mental, non-mental, real, and imaginary objects, to artworks, to large assemblages of technical equipment that roam across

[11] Kasimir Twardowksi, *On the Content and Object of Presentations: A Psychological Investigation*, trans. R. Grossmann, Dordrecht: Martinus Nijhoff, 1977, p. 36.

farms and lurk beneath the sea. Philosophy must address all of these objects without reducing them to one privileged kind that would explain the others. Philosophy has the inherent need to talk about *both* natural and artificial objects, not just sit on ethics panels as Wolf Singer suggests, and not just do so-called "interdisciplinary" work that really means total deference by philosophy to the findings of the hard sciences, as Thomas Metzinger seems to wish.

Along with this systematic ambition to have something to say about everything, philosophy must also retain a certain modesty. Socrates, the ancestral hero of our discipline, is famous for holding that the only thing he knows is that he knows nothing. This is not an empty or sarcastic pose, but has a very precise sense. At the opening of Plato's *Meno*, we read the following exchange between Socrates and the title character:

> *Meno*: Can you tell me, Socrates, can virtue be taught? Or is it not teachable but the result of practice, or is it neither of these, but men possess it by nature or in some other way?
>
> *Socrates*: [...] I myself, Meno, am as poor as my fellow citizens in this matter, and I blame myself for my complete ignorance about virtue. If I don't know what something is, how could I know what qualities it possesses?[12]

Notice the paradox here. Normally, we think of ourselves as knowing something precisely through its qualities. But in this passage and in others, Socrates tells us that we need to know a thing apart from and prior to its qualities. If all method and all knowledge tries to pinpoint the genuine qualities of things, philosophy is a counter-method and counter-knowledge that aims at the thing-in-itself in separation from its qualities. But if philosophy stands alone in its ambition to consider every kind of object (including the unreal) it is not alone in its status as a counter-method or counter-knowledge: here, philosophy has *art* as its neighbor and close friend. By contrast, even the etymology of the word "science" suggests that it aspires to be a knowledge, which always means a direct access to the qualities of things and a skeptical attitude towards any ghostly excess in the things that would not be accessible to discursive reason (even if the tact and

[12] Plato, "Meno," in *Five Dialogues*, trans. G.M.A. Grube and rev. John M. Cooper, Indianapolis: Hackett, 2002, pp. 59–60.

taste found in all great scientific lives alert us that even science displays the features of an art). I have discussed this topic in my dOCUMENTA notebook *The Third Table*, and will return to the theme later in the present discussion.[13]

2. Mining

The claim that all natural, artificial, human, inhuman, real, and unreal spheres are made of objects, and that philosophy's mission is to give a theory of these objects, might sound so harmless and obvious as to be completely vacuous. Who could reject such a broad and sweeping claim? The answer is that virtually the entire history of philosophy and science rejects it. Indeed, it is striking how unanimously objects have been attacked as the very incarnation of human naiveté.

Often I have recounted the story of how the pre-Socratic thinkers of Ancient Greece, from around 600 B.C., forged an entire discipline from the undermining of objects, reducing them to some smaller, more primordial element from which all the various different-sized objects are built. This began with Thales of Miletus and his claim that *water* was the first principle of everything. Anaximenes followed with *air* as the primordial element of choice. More flexibility came with the famous theory of Empedocles that there are no fewer than *four* equiprimordial elements: water, air, earth, and fire, joined by love and separated by hate. Democritus was the best-known champion of uncuttable physical atoms. Alongside these theorists of primary elements was a different but overlapping set of pre-Socratic thinkers who sought something even deeper than water, air, or atoms: a more primordial, indeterminate mass from which all of these individual things must emerge. This is the shapeless *apeiron*, an indefinite blob from which everything arises and into which everything returns. The sole argument was over whether this *apeiron* existed in the past, exists in the present without our knowing it, or will exist in the future once all definite qualities are destroyed. Pythagoras and Anaxagoras saw the *apeiron* as lying in the distant past, before it inhaled vacuum or spun around too rapidly, causing it to shatter into the individual objects that surround us today. Parmenides held that this *apeiron* (which he called "being" instead) exists in the present, though our

[13] Graham Harman, "The Third Table/Der dritte Tisch," dOCUMENTA (13) Notebooks series, ed. Katrin Sauerländer, German version trans. Barbara Hess, 2012.

senses and mere opinions deceive us into seeing a multitude of diverse things. Only the ominous Anaximander saw the *apeiron* as lying in the distant future, after the work of justice annihilated all opposites, all individual things, returning everything to the primordial, indeterminate womb (a view that probably influenced Karl Marx's conception of class struggle). In the view of all such theories, mid-sized objects are too shallow to be the truth: they must all be reduced to more basic underlying components. The problem with such doctrines is that they cannot account for the relative autonomy of a thing from its component pieces. If all the atoms in my body were removed, then I tend to think I would be destroyed. But numerous atoms can be replaced or removed without my being changed, just as the European Union is not necessarily destroyed whenever a few of its citizens die every minute, or even when various member nations arrive or depart. Objects are something over and above their components just as children are something over and above their parents – not because the results are "unpredictable," but because even if they were completely predictable with godlike vision, the physical dependence of a larger thing on its smaller components does not entail an identity between the larger thing and the exact population and position of those components. Or at least this is one way of defining the famous concept of "emergence."

Along with these undermining, anti-object-oriented philosophies which have been popular in Ancient Greek thought, the history of the natural sciences, and in recent philosophies of the pre-individual (Gilles Deleuze and especially Gilbert Simondon come to mind), we also find the reverse movement, which I have called an "overmining" approach. Here the object is treated not as too shallow, but as too *deep* to be the truth. Why posit invisible entities lying behind appearances? For everything is appearance, relation, or event rather than substance. Everything is dynamic flux and flow rather than static independent entities. Everything is just an appearance in the mind, or exhaustively knowable through mathematical equations. There is no dark or ghostly residue in the world, and nothing is unknowable to a carefully observing conscious mind. The problem with these overmining theories is that they have no way to explain why anything changes. If the world were exhaustively deployed in its current state, with nothing left unexpressed in the here-and-now, it is impossible to explain why anything would ever shift or move form what it is now to something else. All change requires that there be some unexpressed surplus or residue, some *non*-relational component in objects that allows them to enter a series of new relations.

But what is perhaps most remarkable about these two opposed strategies for destroying the role of objects is that they always lean on each other as supplements. An undermining approach such as atomism claims that all tables, chairs, and animals are really just aggregates of atoms, and thereby places atoms at the bottom of the world. Yet at the same time it makes these atoms knowable, interchangeable with all the qualities that can be truly ascribed to atoms, and in this way the tiniest depth of the world is brought to the accessible surface where everything can be observed and known. The ultimate tiny physical layer coincides with the uppermost layer of lucid human awareness. By the same token, consider an ultra-relational metaphysics such as that of Bruno Latour, who tells us that a thing is nothing more than whatever it modifies, transforms, perturbs, or creates.[14] If this were true, then everything would be nothing more than its current effects on everything else; the surface events and interactions of the world at this moment would be its only existing layer, with nothing held in reserve and no possible engine of change. As if sensing this difficulty, Latour in recent years has introduced the concept of an unformatted "plasma" lying beneath relations, which sounds a lot like the shapeless pre-Socratic *apeiron*.[15] We need a name to describe this double strategy of undermining and overmining that is so prevalent throughout intellectual life, and I have recently toyed with "duomining," an industrial term that refers to the simultaneous use of data and text mining.[16] But for all these ways of undercutting objects, we can use the simple term "mining." Philosophy's mission is not only to cast its net as widely as possible, catching fish as diverse as protons, armies, cats, unicorns, Napoleon, and right triangles, but also to avoid every form of *mining*, by which I mean every form of undermining, overmining, or more often both. Philosophy cannot aspire to be a form of knowledge, for precisely the reasons Socrates gave to Meno, but this does not make it "dead" as Hawking supposes. Instead, philosophy has the paradoxical mission of trying to give us a certain indirect access to things *in separation* from

[14] Bruno Latour, *Pandora's Hope: Essays in the Reality of Science Studies*, Cambridge, MA: Harvard University Press, 1999, p. 122.

[15] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, p. 50, note 48, Oxford: Oxford University Press, 2005. For my critique of Latour's concept of plasma, see Graham Harman, *Prince of Networks: Bruno Latour and Metaphysics*, Melbourne: re.press, 2009, pp. 132–135.

[16] For the most accessible use of the term "duomining," see Aditi Chawla and Deepty Sachdeva, "Impact of Duomining in Knowledge Discovery Process," Special Issue of International Journal of Computer Science & Informatics (IJCSI), ISSN (PRINT): 2231–5292, Vol. II, Issue 1-2, pp. 121–126.

their qualities, even though things have often been conceived as nothing more than the bundle of their qualities, so that an apple would really be nothing more than the seven, fifteen, or perhaps three hundred apple-qualities that we correctly identify in it. Not that the whole is "more than the sum of its parts," as in the usual cliché, but that the whole is *less* than the sum of its parts. An apple is something *less* than all the excessive outbursts of sweetness and greenness and coldness through which it is announced. But this "less" is perhaps even more fascinating than the detailed whole.

3. Conclusion

Let's return in closing to the possible secret alliance of philosophy and the arts. It should be clear enough that art does not aim at discursive knowledge of anything in the world. Some philosophers, following Wilfrid Sellars, distinguish between the manifest and scientific images of the world.[17] Even if the scientific image is never directly achievable due to inevitable theory change over time, it is said to be present as a goal or *telos* that we can approach ever more nearly. This conception is clearly inapplicable to the arts. What sense would it make to say that Cézanne approaches the "scientific image" of Mont Sainte-Victoire ever more closely with each painting, or that Wagner's Ring Cycle tells us more about the "scientific image" of gold or dragons than lesser operas would?

Imagine that all of the works on display at the current dOCUMENTA were shipped away from the city of Kassel to some distant warehouse, and replaced by detailed prose descriptions of the works typed on a few sheets of paper. While this might gain Carolyn Christov-Bakargiev the reputation of a great Dadaist *impresaria*, it is safe to say that much would be lost through this exercise.[18] The claim is not refuted by the interest that many viewers have taken in Kai Althoff's letter of apology in lieu of an artwork, since under the scenario I have described, Althoff's letter would also be replaced with a second-degree prose description: "The work is a letter of apology from the artist to the Artistic Director of dOCUMENTA, composed in a profusely self-lacerating tone…" and so forth.[19] It has

[17] Wilfrid Sellars, "Philosophy and the Scientific Image of Man," in *Frontiers of Science and Philosophy,* ed. Robert Conley, Pittsburgh: University of Pittsburgh Press, 1962, pp. 35–78.

[18] Ms. Christov-Bakargiev is the Artistic Director of dOCUMENTA (13).

[19] The German artist Kai Althoff (b. 1966) was invited to contribute a work to dOCUMENTA (13), but realized at some point that he would be unable to deliver a completed work by the dea-

long been noted that works of literature cannot be paraphrased.[20] The analytic philosopher Max Black showed this more specifically in the case of metaphor.[21] From the thought experiment about removing all the artworks from DOCUMENTA, we are reminded of the unparaphraseability of works in the visual arts, and the notorious stupidity of attempting to sum up the "meaning" of such works in the pronouncements of overreaching critics. We have seen that the same holds in philosophy. For Socrates to know only that he knows nothing is not an empty phrase or a contradiction in terms, but a refusal of paraphrase as a model of philosophy: virtue, like every other topic discussed in the Platonic dialogues, cannot be replaced by a series of facts about virtue. This does not mean that we are left with no cognitive access to reality at all, but simply that this access must be oblique or indirect, not a paraphrase.

There is little cause for wonder when scientistic philosophy (and note that I do not say "science," which has often worked in a philosophical manner, unlike most science-worshipping brands of philosophy) demands *knowledge*. It demands further that this knowledge take the form of discursive paraphrase. For example, in one amusing passage the arch-scientistic philosopher Daniel Dennett mocks the practice of wine tasting. When the taster spits on the floor and describes the wine as "a flamboyant and velvety Pinot, though lacking in stamina," Dennett imagines a machine able to replace such descriptions with objective chemical formulae, paraphrasing a qualitative human experience with a set of underlying physical conditions that generate it.[22]

But we have seen that this sort of undermining never gives access to the taste of the wine, any more than the statement of the Pinot drinker above can exhaust it. To do this is always to paraphrase an object in terms that do not belong to the object in its own right, but only to its relations with something else. In refusing all paraphrase, philosophy join wine-tasting, literature, art, and numerous

dline. He therefore wrote a letter of apology to the Artistic Director, which she then persuaded Althoff to submit as his requested contribution to the show. The letter was displayed in the Fredericianum in a glass case, in much the same manner as pottery or an old book.

[20] See Cleanth Brooks, *The Well Wrought Urn: Studies in the Structure of Poetry*, New York: Harcourt, Brace, & World, 1947.

[21] Max Black, *Models and Metaphors*, Ithaca, NY: Cornell University Press, 1962.

[22] Daniel Dennett, "Quining Qualia," in *Consciousness in Modern Science*, ed. A. Marcel and E. Bisiach,Oxford: Oxford University Press, 1988. Accessed online on August 16, 2012 at http://ase.tufts.edu/cogstud/papers/quinqual.htm.

other disciplines in insisting that its primary strategy must be an indirect approach to the *non*-relational reality of things. In our time there is still a tendency to associate relational approaches in philosophy and the arts with the fresh and the cutting edge, while autonomous objects are treated as retrograde relics of a bygone reactionary era. But once we realize that relationality is a form of paraphrase, a way of translating a thing into something that it is not, a new view on the problem is possible. Relationality starts to look like an idea once but no longer liberating. Given that things are a surplus, a dark nucleus outside their current accidental dealings with other things, to address this surplus via indirect means is a program that can never be exhausted. Philosophy is no more dead than art.

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Reflections of a Rotten Nature: Hegel, Lacan, and Material Negativity

As I have underscored repeatedly in past texts,[1] Jacques Lacan, despite his reputation as an avid anti-naturalist, has no qualms whatsoever about leaning upon certain ideas of nature as components of his theoretical apparatus.[2] Although adamantly opposed to the introduction of a crudely reductive biologism as a grounding paradigm for psychoanalysis, he is not, for all that, categorically dismissive of the life sciences. Once in a while, he even permits himself, like Freud, to voice hopes of eventual biological confirmations of analytic theories.[3] To take just one illustration of this known to anyone familiar with Lacanianism, Lacan's concept of "need" (*besoin*), as per the need-demand-desire triad, is bound up with the biological facticity of protracted infantile *Hilflosigkeit*, an anatomical and physiological "fact" of immense import for psychical ontogeny in the eyes of both Freud and Lacan.[4] Arising immediately from the very start of the human

[1] Adrian Johnston, *Žižek's Ontology: A Transcendental Materialist Theory of Subjectivity*, Evanston: Northwestern University Press, 2008, pp. 269–287; Adrian Johnston, "Slavoj Žižek's Hegelian Reformation: Giving a Hearing to *The Parallax View*," *Diacritics: A Review of Contemporary Criticism*, vol. 37, no. 1, Spring 2007, pp. 3–20; Adrian Johnston, "The Weakness of Nature: Hegel, Freud, Lacan, and Negativity Materialized," *Hegel and the Infinite: Religion, Politics, and Dialectic*, ed. Slavoj Žižek, Clayton Crockett, and Creston Davis, New York: Columbia University Press, 2011, pp. 159–179.

[2] Jacques Lacan, "The Direction of the Treatment and the Principles of Its Power," *Écrits: The First Complete Edition in English*, trans. Bruce Fink, New York: W.W. Norton and Company, 2006, p. 514; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XXI: Les non-dupes errent, 1973–1974*, unpublished typescript, session of May 21st, 1974; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XXIII: Le sinthome, 1975–1976*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2005, p. 12; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XXIV: L'insu que sait de l'une-bévue s'aile à mourre, 1976–1977*, unpublished typescript, sessions of April 19th, 1977, May 17th, 1977.

[3] Jacques Lacan, "Some Reflections on the Ego," *International Journal of Psycho-Analysis*, no. 34, 1953, pp. 13–15; Jacques Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," *Écrits*, p. 78; Jacques Lacan, "Aggressiveness in Psychoanalysis," *Écrits*, p. 92.

[4] *SE* 1: 318; *SE* 20: 154–155, 167; *SE* 21: 17–19, 30; Jacques Lacan, "*Les complexes familiaux dans la formation de l'individu: Essai d'analyse d'une fonction en psychologie*," *Autres écrits*, ed.

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organism's existence as a bodily being, need is the contingent-yet-*apriori* base of the Lacanian libidinal economy, a crucial impetus necessary for propelling the neonate into the combined arms of Imaginary others and Symbolic Others. Only thereby, thanks to helpless neediness as a natural condition of possibility, is the transition to the complex dialectical mediations of demand and desire prompted. Even though Imaginary-Symbolic imprinting and overwriting (partially) denaturalizes need – Lacan's talk of "denaturalization" automatically implies the prior existence of certain natural things as origins or sources[5] – the resulting denaturalized subjectivity ($) remains, to phrase this in a Lacanian style, "not without" (*pas sans*) a rapport with nature in the guise of its bio-material body. Or, in alternate phrasing, the never successfully denaturalized subject is stuck perpetually struggling with stubbornly indigestible bits and fragments of an incompletely and unevenly domesticated corpo-Real.[6]

In a companion piece to the present essay,[7] I highlight the numerous instances in which Lacan, with however many caveats and qualifications, utilizes the notion of the organic in its biological sense. Therein, I argue that Lacan's references to this notion – these cluster around his recurrent embellishments on the mirror stage – suggest the concept of a non-organicity that would be different from the merely inorganic as dealt with by the physics and chemistry of the nonliving. On the basis of this reading of Lacan, I hence distinguish between the

Jacques-Alain Miller, Paris: Éditions du Seuil, 2001, pp. 33–35; Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 76, 78; Lacan, "Aggressiveness in Psychoanalysis," p. 92; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre VI: Le désir et son interprétation, 1958–1959*, unpublished typescript, session of November 12th, 1958; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre VIII: Le transfert, 1960–1961*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2001 [seconde édition corrigée], p. 427.

[5] Jacques Lacan, "Guiding Remarks for a Convention on Female Sexuality," *Écrits*, p. 616; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre IV: La relation d'objet, 1956–1957*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 1994, p. 254; Johnston, *Žižek's Ontology*, p. 176.

[6] Adrian Johnston, *Time Driven: Metapsychology and the Splitting of the Drive*, Evanston: Northwestern University Press, 2005, pp. xxxvii, 262-271, 340–341; Johnston, *Žižek's Ontology*, pp. xxiii, 60, 63–66, 80–81, 113, 286; Adrian Johnston, "Misfelt Feelings: Unconscious Affect Between Psychoanalysis, Neuroscience, and Philosophy," in Adrian Johnston and Catherine Malabou, *Self and Emotional Life: Merging Philosophy, Psychoanalysis, and Neurobiology*, New York: Columbia University Press, 2013 [forthcoming]. Adrian Johnston, "Drive Between Brain and Subject: An Immanent Critique of Lacanian Neuro-psychoanalysis," *Southern Journal of Philosophy*, 2013, special issue: "Annual Murray Spindel Conference: Freudian Future(s)" [forthcoming].

[7] Johnston, "Drive Between Brain and Subject".

inorganic and the "anorganic," with the latter being a Hegelian-type negation of the organic as itself, according to Hegel's *Philosophy of Nature*, a "negation" *als Aufhebung* of the inorganic (i.e., a dialectical/speculative negation of negation disobeying the rule of double negation in classical, bivalent logic as non-dialectical/speculative).[8]

In terms of the Hegelian *Realphilosophie* of *Natur und Geist*, I would contend that Lacanian anorganicity, "in the organic more than the organic itself" (as the Lacan of the eleventh seminar might put it), furnishes a link missing between the end of the *Philosophy of Nature*, with its "Organics" culminating with the animal organism, and the beginning of the *Philosophy of Spirit*, with its "Anthropology" starting with the soul of human nature in its most rudimentary states. Prior to his mature *Encyclopedia of the Philosophical Sciences*, Hegel, in his 1805–1806 *Jenaer Realphilosophie*, famously describes humans as "the night of the world," as horrifying monstrosities embodying the nocturnal abyss of a midnight madness eclipsing the familiar faces of nature.[9] After passing through a delineation of the organic and the anorganic *à la* Lacan, I will circumnavigate back to the claims in this paragraph by showing how anorganicity, as a more-than-organic transcendence nonetheless immanent to the organic, simultaneously conjoins and disjoins the natural kingdoms of animal organisms and the spiritual/minded regions of human subjects. If the latter are "the night of the world," unnatural perversions of nature, the darkness of this negativity is made possible by a pre/non-human "night of the living world" internal to inhuman nature itself (as I argue in a separate text, Hegel's repeated invocations of a "weakness" or "impotence" [*Ohnmacht*] of nature can be deciphered in light of what I am sketching here[10]).

Lacan's 1949 *écrit* on the mirror stage is perhaps the single best known and most widely read piece of his extensive *oeuvre*. Closer to the time of the regrettably

[8] G.W.F. Hegel, *Philosophy of Nature: Part Two of the Encyclopedia of the Philosophical Sciences,* trans. A.V. Miller, Oxford: Oxford University Press, 1970, §336, pp. 270–272, §337, pp. 273–277, §350, pp. 351–352.

[9] G.W.F. Hegel, *Philosophie des Geistes*, *Jenaer Systementwüfre III: Naturphilosophie und Philosophie des Geistes,* ed. Rolf-Peter Horstmann, Hamburg: Felix Meiner Verlag, 1987, p. 172.

[10] Adrian Johnston, "The Voiding of Weak Nature: The Transcendental Materialist Kernels of Hegel's *Naturphilosophie*," *Graduate Faculty Philosophy Journal*, vol. 33, no. 1, Spring 2012, pp. 103–157; Hege, *Philosophy of Nature*, §250, pp. 23–24, §370, p. 416, 423; G.W.F. Hegel, *The Philosophy of History*, trans. J. Sibree, New York: Dover Publications, 1956, p. 65, 80.

lost text on which this *écrit* is based, the lengthy entry in the *Encyclopédie française* on "The Family Complexes in the Formation of the Individual" – this 1938 essay provides the best available indications of the contents of Lacan's original presentation of the mirror stage at the International Psychoanalytic Association conference in Marienbad in 1936 – already aims to get back behind the reflective surfaces of the moment of identification with the *Gestalt* of the *imago*. Therein, Lacan refers to "libidinal conditions" underlying the onset of the mirror stage properly speaking.[11] A few pages later, he points to "the vital insufficiency of man at his origins"[12] (specifically, the human being's ontogenetic origins, his/her default "natural" condition as thrown into the world by conception and birth). The canonical 1949 framing of this stage explicitly connects these two points in "The Family Complexes" by describing a "libidinal dynamism" (*dynamisme libidinal*) having to do with the infant's "motor impotence and nursling dependence."[13]

In 1948's "Aggressiveness in Psychoanalysis," another key text as regards the mirror stage, Lacan offers formulations pertaining to biology and the organic consistent with both "The Family Complexes" and "The Mirror Stage." As he explains:

> What I have called the 'mirror stage' is of interest because it manifests the affective dynamism (*dynamisme affectif)* by which the subject primordially identifies with the visual gestalt of his own body. In comparison with the still very profound lack of coordination of his own motor functioning, that gestalt is an ideal unity, a salutary imago. Its value is heightened by all the early distress resulting from the child's intra-organic and relational discordance (*la discordance intra-organique et relationnelle*) during the first six months of life, when he bears the neurological and humoral signs of a physiological prematurity at birth (*les signes, neurologiques et humoraux, d'une prématuration natale physiologique*).[14]

[11] Lacan, "*Les complexes familiaux dans la formation de l'individu*," p. 41.
[12] *Ibid.*, p. 41.
[13] Jacques Lacan, "*Le stade du miroir comme formateur de la fonction du Je telle qu'elle nous est révélée dans l'expérience psychanalytique*," *Écrits*, Paris: Éditions du Seuil, 1966, p. 94. Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 76.
[14] Jacques Lacan, "*L'agressivité en psychanalyse*," *Écrits*, p. 113; Lacan, "Aggressiveness in Psychoanalysis," p. 92.

Between this *écrit* and that on the mirror stage, the adjectives "affective" and "libidinal" alternately modify, in 1948 and 1949 respectively, the "dynamism" serving as a pre-condition for the advent of this founding event of ego-level identification, with all its denaturalizing consequences (as "a gestalt" with "formative effects on an organism"[15]) for the future vicissitudes of the human creature. Almost certainly, Lacan, apropos this topic at least, considers these adjectives to be roughly equivalent insofar as the dynamizing push of the young subject-to-be into the seductive pull of the mirror's virtual reality is a force generated by the combined powers of the libidinal (i.e., motivations) and the affective (i.e., emotions). As the above quotation proceeds to stipulate, certain emotions (specifically the "distress" of negative ones such as fear, anger, anxiety, envy, jealousy, hatred, rage, and the like) motivate the child to invest itself in the "gestalt" of "an ideal unity, a salutary imago." Furthermore, Lacan undeniably situates this dual catalytic configuration of the affective/emotional and the libidinal/motivational as an effect or outgrowth of ontogenetically primordial biological factors, namely, as the preceding quoted passage has it, "the child's intra-organic and relational discordance during the first six months of life, when he bears the neurological and humoral signs of a physiological prematurity at birth."

Subsequent moments within "Aggressiveness in Psychoanalysis" underscore the ground-zero status of such bio-material conditions. A few pages after the immediately prior block quotation, another paragraph adds:

> A specific satisfaction, based on the integration of an original organic chaos (*un désarroi organique originel*), corresponds to the *Urbild* of this formation, alienating as it may be due to its function of rendering foreign. This satisfaction must be conceived of in the dimension of a vital dehiscence (*une déhiscence vitale*) constitutive of man and makes unthinkable the idea of an environment that is preformed for him; it is a "negative" libido that enables the Heraclitean notion of Discord – which the Ephesian held to be prior to harmony – to shine once more.[16]

This is reiterated in the mirror stage *écrit*:

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[15] Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 77.

[16] Lacan, "*L'agressivité en psychanalyse*," p. 116; Lacan, "Aggressiveness in Psychoanalysis," p. 94.

> In man… this relationship to nature is altered by a certain dehiscence at the very heart of the organism, a primordial Discord (*une certaine déhiscence de l'organisme en son sein… une Discorde primordiale*) betrayed by the signs of malaise and motor uncoordination of the neonatal months. The objective (*objective*) notions of the anatomical incompleteness (*inachèvement*) of the pyramidal tracts and of certain humoral residues of the maternal organism in the newborn confirm my view that we find in man a veritable *specific prematurity of birth*.[17]

Taking these two extremely similar passages from the same period in the late 1940s together, Lacan posits an "objective incompleteness" (i.e., an actual absence in biological reality of completeness *qua* harmony, synthesis, etc.) as a primary negative *Urgrund* of ontogenetic subject formation. In terms of anatomy, physiology, and neurology (i.e., the three life-scientific dimensions mentioned explicitly by Lacan), the biology of the newborn human "organism" – this "original," "primordial" foundation of bio-material facticity is, as Lacan puts it in 1949, "prior to… social determination,"[18] "prior to… social dialectic" as "an organic inadequacy of his [man's] natural reality" (*une insuffisance organique de sa réalité naturelle*)[19] – entails prematurational helplessness, among other conditions. The neonate's discombobulated dependence is precisely a lack of anatomical, physiological, and neurological maturation sufficient for it to survive without the sustained, substantial assistance of significantly older conspecifics (who bring with them enveloping Imaginary-Symbolic realities into which they hurl this fragile, vulnerable little being). In "On a Question Prior to Any Possible Treatment of Psychosis," the *écrit* encapsulating the essentials of Lacan's third seminar on *The Psychoses* (1955–1956), the "specific prematurity of birth in man" is directly equated with the baby's "fragmented body" (*corps morcelé*), a natural reality throwing the young child into the mirror stage and its "counter-natural features" (*contre-nature*).[20] Additionally, one should note

[17] Lacan, "*Le stade du miroir comme formateur de la fonction du Je telle qu'elle nous est révélée dans l'expérience psychanalytique*," p. 96; Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 78.

[18] *Ibid*., p. 76.

[19] Lacan, "*Le stade du miroir comme formateur de la fonction du Je telle qu'elle nous est révélée dans l'expérience psychanalytique*," p. 96; Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 77.

[20] Jacques Lacan, "*D'une question préliminaire à tout traitement possible de la psychose*," *Écrits*, p. 552; Jacques Lacan, "On a Question Prior to Any Possible Treatment of Psychosis," *Écrits*, p. 461.

here the self-subverting dialectical character of a nature that aids and abets its own effacement by "counter-nature," namely, a natural auto-denaturalization peculiar to the (species-)being (*Gattungswesen*) of humanity.[21] Much later, in his twenty-fourth seminar, Lacan again utilizes the phrase "*contre-nature*."[22] Likewise, in his 1958 *écrit* "The Direction of the Treatment and the Principles of Its Power," he speaks of "*antiphusis*."[23] I soon will return to these themes below.

As I observed earlier, the hybrid constellations of affective emotions and libidinal motivations making the immature subject-to-be interested in and receptive to the mediations of external identifications are provoked by the state of *Hilflosigkeit*, itself a brute (and brutal) biological fact. And, this initial bodily state is anorganic in my precise sense, in that Lacan qualifies it as an "intra-organic discordance," "an original organic chaos" situated "at the very heart of the organism" (in Lacan's first foray into the English language, the 1951 paper "Some Reflections on the Ego" presenting the mirror stage to the members of the British Psycho-Analytical Society, he similarly underlines an "organic disturbance and discord"[24]). In other words, what is at stake here is an immanent dialectical/speculative negation of the organic that nevertheless is not simply a reversion to the inorganic, namely, a disruption of organicity arising from within its own (dis)organization (with the words "organ," "organic," and "organism" being etymologically tied to the idea of "organization").[25] The human organism's preliminary default lack of organic organization (i.e., coordination, integration, wholeness, and the like) is a privative/negative cause, one with ontological standing as both real and material, necessary for helping to set in motion the trajectory running from natural substance to more-than-natural subjectivity (I will clarify and defend my use of this sort of [quasi-]naturalist and Hegelian language subsequently). At one point in 1955's "The Freudian Thing," Lacan's realist materialism and carefully qualified naturalism surface when he describes

[21] Adrian Johnston, "This *is* orthodox Marxism: The Shared Materialist *Weltanschauung* of Marx and Engels," *Quaderni materialisti*, 2012, special issue: "On Sebastiano Timpanaro" [forthcoming]; Adrian Johnston, "From Scientific Socialism to Socialist Science: *Naturdialektik* Then and Now," *Communism, A New Beginning?*, ed. Slavoj Žižek, London: Verso, 2013 [forthcoming]; Adrian Johnston, *A Weak Nature Alone: Prolegomena to Any Future Materialism, Volume Two*, Evanston: Northwestern University Press [under review].

[22] Lacan, *Le Séminaire de Jacques Lacan, Livre XXIV*, session of April 19th, 1977.

[23] Lacan, "The Direction of the Treatment and the Principles of Its Power," p. 514.

[24] Lacan, "Some Reflections on the Ego," p. 15.

[25] Johnston, "Drive Between Brain and Subject".

the distinguishing anorganicity of the human organism as "the congenital gap presented by man's real being in his natural relations" (*la béance congénitale que présente l'être réel de l'homme dans ses relations naturelles*).[26] Consistent with my concept of the anorganic,[27] Lacan, at the same moment in this *écrit* when he affirms a materialist quasi-naturalism, simultaneously breaks with the scientistic *Weltanschauung* of organicism generally holding sway in biology and its branches by deriding "the organism's pseudo-totality" (*la pseudo-totalité de l'organisme*)[28] – hence Lacan's repeated warnings against picturing humans, their bodies included, as sums or wholes (akin to Aristotelian souls).[29]

In the first sentence of the last paragraph of "Aggressiveness in Psychoanalysis," Lacan speaks of a "formidable crack" (*formidable lézarde*) in the human being that "goes right to the very depths of his being" (*jusqu'au fond de l'être*).[30] Just a few years later in a glossing of the mirror stage in "*Le mythe individuel du névrosé, ou Poésie et vérité dans la névrose*" (1952), he again talks about "the original chaos of all the motor and affective functions of the first six months after birth" (*le désarroi originel de toutes les fonctions motrices et affectives qui est celui des six premiers mois après la naissance*), "a profound insufficiency" (*une profonde insuffisance*), and "a crack, an original tearing, a dereliction" (*une*

[26] Jacques Lacan, "*La chose freudienne ou Sens du retour à Freud en psychanalyse*," *Écrits*, p. 415; Jacques Lacan, "The Freudian Thing or the Meaning of the Return to Freud in Psychoanalysis," *Écrits*, p. 346.

[27] Johnston, "Drive Between Brain and Subject".

[28] Lacan, "*La chose freudienne ou Sens du retour à Freud en psychanalyse*," *Écrits*, p. 415. Lacan, "The Freudian Thing or the Meaning of the Return to Freud in Psychoanalysis," *Écrits*, p. 346.

[29] Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre X: L'angoisse, 1962–1963*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2004, pp. 253–254; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XII: Problèmes cruciaux pour la psychanalyse, 1964–1965*, unpublished typescript, session of March 10th, 1965; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XIV: La logique du fantasme, 1966–1967*, unpublished typescript, session of June 7th, 1967. Jacques Lacan, *The Seminar of Jacques Lacan, Book XX: Encore, 1972–1973*, ed. Jacques-Alain Miller; trans. Bruce Fink, New York: W.W. Norton and Company, 1998, pp. 109–110; Lacan, *Le Séminaire de Jacques Lacan, Livre XXI*, session of November 20th, 1973; Jacques Lacan, "Television", trans. Denis Hollier, Rosalind Krauss, and Annette Michelson, *Television/A Challenge to the Psychoanalytic Establishment*, ed. Joan Copjec, New York: W.W. Norton and Company, 1990, p. 6; Jacques Lacan, "Aristotle's Dream", trans. Lorenzo Chiesa, *Angelaki: Journal of the Theoretical Humanities*, vol. 11, no. 3, December 2006, pp. 83–84.

[30] Lacan, "*L'agressivité en psychanalyse*," p. 124. Lacan, "Aggressiveness in Psychoanalysis," p. 101.

fêlure… un déchirement originel… une déréliction).[31] And, in a 1955 session of his second seminar on *The Ego in Freud's Theory and in the Technique of Psychoanalysis* (1954–1955), the mirror stage is grounded in humans' biological inclination toward a transcendence of their biology by virtue of a "biological gap" (*béance biologique*) internal and inherent to their very being.[32] Near the close of this session, Lacan unfurls a thread of continuity between Freud's radical revision of analytic drive theory in 1920's *Beyond the Pleasure Principle* (in which ferocious clashes originating within the Id between *Eros* and the *Todestrieb* split human beings right down to their bare bones and raw flesh) and the riven bio-material roots of human subjectivity.[33]

As is common knowledge amongst Lacan's readers, the phrase "body-in-pieces" (*corps morcelé*) is how, from the mid-1930s through the mid-1950s, he tends to designate much of what is summarized in the preceding.[34] However, what is not so well appreciated is that Lacan does not restrict this phrase's significance to that of a label for an exclusively phenomenological description of the neonate's experience of his/her lived embodiment. Although, as conceded earlier, a phenomenology of embodied emotions and motivations indeed is part of what Lacan's ontogenetic narratives associate with the anatomical, physiological, and neurological prematuration of newborns, his metapsychological theories of the interlinked emergences of ego and subject ultimately rest, when all is said and done, on the objective grounds of bio-material (i.e., non-phenomenological) bases (and, these grounds would have to be Real for Lacan to the extent that, as seen, they precede the Symbolic of socio-linguistic mediation as well as the Imaginary of experiential phenomena). A quite striking indication of this is to

[31] Jacques Lacan, "*Le mythe individuel du névrosé, ou Poésie et vérité dans la névrose*," *Le mythe individuel du névrosé*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2007, p. 46.

[32] Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre II: Le moi dans la théorie de Freud et dans la technique de la psychanalyse, 1954–1955*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 1978, p. 371; Jacques Lacan, *The Seminar of Jacques Lacan, Book II: The Ego in Freud's Theory and in the Technique of Psychoanalysis, 1954–1955*, ed. Jacques-Alain Miller; trans. Sylvana Tomaselli, New York: W.W. Norton and Company, 1988, pp. 322–323.

[33] Lacan, *The Seminar of Jacques Lacan, Book II*, p. 326.

[34] Lacan, "*Les complexes familiaux dans la formation de l'individu*," pp. 33–35, 41–42; Lacan, "Some Reflections on the Ego," p. 13, 15; Jacques Lacan, "On My Antecedents," *Écrits*, p. 55; Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 76, 78; Lacan, "Aggressiveness in Psychoanalysis," p. 92; Lacan, "On a Question Prior to Any Possible Treatment of Psychosis," p. 461; Lacan, *Le Séminaire de Jacques Lacan, Livre VI*, session of January 7th, 1959.

be found in black and white within the pages of the renowned 1949 mirror stage *écrit* itself.[35] Virtually unseen beneath the noses of this text's countless readers complacently assuming Lacan to be a certain sort of uncompromising anti-naturalist thoroughly hostile toward the life sciences, he directly and explicitly connects the body-in-pieces to "the cerebral cortex" of "the central nervous system," depicting this brain region as what "psychosurgical operations will lead us to regard as the intra-organic mirror"[36] (with this amounting to a prediction of the eventual discovery, almost fifty years later, of the serendipitously christened "mirror neurons"[37]). In other words, Lacan does not limit himself to an analytic phenomenology divorced from, or even opposed to, biology and its branches (such as anatomy, physiology, and neurology). Instead, he ambitiously contests the spontaneous organicist picture-thinking of the life sciences on their own scientific terrain, with his *corps morcelé* incarnating, among other things, an intra-scientific critique of pseudo-scientific imaginings of fictitious syntheses and totalities.[38]

The themes I am subsuming under the heading of the anorganic persist into Lacan's work of the late 1950s and 1960s. Two essays in the *Écrits*, "Remarks on Daniel Lagache's Presentation: 'Psychoanalysis and Personality Structure'" (1960) and "On My Antecedents" (1966), contain contents relevant to the present discussion. In his response to Lagache, Lacan walks a fine line between the natural and the non-natural:

> It is… worth recalling that, from the outset, Freud did not attribute *the slightest reality* as a differentiated apparatus in the organism to any of the systems in either of his topographies. For people forget to draw therefrom the corollary that, by the same token, he forbade us to force any of these systems back into the fantasized reality of any sort of "totality" of the organism (*la realité fantasmée d'une quelconque « totalité » de l'organisme*). In short, the structure of which I am speaking has nothing to do with

[35] Johnston, "The Weakness of Nature," pp. 164–170; Johnston, "Drive Between Brain and Subject".

[36] Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 78.

[37] Giacomo Rizzolatti and Corrado Sinigaglia, *Mirrors in the Brain: How Our Minds Share Actions and Emotions*, trans. Frances Anderson, Oxford: Oxford University Press, 2008, pp. xi-xii; Johnston, "The Weakness of Nature," p. 164–170; Johnston, "Drive Between Brain and Subject".

[38] Johnston, "Drive Between Brain and Subject".

> the idea of the "structure of the organism," as supported by the most soundly based facts in *Gestalt* theory. Not that structure, in the strict sense of the term, does not take advantage of gaps in the organic *Gestalt* to submit it to itself (*Non que la structure au sens propre ne profite des béances de la* Gestalt *organique pour se l'asservir*). But on the basis of their conjunctions, whether they prove to be based on fission or fissures, a heterogeneity between two orders appears, which we will be less tempted to mask if we grasp its principle.[39]

Lacan's familiar anti-naturalist refrains obviously are audible at the start of this quotation in his interpretive insistence on the independence of Freud's topographies (whether the first or the second) *vis-à-vis* the anatomy and physiology of the human body as a piece of nature falling under the explanatory jurisdiction of the natural sciences. Consistent with his self-appointed role as the lone orthodox Freudian of his time, Lacan portrays his own notion of "structure" (materialized by symbolic orders as the "objective spirit" of external socio-linguistic arrangements) as testifying to an all-too-rare fidelity to this Freud in particular. However, in the preceding quotation, Lacan's position is much more subtle and nuanced than that of a straightforward, unqualified anti-naturalism. And, this delicately maintained stance pivots around the matter of how to conceive of the theme of the organic in relation to real human organisms. The second sentence of this passage from the *écrit* on Lagache prohibits interfacing components of analytic metapsychology specifically with "the fantasized reality of any sort of 'totality' of the organism." That is to say, Lacan here worries more about scientism (i.e., the imagined One-Alls of organicism as proto-conceptual picture thinking) than science (i.e., the actual biology of flesh-and-blood human animals) in terms of potential perils posed to the theory and practice of analysis. In the immediately following sentence, he vehemently underscores that, "the structure of which I am speaking has nothing to do with the idea of the 'structure of the organism.'" Here, the etymology of the word "organism" should be recalled. Insofar as its etymological origins signify "organization," the phrase "structure of the organism" arguably is a pleonasm synonymous with "'totality' of the organism." Hence, Lacan's denial of metapsychological ties to the natural body target precisely this *corps* as *non-morcelé qua* totalized or structured in the sense of organically organized, namely, as envisioned under the influence of

[39] Jacques Lacan, "*Remarque sur le rapport de Daniel Lagache:* '*Psychanalyse et structure de la personnalité*'," *Écrits*, p. 650; Jacques Lacan, "Remarks on Daniel Lagache's Presentation: 'Psychoanalysis and Personality Structure,'" *Écrits*, p. 545.

organicism, with its lop-sided emphases on motifs of balance, harmony, wholeness, and the like. Organicists would count amongst those whom Lacan, in his contemporaneous *écrit* "Guiding Remarks for a Convention on Female Sexuality," curtly dismisses in their implicit claims for themselves of "a messianic access to decisive chemisms" (*un accès messianique à des chimismes décisifs*), with "decisive chemisms" partly alluding to the eighteenth-century motif of "elective affinities."[40] His later 1970s-era reflections on the non-existent *rapport sexuel* (as an elective affinity between the sexes) similarly are extrapolated into an indictment of envisionings of Nature-with-a-capital-N as a Yin-Yang-style cosmic dance of complementary pairs mirroring (often unconscious) fantasies about masculinity and femininity.[41]

The subsequent fourth sentence of this excerpt from Lacan's response to Lagache ("Not that structure, in the strict sense of the term, does not take advantage of gaps in the organic *Gestalt* to submit it to itself") promptly reinforces this anorganic thrust in that it appeals to the fractured and fragmented body-in-pieces as a biological condition of possibility for denaturalizing/more-than-natural structure getting a grip on the anorganic "first nature" of the human organism (i.e., for the signifiers of the big Other overwriting the real bodily being of the *parlêtre*-to-be). In his contemporaneous eighth seminar on *Transference* (1960-1961), Lacan echoes the claim made by this sentence, indicating that the combined material and phenomenal features of the *corps morcelé* establish necessary conditions for ego and subject formation. In resonance with intuitions long ago articulated by Schelling and Hegel,[42] he stipulates:

> In effect, if one starts from the notion of original narcissism, perfect as regards libidinal investment, if one conceives of the primordial object as primordially included by the subject in the narcissistic sphere, as a primitive monad of enjoyment (*jouissance*),

[40] Jacques Lacan, "*Propos directifs pour un Congrès sur la sexualité féminine*," *Écrits*, p. 726; Lacan, "Guiding Remarks for a Convention on Female Sexuality," p. 611.

[41] Lacan, *Le Séminaire de Jacques Lacan, Livre VIII*, p. 117; Jacques Lacan, *The Seminar of Jacques Lacan, Book XVII: The Other Side of Psychoanalysis, 1969–1970*, ed. Jacques-Alain Miller; trans. Russell Grigg, New York: W.W. Norton and Company, 2007, p. 33; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XVIII: D'un discours qui ne serait pas du semblant, 1971*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2007, pp. 65–71; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XIX: Le savoir du psychanalyste, 1971–1972*, unpublished typescript, session of March 3rd, 1972; Lacan, *The Seminar of Jacques Lacan, Book XX*, pp. 41–43.

[42] Johnston, *Žižek's Ontology*, pp. 212–213.

> with which is identified… the infant nursling (*nourrisson*), one has difficulty seeing what would be able to lead to a subjective way out (*une sortie subjective*)…[43]

Put differently, without the absences and lacks built into the bio-material foundations of human nature in the form of the neonate's helpless anorganic *corps*, nothing would motivate an exit (i.e., "a subjective way out") from what would be an initial (i.e., "primordial") state of blissful, self-enclosed idiocy, an infantile paradise of perfectly and completely satisfying oceanic oneness (i.e., "the narcissistic sphere," "a primitive monad of enjoyment"). The newborn's body is inclined to open up to the impressions and intrusions of mediations imposed by others and Others – the immature child is prodded down the path of both acquiring an ego as well as becoming a subject – thanks to natural deficits Lacan connects to the *corps morcelé*.

The fifth and final sentence of the above block quotation from the Lagache *écrit* ("But on the basis of their conjunctions, whether they prove to be based on fission or fissures, a heterogeneity between two orders appears, which we will be less tempted to mask if we grasp its principle") deploys a dialectical/speculative conjunction of continuity (i.e., "conjunctions") and discontinuity (i.e., "heterogeneity"). The "two orders" to which Lacan refers are those of the endogenous body, as natural but anorganic, and exogenous structure, as non-natural but relying upon exploitable anorganic spots of receptive weakness in the child's living flesh. The dual dimensions of *phusis* and *antiphusis* collide at loci of paradoxical connection-in-disconnection which Lacan, in his later teachings, sometimes struggles to illustrate through recourse to select figures drawn from topology and knot theory.[44] They are enabled to meet up by and in the clearing of incomplete (human) nature, namely, through the anorganic cracks of negativities (whether the materials of a deficiently functional organism or the phenomena of negative affects) pervading the barred corpo-Real of the *corps morcelé*.

[43] Lacan, *Le Séminaire de Jacques Lacan, Livre VIII*, p. 410.

[44] Adrian Johnston, "Turning the Sciences Inside Out: Revisiting Lacan's 'Science and Truth,'" *Concept and Form, Volume Two: Interviews and Essays on the Cahiers pour l'Analyse*, ed. Peter Hallward and Knox Peden, London: Verso, 2012 [forthcoming]; François Ansermet, "*Des neurosciences aux logosciences*," *Qui sont vos psychanalystes?*, ed. Nathalie Georges, Jacques-Alain Miller, and Nathalie Marchaison, Paris: Éditions du Seuil, 2002, p. 382.

Turning to "On My Antecedents," written by Lacan specifically for the publication of the *Écrits*, he therein revisits much of the analytic landscape surveyed here. His remarks in these veins are worth quoting in full. Addressing the mirror stage (i.e., "this phase") as irreducible to "Gestalt theory and phenomenology,"[45] he elaborates:

> Must this phase be reduced to a biological crisis (*une crise biologique*)? The dynamic of this phase, as I outline it, is based on diachronic effects: the delayed coordination of the nervous system (*retard de la coordination nerveuse*) related to man's prematurity at birth, and the formal anticipation of its resolution. But to presume the existence of a harmony that is contradicted by many facts of ethology (*une harmonie que contredisant bien des faits de l'éthologie animale*) is tantamount to dupery. It masks the crux of a function of lack (*manque*) with the question of the place that this function can assume in a causal chain. Now, far from imagining eliminating it from it, I currently consider such a function to be the very origin of causalist noesis, which goes so far as to mistake it for its crossing into reality [*passage au réel*]. But to consider it effective due to its imaginary discordance is to still leave too much room for the presumption of birth. This function involves a more critical lack, its cover being the secret to the subject's jubilation (*la jubilation du sujet*).[46]

At this juncture, there should be little doubt that, although Lacan wishes to avoid reducing the analytic account of psychical ontogeny to its material underpinnings at the level of biology and its branches, his anti-reductivism is far from pushing him to the opposite extreme pole of an idealist or dualist denial of the relevance of these fields for analytic theories of emergent egos and subjects. The first two sentences quoted above make this abundantly clear. Furthermore, the ethology Lacan has in mind in the third sentence of this passage is that of the human animal in particular. Given "the delayed coordination of the nervous system related to man's prematurity at birth, and the formal anticipation of its resolution" (i.e., the *Hilflosigkeit* of the *corps morcelé* as a factical biological real[ity]), the life sciences themselves problematize and invalidate the assumptions and suppositions of organicism as a non-scientific constellation of images and ideas frequently accompanying these same sciences ("But to presume the existence of a harmony that is contradicted by many facts of ethology is tanta-

[45] Lacan, "On My Antecedents," p. 55.
[46] Jacques Lacan, "*Des nos antécédents*," *Écrits*, pp. 69–70; Lacan, "On My Antecedents," p. 55.

mount to dupery"). Lacan's critique of organicist picture-thinking in biology is immanent and intra-scientific, rather than external and anti-scientific.

Taking the fourth and fifth sentences together (i.e., the third paragraph of this quotation from "On My Antecedents"), Lacan here seems to be confronting science insofar as it does not (yet) include psychoanalysis (to refer to a question Lacan raises during the same period of his teaching in the mid-1960s: "What would a science be that included psychoanalysis?"[47]). Lacan's main complaint in this confrontation appears to be the metaphysical bias of the modern sciences against the actual material efficacy of absences and lacks, a bias enshrined in what he refers to above as their "causalist noesis" (i.e., how they think the fundamental, science-grounding concept of causality); he diagnoses their constitutive blindness to fissures, gaps, negativities, and so on. At best, these empirical, experimental disciplines manage to register the tangible effects present in the material real ("to mistake it [the crux of a function of lack] for its crossing into reality") of what Lacan recognizes as causally efficacious non-presences (i.e., absences relative to here-and-now physical bodies and their presently observable interactions). Post-Baconian/Galilean scientificity, with its questionable *apriori* positivist presentism, tends to demand "eliminating" the "function of lack." Opposing this, Lacan tears aside the veils of a pseudo-scientific organicism tacitly leaning on non-empirical presentist presumptions "contradicted by many facts of ethology." He does so through assigning a precise biological materialization of *manque-comme-cause* (i.e., the absence of sufficient harmony and maturation intrinsic to the anorganic bodily being of the newborn human organism) a crucial load-bearing position in the analytic architecture of his theoretical apparatus. As realist, materialist, and quasi-naturalist, this *manque-comme-cause* is also *manque-comme-être* (to modify Lacan's *manque-à-être*).

The last two sentences of the preceding quoted passage further reinforce my reading of Lacan as spelled out in this intervention. The sixth ("But to consider

[47] Jacques Lacan, "*Les quatre concepts fondamentaux de la psychanalyse: Compte rendu du séminaire 1964*," *Autres écrits*, p. 187; Jacques Lacan, *The Seminar of Jacques Lacan, Book XI: The Four Fundamental Concepts of Psychoanalysis, 1964*, ed. Jacques-Alain Miller; trans. Alan Sheridan, New York: W.W. Norton and Company, 1977, p. 7; Johnston, "Turning the Sciences Inside Out"; Adrian Johnston, *The Outcome of Contemporary French Philosophy: Prolegomena to Any Future Materialism, Volume One*, Evanston: Northwestern University Press, 2013 [forthcoming].

it effective due to its imaginary discordance is to still leave too much room for the presumption of birth") undeniably warns against reducing the model of the body-in-pieces from the mirror stage to being merely a phenomenological description of neonatal experiences of negative affects and the intentions they motivate. Twentieth-century phenomenology proceeds from Husserlian resistance to the sweeping expansions of the rapidly advancing natural sciences and continues with Heideggerian rubbishing and bemoaning of their relevance. Lacan's refusal of biologistic reductivism by no means drives him into the company of such phenomenological and/or existentialist neo-romantics. In fact, here, he insists that limiting the *corps morcelé* to being a non-biological experience of embodiment separate and distinct from the biological body implicitly concedes to the latter a wholeness and unity that the very biology of the human organism indicates it does not enjoy. That is to say, for Lacan, finding disharmony solely within the sphere of the subjective states described by phenomenology strongly hints at a presupposition to the effect that the objective material real in and of itself is harmonious (i.e., "the presumption of birth" as an assumption that the neonate's biological body, by ostensible contrast with its fragmented embodied experience, is at least an organic-*qua*-organized organism). In this context, Lacan's observations insinuate that, as regards modern science, phenomenology and its offshoots are simultaneously too radical (in their anti-naturalist turnings away from the sciences) and not radical enough (in these turnings away, conceding "too much" to the fields thus abandoned). Psychoanalysis, on the other hand, promises the initiation of the pursuit of an immanent critique of modern science through which this amazingly powerful edifice can be transformed significantly without, for all that, being indefensibly neglected or untenably dismissed.

38 In the seventh and final sentence of the prior quotation from "On My Antecedents" ("This function involves a more critical lack, its cover being the secret to the subject's jubilation"), the "more critical lack" to which Lacan refers is that of the bio-material real(ity) of the *corps morcelé* independent of any and every phenomenal experience of emotions or motivations. Admittedly, not all of the affects included in Lacan's narrations of the mirror stage are negative. The primary positive feeling manifest in this stage is the "jubilation" (the 1949

écrit speaks of a "jubilant assumption" [*assomption jubilatoire*][48]) expressed by the joyful, playful quality of the infant's "*Aha-Erlebnis*" moment of recognizing its reflection.[49] In 1966, Lacan emphasizes that this upsurge of enthusiasm is symptomatic of the eclipsing and obfuscation (i.e., "its cover") of the body-in-pieces *qua* barred corpo-Real by the "mirages" and "phantoms" of the register of the Imaginary.[50] Preferences for the fictions of organic harmony bear indirect witness to aversions for the facts of anorganic disharmony.

Thus far, I have illuminated a consistent red thread of interrelated thoughts running uninterrupted through Lacan's intellectual itinerary from the 1930s to the 1970s. I can begin bringing my anorganicist interpretation of Lacan to a close with a final reference to the *écrit* on the mirror stage. Therein, he states:

> These reflections lead me to recognize in the spatial capture manifested by the mirror stage, the effect in man, even prior to this social dialectic, of an organic inadequacy of his natural reality – assuming we can give some meaning to the word "nature."[51]

My hunch is that Lacan's hesitations apropos talking about "nature" have to do with his awareness of just how overloaded this word is with fantasmatic and propagandistic baggage. The Imaginary projections of a conflict-averse organicism place every appeal to anything "natural" under the threat of immediate (mis)appropriation by those dreaming of unreal onenesses, namely, those having faith in non-existent big Others that would not be barred. Very much in line with this early concern of his, the Lacan of the 1970s characterizes nature as "not one" (*pas une*).[52] In terms of the human organism, this not-oneness amounts to an affirmation of its anorganicity. During the same period, he similarly urges reconceptualizing the very notion of "nature" as strangely unnatural insofar as this reconception markedly deviates from long-standing imaginings regarding nature.[53] In jarring dissonance with the pleasant, soothing associations with

[48] Lacan, "*Le stade du miroir comme formateur de la fonction du Je telle qu'elle nous est révélée dans l'expérience psychanalytique*," p. 94; Lacan, "The Mirror Stage as Formative of the *I* Function as Revealed in Psychoanalytic Experience," p. 76.
[49] *Ibid*., pp. 75–76.
[50] *Ibid*., pp. 76–77.
[51] *Ibid*., p. 77.
[52] Lacan, *Le Séminaire de Jacques Lacan, Livre XXIII*, p. 12.
[53] Lacan, *Le Séminaire de Jacques Lacan, Livre XXI*, session of May 21st, 1974; Lacan, *Le Séminaire de Jacques Lacan, Livre XXIV*, session of May 17th, 1977.

which (w)holistic fantasizings dress up all things said to be natural, the late Lacan, in a 1977 session of his twenty-fourth seminar (*L'insu que sait de l'une-bévue s'aile à mourre* [1976-1977]), depicts nature as a "rottenness" (*pourriture*) out of which oozes culture *qua antiphusis*.[54] The exemplar of this wounded nature from which denaturalizations "bubble forth" (*bouillonner*)[55] is nothing other than human nature as materialized by the incomplete *corps morcelé* first theorized by Lacan in the 1930s.

Earlier, I claimed that Lacan's anorganic barred corpo-Real of the body-in-pieces provides a link perhaps missing between the Hegelian philosophies of nature and spirit/mind (*Geist*). I hence asserted that it would be both possible and productive to insert my anorganicist recasting of a certain Lacan back into Hegel's *Realphilosophie*. Fortuitously, Lacan himself, in his 1955 *écrit* "Variations on the Standard Treatment," hints at this. Elaborating on the "experiences" transpiring in the mirror stage (including those of a kind already described in Hegel's 1807 *Phenomenology of Spirit* in connection with the "master/slave dialectic"[56]), he maintains:

> But if these experiences – which can be seen in animals too at many moments in their instinctual cycles, and especially in the preliminary displays of the reproductive cycle, with all the lures and aberrations these experiences involve – in fact open onto this signification in order to durably structure the human subject, it is because they receive this signification from the tension stemming from the impotence (*impuissance*) proper to the prematurity of birth, by which naturalists characterize the specificity of man's anatomical development – a fact that helps us grasp the dehiscence from natural harmony (*cette déhiscence de l'harmonie naturelle*), required by Hegel to serve as the fruitful illness, life's happy fault, in which man, distinguishing himself from his essence, discovers his existence (*la maladie féconde, la faute heureuse de la vie, òu l'homme, à se distinguer de son essence, découvre son existence*).[57]

Characteristically, Lacan does not bother to furnish his readers with specific citations from Hegel's works. But, considering his indebtedness to Alexandre

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[54] Lacan, *Le Séminaire de Jacques Lacan, Livre XXIV*, session of May 17th, 1977.
[55] *Ibid*.
[56] Jacques Lacan, "Variations on the Standard Treatment," *Écrits*, p. 286.
[57] Jacques Lacan, "*Variantes de la cure-type*," *Écrits*, p. 345; Lacan, "Variations on the Standard Treatment," p. 286.

Kojève's version of the *Phenomenology* and his explicit mention of the dialectic between master and slave on the same page of the *Écrits*, Lacan probably is thinking here of the portions of this 1807 text's section on "Self-Consciousness" preceding the sub-section addressing "lordship and bondage" proper; in the opening pages of this section, Hegel portrays natural desiring life as plagued by monotonous dissatisfactions and futile struggles.[58] That noted, Lacan's choice of the noun "impotence" (*impuissance*) fortuitously echoes Hegel's motif of the impotence (*Ohnmacht*) of nature.[59] For both authors, a natural clearing is held open for the arising of more-than-natural transcendences-in-immanence thanks to material nature's "weakness" (Hegel) and "rottenness" (Lacan). At the end of the above quotation, Lacan's allusion to Sartrean existentialism (itself influenced by the Kojèvian Hegel) indicates that, from a Lacanian perspective, there indeed is an essence that precedes existence (to contradict Sartre[60]). But, this essential (and yet not-One/non-All) nature is not all that natural in any standard naturalist, positivist, and/or presentist senses (the senses Sartre presumes as regards talk of essences in conjunction with the natural sciences). In fact, it is pervaded by negativities both materially real and experientially palpable, hence driving the initially biological being beyond a biology it finds unbearable ("man, distinguishing himself from his essence, discovers his existence").

Despite my solidarity with the facets of Lacan's thinking I have unpacked above guided by the idea of the anorganic, I consider his accounts of the emergences of ego and subject to suffer from a major shortcoming: their exclusively ontogenetic status. As I illustrate and criticize elsewhere, Lacan, wavering between epistemological and ontological justifications, strictly prohibits phylogenetic hypotheses and investigations as illegitimate and out of bounds, at least within the limits of psychoanalysis proper as he conceives it. In my critique of Lacan's forbidding of inquiries into phylogeny, I point out how this highly contentious circumscription of the scope of analytic thought leads Lacan – he self-identifies as an atheist and, following Freud, considers psychoanalytic theory and prac-

[58] G.W.F. Hegel, *Phenomenology of Spirit*, trans. A.V. Miller, Oxford: Oxford University Press, 1977, pp. 104–111.
[59] Johnston, "The Voiding of Weak Nature".
[60] Jean-Paul Sartre, *Existentialism and Humanism* [trans. Philip Mairet], London: Methuen, 1948, p. 27–28, 42–43.

tice to be atheistic in a number of ways[61] – into having direct recourse to Biblical and Christian references. More specifically, in line with his ban on raising queries regarding the historical origins of language and connected social structures, he permits himself an affirmation of the statement "In the beginning was the Word"[62] and overtly portrays the advent of the symbolic order, a creative genesis obfuscated and mystified by the Lacanian law against all things phylogenetic, as the descent of the "Holy Spirit" down into the world.[63] For any atheist materialist, Lacan included, this should be deeply troubling.[64]

Dovetailing with this side of the Lacanianism with which I take issue, Jacques-Alain Miller proclaims that, "nothingness enters reality through language."[65] My preceding expositions in this intervention show that such a thesis does not actually fit Lacan himself overall, especially considering the latter's realist and materialist depictions of negativities manifest in core concepts of his like the body-in-pieces. However, this stated, Miller's proclamation indeed is able to prop itself up against select sides of Lacan's teachings. What Miller and the version of Lacan he relies on represent is, I contend, a dogma particularly widespread in Continental European philosophy/theory, infected as these intellectual traditions have been and still remain with various idealist, romanticist, and negative theological tendencies both avowed and disavowed. Modifying a turn of phrase from American Analytic philosopher Wilfrid Sellars' seminal 1956 essay "Empiricism and the Philosophy of Mind," I consider the most suitable label for this dogma "the myth of the non-given."

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[61] Lacan, *Le Séminaire de Jacques Lacan, Livre X*, pp. 357–358; Jacques Lacan, *Le Séminaire de Jacques Lacan, Livre XVI: D'un Autre à l'autre, 1968–1969*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2006, pp. 280–281; Lacan, *The Seminar of Jacques Lacan, Book XVII*, p. 119.

[62] Jacques Lacan, *The Seminar of Jacques Lacan, Book VII: The Ethics of Psychoanalysis, 1959-1960*, ed. Jacques-Alain Miller; trans. Dennis Porter, New York: W.W. Norton and Company, 1992, pp. 213–214; Lacan, *Le Séminaire de Jacques Lacan, Livre VIII*, p. 12; Jacques Lacan, "*Discours de Rome*," *Autres écrits*, p. 135; Jacques Lacan, "*Du symbole, et de sa fonction religieuse*," *Le mythe individuel du névrosé, ou poésie et vérité dans la névrose*, ed. Jacques-Alain Miller, Paris: Éditions du Seuil, 2007, p. 60.

[63] Lacan, *Le Séminaire de Jacques Lacan, Livre IV*, p. 48.

[64] Adrian Johnston, "On Deep History and Lacan," *Journal of European Psychoanalysis*, 2012, special issue: "Lacan and Philosophy: The New Generation", ed. Lorenzo Chiesa [forthcoming]; Johnston, *The Outcome of Contemporary French Philosophy*.

[65] Jacques-Alain Miller, "Language: Much Ado About What?," *Lacan and the Subject of Language*, ed. Ellie Ragland-Sullivan and Mark Bracher, New York: Routledge, 1991, p. 32.

This myth lurks at the basis of each and every appeal to an unexplained factical givenness of the non-given *qua* absence, lack, negativity, and so on. Apropos a theory of subjectivity (which is my focus in this context), its supporting background presence is borne witness to by dogmatic invocations of an irreducible, unanalyzable Nothingness as the primordial privative cause of the subject (or even as the subject itself). No matter how seemingly sophisticated and intricate the jargonistic gesticulating, these invocations boil down, when all is said and done, to vulgar foot stamping and fist banging.

As regards the myth of the non-given in relation to certain theories of subjectivity, a bond of complicity is established between them at the dawn of Renaissance humanism with its founding document, Giovanni Pico della Mirandola's 1486 oration "On the Dignity of Man." Therein, Pico della Mirandola describes human beings, as distinct from all other creatures and creations, as specially endowed by God with a strange, peculiar natureless nature, an inner absence of form unlike that to be found anywhere else in the abundant, overflowing fullness of the rest of the formed world. Through top-down divine fiat alone, an abyssal groundlessness of pure negativity becomes the metaphysical spark of humans in their crown-of-creation dignity; a rock-bottom emptiness of otherworldly provenance is the privative *Ur*-cause of humanity's distinctiveness.[66]

Jumping ahead to the past century, ostensibly irreligious minds continue to propagate, without critical modifications, permutations of Pico della Mirandola's mythical, theological story of uniquely-human voidedness. In the Continental Europe of the previous one-hundred years generally and in France particularly, atheists and non-atheists, humanists and anti-humanists, and partisans of a range of other apparently incommensurable or incompatible theoretical orientations faithfully reproduce this narrative with varying degrees of self-awareness. Even when decoupled from the Christian framework of "On the Dignity of Man," assertions of an *ex nihilo*, always-already-there absence, lack, nothingness, void, etc. at and as the heart of subjectivity perpetuate the religious vices of dogmatism, mystification, and obscurantism. Through dependence on the myth of the non-given, those putting forward

[66] Giovanni Pico della Mirandola, "On the Dignity of Man," *On the Dignity of Man*, trans. Charles Glenn Wallis, Paul J.W. Miller, and Douglas Carmichael, Indianapolis: Hackett Publishing Company, 1998, pp. 4–7, 10–11.

these assertions either rest on positings of *apriori* metaphysical "unexplained explainers" or capriciously balk at thinking their way through to the underlying foundations of their positions.

Lacan and Lacanians, insofar as they staunchly refuse to contemplate the lengthier stretches of human and natural histories (as in phylogenesis and evolution) anyone with sound scientific sensibilities presumes gave rise to contemporary humanity, evince belief in a mythical givenness of negativity as non-given. Apart from the idealist and anti-naturalist variants of Lacanianism against which I have argued, even on the most sympathetic materialist, quasi-naturalist reading of Lacan (which I tried to offer), he continues to be guilty of investment in this myth. Within his purely ontogenetic picture, the infant's *corps morcelé* is referred to as if it were the ultimate givenness of a ground-zero origin incapable of further explanation (save for ahistorical, idealist talk about big Others as eternally pre-existing, phylogenetically inexplicable symbolic orders into which conception and birth throws children[67]). Severed from its natural connections with phylogenetic and evolutionary histories, the prematurationally helpless body-in-pieces of ontogeny darkens into being an opaque bedrock of false, fictional absoluteness. The myth of the non-given hides itself poorly in the cracks and gaps of this barred corpo-Real. If these specters of negativities are not to be exorcized completely after being flushed out of these nooks and crannies within bodies, what is to be done with them? How are they to be rightly situated? To be crystal clear, I do not intend to overturn Lacan's rich dissections of embodiment. Instead, I merely aim to demonstrate that his reflections on these matters are indefensibly incomplete and in need of substantial supplementary supports of sorts with which he likely would not be comfortable (about which I will say more shortly).

Other figures culpable of providing philosophical refuge and cover for a mysticism of negativity are not hard to identify. Apart from Lacan, his existentialist contemporaries Heidegger, with his unfathomable sendings and ecstatic clearings of Being, and Sartre, with his unnaturally essenceless existences, are obvious examples (for reasons I go into at length on other occasions,[68] I

[67] Johnston, "On Deep History and Lacan"; Johnston, *The Outcome of Contemporary French Philosophy*.

[68] Johnston, "The Voiding of Weak Nature"; Johnston, "This *is* orthodox Marxism"; Johnston, "From Scientific Socialism to Socialist Science"; Johnston, *A Weak Nature Alone*.

do not consider Hegel and Marx, despite possible appearances to the contrary, culpable of repeating or resting upon appeals to mystical negativities in the manners I am objecting to in this setting). Flashing forward to today, Alain Badiou and Giorgio Agamben are two living philosophers influenced by these predecessors and, under such influences, embellishing upon the myth of the non-given (Slavoj Žižek too sometimes flirts with the danger of continued fidelity to the idol of this mysterious Nothingness[69]). Agamben's human being is a "man without content," a de-essentialized openness (as first glimpsed by Pico della Mirandola, to whom Agamben waves) whose always-second "nature" is continually subjected to ongoing constructions and reconstructions putting to work its unworkable, inexhaustible potentialities.[70] Similarly, Badiou's human being is a "voided animal" to be thought by a new "inhumanism" combining Sartre's humanism and the anti-humanism of Lacan, Althusser, and Foucault. Badiou equally praises these four French forerunners of his for their unflinching opposition to "a bad Darwin," although he has yet to indicate whether, for him, there is such a thing as a "good Darwin" and, if so, what he would look like and what relevance, if any, he would have for Badiouian philosophy. In short, unlike all other animals, Badiou's voided animal cannot be addressed by naturalism, purportedly calling instead for anti-naturalist (one might be tempted to say "supernaturalist") engagements.[71]

[69] Johnston, *Žižek's Ontology*, pp. 186–190; Adrian Johnston, "'Naturalism or anti-naturalism? No, thanks—both are worse!': Science, Materialism, and Slavoj Žižek," *La Revue Internationale de Philosophie*, 2012, special issue: "On Slavoj Žižek" [forthcoming]; Adrian Johnston, "A Critique of Natural Economy: Quantum Physics with Žižek," *Žižek Now*, ed. Jamil Khader and Molly Rothernberg, Cambridge: Polity Press, 2012 [forthcoming]. Adrian Johnston, *Adventures in Transcendental Materialism: Dialogues with Contemporary Thinkers*, Edinburgh: Edinburgh University Press, 2013 [forthcoming].

[70] Giorgio Agamben, *The Man Without Content*, trans. Georgia Albert, Stanford: Stanford University Press, 1999, pp. 65–72; Giorgio Agamben, *The Open: Man and Animal*, trans. Kevin Attell, Stanford: Stanford University Press, 2004, pp. 16, 21–22, 26, 29–30; Giorgio Agamben, *The Kingdom and the Glory: For a Theological Genealogy of Economy and Government*, trans. Lorenzo Chiesa, Stanford: Stanford University Press, 2011, pp. 245–246, 251.

[71] Alain Badiou, *The Century*, trans. Alberto Toscano, Cambridge: Polity Press, 2007, pp. 174-177. Alain Badiou, *Logics of Worlds: Being and Event, 2*, trans. Alberto Toscano, London: Continuum, 2009, p. 114; Adrian Johnston, "What Matter(s) in Ontology: Alain Badiou, the Hebb-Event, and Materialism Split from Within," *Angelaki: Journal of the Theoretical Humanities*, vol. 13, no. 1, April 2008, pp. 27–49. Johnston, *The Outcome of Contemporary French Philosophy*.

The surfacing of Darwin's name at this juncture is fortuitous and fitting. Apart from Kant and Hegel as its twin fountainheads, the vast bulk of what has come to be known as "Continental philosophy" springs from the (un)holy trinity of Marx, Nietzsche, and Freud (*à la* Paul Ricoeur's three great "hermeneuts of suspicion"[72]). In my estimation, the almost blanket neglect of Darwin by these philosophical orientations leveraged to the authority of this triumvirate of his approximate contemporaries is symptomatic of a swarm of intellectual and ideological problems plaguing various strains of Continental philosophy and its offshoots (in the concluding paragraphs of this piece, I will restrict myself to highlighting selectively and in passing a few of the biggest difficulties these aversions to Darwin and naturalism generate for the kinds of theories of subjectivity dealt with above). Ironically, Marx, Nietzsche, and Freud, unlike so many of their self-proclaimed successors, do not downplay or ignore Darwin's immense significance.

Whereas the majority of Continental philosophers of the past century underestimate the far-reaching radicality of the Darwinian revolution, a sizable number of Analytic philosophers tend to the opposite extreme of overestimating it (along with Hegel, the figure of Darwin marks a fork of fundamental divergence between the Continental and Analytic traditions). Although I have reservations about hyperbole in Daniel Dennett's trumpeting of Darwinian evolutionary theory as a "universal acid,"[73] I readily acknowledge the incredible potency and magnitude of the Darwin-event (to employ Badiou's language in a fashion he himself probably would not). My wager is that dispelling the myth of the non-given while nonetheless preserving its insistence on an intimate rapport between subjectivity and negativity – as should be obvious by now, my antipathy toward mystical varieties of lack(s) by no means entails my sympathy toward lack-denying positivisms, presentisms, organicisms, or anything else in these scientistic veins – demands evolutionary-phylogenetic explanations of the natural emergences of the denaturalized/more-than-natural negativities inherent to existent subjects *qua* subjectivity proper (i.e., as

[72] Paul Ricoeur, "Consciousness and the Unconscious", trans. Willis Domingo, *The Conflict of Interpretations: Essays in Hermeneutics*, London: Continuum, 2004, p. 97; Paul Ricoeur, "Psychoanalysis and the Movement of Contemporary Culture", trans. Willis Domingo, *The Conflict of Interpretations*, pp. 143–147.

[73] Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life*, New York: Touchstone, 1995, pp. 61–84, 521.

irreducible to garden variety, pseudo-scientific naturalisms). For any philosophical or psychoanalytic system reconciled with the natural sciences and allied with (historical/dialectical) materialism, a rapprochement with Darwin's ideas is requisite.[74]

With respect to the Lacan discussed at length earlier in this intervention, a non-mystical, thoroughly materialist account (one that refrains from conjuring up anything along the lines of the Holy Spirit) of the historical genesis of the ontogenetic ground-zero of the bio-material body-in-pieces needs the help of Darwin and his evolutionary-theoretic heirs. Without accepting such assistance, Lacanianism leaves itself divided from within by an unsustainable self-contradiction in which it is split between ontogenetic atheism and phylogenetic theism. On this matter, a choice formally configured as a Badiouian "point" (i.e., a decision between two irreconcilable alternatives with no third way available) thrusts itself forward[75]: In the terms of heavy-handed American popular culture wars bumper sticker sloganeering, this is a choice between the Jesus fish and the Darwin amphibian.

Also related to the concocted controversies surrounding evolution in America's absurd culture wars, neuroscientist David Linden lays out an elegantly simple and utterly devastating argument against anti-Darwinian proponents of so-called "intelligent design."[76] In his 2007 book *The Accidental Mind: How Brain Evolution Has Given Us Love, Memory, Dreams, and God*, he represents the human central nervous system as a "kludge" – "The brain is… a kludge… a design that is inefficient, inelegant, and unfathomable, but that nevertheless works."[77] Linden stresses that the human brain is, in fact, unintelligently designed insofar as it is the contingent by-product of countless uncoordinated evolutionary accidents in which, again and again, the relatively newer is

[74] Johnston, "This *is* orthodox Marxism"; Johnston, "From Scientific Socialism to Socialist Science"; Johnston, *A Weak Nature Alone*.
[75] Badiou, *Logics of Worlds*, pp. 399–401, 403–424.
[76] David J. Linden, *The Accidental Mind: How Brain Evolution Has Given Us Love, Memory, Dreams, and God*, Cambridge: Harvard University Press, 2007, pp. 235–246.
[77] Linden, *The Accidental Mind*, p. 6.

tossed into an intricate but sloppy mix with the comparatively older.[78] Hence, this organ of organs is "poorly organized," "a cobbled-together mess."[79]

The human central nervous system would have to be "Exhibit A" for those of America's culture warriors who still to this day desire to re-prosecute the 1925 Scopes trial. As is common knowledge, the anti-evolution advocates of intelligent design rest their case on the move of emphasizing the complexity of organic beings and maintaining that such complexity is inexplicable on the basis of the blind, random mechanisms proposed by Darwinian models of evolutionary processes. They believe Darwin and his followers to be fatally unable to answer questions as to how highly functional and seamlessly organized organisms could arise from the unguided chaos of a physical universe of contingencies without teleologies. The human brain, if anything, would be the pinnacle of such stunning sophistication in the natural world; its networked assemblies of astronomical numbers of neurons and synapses come together to generate and sustain seemingly miraculous mindedness and everything this brings with it.

Linden's concise neuroscientific refutation of intelligent design consists of an additional move beyond just establishing the anorganic "kludginess" of the anatomy and physiology of the central nervous system. This by itself already would be enough, since a demonstrable lack of functionality, organization, and so on – partisans of intelligent design manifestly assume the brain to be thoroughly organic *qua* cohesive, coordinated, frictionless, integrated, etc. – is sufficient to cast reasonable doubts on the claim that an intelligent designer intentionally built a marvelously elaborate and synchronized material seat suited for his human subjects. The further step Linden takes in driving home his critique is to assert, on the basis of ample supporting evidence, that the brain is endowed with its wondrous mind-making powers celebrated by proponents and critics of

[78] Adrian Johnston, "The Misfeeling of What Happens: Slavoj Žižek, Antonio Damasio, and a Materialist Account of Affects," *Subjectivity*, vol. 3, no. 1, April 2010, special issue: "Žižek and Political Subjectivity", ed. Derek Hook and Calum Neill, pp. 89–92; Adrian Johnston, "Second Natures in Dappled Worlds: John McDowell, Nancy Cartwright, and Hegelian-Lacanian Materialism," *Umbr(a): The Worst*, ed. Matthew Rigilano and Kyle Fetter, Buffalo: Center for the Study of Psychoanalysis and Culture, State University of New York at Buffalo, 2011, p. 76; Johnston, "'Naturalism or anti-naturalism? No, thanks—both are worse!'"; Johnston, "A Critique of Natural Economy"; Johnston, "Misfelt Feelings"; Johnston, *The Outcome of Contemporary French Philosophy*.

[79] Linden, *The Accidental Mind*, pp. 2–3, 5–7, 21–24, 26, 245–246.

evolution alike specifically by virtue of its kludginess resulting from an absence of intelligent design:

> The transcendent aspects of our human experience, the things that touch our emotional and cognitive core, were not given to us by a Great Engineer. These are not the latest design features of an impeccably crafted brain. Rather, at every turn, brain design has been a kludge, a workaround, a jumble, a pastiche. The things we hold highest in our human experience… result from a particular agglomeration of ad hoc solutions that have been piled on through millions of years of evolutionary history. It's not that we have fundamentally human thoughts and feelings *despite* the kludgy design of the brain as molded by the twists and turns of evolutionary history. Rather, we have them precisely *because* of that history.[80]

In Linden's hands, the kludge model of the central nervous system – this is equivalent to, in my terms, an anorganic barring of the corpo-Real of the brain in particular – elevates the lack/deficit of overarching harmony or synthesis therein to the ontological status of a privative cause at the level of bio-material being in and of itself. This perspicuous line of argumentation transforms the example of the human brain into a Trojan horse in relation to advocates of intelligent design; Linden turns the star piece of evidence appealed to in their case into the very thing refuting it most decisively. Furthermore, Linden's remarks in the above quotation can be read as subtly hinting at an implication of even greater radicality: The absence of God is the ultimate negative *Ur*-cause in a physical universe internally producing and containing human beings and their subjectivities (a thesis compatible with the One-less, detotalized ontologies of Lacan, Badiou, and Žižek, among others).[81]

The key principle behind anorganicity, with kludginess being one of its manifestations, can be stated through an inversion of a cliché: More is less (rather than, as the saying goes, "less is more"). For instance, the kludgy *corps morcelé*, shot through and permeated with antagonisms, conflicts, deficiencies, fissures, gaps, splits, and the like, is not a materialization of the factical (non-)givenness of a

[80] Linden, *The Accidental Mind*, pp. 245–246.

[81] Adrian Johnston, "Conflicted Matter: Jacques Lacan and the Challenge of Secularizing Materialism," *Pli: The Warwick Journal of Philosophy*, No. 19, Spring 2008, pp. 166–188; Johnston, "The Weakness of Nature," pp. 175–176; Johnston, *The Outcome of Contemporary French Philosophy*.

mysterious Void. The myth of the non-given, with its mystical, metaphysical version of negativity, proceeds on the basis of a less-is-more logic, with the "less" of a primal Nothingness giving rise to the "more" of really-existing subjects. By contrast, my anorganic approach, substituting for this type of myth a non-mystical, physical version of negativity, proceeds on the basis of a more-is-less logic, with the "more" of a contingent, non-teleological accumulation of material bits and pieces giving rise to the "less" of discrepancies and discordances within and between these fragments (as indicated earlier, I adhere to crucial aspects of the letter of Lacan's teachings in positing such materially generated disharmonies as necessary objective conditions for the eventual emergence of full-fledged subjectivities). As per the more-is-less principle of the anorganic, surpluses of positivity, as unplanned, uncoordinated agglomerations of mute, idiotic entities and events, dialectically tip over into deficits of negativity. Put in terms familiar to government bureaucrats, computer programmers, and tax lawyers, with the increasing complexity of organic systems, as with all systems (such as political institutions, software codes, and bodies of laws), comes a proportional increase in the number of bugs and loopholes immanently generated within and through systemic complexity itself. In Lacanian parlance, both Symbolic and Real systems can and do succumb to (self-)barring.[82]

Lacan's crucial concept of the body-in-pieces and other ideas of his related to this concept, once plugged into the theoretical framework of transcendental materialism and its anorganicism, go from being dogmatically asserted givens always-already there out of thin air to becoming psychoanalytic and philosophical touchstones anchored in solid, science-consistent materialist thinking. Likewise, as regards the threshold between *Naturphilosophie* and *Philosophie des Geistes* in the more-than-logical *Realphilosophie* of Hegel's *Encyclopedia*, the dialectical dynamics of anorganicism permit speculating that the movement from animal to human organisms transpires when growth in the natural complexity of the animal organism crosses a certain tipping point. Past this point, animal organicism *qua* harmonious organization short-circuits itself in acquiring a critical mass of inner incompatibilities between its parts, thereby igniting the bursting forth of anorganic structures and phenomena. The "more" of animal complexity leads to the "less" of the negativities lying at the base of human

[82] Johnston, *Žižek's Ontology*, pp. 167–177; Johnston, "Drive Between Brain and Subject".

being *qua* minded/spiritual humanity; the plus of positive natural additions transitions to the minus of denaturalizing subtractions.

The French biologist and Nobel laureate Jacques Monod, in his 1970 book *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology*, provides an indispensable refutation of an all-too-widespread misconstrual of evolution in biology. Therein, he incisively observes that, "*evolution is not a property of living beings*, since it stems from the very *imperfections* of the conservative mechanism which indeed constitutes their unique privilege."[83] In other words, evolution does not unfold as a smooth, continuous succession of fluid flowerings in which unbroken sequences of clockwork living spheres blossom one out of another with placid balanced beauty, as imagined in the fantasies of organicist (w)holism. Instead, evolutionary changes happen if and when any number of things go terribly wrong for organisms in relation to their bottom-line strivings to perpetuate themselves as individuals and species (as in genetic mutations, environmental catastrophes, and so on – instances on the scale of phylogenesis of what Lacan, citing Hegel, calls "the fruitful illness, life's happy fault" on the scale of ontogeny). Hence, Monod justifiably concludes that evolution is antithetic to life – obviously, he undoes the standard equivocation between evolutionary and living processes – insofar as occurrences of evolution are moments when life as it is gets traumatically disorganized and truncated. He also later states that, "the accelerating pace of cultural evolution was to split completely away from that of the genome."[84] However, the anti-natural revolution of the immanent material genesis (as both phylogenetic and ontogenetic) of, in Hegelian locution, *Geist* out of *Natur* is nevertheless a trajectory internal to evolution in Monod's broadened sense. What is more, a precise parallel can be drawn between Hegel's treatment of war as a spiritual event with Monod's treatment of evolution as a natural event. For Hegel, periods of pleasing tranquility (i.e., peaceful "happiness") are historical "blank pages" of socio-cultural "stagnation" punctuated by bracing, make-or-break episodes of disruption in the form of violent conflagrations.[85] For Monod, evolution is to life what war is to peace for Hegel.

[83] Jacques Monod, *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology*, trans. Austryn Wainhouse, New York: Alfred A. Knopf, 1971, p. 116.
[84] Monod, *Chance and Necessity*, p. 162.
[85] G.W.F. Hegel, *Elements of the Philosophy of Right*, ed. Allen W. Wood; trans. H.B. Nisbet, Cambridge: Cambridge University Press, 1991, §324, p. 361; Hegel, *The Philosophy of History*, pp. 26–27.

If human beings are animal organisms "sick unto death," this fateful derailment of the natural into the more-than-natural occurs by virtue of the real dialectical dynamics of the anorganic as the self-induced sickening of nature itself, a nature already weak and rotten on its own prior to its further de/in-completing of itself through belching out humanity. Avatars of the myth of the non-given instantiate the gesture of adding a supernatural Nothing so as to explain away this enigmatic denaturalized transcendence that is nonetheless puzzlingly immanent to the natural world. An advocate of transcendental materialist anorganicism risks the step of subtracting from the natural world what these worshippers of a mystical negativity presumptively attribute to it such that they then feel compelled to have faith in a rigid, brittle anti-naturalism threatened by the advances of the natural sciences.[86] Interfacing the anorganic logic of the more-is-less principle with the life sciences and evolutionary theory is the key to a material rather than mystical negativity, itself a cornerstone of a viable, non-reductive materialism.

[86] Johnston, "Second Natures in Dappled Worlds," p. 76; Johnston, *A Weak Nature Alone*.

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Frank Ruda*

The Speculative Family, or: Critique of the Critical Critique of Critique[1]

"He's into science. But he has lost his way." (Bloc Party, *V.A.L.I.S.*)

Introduction: A Founding Father and His View of the World (after Kant)

Kant was born, thought, and died. It seems that not much has changed since then, since he walked the earth. Unaltered, each new day the sun rises. And afterwards it again sets. Each and every day it is the same procedure. The world, after Kant: still business as usual. But where does this certainty come from that the sun will unalterably rise again on each new day? As most readers will know, this question might also be formulated in a more technical manner as follows: How can one, starting from the experiences of seemingly stable relations between cause and effect (the day begins, the sun rises) infer a certain conviction that the content of these already made experiences (relations between cause and effect) can be generalized to a legitimate, stable, and lawful relation? And this is ultimately to say: How can one, starting from experiences of past concatenations of cause and effect, derive future concatenations? These questions formulate an epistemological problem that became famous in the history of phi-

[1] This title of the present article is motivated by a diagnosis of the contemporary present that was formulated by Alain Badiou. The diagnosis runs as follows: We are today in a comparable situation like Marx was in the 1840s (we thus have to prove anew the validity of the hypothesis of emancipation). Cf. Alain Badiou, *The Communist Hypothesis*, London / New York 2010: Verso, pp. 66–67, 258–259. I share this diagnostic stance and its implications. Badiou had already stated something along these very lines in his 1985 *Peut-on penser la politique?*, where he claimed that it is precisely the worldwide crisis of Marxism which necessitates the rewriting of the Communist Manifesto. If Badiou's diagnosis is correct, then it would not only imply that the Communist Manifesto, but also the Theses on Feuerbach, "The Holy Family", would need to be redone. This insight motivates the present article. Obviously, I can here maximally present certain outlines of such an endeavour. My first much shorter reflections in this direction were also presented in: Frank Ruda, *Die spekulative Familie*, in: *Texte zur Kunst*, June 2012, Vol. 86, pp. 172–176.

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losophy under the name "the problem of induction"[2] and was formulated by the pre-Kantian philosopher David Hume.

It may come as no surprise that today this question is rarely recalled, rarely taken up as a true and pressing question, not withstanding if one likes to call oneself a philosopher or not. This is not because it has been proven at some point that Hume and his problems belong in the museum of history (although there are some who seem to believe this). Rather it is because, as Adorno once remarked, the history of philosophy is full of problems that have been forgotten.[3] We who have been born after Kant, think (if we think) in the same way Kant did that *the* access to *the* concatenations of cause and effect and to the absolute lawfulness and regularity of nature, that is to say: that cognition of how things are in themselves, in their absolute nature, independent from us – cannot be obtained. At least it seems that such an alleged and all-relativizing dis-absolutization of thought, i.e. an exiling of the absolute from the realm of thought, is what came into the world with Kant. And at least this is one of the most fundamental claims of a more or less new philosophical movement or group (which wants to be neither the former nor the latter) that became a talking point some time ago:

[2] If one shares its premises (that is to say, how to get from experience to the inference of stable laws) this is truly a problem. I therefore agree with Quentin Meillassoux – the philosopher I will primarily be dealing with in the present article – that one cannot as easily do away with it as certain thinkers like Karl R. Popper or in a different manner even Nelson Goodman contended. Cf. David Hume, *Treatise on Human Nature*, Oxford 1888: Clarendon Press, pp. 89, 180; David Hume, *Enquiries Concerning Human Understanding and Concerning the Principle of Morals*, Oxford 1975: Clarendon Press; Nelson Goodman, *Fact, Fiction, & Forecast*, Cambridge 1955: Harvard University Press, pp. 72–75; Karl R. Popper, *The Logic of Scientific Discovery*, New York 1959: Basic Books, pp. 253–254, 315. Why is that? Because: not only any particular sunrise (any particular experience) becomes problematic, but what is put in the spotlight is the very relation from any particular (experiential) case to any future generalization (in terms of law). The problem is thus fundamentally related to the legitimacy of inductively developing any sort of *lawfulness* of (and within) appearances.

[3] Adorno's precise diagnosis was that the whole history of philosophy is in some sense the history of forgetting problems, questions, or ideas that once seemed pressing and agitating and then lost significance, only to re-appear later within the same history in a renewed context and guise. Cf. Theodor W. Adorno, *Metaphysics. Concepts and Problems (1965)*, Stanford 2001: Stanford University Press pp. 65ff.

so-called speculative realism.[4] I will here mainly deal with one of its founding fathers. Let us call him the speculative realist.[5]

The speculative realist thinks that some things changed – to be more precise: all things in themselves become-other for thought – with Kant. And this change was not a change for the better. *As peculiar* and at the same time refreshing such a philosophical label may appear today, since it is hard to imagine an increase in the counter-current (realism and furthermore a speculative one) in times of an omnipresent hegemony of analytic philosophy, *so peculiar* and discordant are also the different projects of its proponents regarding what this label might mean.[6] But at least with some vulgarization or generalization two gestures can

[4] The "speculative realism" label dates back to a conference which was held in 2007 at Goldsmith College in London. Its proponents, well known to the reader, were primarily: Quentin Meillassoux, Ray Brassier, Graham Harman, and Iain Hamilton Grant. For an overview, see also: *The Speculative Turn. Continental Materialism and Realism*, ed. by Levi Bryant, Nick Srnicek, and Graham Harman, Melbourne 2011: re-press. Hereinafter cited as ST. The debate on whether there is a group under this name or not is mentioned in: Graham Harman, *On the Undermining of Objects: Grant, Bruno and Radical Philosophy*, in: ST, pp. 21-40. Hereinafter cited as GHO.

[5] I mainly refer to what Quentin Meillassoux, one of if not the founding father thereof, develops in his impressive: *After Finitude. An Essay on the Necessity of Contingency*, London / New York 2008: Continuum.

[6] A short – and as I reckon rather unfair – remark regarding Harman and Grant: Harman seeks to put objects (again) into the centre of a renewed foundation of ontology. Why? Because that which has been forgotten within occidental thought – more or less throughout its history – is the object, the object as an actant. Therefore he seems to agree with Heidegger: we, the Westerners, forgot something and we even forgot that we forgot. And, that which is the centre of what we forgot is the object(s). If Harman's renewal of ontology – the idea he also seems to share with Grant – consists in treating "the inanimate world as a philosophical protagonist" (GHO, 25) and in defending the claim that "[t]he object is what is autonomous but not entirely autonomous, since it exists in permanent tension with all those realities that are meant to replace it completely" (GHO, 39), this seems to me to be quite a problematic move. To make a long story short: It seems that Harman asserts that there is an object of being but this very object (maybe even objects) does not embody being. It is not an objective object, not objective objects, he is referring to. Rather he seems to assert that there is something at what being itself aims at, an "object" (of desire) of being itself (like an *object a* of being causing being to be what it is). This is why these objects act for him in one way or another. And they are at the same time (being) covered up, repressed, etc. Being itself has its own *object a* and this is what Harman refers to under the category of "object". As surprising as this might sound, my reservation concerns this (somehow purely) rhetorical twist from the "being of the object" to the "object(s) of being". For even if this does not imply that "being" and "object(s)" are equated (which would consequentially simply render the concept of the "object" meaningless), it implies that there

be discerned in all of them. On one hand, they claim in a nearly Heideggerian manner that amongst other things, or first and foremost with Kant, modern thought enters into oblivion. Modern (philosophical) thought forgets precisely what was still present within it with Descartes, Locke, as well as Hume. On the other hand, this oblivion is elucidated in a way that would have given the creeps to a huge fraction of philosophers – from Heidegger up to Critical theory, from Kant to the Frankfurt School. For what this forgetting forgets is the discourse of science, or to be more precise: that science thinks.

1. With Kant all Things Come Under the Yoke of Correlation

If Descartes was still able to distinguish between the primary and secondary properties of an object – between the properties the things have in themselves and independent from us, and those that they have when and because they appear to us and that are hence properties that correlate with the being-observed by an observer – with, after, and because of Kant thought is afflicted by an

is something like "a cause" or even "a truth of being" that lies in its "object(s)". Simply put: There is an *object*ive *truth* of (the) being (of everything that is) since being is what it is because of its object(s). From this simple (and I contend, rather rhetorical) reversal, one can easily start reflecting on the "objective sciences" as bearer of the truth of "being". As to what I can see with regard to this enterprise, I think that its basic premises are very close to being a mere sophism. I think this can be best grasped in: Graham Harman, *Tool-Being: Heidegger and the Metaphysics of Objects*, Illinois 2002: Open Court Publishing. Grant proposes some sort of Schellingian renewal of an Aristotelian metaphysics of (natural) force(s), turning its focus to the "powers *always at work*, always intrinsic to "any "formative process". [Cf. Iain Hamilton Grant, *Mining Conditions: A Response to Harman*, in: ST, pp. 41–46; his neo-vitalism comes out even more clearly in: Iain Hamilton Grant, *Philosophies of Nature after Schelling*, London 2006: Continuum.] He argues for a primordial, pre-individual constancy of production.(*Mining Conditions*, p. 45) One gets the same thing that one gets with Harman only that the focus is not even on the "object(s) of being" but on the formation – which seen in the clear light of day is pretty much the same thing. For Grant asserts that that which produces and its products can no longer be distinguished. As both insist that their take on what the sciences do is utterly materialist (against any idealist forgetting of the object or of the productive powers at work), I agree here with Adrian Johnston that "conceding the form of an interminable and unwinnable epistemological debate is itself idealist."(Adrian Johnston, *Hume's Revenge. À Dieux Meillassoux*, in: ST, p. 112; hereinafter cited as AJHR) I consider both projects in Badiousian terms to be but– perhaps rigorous and systematic – examples of sophistry. The first is an objective, the latter a vitalist metaphysics. Rendered differently, I have trouble seeing – accepting the coordinates of their own arguments – why what both end up with is not precisely what they would call idealism.

absolutization of the secondary qualities of the object. Hand in hand with this goes a *disabsolutization of thought* since it no longer has access to the primary qualities. The things, the world, reality, and nature are only there with and after Kant for us, as a correlate to our existence. Paradigmatically, one can recognize this in the Kantian exiling of the thing in itself from the realm of the knowable and cognizable. With and after Kant modern thought thinks that the distinction between our mind-dependent and concept-dependent access to reality, on one hand, and reality as it is as such, on the other, is a difference within the mind, a difference within the concept. Such a (post-)Kantian position is attacked by speculative realism with the label "correlationalism", whose founding manoeuvre can be well described in quite simple terms: it takes the concept of difference (for example, between concept and thing) to be a (mere) conceptual difference.[7] Correlationalism is clever, even reflected ignorance (of things as they are in themselves).[8] Its paradigm is what Kant called "critique". It limits things to their being-thought, it limits thought to being itself and thereby absolutizes limitation (via correlation). Correlationalism is thus an oblivious *metaphysics of* (hypostatized) *finitude*.

[7] To my mind, this argument was presented in a fascinating manner by one of the most innovative and rigorous thinkers somehow associated with the label of "speculative realism": Ray Brassier. Cf. His *Concepts and Objects*, in: ST, pp. 57–64. Yet, one has to note here, against the reiterated attack of some speculative realists on Hegel, that this argument is in its entirety a Hegelian one. When Hegel introduces the notion of difference, he is very explicit what one gets with it. It is not only another notion but it is a notion that is, one might say, self-applicative. When one reaches the concept of "difference" what one also gets is the idea that there is even a difference to the conceptual that becomes thinkable (this is the self-application of the concept of difference onto the conceptual realm as such; it introduces a difference). Thus it is not just another concept or notion, but a concept which entails more than just what is conceptual, i.e. the difference to the concept is implied in the concept of difference.

[8] At the same time what should be clear – as is certainly known to readers of Meillassoux's work – is that in dis-absolutizing the capacity of thought, correlationalism absolutizes the correlation (even more in a certain sense even its contingency). The most straightforward account of this can be found in: Quentin Meillassoux, *Iteration, Reiteration, Repetition: A Speculative Analysis of the Meaningless Sign* (Workshop Paper, Berlin 2012, unpublished; hereinafter cited as QMIRR). Reconstructing correlationalism in this manner somehow is part of overcoming correlationalism from within (for Meillassoux thinks this is the only option). That this is not an uncontroversial claim can be seen in Ray Brassier, *Concepts and Objects*, pp. 59–65.

2. Science thinks[9]

If Descartes – effectively *the* philosopher of the scientific Copernican turn – was still able, with his distinction between primary and secondary qualities of objects, to allocate mathematics a constitutive role within (ontology but also) epistemology, since it was capable of recognizing and presenting the properties of the things in themselves, this is precisely what is denied with and after Kant. It is as if with and after Kant the primary qualities of things, of the world, and so on, are simply forgotten, repressed. One might say: With and after Kant the being of objects – *das Ding* – is forgotten and we are simply dealing with objects (of and in our world). This is a specific form of oblivion with regard to the ontological difference. The consequence of this is: science presents knowledge (of the things or us) for us. But it is also by this very move that, according to the speculative realist, certain scientific statements and their true content become consequentially incomprehensible for any correlationalist. If, for example, science talks about the existence of the world before the origin of consciousness, the correlationalist is unable to understand these "ancestral" (Meillassoux) statements in the way that they should be understood. He does not interpret them as what they are: statements about the absence of correlation or of any sort of givenness (for example, of objects for a consciousness) in general, but he rather interprets them as statements about the *absence of the correlation in correlation* with consciousness. The correlationalist is only able to understand claims that refer to something before the emergence of consciousness and thus to the *absence of consciousness* only as claims about the *absence for consciousness*.[10] Correlationalism implies in this sense always a misconception of the very

9 I owe this adorable and firmly Anti-Heideggerian formula to an unpublished text by Rado Riha.

10 As consistent and crucial as this criticism of (post-)critical thought concerning science is or at least might appear to be, that much does it come with the danger of a quite problematic Stalinist twist: Against the wrong ideological usurpation of science(s) one opposes a philosophically (i.e. ideologically) ensured, that is to say, materialist position. The latter implies: The sciences or scientists themselves have to be educated in order to take the right ideological position. Not surprisingly, the educator is he who endorses the correct philosophical position. In a peculiar combination two claims are thus put forth at the same time: one needs to take the sciences seriously; the sciences/scientists need to be educated by he who knows how to educate them to understand that they need to neglect any wrong ideological utilization. Ed Pluth also touches upon some aspects of this in his contribution to this volume.

scientificity of science because it ultimately implies a (sophistically versed) version of a *metaphysics of presence* (of consciousness).

3. Speculative Revolution: Absolutizing Contingency

The speculative realist knows that after Kant one cannot simply return to a state before the fall (i.e. the Kantian Copernican Revolution). The taking of positions cannot simply be: Hume or Kant, not even: Descartes or Kant. This is why he executes a daring *speculative manoeuvre* that is supposed to enable him on one hand to avoid resolving the difference of concept and thing in the concept of difference and, on the other hand, with this very move he seeks to comprehend scientific statements as statements about the subject-independent *real being* of things.[11] Within this he attempts to turn Hume's epistemological misery into an ontological virtue.[12] This is supposed to mean that the answer to Hume is precisely what appeared to be his problem: One can think the nature, the essence, the qualities of the things in themselves, but these qualities have a very peculiar characteristic. The speculative realist opts against all forms of correlationalism for an (ontological) *absolutization of the primary qualities*[13] and through their particularity seeks to defend a (renewed speculative realist) *absolutization of thought*. The speculative realist contends against Kant that the absolute can be thought, but at the same time contends also against Descartes that the peculiar

[11] One would have to demonstrate in greater detail how at least Meillassoux, with his own elaboration of the (Badiousian) thesis that it is precisely mathematics that can overcome the very form of a subject-dependent discourse and is hence able to grasp and formalize the absolute outside of any discourse, is ultimately led to claim that there is "something" within this absolute, within the things in themselves, that correlates with the universal (and subject-independent) discourse of mathematics. To put this differently: *the speculative realist* Meillassoux *replaces* the *subject-object correlation* with a *mathematics-things-in-themselves correlation* which finally implies (at least up to a certain and quite crucial degree) the discursive nature of nature itself. As much as I am unconvinced by the correlationalism that Meillassoux criticizes, that much does his version of speculative-realist correlationalism not convince me. I owe this interpretation of Meillassoux's work to a brilliant article by Alenka Zupančič, *Realism in Psychoanalysis* (unpublished typescript). This criticism also resonates in a formula introduced by Adrian Johnston: "What is mathematically conceivable is absolutely possible." (AJHR, 134)

[12] For this, see: AJHR and Peter Hallward, *Anything is Possible. A Reading of Quentin Meillassoux's* After Finitude, in: ST, pp. 130–141. Hereinafter cited as PWAP.

[13] Meillassoux thus contends that the very "being of every thing is its contingency". (QMIRR) Being qua being hence becomes "*peut-être*". See also: Quentin Meillassoux, *Speculative Realism*, in: *Collapse*, Vol. 3., 2007, p. 393.

nature of it necessitates not thinking that which is but that which can be. What is absolute and has to be as *the* primary quality of all things is that they can be other than they are. This Otherness of all things, that is to say: contingency becomes the primary quality of everything that there is. *Contingency is primary, what is primary is contingent*.

The primary quality is subject-independent because things are the way they are – for example, they appear to us in the way they appear to us – but they could be different as there is no reason why they are the way they are. Thus, the way we experience things only tells us one thing about things: that we know nothing about how things really are. Simply put: what has to be thought as being absolute is that everything can be *other*, different than it is. Here one can see how the ontologizing *inversion of Hume*[14] concerns the status of each and every law (thinkable). One can render this not only as an inversion of Hume but also: 1. As an *inversion of Descartes*: Since Descartes famously doubted everything that deceived him in order to gain absolute certainty. Might one not also be quite tempted to suggest that what this speculative realist manoeuvre comes down to is that the absolute character of all things is (experiential) deception? That is to say: does this not amount to claiming that things can deceive us because the only thing we know for sure is that for no reason whatsoever everything can be other than it is and this very insight is precisely the insight into the *in itself* of the thing as such? Is not contingency an ontological name for an ontologized positivization of the very Cartesian idea of experiential deception? 2. As an *inversion of Kant*: Since Kant, according to the speculative realist, asserted that things in themselves are beyond the reach of what is epistemologically knowable to us. But with this very move Kant asserts the existence of something that we cannot know. But does not the speculative realist manoeuvre amount to the claim that the very unknowability of things in themselves is not an epistemological barrier, but an ontological, i.e. absolute, character of things as such?[15] Could one not – if one were to be Kantian – simply raise the following question: Why is contingency not simply another (even rather restricted) name for the claim that Kant articulated when he stated that the thing in itself is unknowable, uncognizable? Maybe he articulated this epistemologically, but do the consequences of this claim not come quite close to what the speculative realist claims ontologically?

[14] Cf. AJHR, p. 95.

[15] If this were to be true, the speculative realist would make a lot of noise about another essentially Hegelian insight.

I will leave all these questions aside for the moment. Now, to return to the above-stated in different terms: *Science proves*, if understood correctly for the speculative realist, *that there is no proof* of any necessity which makes things (and the laws they obey, be it a natural law or other) the way they are – and this is a thesis not about us and our relation to things, but about the things in themselves. *Science proves* in different ways always and ever again the *improvability* of necessity (of the way things are right now). The absolute quality of all things, of all objects, and of nature, etc., is hence that they necessarily can be otherwise. This means also: everything that can be different is contingently how it is. The absolute that science allows one to think, according to the speculative realist, is the *non-necessity of necessity* and with it the *necessity of contingency*.

4. Realists De-Totalizing the Possible

The speculative realist draws one essential consequence from this primary quality of all things, from the insight into this version of the absolute character of everything. Besides Kant, another (metaphysical-correlationalist) enemy enters the scene here: Leibniz.[16] The speculative realist considers the Leibnizian principle of sufficient reason[17] to be the systematic (and importantly: metaphysical) anti-principle to his own position. But this principle nonetheless delineates the very coordinates of the argumentative framework within which the speculative realist can launch the strike against this new opponent. The speculative realist asserts that the very lack of any sufficient reason and principle is precisely taking up the role of the only principle (which cannot be one) of all things. Again simply put: *Taking up Leibniz and inverting him*, the speculative realist claims that *the only sufficient reason for things to be how they are is that there is no sufficient reason for them to be how they are at all*.[18] Again one can see that the central methodological procedure is the procedure of inversion (from problem to solution). At this point Meillassoux introduces the distinction between meta-

[16] On this point Meillassoux basically seems to give a different formulation to the criticism of Leibniz as a proponent of "constructability", which was first systematically elaborated by Alain Badiou. See: Alain Badiou, *Being and Event*, London / New York 2006: Continuum, pp. 315–326.

[17] As is well known, this principle simply states: Nothing is without a cause or reason why it is (how it is).

[18] At least Meillassoux thinks that this leads to "a world *emancipated from the Principle of Sufficient Reason*." Cf. Quentin Meillassoux, *Potentiality and Virtuality*, in: ST, pp. 226. Hereinafter cited as QMPV.

physics and speculation. As he puts it: "For I call 'speculative' any philosophy that claims to accede to an absolute. But I call 'metaphysical' any speculation that claims to accede to the absolute according to a more or less extended modality of the Principle of Sufficient Reason. The Principle of Sufficient Reason consists, in its minimal form, in affirming that existent things have a necessary reason to be as they are rather than otherwise." (QMIRR) Simply put, metaphysicians (irrationally) believe in the principle of sufficient reason and this very belief (which has no proper logical ground) thus becomes a synonym for irrationality or systematic inconsistency. Implied in it is a belief (in the principle) that is fundamentally driven by the power not to know.[19] What the speculative realist contends against such a position is that knowledge should succeed and metaphysics should in some sense be overcome. Since metaphysics – this is one of the consequences of the speculative realist rationalism – in the last instance becomes synonymous with irrationality and inconsistency.[20]

To render this in different terms: The speculative realist contends that Hume's problem is a true problem; hence one has to draw the most radical consequences from it. And hence these consequences have to relate to the very foundation and persistence of laws (within the realm of nature *tout court*). This is why and where Georg Cantor's "Continuum Hypothesis" enters the picture. The argument runs, "taken together, Hume and Cantor" (AJHR, 134), as follows: if the being of every thing is necessarily contingent (this is its absolute quality), then there can be no law which is exempt from this very contingency. Because laws formulate the relation between radically contingent things this means that they could be

[19] And as one might argue: the most fundamental discipline in which there is a belief that hinders logical consistency, but obfuscates that it does so, is religion (or ideology). Correlationalism is not simply metaphysical but also ideological in this precise sense. This is already the argument of the early Marx. For this, see, for example, my review of the work of Simon Critchley at http://marxandphilosophy.org.uk/reviewofbooks/reviews/2012/593.

[20] Yet, thus far there is no account – with the exception of some comments on the ideological atmosphere (which could also be related to what I stated in the footnote above) of correlationalism [For this see also: Alberto Toscano, *Against Speculation, or, a Critique of the Critique of Critique: A Remark on Quentin Meillassoux's After Finitude (After Colletti)*, in: ST, pp. 84–91] – of why there is this sort of metaphysical irrationalism. Is it just a failure in reasoning? Is it rationalist philosophy being attacked by irrational sophists or ideological enemies (who tend to apologetically defend what is)? Or is there some sort of spontaneous metaphysics of everyday life, some sort of ordinary spontaneous irrationalism (letting us believe in an anti-Humeian manner that there is a cause for all things) that needs to be countered – and perhaps can never be abolished in general?

other than they are, thus: the existence of any law itself is contingent. What this then means is that one cannot infer any probable set of cases when things (and the laws describing their relations) will change. The speculative realist thereby envisages a "contingency so radical that it would incorporate all conceivable futures of the present laws, including that consisting in the absence of modification." (QMPV, 226) If Hume's problem of induction thus concerned the actuality and effectivity of any law thinkable (its instalment as much as its maintenance), the consequence that can be drawn from its positivized ontologization is that it is a completely rational and consistent stance to consider the way the world is fully devoid of any reason whatsoever. But, and here comes the catch, why then do the laws under which we live not change permanently?

The answer to this question is another cornerstone in the speculative realist argumentative rationalist fortress. Why? Because, it leads him to deny the rationality (and consistency) of any form of probabilistic or stochastic reasoning.[21] What this is supposed to mean can be rendered intelligible in the following way: The assumption that the insight into the absolutely contingent origin of any law (and any thing) existing in the given world allows inferring any probability of it changing, is simply a wrong assumption, a mistaken inference. Why? Because thinking the absolute (the contingency of everything that there is) does not imply that one can infer from it any state of the world which is more probable than another. It is, as the speculative realist claims, simply not true that from such a contingency one could derive a necessary or probable frequency of change within the laws (and things) of the world. The speculative realist slogan for this is: "One needs to detotalize the possible." (QMPV, 231) This is precisely where Georg Cantor can help.

5. Fighting the Metaphysics (of the Probable)

Cantor demonstrated that there cannot be a set of all sets, an infinity encompassing all sizes of infinity.[22] This can be applied here in the following way: Since

[21] Again put in more direct terms: Probabilism and stochastic calculation is metaphysics (in mathematics).

[22] A far too simple two-step account of Cantor's mathematical revolution can be given in the following way: 1. Consider the everyday intuition that the set of all prime numbers seems to be a part of the set of natural numbers. Yet whilst being a part thereof, one can clearly see that both are infinite. Cantor demonstrated that one can compare the size of these two infinite

everything is contingent, one cannot even start from a given – even infinite– number of stable coordinates or elements from which one then could derive a (series of) case(s) that is (are) more probable than any other. Simply put: It is not that X (a law, a thing) has contingent properties, it is that the very existence of X is contingent. Therefore the very existence of X cannot be presupposed. Put into a broader context: If the existence of X1 is contingent and the existence of X2 is contingent, the very existence of the law determining their relation also has to be considered to be contingent. This radical contingency is what can be deciphered as the absolute character of things. If things can be different, laws depicting their relationships are necessarily contingent, too.

Hence, as soon as one tries to argue for a stability or instability of the given laws, one takes these very laws to be something like a constant (which, as the speculative realist insists, they are not).[23] Probabilism relies on at least one thing: the stability of a given set of elements, even though there might be infinitely many and even though the ways of combining these elements are even greater in terms of infinity (and even while arguing for a necessarily implied possibility of change to take place). In order to be put to work, probabilistic reason needs a fixed set of elements from which it can derive (more or less) probable (possible) actualizations. Probabilism calculates via totalizing the possible (cases that po-

sets by assigning each number of each set a place in an order of elements of the same set. One can thereby prove if for any place of a number of a set there is a corresponding number in the second. In this case, number 1 takes the first place in the order of natural number, 2 the second, and ad infinitum; the order in the set of prime numbers assigns to the first places the numbers 1, 3,5,7, continuing *ad infinitum*. By proving that for each number in the set of natural numbers there is a corresponding number in the set of prime numbers, Cantor proved that the set of primes and natural numbers are of the same size (power), yet they are both infinite. He thus proved that sizes of infinity can be compared. 2. In using the axiom of the power set, Cantor demonstrated that from each given set one can construct a set whose size is greater than the size of the original set (the power set axiom, radically simplified, entails all the ways in which the elements of the given set can be combined, and as there are always more ways of combining elements than there are elements, one can construct a greater set). Thus, starting from the set of natural numbers he was able to demonstrate that there has to be a set of greater infinity (and this continues infinitely) and at the same time he demonstrated the bi-univocal equating of places and numbers does not work for all infinite sets (the set of real numbers is larger than the set of natural numbers; the whole question is then by how much). For a more adequate account of this, cf. Shaughan Lavine, *Understanding the Infinite*, Harvard 1998: Harvard University Press.

[23] The inversion taking place here is that even when one argues for (more or less probable) change (of things or laws), one can rely on a presupposition that is wrong (i.e. metaphysical).

tentially actualize); speculative realism does not calculate but assumes to have demonstrated that (probabilist) calculation starts from irrational, unscientific, i.e. metaphysical assumptions. De-totalizing the possible amounts to claiming that the emergence of something new due to fully contingent reasons (that is: due to no reasons at all) has to be conceived of as an emergence *ex nihilo* which in the act of its emergence creates its own possibility.[24] By showing that any probabilist calculation of change or stability (of the given laws of things) presupposes something that cannot be presupposed (i.e. a pre-existing set of possible cases that then actualize contingently), the speculative realist gets rid of any idea of a totality of the possible by subtracting any prior existence. For the probabilist metaphysician, it is the actualization of a possibility that is contingent. Against this the speculative realist begins by drawing consequences from the following axiom: *contingency precedes existence*.[25] This comes down to claiming that "anything is possible,"[26] even the abolishment of contingency (and the

[24] The reach of this argument has been noted most precisely by Slavoj Žižek. Cf. his *Less Than Nothing. Hegel and the Spectre of Dialectical Materialism*, London / New York 2012: Verso. Hereinafter cited as SZLN.

[25] It is here that Meillassoux introduces the distinction between potentiality and chance or contingency and virtuality. The former marks the actualization within the framework of a given set of cases (throwing a die actualizes one of the possible and pre-existing cases or numbers turning up), the latter mark an actualization which generates its own possibility within the act of actualization. Cf. QMPV, pp. 231-232. I stick here to the classical terminology only for the sake of brevity. What I refer to as contingency is what Meillassoux calls virtuality. One additional remark on this topic: By introducing this distinction, in my view, Meillassoux reacts to a criticism first formulated by Ray Brassier which he framed in the following way: Although Meillassoux seeks to formulate how to think something "anterior" to thought (or the existence of consciousness or human beings) and thereby seeks to think the primary quality of things in themselves (i.e. the absolute), he still relies – with the very term of "anteriority" – on some sort of 'objective' conception of time that was already refuted by Albert Einstein's theory of relativity (and is thus not up to the scientific standard of its own time). (Cf. Ray Brassier, *Nihil Unbound. Enlightenment and Extinction*, Basingstoke 2007: Palgrave Macmillan, pp. 58ff.) I read Meillassoux's emphasis of – in my terms – contingency (preceding existence) as an answer to this criticism. It is not that there is an objective time as a constant which would enable us to conceive of 'something' that would lie 'prior' to or is 'anterior' to our own existence, as this would amount to something existent that precedes our existence; it is rather that this anteriority persists in the very possibility that everything could change at any instant and thereby what is "anterior" is a may-be(ing). Thereby Meillassoux seems to try to eliminate any 'objective' time, i.e. any form of chronology, since even the emergence of time would then be a contingent event.

[26] I here refer to an article by Peter Hallward discussing Meillassoux's *After Finitude*. The criticism he articulates is profound and I think it cannot be refuted all too easily. Cf. Peter Hall-

implementation of an absolute necessity), that is, the coming-into-being of a yet inexistent God,[27] or even the absence of any change till the very end of time.

ward, *Anything is Possible. A Reading of Quentin Meillassoux's* After Finitude, in: ST, pp. 130-141. Hereinafter cited as PWAP.

[27] I consider this one to be one of the weakest points in Meillassoux's argument, although it is presented as being a consistent consequence of his overall proposal. One simple first version of this argument runs as follows: If (1.) we know and can demonstrate that God does not exist (i.e. there is no set of all sets, as Cantor has proven), and if (2.) everything is contingent and therefore possible, and we (3.) have demonstrated that we cannot limit the range of what is possible, we can infer from this (4.) that a God might – although inexistent right now –come into being at one point in the future. The problem with this argument is that Meillassoux also links it to a, in some sense, renewed theodicy (i.e. ethical) discussion. His claim is that his phrasing can present a solution to the following philosophical fiasco: a.) either God does not exist and the contingent quality of all human life of being finite is nothing but a meaningless, contingent fact, that is to say, there is no (meaningful) explanation whatsoever for the human condition. This amounts to claiming that human life is immanently meaningless. Or: b.) There is a God but then he is the greatest sadist of them all, as every day he enjoys the consequences of the very finitude of all human life. As b.) is logically ruled out and option a.) needs to be avoided for ethical reasons, as Meillassoux argues, the only consistent solution to this problem for him is: c.) There might be a contingent emergence of a God at some point in the future which will redeem all human beings from their finitude (although he is not responsible for it). Upon coming into existence he will take back all the injustices that mankind has suffered beforehand. This position implies believing "in God because he does not exist." Although this "has never been systematically defended," now "it [...] has been done." Cf. Quentin Meillassoux, *Excerpts from* L'inexistence divine, in: Graham Harman, *Quentin Meillassoux. Philosophy in the Making*, Edinburgh 2011: Edinburgh University Press, pp. 175-238, esp. pp. 225ff and p. 238. See also: Quentin Meillassoux, *Deuil à venir, dieu à venir*, in: *Critique*, No. 704/705, January / February 2006, pp. 105-115. To formulate my disagreement in very few words: What if one simply does not accept the coordinates of the dilemma Meillassoux outlines? What if the meaninglessness of human life as such is not the problem (as much as its finitude is not a veritable problem)? What if the problem does not lie in the fact that we are finite beings and our existence is thus doomed to be meaningless, but rather that even this finitude can be perceived as non-totalizing, that is to say: 'something' can happen to us that creates desires which drive us to act as if we were non-finite? Might not the best – and perhaps cheesiest – example be love, which begins from utter contingency and generates a form of 'salvation' by creating a whole new world without any need of a coming-God that will save us? I here side again with Adrian Johnston, who pointed out that Meillassoux's position implies a "non-metaphysical theology." (AJHR, p. 94) My scepticism concerning his argument is based upon my even greater scepticism toward a revival of theological arguments in a rationalist, non-metaphysical framework. To quote Johnston again on this point: "Meillassoux can be viewed as an inversion of Žižek, as an anti-Žižek: whereas Žižek tries to smuggle atheism into Christianity via the immanent critique of a Hegelian dialectical interpretation of Christianity for the sake of a progressive radical leftist politics of Communism, Meillassoux, whether knowingly or unknowingly, smuggles idealist religiosity back into materialist atheism via a

6. The Age of Scientists. Totalizing Un-Totalizability

Everything is contingent. This is the speculative realist slogan par excellence. All that is and all that can be is contingent and can thus change at any instant. *Everything is contingent and hence anything is possible*. Since any-thing is subject to the (only) necessity of contingency.[28] This is the primary quality of everything that is, its condition of possibility. Contingency is the condition of possibility and this is a completely non-metaphysical and consistent claim, since this transcendental (contingency) no longer even implies existence at it seems. *Everything is contingent and hence anything is possible since contingency is the logical anterior to any existence whatsoever*.

But this slogan also indicates in my view *the* most problematic aspect of the speculative realist enterprise. If the mathematician Georg Cantor proved that there are infinitely different sizes of infinity and if this very proof becomes a crucial moment in the speculative realist argument, via its insistence that there can never be a set of all possibilities of (possible) change(s that might emerge) – that is to say, contingency like infinities cannot be totalized – the speculative realist at the same time claims that everything that is, *all* that there is, is contingent. *Everything* is contingent.[29] It is precisely the assumption of such an "everything" that can be read as the marker of the problem.[30] To put it as concisely as pos-

non-dialectical 'materialism'."(AJHR, p. 113) More on the non-dialectical element of Meillassoux's thought will follow shortly below.

[28] To state this again explicitly: This is due to the (absolute) equation of being and may-be(ing). Thus, what is the *absolute being* of all things is that they *may-be* different than they are. *Being qua being is what being may-be qua may-being*.

[29] Here one might again be reminded of a move common to Martin Heidegger's thought. Just think of him referring to "being in its totality / beings in a whole (*das Seiende im Ganzen*)". Although this might not indicate that for him there is a totality of beings (all the beings (*Seiendes*) that are), it still refers to a whole of being (*Sein*). This simply implies that there is a whole at all. For comments on rendering this phrase in English, see: *Heidegger, Translation, and the Task of Thinking*, ed. by Frank Schalow, Dordrecht / Heidelberg / London / New York 2011: Springer, p. 33ff. Badiou somewhere remarked once that Heidegger is simply mistaken, taken by the very standards of his own thought, to speak of something like beings in whole/being-in-its-totality. My argument against Meillassoux attempts to repeat this gesture of criticism.

[30] Yet, Meillassoux seems to explicitly advocate a position that Žižek already linked to the Lacanian notion of the "non-all": "Quentin Meillassoux has outlined the contours of a post-metaphysical materialist ontology whose basic premise is the Cantorian multiplicity of infinities which cannot be totalized into an all-encompassing One. Such an ontology of non-All asserts radical contingency: not only are there no laws which hold with necessity, every law

sible, with this (implicit) move the speculative realist is guilty of a one-sided, *non-dialectical generalization of un-totalizability*.

One might also formulate this criticism in different terms: The speculative realist argues firstly that contingency precedes existence, yet he has to claim that, secondly, everything is contingent (hence possible), and thereby he, thirdly, asserts that there is something like an 'everything' and that it can be best comprehended as being contingent. He thus claims two things at the same time that do not consistently come together: *Contingency precedes existence and* contingency is an attribute of everything that already is, i.e. *existence precedes contingency* (contingency being an attribute of any existence whatsoever).[31] Put differently: *if contingency precedes existence*, there is an existence, or more precisely a (necessary) *being* of contingency which thus precedes contingency. Even if this is inverted again and rendered in retroactive terms, one ends up with the following result: Contingency becomes another name for everything (i.e. the necessary being in its totality). Or again differently: *non-totalizability is all there is*. To put my criticism in Hegelian terms: The totalization of untotalizability directly implies an abstract notion of contingency. This is why I think Peter Hallward is right when he critically states that there is a conflation of (the ontological and the ontic) layer in the speculative realist's work. He applies Cantor's idea of different larger infinites to our material universe, its laws, as if this idea were the "royal

is in itself contingent, it can be overturned at any moment." (SZLN, pp. 227–229) I find Žižek's reading compelling and I clearly see that this is a solid reconstruction of what Meillassoux aims at. Yet Žižek himself later counters Meillassoux's very understanding of the "non-all" (by preferring a masculine interpretation of the non-all as relying on a constitutive exception) in a way that I believe to be close to my own. (Cf. SZLN, p. 369)

[31] The speculative realist thereby seems to miss the Hegelian logic of retroactivity. Contingency can only be logically anterior to existence *if* there already is existence. Contingency is the retroactive anteriority to any existence *because* there is existence (thus it is not contingency that generates existence, but existence generates insight into the very anteriority of contingency and hence already determines contingency). In any other sense the thesis that contingency precedes existence embodies nothing but a mistaken logical inference, since claiming that before existence there is only contingency entails stating that there is 'something' before contingency, i.e. the being of contingency (which obviously cannot be explained via contingency, this is why this being is necessary). Even if retroactivity might become included in the speculative realist's framework, the problem is not that easily done away with. The ultimate negative version (there is nothing but negativity preceding existence) is discussed at length in the present volume by Adrian Johnston under the inventive label of the "myth of the non-given." Cf. Adrian Johnston, *Reflections of a Rotten Nature: Hegel, Lacan and Material Negativity* in the present volume.

road to the in itself." (PWAP, 139) Simply put: such an approach lacks the necessary concreteness to actually account for the contingent change it conjures. I am tempted to contend that this problem – let us call this the "problem of abstraction" – is related to one crucial implication which I have already marked in passing several times. The speculative realist – legitimately – insists on contingency and rationality against any version of metaphysical irrationalism and thereby seeks to invent yet another version of the destruction of metaphysics. Yet, when he sees the most crucial outcome of a metaphysical position in the ignorance toward the impact (and content) of scientific statements and thereby toward the fact that science thinks, the speculative realist plays out a renewed, different approach to science, that is to say, to (scientific) knowledge. We are, to actualize a name coined by Alain Badiou, in the *age of the scientists*.[32]

We can think the absolute (contingent) being of all things because we can know that they can be different. Starting from this primacy of knowledge against metaphysics – which relies on an irrational drive to not know (what it knows), the speculative realist manoeuvres himself into a problem: If knowledge becomes the crucial category, this is because the knowledge of contingency is itself a contingent knowledge and it knows this. But this sort of reflexive knowledge of contingency produces the problem that the very reason of its reflexivity obscures that this very reason eschews any concrete conception of change actually (although contingently) occurring. The contingently existent – yet absolute – knowledge of contingency makes it – surprisingly – impossible to have a theory of the revision of knowledge. Adrian Johnston phrased this in a pointed, yet polemical way: "In terms of scientific practice, Meillassoux's speculative materialism, centered on the omnipotent sovereign capriciousness of an absolute time of ultimate contingency, either makes no difference whatsoever (i.e., self-respecting scientists ignore it for a number of very good theoretical and practi-

[32] I obviously refer here to Badiou's famous reference to the "age of poets." See: Alain Badiou, *Manifesto for Philosophy*, Albany 1999: State University of New York Press, pp. 69–78. I was tempted to begin the following passage of the article by also re-actualizing Badiou's opening formulations regarding the age of poets. This would have read like this: "In the period that opens up after Badiou, a period in which philosophy is most often sutured either to the poetic condition or threatened with disappearance completely, science assumed certain functions of philosophy's function. [...] Yet, the science and scientists we are speaking of are neither all the science nor all the scientists, but rather those whose work is immediately recognizable as a work of thought and for whom science is, at the very locus where philosophy falters, a locus of knowledge wherein a proposition about being and about time is enacted."

cal reasons) or licenses past scientific mistakes and/or present bad science being sophistically conjured away by cheap-and-easy appeals to hyper-Chaos. As regards the second prong of this discomforting fork, one should try imagining a particle physicist whose experimental results fail to be replicated by other particle physicists protesting that, in the intervening time between his/her experiments and their subsequent re-enactment by others, an instantaneous contingent shift in the causal mechanisms of nature in itself intervened. Why should this physicist correct him/her-self when he/she conveniently can blame his/her epistemological errors on the speculated ontological reality of hyper-Chaos?" (AJHR, p. 101) In some sense, I contend that to begin with knowledge of untotalizability necessarily implies a totalization of this very untotalizability.[33] Even the knowledge of the absolute (contingent) character of all things may-be just a little bit too objective. *A too objective may-be*.

The consequences of this non-dialectical totalization are not only problematic, they are multifold. I would just like to mention a few things that seem to be unavoidable when one generalizes or hypostatizes (the) untotalizability (of the possible): With it there is *one* order of all things which cannot be changed (unless it changes by the very principle of this very order, which at the same time means that there is no change at all). For, there is *one* necessity that is the necessity of contingency. This implies that there is precisely not what the whole project aimed to develop: possibilities of change.[34] But this means – and I think

[33] The argument I am putting forward here could also be phrased in different terms: As soon as one starts without the distinction of (objective) knowledge and (subjective) truth, one ends up endorsing some sort of objectivism. This to me seems to also be the case with Meillassoux. This is why I take it to be no surprise that he cannot account for any concrete change actually occurring (a revision of knowledge, for example). He ends up losing what he aimed to achieve. I think that against this one-sided approach it needs to be argued that a revision of knowledge can only be a consequence of something other than knowledge: truth. Yet, truth is not an objective nor an abstract category, but a procedural one that implies the concrete re-working of concrete and situational knowledges as one of its consequences. Furthermore, it needs to be stated that a truth not only produces something like a revision of knowledge, but it does so not by solely indicating the untotalizability of a given situation, it rather links untotalizability (opening unforeseeable possibilities within a world) and an act of totalization (which Badiou names "forcing") together. For more on this, see: Frank Ruda, *For Badiou. Idealism Without Idealism* (forthcoming).

[34] Put differently: this is also the reason why there is no real theory of the event in this version of speculative realism. For this, see: Tzuchien Tho, *An Interview with Alain Badiou*, in: Alain Badiou, *The Rational Kernel of Hegelian Dialectic*, Melbourne 2011: re-press, pp. 104 ff.

this is the most fundamental problem – that there is simply no real event (with concrete and not immediately universal consequences that change the world), or at least there is always one and the same form of (the contingent) event. Why? Because the one and only thing which is not contingent is the necessity of contingency that makes everything be contingent. And one necessary effect of this necessity is the totalization of contingency. *For the speculative realist, everything is contingent and thus everything necessary: contingency becomes hyper-determinism.*[35]

An anecdote of one of the greatest thinkers of contingency – which was recently brought up by Alenka Zupančič[36] in a similar context – can here outline a possible answer to the speculative realist's dilemma: G.W.F: Hegel notes after visiting the Alps in Bern – his friends wanted to convince him of their beauty and sublime character – the following into his travel journal: "Neither the eye nor the imagination finds on these formless masses a point on which the former could repose with appreciation or on which the latter could find an activity or a game. The mineralogist alone finds material to risk insufficient speculations about the revolutions of these mountains. Reason finds in the thought of the endurance of these mounts, or in this sort of sublimity that one assigns to them, nothing impressive or anything that would extort astonishment or admiration. The sight of these eternally dead masses did not give me anything but the uniform, and when protracted boring, impression: That's the way it is. [*Es ist so*]."[37] One can and should here learn from Hegel. And that which can be learned is that there is nothing to think in the subject-independent nature – nature is nothing but stupid[38] – except *that there is nothing to think* in it. One can thus learn from

[35] Without any question, the first to have demonstrated this is Lorenzo Chiesa, to whom I am also indebted for much discussion that helped to clarify the arguments formulated above. Cf. his brilliant: Lorenzo Chiesa, *Hyper-Structuralism's Necessity of Contingency*, in: *$, Journal of the Jan Van Eyck Circle For Lacanian Ideology Critique*, Vol. 3 (2010), pp. 159–176.

[36] Cf. Alenka Zupančič: *Realism in Psychoanalysis* (unpublished typescript).

[37] G.W.F. Hegel, *Auszüge aus dem Tagebuch der Reise in die Berner Oberalpen (1796)*, in: Werke, Vol. 2, Frankfurt am Main 1986, Suhrkamp, p. 618.

[38] Hegel's philosophy of nature, as under-appreciated as it might be, is one of the greatest achievements in his philosophical system. The reason for this is that as nature is simply what it is without any reason for it being the way it is, it contains a complete theory of contingency. In one of his most impressive texts Dieter Henrich pointed out that for Hegel nature is simply another name for contingency. (Cf. Dieter Henrich, in: *Hegel im Kontext*, Frankfurt a. M. 2010: Suhrkamp, pp. 157–186.) To refer here to a simple example: There is no reason whatsoever why

Hegel that the necessity of contingency ("That is"; "*Es ist*") is itself contingent ("the way it is"; "*so*"). If one thereby (dialectically) thinks the contingency of the necessity of contingency, one understands that not everything, not all that there is, is contingent but it is rather not-all that is contingent (which to simplify it to the utmost is simply not-all). Hegel is here, as always, right. Also as regards the speculative realist. If one seeks to think the things as they are in themselves, one has to commence with thinking – even if this sounds a bit uncouth: *Es ist so*; that's the way it is.[39]

7. Speculative Realism's Lenin and Stalin: from Speculative Contingency to Realist Financial Speculation

Quentin Meillassoux's book *After Finitude*, in which he presented most of the arguments discussed above, has been said to entail a comparable theoretical job as Lenin's 1908 *Materialism and Empirio-Criticism*. It has been claimed that it is an actualized version of this book for the twenty-first century. This very comparison brought up by Slavoj Žižek[40] implies in my mind a question to be raised here. If the speculative realist takes the position of a certain Lenin, who then is his Marx and who is – maybe even more daring – this Lenin's Stalin, if there is one? The first question might be answered immediately and without any problem: It is Alain Badiou.[41] It is he who first referred to Georg Cantor when attempting to propose a fundamental theory of any thinkable situation, proposed a renewed stance on the relationship between (philosophical) thought and science, and he affirmed unforeseeable events. But let me leave the well-known details of this answer aside here and immediately turn to the second question:

there are, say, 878 sorts of apes and not 888. The only thing to be understood here is that there is nothing to understand.

[39] One might here also use a word by Lacan by modifying it a bit. Lacan once said that not only the beggar who thinks that he is a king is mad, but also the king who seriously thinks that he is a king and thinks that his symbolic mandate is grounded in his natural properties. Does not the position of the speculative realist force us to rephrase this saying? I am a bit tempted to claim that it is today not only the idealist who thinks he is a materialist that is mad, but also the materialist who thinks that he is one.

[40] Cf. Slavoj Žižek, *An Answer to Two Questions*, in: Adrian Johnston, *Badiou, Žižek, and Political Transformation*, Evanston 2009, Northwestern University Press, pp. 174–230.

[41] This is even quite consistent with Badiou's own assessment of the contemporary situation (cf. footnote 1). Also, it is a well-known fact that Badiou was the mentor of the speculative realist in question. From such a perspective this also means: a new Marx is amongst us.

Who is this Lenin's Stalin? But why this analogy-game? Because if something 'of Lenin' can be grasped in a perverted way in Stalin,[42] the same might hold for the speculative realist's enterprise. And astonishingly this question can indeed be answered. For there is someone who in some sense re-wrote Stalin's 1926 *The Economic Situation of the Soviet Union and the Policy of the Party.*[43] It is Elie Ayache, a former options market champion, who proposed the application of certain speculative realist insights to the real-real world, which is to say the financial market system. His book, entitled the *Blank Swan: The End of Probability*,[44] attempts to revamp the view on specifically economical science – as speculative realism seeks to revamp the perspective on science in general – by applying the idea of untotalizable possibilities, i.e. of (ontological) contingency to the very conceptual understanding of the market. In some sense, this book dares to propose an economic policy (i.e. economic theory based on speculative realist claims) for speculative realists. Maybe there are people that wondered what to do financially – say, stock-market wise – when being a speculative realist. And if there are none yet, then some might come into existence in the near or distant future. So: there is indeed an answer to this.

As strange – and highly controversial – as this might seem, what Ayache – as a speculative financial realist – claims is consistently argued if one accepts the framework of the delineated speculative realist.[45] Ayache's argument goes like

[42] I am here thinking of the diagnosis that Stalin(ism) presents a literally perverted form of the universalist kernel of Lenin. If there was anyone who was addressed within the revolutionary framework of Lenin (this is why world revolution was indeed an issue), it is precisely anyone who became a possible victim of state terror under Stalin. This Stalinist perversion still relies on the universal core of the previous Leninist position that made the former possible in the first place.

[43] Cf. J.V. Stalin, *The Economic Situation of the Soviet Union and the Policy of the Party*, in: *Works*, Vol. 8. January-November 1926, Moscow 1954: Foreign Language Publishing House, pp. 123–157.

[44] Elie Ayache, *The Blank Swan: The End of Probability*, Sussex 2010: John Wiley & Sons. Hereinafter cited as EABS. I owe the reference to this quite peculiar project to Nina Power. Ayache worked from 1990-5 as an "options market-maker" at LIFFE (London International Financial Futures and Options Exchange) and before that from 1987–90 at MATIF (Marché à Terme International de France). Cf. EABS, p. XV.
This book is an – acknowledged – reaction to the book by Nassim Nicholas Taleb that deals with highly improbable events, see his: *The Black Swan: The Impact of the Highly Improbable*, Allen Lane 2007: Random House.

[45] Let us put it like this: From time to time it can be quite telling to take a look at the children (i.e. pupils) that certain (founding) fathers (of a philosophical trend or tendency) have produced.

this: Any form of probability theory proposes defined and separately existing states of the world in order to then apply stochastic calculation and reasoning to it. Yet, what can be grasped from the very notion of probability – as it has been modelled philosophically[46] – is that it is itself derived from the real character of equity exchanges.[47] The attempt to calculate how "prizes" go up and down on the market seems to be able to rely on a stable concatenation of causes and effects, but the market as such does not really allow, according to Ayache, for inferring such lawfulness.[48] Simply put: "[b]ecause the market is composed of numbers (prizes), we feel confident applying probability to it" – but we are mistaken and follow an irrational belief in doing so. Why is that? Because one might think a prize occurring on the market is the product of a series of more or less interdependent and more or less stable elements influencing one another. Yet, for Ayache the market is as the world is for the speculative realist, i.e. not made of stable coordinates or states with which one can calculate. This is why, for example, as one might state, a crisis cannot be predicted, it just happens. The slogan for this realist speculative position is: "Each day brings a new prize and a new market" (EAEP) – a somehow completely, even if actually unchanged "new state of the market-world."[49] (EABS, XX)

Thus – let's call him like this – the realist speculator opposes the widespread probabilist economic reason with its (metaphysical and irrational) belief in stable states of the world and possible calculations of the future (tendencies, etc.) and draws the following conclusion: If contingency is absolute and the very existence of the world is a contingent event, the market – as our world – also

[46] At one point Ayache refers to the work of Ian Hacking. The most elaborate account to the best of my knowledge can be found in his *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction and Statistical Inference*, Cambridge 2006: Cambridge University Press.

[47] As Ayache summarizes in a brief article that presents his major claims: "probability is in fact philosophically defined after price." It "is then defined as a sequence of outcomes that are insensitive to gambling systems. 'Banker' and 'gambler', precisely the personae who deal with money and prices, not with probabilities."Cf. Elie Ayache, *The End of Probability*, At: http://www.ito33.com/sites/default/files/articles/1011_ayache.pdf. Hereinafter cited as EAEP.

[48] Here it seems to be overly clear that this project cannot but argue for abolishing the Marxist idea of a critique of political economy.

[49] As will be well known to the reader, it is hard to imagine a wording that goes more against the position of Alain Badiou, as he insisted over and over again that "market" is precisely the name of the complete absence of a world (and its implied symbolic positions). The realist speculator hence takes a position as far from Badiou as Stalin took from Marx.

has to be conceived of as being a contingent event, "an event" (EABS, pp. 61-87) that does not abolish contingency put perpetuates it. The market renews itself every day since its stability or instability is nothing but a result of the absolute character of all things. A throw of the prize will never abolish chance. The realist speculator thus repeats the speculative realist gesture par excellence of turning the very formulation of a problem (how to predict market dynamics, prevent crises, etc.?) into its solution. The market is just another instance where the move of positivizing ontologization can be applied. That is to say, one has to draw all the conclusions from the fact that the market can change every day, hour, minute, or second. Because all it is is a concatenation of contingent prizes that interfere with each other. But what are prizes? Prizes are contingent claims that produce a difference. A claim on something contingently appears and interacts, and is exchanged with other contingent claims. The very medium of this contingent exchange of contingencies is the market. This is why, according to the realist speculator, what holds for the market is: "Don't ask why or how. This is [...] the definition of the market [...]." (EAEP)[50] Do not ask why or how, for the solution to your very question is and will always be contingency. Contingency is to be blamed if you lose; contingency is to be thanked if you win in the contingent games of contingencies.[51] At least one thing seems to be clear: it is contingency that will always and forever be responsible (for everything).

It seems as if the wording of Adrian Johnston concerning the speculative realist applies also to the realist speculator. Johnston claimed that the speculative realist develops a position that somehow resembles "an easily defended (but empty) fortress." (AJHR, p. 111) This harsh criticism is based upon the following observation: "After relying on the realm of the reasonable, it tries to evade further critical evaluation at the level of the reasonable by attempting to escape into the confined enclosure of the strictly rational." (AJHR, p. 111.) In my view, with regard to the realist speculator a slightly different version of the same criticism can and should be applied. Since he also relies on the non-metaphysical and rationalist – i.e. speculative realist – claim regarding the necessity of con-

[50] I leave some – rather deconstructivist– undertones aside here. For, Ayache claims that what holds for the market also holds for the very definition of writing. Cf. EABS, pp. 87–122.

[51] As much as this position presents itself as a new position with regard to market dynamics, this has already been the position of what Hegel called the "rich rabble". For its relation to contingency, see: Frank Ruda, *Hegel's Rabble. An Investigation into Hegel's Philosophy of Right*, London / New York 2011: Continuum, pp. 35–74.

tingency (as the only absolute character of all things and laws) and he also shares the methodology of inverting a problem into its solution (i.e. positivized ontologization). Yet, the outcome of the realist speculation is even more problematic than the outcome of the speculative realist's manoeuvres. Somehow the easily defended fortress is not even empty anymore; it seems to have become inhabited by investment bankers. Rendered differently, the realist speculator's position, i.e. defending that there is no reason whatsoever for why things are the way they are is nothing but apologetic[52] of the state things are in right now. It is apologetic as only contingency is responsible. Thereby the realist speculator abolishes responsibility *tout court* and if ultimately the market can change at any instant for no reason whatsoever his position abolishes history.

If anything meaningful is to be learned from speculative realism's Stalin, it might be that its Lenin already runs the risk of rationally and consistently defending a position that places all its emphasis on a totalization of untotalizable contingency and can by this very move very easily become an apologist (for the present state of things). Over-accentuating contingency as the only relevant ontological category (relating thought and science) can thus easily come dangerously close to becoming a very useful servant to all those (ideological) positions that actually enjoy business as usual. In order to prevent this from happening it does not seem enough to insist on going against what happened with Kant (and attacking the concept of critique). To prevent the renewal of the rationalist "critical criticism" (Marx) that ends up in abstraction, today it seems that the task lies rather in renewing the very notion of critique in its relation to concrete situations and practices (including, *inter alia*, science). Either one abolishes concrete critique *tout court* (i.e. critical criticism) or one begins to be critical of critique itself (i.e. one takes a meta-critical position). The latter work still needs to be undertaken.

[52] One here might be reminded of the following joke: "An indigent client who had been injured in an accident went looking for a lawyer to represent him *pro bono*. One lawyer told him that he would take the case on contingency. When the client asked what 'contingency' was, the lawyer replied, "If I don't win your lawsuit, I don't get anything. If I do win your lawsuit, you don't get anything."

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Does Science Think?

Does science think? First of all, what exactly are we dealing with? To begin with, I would say that the very title of my paper only constitutes one of the terms of the dilemma, whose second term is expressed in the inverse question, namely: Does science not think? Everyone who knows some philosophy of science knows that this is not a dilemma that preoccupies science itself, and even less so mathematised science. Rather, we are dealing with a dilemma which preoccupies philosophy in its relations with science; a dilemma which, as I would like to show, also divides it, as is shown by the different responses to the question of knowing whether science does or does not think. Now, the main thesis that I would like to propose here is that this dilemma has today become the problem of *science itself*. The question of knowing whether science does or does not think has today become a question that involves science itself. What I mean by this is nothing but the following: it is for strictly scientific reasons that science is today faced with the task of affirming itself as a domain of thought.

1.

I will begin by briefly sketching two philosophical positions that in some sense prepare or sound out the terrain or which explicitly formulate the thesis according to which science does not think. We are dealing with, of course, the respective positions of Edmund Husserl and Martin Heidegger. It goes without saying that any claim to an exhaustive analysis of this approach would also need to take into account other epistemological reflections, for instance those developed in the context of the Frankfurt School. This is precisely to the extent that, for Max Horkheimer, Theodor Wiesengrund Adorno or Alfred Schmidt, just as for Edmund Husserl and Martin Heidegger, science is the domain of non-thought.

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In his last great work, *Die Krisis der europaischen Wissenschaften und die transzendentale Phänomenologie*[1], Husserl evokes the radical crisis of modern Europe, a crisis which, according to him, concerns its foundations, such as they were laid in the seventeenth century. The name of Galileo plays a key role here, but in a peculiar manner, because, according to Husserl, it marks the foundation of modern science with ambiguity. In order to express the ambiguity of Galileo's role, Husserl turns to the play of words allowed by the German term *Entdeckung,* discovery. In effect, following Husserl, Galileo is one of the greatest innovators of the modern era, he is an *Entdecker,* that is, if I translate this term literally, the one who discovers, who reveals. Now, according to Husserl, at the same time as he discovers, Galileo also covers, he hides something. In effect, he is, to quote Husserl, both a "discovering and a concealing genius" (*"ein entdeckender und verdeckender Genius"*).[2]

Having formulated "the completely new idea of *mathematical natural science*", that is having posed the basis for a *mathematisation of nature,* Galileo, according to Husserl's reading, introduces a decisive break in the history of science, as signaled by the transformation of nature into a "*mathematical* manifold".[3] In the wake of the mathematical formalisation of nature carried out by Galileo, the sensible world is transformed into an infinite totality of objects that are ideal but nevertheless objectively determinable. Therefore, thanks to the Galilean invention, the entirety of infinite nature has become an applied mathematics, or more precisely, to quote Husserl: "mathematics is the true being in itself" of nature, all nature is submitted to quantification and calculation.[4]

Now, the price to be paid for the mathematical formalisation of nature – and it is here that Husserl evokes the dissimulating aspect of Galileo – is what Husserl calls the *emptying of meaning.* This emptying concerns above all the original meaning of mathematised scientific knowledge. In other words, what is forgotten are the primordial roots of scientific knowledge in practical life. Now, ever since Galileo, mathematical idealisation becomes, so to speak, its own end. Experimental science becomes *techne,* a simple know-how in order to obtain

[1] Cf. Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology* [*Crisis*]. Trans. David Carr. Evanston, IL: Northwestern University Press, 1970.
[2] *Ibid.,* p. 53.
[3] *Crisis*, pp. 22–23.
[4] *Ibid.*, p. 54.

results through the technique of calculation measurement. This is how the envelope of mathematical symbols not only covers the sensible world, but passes itself off as this world itself.

We touch here on the fundamental dimension of the emptying of meaning that accompanies the formation of modern science. What Galileo, according to Husserl, dissimulates is, in the final analysis, nothing other than the *life-world*, the *Lebenswelt,* that is the original soil of the practical and theoretical life of man, the soil that gives meaning to every human activity and on the basis of which we always already know the world and ourselves within it.

Hence, if we follow Husserl, the *"original sin"* of the break that marks the advent of modern science is twofold: First, the mathematisation of nature, to the extent that it is inseparable from measurement and quantification, presents the objectivated world of beings such as it constructs it as the only true world. But second, science covers over, or worse, cancels out, meaning. The presupposition of the Husserlian doctrine of science is thus the equation *between thought and meaning:* there is thought where there is meaning. Following Husserl's path, a conclusion imposes itself, namely: science does not think. Science does not think to the precise extent that it annihilates meaning.

M. Heidegger, as is well known, reprises and radicalises the Husserlian thesis on science. Like Husserl, Heidegger affirms that science is entirely capable of delimiting a domain of beings according to the mode of its being, and in so doing of circumscribing and founding it. For Heidegger, such an anticipatory sketch of the being of beings can be seen, for example, in the nature which according to Galileo is mathematically structured, thereby allowing it to present itself as an object. For Heidegger this means that it presents itself as something measurable and calculable.[5] In brief, according to Heidegger science is entirely capable of founding itself but – and this is the crucial point – it is incapable of mak-

[5] Martin Heidegger, *Phanomenologische Interpretation von Kant's Kritik der reinen Vernunft* [*Interpretation*], in: M. Heidegger, *Gesamtausgabe*, Band 25, Frankfurt /Main: Vittorio Klostermann, 1977, p. 30. Now, Heidegger also insists on the fact that while nature is scientifically objectivated, that is subjected to scientific objectivation, it nonetheless exists "in itself", which is to say independently of science. This means that, for science, this "in itself" of nature is both inevitable and inaccessible. Cf. M. Heidegger, *Gesamtausgabe*, Band 7 (Vorträge und Aufsätze), Frankfurt am Main 2000, p. 55.

ing explicit the meaning of this foundation. To make sense of its operation of foundation, science would need a thinking that gives meaning, i.e. *philosophical thought*. This is precisely what is implied in the thesis advocated by Heidegger, namely that "science does not think". I quote: "Using physical methods, for example, I cannot say what physics is. What physics is, can only be thought following the manner of the philosophical question".[6]

Heidegger simultaneously reprises and radicalises the Husserlian thesis on science as *techne*. Science can very well be technical by its very essence, Heidegger tells us, but the essence of technics is not itself technical. Technics is, in its essence, by definition, a metaphysical project. In effect, it is a singular relation entertained by the knowing and acting subject with beings, a relation founded on the transformation of beings into a mere matter of disposal and manipulation, and on the correlative forgetting of the being of beings. For this very reason, science is not a true thinking, because due to its intrinsic structure it is a techno-instrumental apparatus.

I would like to sum up the essence of the philosophical position according to which science does not think into two propositions: First, the science that does not think is a science which, handling mathematical symbols, transforms all beings into quantified and measurable entities. The second proposition that concerns the nonthinking character of science, if I can put it like this, is clearly expressed by Heidegger: science does not think because its knowledge is, in the final analysis, always in a non-autonomous position, a position, as it were, of "dependence on 'some thing'". In other words, if scientific knowledge, by its very essence, is not truly an autonomous procedure of knowledge, it is because science always needs a thinking that would be capable of giving meaning to its functioning.

2.

I would now like to turn to philosophical positions that advocate the opposite thesis, namely that *science thinks*. However, I would like to emphasise that this second position, looked at more closely, is but another "turn of the screw". In

[6] Martin Heidegger, *Gesamtausgabe*, Band 16 (*Reden und andere Zeugnisse eines Lebensweges*), Frankfurt am Main 2000, p. 705.

effect, the conclusion according to which science thinks results from taking to its ultimate consequences the position according to which science is a techno-instrumental mastery of beings, a mastery founded on the mathematisation of being. The most representative stances within this second position is without doubt that developed by what is customarily called French epistemology, that is by Gaston Bachelard, Georges Canguilhem, Alexandre Koyré Michel Foucault, Michel Serres, Jean T. Desanti, Dominique Lecourt.

In order to make explicit my thesis, according to which French epistemology broke with the Husserlian and Heideggerian conception of science while taking to its ultimate consequences the techno-instrumental conception of science, I would like to refer to some propositions by Bachelard.[7] As is well known, for Bachelard, there only exists the world constructed by science. In this perspective, science represents the moment when the immediate must give way to the constructed (*BE*, 119). It is not the object in its immediate givenness that guarantees the truths of scientific knowledge; it is not positive reality which is constitutive of scientific knowledge, but rather the break with pre-existing, everyday knowledge, with primary evidence. In fact, scientific objectivity is only possible if one has first broken with the immediate object, if one has refused the seduction of the first choice, if one has stopped and contradicted the thoughts born of the first observation. Every properly verified objectivity refutes the first contact with the object (*BE*, 123). Science is not the adequate expression of reality. On the contrary, scientific knowledge constitutes the process of objectivation: determining an objective character is proving that one has correctly applied a method (*BE*, 30). The real that science explores, says Bachelard, is nothing but realisation. It even seems that a real is only instructive and certain if it has been realised and above all if it has been put back in its proper neighbourhood, in its rank of creative progression (*BE*, 77). The reality that is the object of science is nothing other than its own construction.

In the process of "scientific precision", of the infinite verification of the initial hypothesis, one can, as Bachelard puts it, grasp the elements of a Copernican revolution of objectivity. And this can be done to the extent that it is not the object which designates precision, but the method (*BE*, 126). Theoretical knowledge is

[7] I have extracted them from the collection *Bachelard: Epistemologie,* ed. D. Lecourt, Paris: PUF, 1971. Hereafter cited parenthetically by page number as *BE*.

always already a technical knowledge. That is, in modern science, an instrument is truly a reified theorem. The conditions of application of a concept are embodied in the very essence of the theory. That is why Bachelard can argue the phenomenotechnics expands phenomenology: a concept has become scientific to the degree that it has become technical, that it is accompanied by a technique of realisation (*BE*, 135); knowledge becomes objective to the degree that it becomes instrumental (*BE*, 140). According to Bachelard, following contemporary physics we have left nature to enter the factory of phenomena (*BE*, 143). Science has transformed the Cartesian cogito into an instrumental cogito: the eye behind the microscope has accepted instrumentalisation. When all is said and done, it has itself become an instrument behind the instrument; it is the instrument behind the instrument.

These propositions by Bachelard which I've just quoted present, at least from the standpoint of phenomenology or fundamental ontology, a techno-instrumental conception of science at the pure state. Science, for Bachelardian epistemology, is by definition a thought, but a thought that is at the same time a technics. More precisely, for modern epistemology there is no other reality than the one which science has constructed on the basis of its theorems and experimental procedures. Two theorems specify this fundamental position of epistemology.

First, according to Bachelardian epistemology, what characterises a science is that it has a specific object. Now, this object of science is not given, it does not exist somewhere, outside of scientific discourse, in reality, it is not waiting for science to discover and explore it. On the contrary, in order to attain its object, science must construct it. The object or rather the domain of the objects of science is therefore a matter internal to science, it is the product of theoretical norms and experimental standards. The presupposition of the epistemological doctrine according to which science constructs its own object is obviously nothing other than the abandonment of naive realism. In effect, what singularises modern science, according to French epistemology, is that it has abandoned reality as its ultimate and indubitable reference.

Second, the scientific construction of the object is radically separated from every meaning or *every* search for meaning. In this respect, scientific knowledge means the retreat of the world, of this live-world of which Husserl speaks as the source of meaning. More precisely, what characterises modern science is

not simply an active destruction of every meaning that would precede scientific knowledge, but rather a radical indifference to every meaning. This is what is valorised by Pascal's famous dictum on the *eternal and terrifying silence of infinite spaces*. Lacan himself doesn't say anything different when he suggests that science presupposes the signifier that does not signify anything to anyone. If science is indifferent to meaning, if it can do without it, it is because in manipulating mathematical symbols and formulae it makes contact with the real which is at stake. Bachelard's epistemological doctrine therefore starts from the presupposition that science is born with the mathematisation of the universe. Now, unlike phenomenology, this doctrine no longer associates mathematisation with measurement and quantification. Rather, it considers it, to borrow an expression from Jacques-Alain Miller, as an operation with elements that are in themselves devoid of meaning, but which, once they are articulated according to certain rules and ordered in a consistent network, nonetheless produce material effects. In fact, scientific objects don't have any other support or substance than this network of symbols and formulae.

Here I need to stop in the presentation of Bachelardian epistemology. In order to establish the epistemological position according to which science itself constructs its own objective reality, it is necessary to complement it with regard to a crucial point. This position is grounded on a presupposition which can't be explained. In fact, this position does not have any solution to the following problem: namely, how to reconcile the fact that, for modern science, the object of its research cannot be other than a constructed object, with science's conviction that the construction of its object intervenes in the "reality itself" and determines it. More precisely, it intervenes in something which exists "beyond" the scientific contruction of the object and indepedently of this construction, something that represents in some sense a *non-realist matter* on which and on the basis of which the scientific construction proceeds. For this non-realist matter we will use Lacan's concept of the *real*. In brief, ever since the birth of modern science in the guise of Galileo's mathematised nature, science has taken its construction of the object for the *discovery of the real*, or, more precisely, for the *discovery of the laws in the real*. The scientific knowledge only works on the basis of the presupposition that a network of signifiers articulated independently of our knowledge is always already at work in the real. In brief, scientific knowledge is always considered, and it considers itself, as a knowledge in the real. One could illustrate this knowledge in the real, for example, by a stone which,

independently of our knowledge, itself "knows" that, thrown in the air, it must fall. On the contrary, Tom, the cartoon cat, does not fall and can walk in the air. Why? Because he doesn't pay attention to this knowledge in the real, but lives in the imaginary world of his consciousness. This imaginary world allows him to refuse to know anything about the law of gravity. That is why he must first of all open his eyes for the real in order to become aware of the void beneath his legs. But Tom the cat does not only show us that knowledge in the real has nothing in common with the imaginary world of consciousness. He also shows us that ever since the emergence of science, the only operative knowledge is this knowledge in the real which, as in the example of the stone, does not know.

We must nevertheless add that, despite the mathematised and constructed character of nature, no one, and science itself even less so, has ever seriously doubted the existence of this real into which science intervenes and which it determines. But there is nothing obvious about this position. What could confirm the *conviction* of a science which gives up on any reality, on anything that lies outside the horizon of mathematical formalisation, that its construction of reality determines, or even forms and transforms a real which would subtract itself from this construction?

We can't have it both ways: either we pose that the real into which science intervenes exists "in itself", that is before this intervention – but at the cost of exiting the domain of scientific knowledge, since for science *qua science,* such a "nature in itself" precisely does not exist; or we insist on this point – and postulate that science, when it constructs its object, establishes at the same time *a new reference paint outside of the constructed object,* or, more precisely, a *real* that science then discovers as the basis of its knowledge. But then we would need to respond to a twofold question: First, what is the real that science produces in the construction of the object? Second, what legitimates modern science in its conviction that its network of mathematical symbols makes contact with a real that is supposed to exist independently of mathematical construction?

Before I examine more closely the problem of science and its real I would like to sum up my sketch of the position according to which science thinks, the position elaborated by French epistemology. The science which, in its abstraction from all the qualities of sensible objectivity, constructs its object, presents itself, in this approach, as a science which thinks, because *thought is precisely*

not meaning, it is not equivalent to meaning. Scientific thought is embodied in an articulation of mathematical symbols. Given that this articulation is infinite in principle, we could say that the scientific construction of the object presents science to us as a machine of thought, a machine that functions as a ceaseless (re)construction of its objects of knowledge. We could characterise the ceaseless functioning of the scientific machine of thought in the following way: we could say, for example, that modern science carries out its research (in microbiology, quantum physics, genetic engineering, and so on) in an unconditioned manner, which is to say simply guided by a disinterested scientific interest, and not by an moral or social interest, an ordinary objective or purpose. Science is thus a thought that does not know limits, a thought that is, *by definition,* excessive. And this excessiveness of science, its intrinsic transgressive character, is part of the very essence of its process of knowing, of its construction without reason or cause of its object.

This also means that this unconditioned process of science has nothing to do with human welfare, nor with any Good sought by man. Scientific knowledge, by its inherent structure, ignores any human welfare and even human survival as such. If we take modern science seriously, that is, if we accept that it constructs its own object while destroying meaning, we should also to some extent agree with the following proposition, put forward by Jean-Claude Milner: "Something is nonetheless certain: if ethic exists, science has nothing to say about it, and, without doubt, qua science, it can do nothing with it".[8] Milner's view is not, or at least this is how I understand him, that science is unethical. Even if we agree with his statement that science can do nothing with ethic, this doesn't mean that we fail to acknowledge that there is an ethical dimension to scientific thought. This ethic of science, however, can be nothing other than, to borrow the Lacanian terminology, its "not giving up on its desire", or, which amounts to the same, not giving up on its capacity to think. It is in this sense that we could say that there is no ethic of science to the extent that science respects the imperative that belongs to it and which demands that qua science it is "good for nothing" – that is that science is only good *for* thought. Science thus presents itself as a experiment with thinking and as the generic condition of thought: it is *good for thinking.*

[8] Jean-Claude Milner, *L'œuvre claire. Lacan, la science, la philosophie,* Paris, Seuil, 1995, p. 39.

But the question that arises here is even more decisive, since it is a matter of asking ourselves if the image of science as unconditionally following its imperative represents a *philosophical* or a *scientific* image of science. Or, to formulate the question otherwise: what are the reasons inherent to science itself whereby the supposition that science thinks is pertinent and relevant for science such as it effectively functions? In brief, is it necessary, and if so to what extent, for contemporary science to affirm itself as a domain of thought? I will answer this question in two steps.

3.

In a first step, we need to return to real that science deals with. To repeat once again: science, when it thinks, that is when it constructs its object, always at the same time produces a surplus, precisely a surplus-product. To its constructed object it adds the *real*, that is a point which is "external" to scientific construction, a point in which science intervenes and which furnishes it, if I may say so, with the material for its construction. In itself, this real is nothing but an indeterminable and undetermined *X*. However, this real, while being indeterminable and undetermined, nevertheless accompanies the scientific construction of the object. In effect, without this *X* the constriction of the object would be a vain imaginary game. But let us recall that this real is not something that will be given as such, "in itself". Rather, we are dealing with a paradoxical entity. It is true that the real presents itself as an irreducible given, as a presupposition of scientific activity. But it is scientific knowledge itself which creates this real as a given, as an always already present presupposition of its construction of the object. In other words, and here lies the paradox, the real is the necessary presupposition of operational science, and at the same time its surplus product; that is, the real is only the presupposition of science to the extent that it is its surplus product. The external real of science thus belongs to it in an absolutely intrinsic way.

The crucial point is therefore the following: one could say that science thinks when, in constructing its object, it adds to it some real, but it adds it precisely as irreducible to this construction. In other words, pure thought, that is the thought that is only destined for thought, is not any thought, but a thought articulated with the real. It is only in this sense that one can say: if science thinks, then the real, that is an *X*, exists. This also means: if science wants to be equal

to its concepts and its task, or better, if it wants to affirm itself as a thought, it is necessary for it to also think its articulation with the real, or more precisely its production of instance of exteriority which nevertheless belongs to its interiority. The real, in a word, is the verification of the fact that science thinks.

But why would science want to be equal to its concept and its task? In fact, we have yet to answer the question we posed, namely: is it necessary (and if so why) tor contemporary science to affirm itself as thought, or, which amounts to the same, to fix a real and attach it to itself? In order to respond to this question we need to take a further step.

To take this step, we need to return to the question that I posed at the beginning of this talk, namely: why does modern science, ever since its Galilean birth, persist in its conviction that it has to do with a real external to it? In order to answer this question, it is useful to recall that modern science, though Galilean, is also a Cartesian invention. In fact, at the time of a radical crisis of knowledge that had been triggered in the sixteenth century by the undermining of the biblical signifier, Descartes did not just put forward the cogito – issued from methodical doubt as a point of pure thought, that is of a thinking without qualities whose correlate can only be a being equally stripped of all qualities, that is a subject. This thinking without qualities constitutes the point on the basis of which proceeds the construction of a new stable reality, impervious to the crisis of knowledge. This is one side of the Cartesian invention. The other, which is no less important, is the role played by God in the birth of modern science. We know that Descartes introduced it as the instance that does not deceive and which thereby guarantees that the construction of a new universe is not a mere phantasmagoria. The Cartesian God is the object of a demonstration in which the point of pure thought, the cogito, is articulated to the real.

In brief, it is God which, for science, guarantees that its symbolic construction makes contact with the real. God guarantees that the laws which science discovers are in effect the laws of the real itself and not simply ingenious inventions and semblances of scientific knowledge. This means that the crisis of knowledge which gave rise to the birth of Galilean and Cartesian science was not the crisis of the real.

Now, from the moment, when it came to be known that God is dead, that is, when God died for science itself, the latter must confront a different host of problems. The disappearance of the instance of guarantee has shaken up belief in the real as the support of science. In effect, science is no longer capable of making the distinction between the real and the imaginary. The consequences of this loss of guarantee are only clearly manifest today, when science no longer seems capable of determining whether its knowledge is safe from the intrusion of semblances and hallucinations. This is the principal difference between the position and role of contemporary science and the position and role of science in the seventeenth century. Today, the world as such presents itself as a materialisation of the hallucinations of science itself, or even, to use a somewhat threadbare formula, as a virtual reality.

It's true that science has always been considered as unlimited and excessive. However, today its excessive character has a new signification. In the past, science was considered as excessive because of its will to knowledge, which did not recognise any higher authority. Today, the situation has completely changed: contemporary science remains riveted to the imperative of knowledge, but it no longer possesses a guarantee that would allow it to know whether its knowledge can produce effects in the real. But if the death of God has stripped science of this indispensable guarantee, it has also made it possible to show that science is a machine of knowledge that itself constructs and produces the real which is at stake in scientific knowledge. Now, one of the unexpected consequences of this disappearance of guarantee is that the real itself has become suspect. More precisely, what has been put into question by the death of God is the capacity of science to determine, separate and discriminate the real from a mere phantasmagoria. That is why the crisis that science faces today is not a crisis of knowledge but a crisis of the real itself.

Having supplemented its construction of the object with the real, science has not yet wanted to know anything of this crisis of the real. With the emergence of biomedicine, life, as the object of its manipulations, and thus the real, which was silent up to this point in science, has suddenly been given the sale right to speak. *Bios,* life, the proper object of bio-medicine and of biotechnological knowledge is not simply, and this point is essential, a constructed scientific object. The life which is hidden in *bios,* that is the real itself, a real that science produces as the surplus produced in its construction of its object. But this is exactly why life

works over science and causes it problems. Ethics or more exactly, bioethics is probably the most forceful manifestation of the problems and difficulties that the real of life poses today to science. By this term, bioethics, I designate the knowledge, the practices and the institutions that present themselves today as a sort of defense of life *against* science and that looks for the response to the question of knowing whether the fact that life has become a scientific problem is good for life and most especially, for human life.

I consider this bioethics, on one hand, as an expression of anxiety unleashed by the fact that science itself has produced its real, even as this production would no longer be guaranteed by divine will. This is less about anxiety, which is to be felt outside of science, in everyday life, it is more about uncertainty to which science is pushed because of its production of the real. If, in a general sense, the real had been situated like a tacit presupposition as a solid support of scientific knowledge, then from this same fact, scientific knowledge has always maintained its manifestly "realist" sense. Yet, since the withdrawal of God, the real has manifested itself, to express myself in terms of the third critique of Kant, like a non-realist real, or a ground without ground. This is an aspect of bioethics. At the same time, and on the other hand, bioethics today veils and masks the problematic relation between science and life. It masks the fact that, in the phenomenon of life, science for the first time directly encounters what might be called the real, the real which, since its modern emergence, necessarily accompanies the construction of science's domain of knowledge. In this regard, we might say that bioethics functions in the framework of science as a principle obstacle to all attempts to clarify the fundamental structure of scientific knowledge and of its problems.

These two aspects of bioethics permit us to focus on an essential point: to know whether science today or the center of scientific preoccupations today, is not simply the object of its knowledge, that is to say its constructed object. The center of its preoccupations becomes the real itself. If science wants to affirm itself today as a thought, that is to say, if it refuses to be reduced to a materialized phantasmagoria in its increasingly sophisticated instruments, if it still would strive for objective knowledge, universally valid, it should resolve, for the reasons strictly inherent to science, the problem of the real that it adds to its construction of the object. Science has to answer the question, how it can affirm this paradoxical real, which doesn't exist prior to scientific knowledge, but

is, on the contrary, its surplus product and at the same time its always already given presupposition.

I will stop myself at this task. I am not in the place, of course, to provide a response to the question of knowing if and in what manner science today is capable of overcoming this challenge. However, I would, in the guise of a conclusion, at least sketch the problem for which the articulation of a real as independent of thought confronts scientific thought. For attempting to approach this problem, I will touch on the division of the body of scientific disciplines in two, the division introduced by Alain Badiou in his "Afterword: Some Replies to a Demanding Friend" published in the collection *Think Again: Alain Badiou and the Future of Philosophy*[9]. In this text, Badiou isolates a compact core of some scientific disciplines to which it is legitimate, according to him, to understand their scientific statuses according to the way in which they combine mathematic formalism with experimental procedures under theoretical control. And he places all the rest on the other side, that is to say, the disciplines that do not use mathematics in their manner of proceeding and that render their scientific status suspect in the eyes of Badiou. These disciplines represent either a simple technical knowledge that, even in producing material effects, remains on the side of ideology, like biology for example; or they are disciples that are simply reducible to ideology, and Badiou files under this, with a few rare exceptions, the whole of social and human sciences.

At first glance, the classification of Badiou might shock those who work in these disciplines to find themselves excluded from "true" science. As far as I'm concerned, I would underline that this classification brings us an adequate description of the actual situation of science in the framework of globalised capital, capitalism having become the world. If experimental and technical science constitutes one of the principle resources of capitalism, it is due to their capacity of their rendering themselves useful to capitalism. In effect, science is not useful to capitalism other than submitting itself under the imperative of profitability. As for what concerns social and human sciences, the sciences that Lacan had treated as conjecturals, they are of service to capital, because they are, in their nature, from the beginning submitted to the imperative of ideological utility. It

[9] *Think Again: Alain Badiou and the Future of Philosophy,* P. Hallward (ed.), London, New York: Continuum, 2004, p. 232.

is sufficient to recall here the depreciative judgment that Lacan advanced towards them: "My lifelong repugnance or the appellation 'human sciences' is well known; it strikes me as the very call of servitude."[10]

For me, the demarcation introduced by Badiou between, to put it simply, the "pure" sciences, that is to say, the mathematicized and experimental sciences, and the ensemble of conjectural and servile scientific disciplines, is not productive unless one takes it as a line of an intrascientific demarcation. That is as a demarcation that inscribes itself in the very core of science itself. With respect to the theme of my proposal, whether science is thought, this distinction signals that science is not ready to assume by itself what is to be imposed as its intrinsic structure. That is to say, a thought articulated to a real subsisting outside of itself. There is, briefly put, two principle reasons that impedes science from assuming its immanent condition.

The first is quite banal. Science does not assume the task of thinking, but prefers rather to submit to the demand of profitability and utilitarian ideology. The second reason is less trivial because it demonstrates the mathematisized nature of scientific knowledge. Mathematisized scientific knowledge is a knowledge that does not know itself but which, once put to work, functions, as it were, automatically. In short, mathematical though is a machine for automatic thought, a machine that, in principle, never stops. But it never stops not because there is nothing there to stop it. It does not stop because it functions like a drive, that is to say, following a constraint proper to its headless functioning. This functioning is not ruled by anything but the real that it produces, more exactly, that it produces as an impasse of formalization. Mathematics is, as Badiou writes in *Conditions,* "too violently true to be free ". At the same time, it is too violently free (that is to say discontinuous) to be absolutely true.[11] One might thus say that mathematics, as thought, is the passion of the real to a state of purity, that is to say, it presents itself *as a constraint*. This character of constraint for the articulation of thought and the real is, at least in my eyes, the principal reason why science, with the exception of mathematics, does not assume the task of pure thought.

[10] Jacques Lacan, "Science and Truth", in: Jacques Lacan, *Écrits*, trans. By Bruce Fink, in coll. with Héloïse Fink and Russel Grieg, New York – London: W.W. Norton & Company, 2005, p. 730.
[11] Alain Badiou, "Philosophy and Mathematics", in: *Conditions*, trans. Steven Corcoran, London – New York: Continuum, 2008, p. 105.

This is why the focus on science as the domain of thought does not proceed by itself, and demands yet another effort, a supplementary effort. A supplementary thought is necessary, the one, which requires that science, for reasons absolutely intrinsic to it (science), puts itself in the service, not of capital, but of the real. It requires a thought that actually aims at what science, according to its essence, wants: and that is a thought itself. Specific characteristic of contemporary science, however, is that today this supplementary thought belongs to science itself. This is how the distinction which, according to Badiou, divides the body of contemporary science into two, might be useful to us; on the condition of not reducing it to a distinction between a "true" science and a "false" science, that is, a "pseudoscience" of conjectural and ideological scientific disciplines. My suggestion is that we understand this distinction in the following way: ideological-conjunctural sciences with its exteriority to science represent the exteriority of that supplementary scientific thought which, even if being exterior to science, is no less scientific. But they represent this intrinsic exteriority of scientific thought in such a way that at the same time they conceal it. With its extra-scientific, ideological contents they reveal and at the same time conceal the fact that to science belongs, as its intrinsic part, also something which is exterior to it, something that subsists outside of science. Ideological sciences conceal the fact that – due to the structure of scientific thought itself – a supplementary effort of thinking, the one exterior to scientific thought, is necessary, in order that science affirms itself as a thought. It is only today that we can give an account that this supplementary effort, extra-scientific, has its place, the place proper to it, in the interior of science. It consists in the decision that only a thought capable of justifying and affirming its dependence to the real, a real which exists independently of thought, is worthy of the name: scientific thought.

To conclude, I would say that science, in affirming that it thinks, already passes over its borders. It makes a step in the domain, for taking up the terms of Badiou, of another procedure of truth, that of politics. To affirm that science thinks does not signify the introduction of political struggle to science. It would be necessary rather to say that it is insofar as science, for reasons inherent to it, affirms itself as thought, that it might eventually contribute to the existence of politics – a politics which, precisely, has nothing to do with technology, as subtle and as brutal as it might be in the regulation of things and people,

a technology imposed by the logic of capital. Affirming the view that science thinks is a *scientific struggle* for the existence of politics of emancipation.

Translated by Alberto Toscano, Tzuchien Tho

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Ed Pluth*

On Transcendental Materialism and the Natural Real

Let's assume it is correct to assert that there is something unthinkable and unspeakable about the real qua nature; that there is something radically alien about it when it is put into relation to human experience and understanding, such that attempts to translate insights from a science like quantum physics into ordinary language may not just be misleading, but even essentially falsifying.

One drawback of this view is that it suggests that there is a sharp, potentially absolute, divide between nature as it is in itself and human experience. Such that even if one wishes to defend a realist position for the natural sciences, the rest of our thinking may still consist of nothing other than a "spinning around in a void" whenever it is not mathematical or performed in some other formal language. As Husserl pointed out, in relation to the sciences human consciousness becomes the merely subjective-relative, so heterogeneous is it with respect to the way the natural real is. And with the young Nietzsche, in such texts as "On Truth and Lies in an Extra-Moral Sense," one could then argue from this model that consciousness itself is necessarily a poetization, or metaphorization, of what he portrayed at the time as a natural X. Nietzsche would go on to develop the insight that there is something tragic about human consciousness when it is modeled this way, since it is responsible for our separation from what really is. But, rather than embracing the sciences, of course Nietzsche critiqued both scientists and scholars for their literalism (we might say, for their naïve realism), calling instead for the development of a culture that would embrace the creative, artistic, if indeed bubble-like dimension of human consciousness itself. Nietzsche takes a considerable step, then, toward detaching thinking from anything like truth, which also amounts, despite his intentions, to a significant step toward the total devaluation of thinking itself – at least as it occurs in natural human languages and everyday human experience.

There are aspects of this model – a model that contains within it what Quentin Meillassoux calls "correlationism," but other views as well – that are also obvi-

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ously Kantian. Although the realism this model allows makes it possible to dispense with the notion of an inaccessible, fundamentally unknowable noumenal realm, it still seems to suggest that everyday human experience – what phenomenology includes under the heading of "the lifeworld" – is in some sense merely apparent, no matter the types of objectivity that may be available within it it; and it also implies that the realm of experience is somehow less real because in numerous ways it is dependent on something else. Experience and thinking are *made up* of something else, and, of course, they really *are* something else – in other words, this model suggests that experience and thinking are false precisely insofar as neither exposes us to their true, constituent processes, or their true constituents. Kant no doubt did not intend to render human experience "unreal" at all – yet such a conclusion is virtually inevitable given his positing of an inaccessible noumenal realm. And the complete de-realization of experience is something the later Nietzsche wanted to avoid too: consider his claims in *Twilight of the Idols* to the effect that the elimination of a certain thesis on being also meant that appearing itself comes into question. "The true world, we have abolished. What world has remained? The apparent one perhaps? But no! With the true world we have also abolished the apparent one" (*Twilight*, p. 51). Yet both philosophies (Kant's no doubt unintentionally, Nietzsche's on purpose at least for a while) do imply the de-realization of human experience, and the withdrawal of any meaningful sense of truth from it – with severe consequences for the status of thinking in ordinary human languages.

My aim in this paper is to explore ways in which this de-realization of experience and thinking can be avoided, and to consider how in particular Žižek's recent attempts to develop a dialectical materialism go in this direction. While I will be arguing that the basic model I've outlined concerning the relationship between consciousness and the natural real does need to be retained, one can correct several things about it. The view that nature is an unknowable X can be rejected of course; but more importantly the conclusion that the model necessarily entails a de-realization of, and devaluation of, thinking can be contested too. I think that a dialectical materialism accomplishes this. What is not clear, however, is what status the natural sciences will have within a dialectical, materialist philosophy.

To elaborate on this model a bit, as well as its problems, I'll stake out here what I think is a non-controversial, and non-exhaustive, description of what the sci-

ences do. The sciences formalize and quantify the workings of nature; they discern patterns and laws in the behavior of their objects of study. They designate objects (and I am using this word loosely enough so that I would include within it non-objectal things such as waves and forces), the properties of those objects, and relationships among those objects. Whether one takes a realist or antirealist view on the sciences, I think it can be maintained in either case that the quantification of nature gives us a particular sort of know-how with the real that other disciplines and traditions and ways of thinking do not give us: and, if one is indeed a realist of some sort, the sciences can even be thought to give us a theoretical knowledge of the real.

It is even acceptable to call what we get from such sciences an *understanding* of nature as long as some kind of distinction is made among types of understanding. What I have in mind is a distinction that is something like the one found in Hegel between theoretical knowledge and philosophical (or speculative) knowledge. Only, I would like to frame the difference in terms of truths that are available to us in and with mathematics compared to those that are available in natural human languages. (And this is one of the basic points I want to defend: that truths are indeed available to us in natural human languages.) Consistent with what the model has to say about the gap between the natural real and human experience, if the sciences can be said to give us an understanding of the natural real, this should be considered an understanding that does not entail anything like "making sense" of what is going on in nature. Or, it is a non-discursive understanding. To think that we understand nature in the same sense in which we understand things in ordinary human languages is to be too anthropomorphic about what is going on in the sciences: the formulas we use in the sciences can work, and we can work on nature with them, whether or not we are in another sense able to "make sense" of what is going on in them and what they are doing; whether or not we are in any way able to "understand" what it means, for example, for the Higgs boson particle to be responsible for mass, etc., or for energy to equal mass times the speed of light squared.

What comes to mind here is what Merleau-Ponty said about the sciences once – that their description of the world is basically poetic. This is similar to what I described above as the early Nietzsche's view. It may be taken to mean that what the sciences do is fictitious, and thus, that we ought to be anti-realist when it comes to the sciences (the sciences are culturally constructed, etc.). The early

Nietzsche certainly went in this direction. But the claim does not necessarily imply that. It can be admitted that when one goes about discoursing about the symbolization and quantification of nature in physics, one is necessarily in a domain (the domain of meaning, of sense, in natural human languages) that is quite different from the domain in which the sciences really operate and have their validity (call it the domain of quanta, laws, nature, etc.). No matter how accurate one's *linguistic* descriptions of the workings of nature may be (if it is even *possible* for them to be accurate, which I am not inclined to think), there is still a separation between these linguistic descriptions and what is going on in the real, which is accounted for more adequately in abstract, formal languages. Again, we are here at the wide and problematic gap between thinking and the natural real posited by the model I am describing.

What I am calling a *philosophical* understanding is, by contrast, something characterized by a dialectical relationship to its objects. When it comes to understanding another person, any bit of language, etc., I am able to contribute and reciprocate by giving forth something similar, in a register that is essentially identical to what my speech and thought are about. Of course, as a Lacanian I do think misunderstanding is inherent to any understanding of this sort, and it remains a structural part of communication: but what I want to emphasize here is that there is at least a back-and-forth, a dialectic, in such forms of understanding, and that this essential failure of communication is an *enabling* failure. That is, it allows communication to continue, and to be potentially infinite. Our interpretations are fallible, and open; but the objects being interpreted are as well. Not only am I able to correct interpretations and views and opinions about which I was mistaken (which, of course, we do in the sciences as well): but more importantly, in this realm I at the same time *contribute* to that which I both understood and misunderstood, by continuing to verbalize about it – verbalizations which, again, participate in the same register as the object to which they are directed (linguistic utterances, e.g.). At this level, it makes sense to think there is a real interaction and influence between the objects at stake and our linguistic utterances about them. In other words, there is no meta-language here. It can be said, with Hegel, that these sorts of objects do change with our knowledge of them. Or, that here thinking and being are identical.

There is another important feature of this kind of truth. One of Hegel's key claims in the *Phenomenology of Spirit* is that philosophical truth is not propositio-

nal. Philosophical truth is not propositional because the objects of philosophical truths are not concrete, immediate particulars. They are not empirical, or not *simply* and *exclusively* so. Hegel made the object of philosophy the concept (if not the Absolute itself) and avoided the object problem by infusing the concept with development and self-alienation – in other words, by temporalizing concepts. This makes the proper object of philosophy not an object per se (not *a* being) but a development, and, indeed, a logic: what philosophy ends up discerning is a basic logical structure for the becoming of beings. Moreover, philosophical truths are not of the same sort as the empirical truths we get from standard propositions of the form "S is P". Philosophical truths require time, a back and forth, a reading, a deliberating, that requires a form for which simple propositions are not adequate: rather, larger discursive forms as paragraphs, dialogues, books, treatises, etc. are. In other words, philosophical truths are the stuff of larger discursive efforts, while empirical and scientific truths do not at all require similar efforts in order to be true: they can adequately be contained in formulae. Empirical propositions generally take on an "S is P" form, and scientific truths take on a generally non-linguistic form. In both cases, this is not the stuff of philosophical truths.

Considering these points brings me to why Lacan can rightly qualify as our Hegel, following a famous suggestion by Alain Badiou (*Theory of the Subject*, p. 132). What we get in Lacan is the same kind of innovation that Althusser observed in Marx's creation of a new "science": the creation of a new object. Indeed, Lacan himself thought that his greatest contribution to psychoanalytic theory would be his notion of "object a". This is, indeed, a new object. But it is also in important respects not an object at all. Lacanian theory – with respect to object a, and beyond – generally entails the formalization of a new kind of thing, and the creation of a discipline that is not about formulating propositions about merely empirical objects. What we get instead is the formalization of what can be called new practical "objects". For example, the unconscious itself can be considered a practice that involves relationships among people, time, language, sexuality… It is in this respect that Lacan is our Hegel: he orients thought toward non-empirical objects, and in such a manner that the relationship between thinking and its new object is dialectical. Psychoanalytic theory and practice are thus in a relationship of mutual influence and interaction, whereas this is not the case with the natural sciences. (Consider Freud's observations about how the unconscious seems to have changed once psychoanalytic practice was introduced…)

So, dialectical relationships are prevalent in the domain of what I am calling philosophical truths, but not in the domain of empirical truths. For, in what sense is there a similar dialectic between thinking and being when the natural real is involved? The model I outlined above suggests that there cannot be. And even quantum physics does not go so far as to say there is a *dialectical* relationship between the theory of quantum physics and its objects. What I mean is that no matter how fragmentary, indeterminate, chaotic, or void-like quantum physics tells us the natural real is, the scientific point of view still requires that we think of the real as *always having been in fact that way*. (While someone like Lacan, and others, can in fact question whether the Ancients had an unconscious, etc.) Call this the necessary realism any natural science asserts for itself.

Such sciences virtually require that thinking be put into either an asymptotic or a reflective relationship to the beings they are about, but never do they suggest a dialectical relationship. A reflective relationship would be one where thinking mirrors the natural real somehow. I think Žižek is in some sense advocating this view, as we will see below. Most realisms would also probably endorse such a view. I am rejecting it if "thinking" is understood in the sense of what occurs in natural human languages, but I am not rejecting it for the thinking that occurs in and with mathematics. The asymptotic view of the relation of thinking to the natural real, again a property of most realisms, holds that thinking gets at more and more accurately what is going on in the real. Yet the requirement that the natural real always was what it was is still there, no matter how one views it. (Again, I am not saying that for quantum physics nothing changes, or nothing happens: but I am saying that as a science quantum physics must be saying that its laws or rules have always been operative, whether we have known them or not. In other words, it is not that quantum physics suddenly became true in the 20th century, or that Higgs boson particles started to create mass just recently.) This is why I wish to claim that the sciences virtually *require* that thinking be put into an asymptotic, and not dialectical, relationship to the real. And it is important to keep this in mind any time the kind of understanding we allegedly get from the sciences is brought up. The kind of understanding we get is what I'm calling a theoretical understanding, which needs to be taken as one that is deprived of *sense* and that dialectical relationship that characterizes other domains of human life: the sciences may be in a reflective, realist relation to the real, as well as an asymptotic relation, but in any case they are not in a dialectical one.

So, there is nothing dialectical about our knowledge of the natural real: its objects do not change with our knowledge of them (which is not at all the point of the Heisenberg uncertainty principle; we know which objects are in question in any case, we just don't know which object or event will obtain ontologically, a wave or a particle…). Perhaps it is for this reason that Alain Badiou claims there are no natural *events*. It can, however, be argued that nature itself does change in a more trivial sense, insofar as we do introduce new constituents into it, making it become somewhat different, and making our relationship to it different as well. And in cases such as these, our relationship to nature is indeed dialectical. But this relationship does not involve only a theoretical understanding; it involves a practice. Consider the points Lukács makes about Hegel and nature and labor in his *Young Hegel*. The objective dimension of our dialectical relationship to nature begins when we try to act on an idea whose implementation nature resists and makes difficult. Because of this resistance, this otherness, we are impelled to learn more about the alien realm of nature and how it works, with much difficulty; and as we come to know the laws of this nature better (laws that we would never have been able to anticipate or intuit), we use them to better bring about our own purposes in nature, and even to start developing purposes we did not have before. Lukács quotes Hegel's 1805-6 lectures on this: "In general nature's own activity, the elasticity of a watch-spring, water, wind, etc. are employed to do things that they would not have done if left to themselves, so that their blind action is made purposive, the opposite of itself: the rational behavior of nature, *laws*, in its external existence. Nothing happens to *nature* itself" (Hegel quoted in Lukács, p. 424). None of this requires that we understand, in the philosophical sense, anything about the natural world. We discern its laws, which are meaningless in themselves. But, following them, we are able to construct objects on the basis of those laws – objects whose existence we never would have been able to anticipate, and objects of great practical value for us – and, again on the basis of the laws discovered, we can manipulate natural beings in such a way that things and activities it had always been *possible* for nature to come up with (watches, nuclear fission, waves used for communication, unheard of plant and animal species, etc.) appear *in accordance* with our ideas and projects. This is of course the Hegelian-Marxist theme of the humanization of nature. And it is here where there is certainly a dialectical relationship to nature.

Yet this separation of the natural real from dialectics, which seems necessary, allows us to continue to be haunted by the notion that the realm of human expe-

rience and most of what occurs in thought and consciousness is still somehow not the really real, no matter how important and fundamental it is to us. Such a position is an offshoot of a splitting of Hegel that is still common, whereby nature is removed from his philosophy, such that his major philosophical insights (such as dialectics) only have purchase on the realm of the practical-human, or however one prefers to reconfigure the notion of *Geist*. One danger of such a splitting of Hegel is that versions of eliminativism and extreme reductionism continue to be viable after it – *Geist*, as important as it is for us, can always be argued by the sciences to be really something else (reducible to its constituent, non-Geist parts). So, whatever truth-value Hegelian philosophy might have, it could be argued to apply only to a realm that is merely phenomenal and apparent, because it depends for its being on something else entirely – the natural real. This kind of claim in fact calls into question the entire truth-value of Hegelian philosophy.

This is why the distinction between theoretical understanding and philosophical understanding is important to revive, even though it comes with risks – most notably, spiritualist/irrationalist risks, which try to minimize the importance of scientific truths, and try to preserve a domain for theological, moral, and spiritual hopes. It may be true that no science can either verify or nullify what I am calling a properly philosophical truth – because a philosophical truth never boils down to a simple empirical proposition. Moreover, the objects of philosophical truths are just not empirical objects, but "things" characterized by relationships, time, processes, negativity, etc. What information from the brain sciences, for example, could possibly *nullify* a claim about the unconscious, especially considering that claims about the latter are based on observations and reflections on human practice, and are made from *within* human practice, if you will? There need not be any particular thing or collection of empirical brain-things to which the thesis of the unconscious corresponds: the unconscious emerges in a practice and perhaps essentially *is* a practice (and I do not mean that it is so only in the practice of psychoanalysis). At most, the unconscious ought not to *contradict* what the brain sciences establish. But how could it at all do so?

This is certainly something that makes us very uncomfortable with philosophical claims. I suspect that hardly any philosopher would tolerate the accusation that he or she holds a position that is not falsifiable. And yet, are we not being far too naïve and ideological about the sciences when we think this? Again, by

not distinguishing between empirical propositions and philosophical theses, and by giving scientific propositions too wide a scope, such that they alone have exclusive rights to the really real, it seems to me that we unjustifiably hand over to the sciences an absolute license to truth, simply because the sciences are best at designating the constituent parts and rules for beings. An important part of what I was saying above is that there is a field, an "object" or area, to which philosophical theses pertain and from which they gain their validity: it is just not a field of objects as we normally think of them, à la empiricism and the sciences. In this manner, philosophy does not have to be condemned to spin around in a subjectivistic, relativistic void either – there is a real proper to it. It is just not a real that is identical to the natural real. (And there is no reason to think that it is a spiritualist, supersensible real either.) As we will see in a moment, Žižek's recent work highlights this point very well.

But it is this realm's lack of identity with, and its distinction from, the natural real that remains a problem, as I mention above: because, if one is a realist as far as the sciences go, any philosophical truth seems to pertain only to a realm that is ontologically dependent on the natural real. And thus we end up with "irrealist" views of human experience and thinking. I am trying to deny this, but it is difficult to defend such a denial.

The reason I wish to emphasize this point is because it is useful to keep in mind when considering recent discussions of quantum physics in philosophies that wish to claim the label of dialectical materialism. My thesis is that there must be a way to develop a dialectical materialism that does not reduce thinking, or sense, to a mirroring, reflective relation with respect to the real, and that also does not render thinking into something that is entirely other than the natural real, condemned to spin around in its own stuff, detached from and unable to reach what really is. To develop such a philosophical position, I am arguing that it is helpful to revive and strengthen the distinction between theoretical knowledge and philosophical knowledge: the former can occur in a variety of ways – through mathematics and related disciplines – while the latter is available through ordinary, natural human languages, and it pertains to what is available to us in human practice, even if it is not available to us in a straightforward manner (as is the case with any theory of the unconscious). Reviving this distinction should be a way to avoid a major philosophical error: precisely, the extreme reductionist, verificationist philosophical views to which the sciences are not at all enti-

tled, but to which they are strongly inclined. One point that I think helps out a dialectical materialist project is, perhaps unexpectedly, a thesis on a hierarchy of existence or actuality, as I will discuss in my concluding paragraph. One must be very careful with such a point, because an ordering or ranking of beings is one of the hallmarks of idealism, whereas one of the hallmarks of materialism is its ontological egalitarianism (Cf. Pluth, forthcoming).

So we started with a model that posits an alarming gap between the natural real and consciousness; a gap that is alarming because of what it implies for conscious life and human experience itself. This gap seems to render experience merely apparent, relative, derivative, and not really real. There are different ways of responding to this gap: one is to affirm it with a robust reductionism, in which the sciences become the only discourses about the really real, the consequences for consciousness be damned. Other responses include relativisms, mysticisms, dualisms, and other views that may involve everything from disparaging the sciences to cynical affirmations of the relativism of human thought and experience, to attempts to argue that human consciousness and experience are *not* reducible to non-human things, etc. I am not trying to cover every possible response. Rather, I only want to point out what I wish to avoid. By distinguishing between theoretical understanding and philosophical understanding, I am trying to find a way to render to the sciences what is theirs, while still not conceding to them exclusive rights on the really real. The sciences have a right to reductionism. It is difficult to imagine a materialist philosophy that would reject this. What they are not entitled to – at least, what does not follow from their reductionism – is the philosophical view that the order to which everything reduces (the natural real) is alone the really real. Whatever human reality is is built up out of non-human components; but it does not thereby follow that these components, on which human reality depends, qualify exclusively as the really real. This is a philosophical point, and not a scientific one. The question is: does Žižek's transcendental materialism, which he also wishes to be a dialectical materialism, get us to this point?

This is perhaps an overly long build-up to what is going to be my focus in the rest of this essay. I want to open a discussion here about the status of quantum physics and the real in recent works by Žižek; a discussion that could be continued elsewhere, with a few changes, and expanded into considerations of the

works of Badiou, Brassier, Meillassoux, Johnston, and others. The discussion here is something like a first test-run.

For several years now, Žižek has included in his books discussions of quantum physics that highlight the parallels between that field and the dialectical, materialist philosophical position he develops. The important points about quantum physics, for Žižek, are ones that are similar to the key concepts of his own philosophy – themes such as the negative, or the "parallax" relation between things like waves and particles, for example. He is, rightly, suspicious of overly enthusiastic quantum philosophies. The problem with such "quantum maniacs" seems to be that they focus on the wrong topics – the possibility of time travel, parallel universes, relativism, etc. Žižek is interested in quantum physics for other reasons, and his use of physics differs from theirs in a fundamental way.

I argued above that there is something about the natural real that defies understanding in an ordinary sense. Žižek suggests this too in his earlier book, *The Parallax View*: physics, he writes, "confronts us with the gap between the Real and reality at its most radical: what we get in it is the mathematized Real of formulas which cannot be translated into ontologically consistent reality – or, to put it in Kantian terms, they remain pure concepts which cannot be 'schematized,' translated/transposed into objects of experience" (*The Parallax View*, p. 172). Further on, taking what looks to be a realist position on the sciences, Žižek points out that "in quantum physics, it is the noumenal Real which can be grasped and formulated in a consistent theory, while the moment we try to translate this theory into the terms of our own experience of phenomenal reality, we get involved in senseless contradictions (time runs backward, the same object is in two places at once, an entity is a particle and a wave, and so on)" (*Ibid*., p. 173). And just a bit earlier, Žižek claims that "quantum physics is scientific formalization at its most radical, a formalization without interpretation" (*Ibid*., p. 172-3). Such points endorse key parts of the model I proposed above: such as the idea that between the natural real and human experience there is a gap, and if we get any kind of understanding of nature from the sciences, it needs to be contrasted to the understanding we acquire with respect to objects of experience and human practice. As a "formalization without interpretation" the sciences can be true, and realist, without us really "understanding" or "making sense" of what they are about.

After making these points, Žižek considers the problems of subjectivism and relativism: as we have seen, on this model it would seem as if thinking consists of nothing but a diversity of opinions, beliefs, or ideologies about a real that for all of us remains an X. Among them would be psychoanalysis itself, which would have no purchase on anything real. But he goes on to claim that "the only proper reply to this challenge [I take him to mean the reductionist challenge the sciences present us with, with the devastating consequences for consciousness – EP] is to meet the brain sciences' neuronal Real with another Real, not simply to ground the Freudian *semblant* within the neuronal Real. In other words, if psychoanalysis is to survive and retain its key status, *we have to find a place for it within the brain sciences themselves, starting from their inherent silences and impossibilities*" (*Ibid*., p. 177). And Žižek does this in part by pointing out how key features of his philosophy – such as the parallax relationship – are also present at the neuronal level.

The call to situate key concepts from psychoanalysis within the brain sciences seems to be motivated by a dissatisfaction with the reductionism that is intrinsic to the sciences. And indeed, the sciences, as sciences, can only ever be reductive. If we consider a naïve model of the sciences, what they reduce everything to is constituent parts bound by laws. If this is the case, there would not be much point in psychoanalysis – it would be nothing more than something that suited the taste of a few fans. Žižek (along with Adrian Johnston on this) points out that contemporary sciences actually give us a different, non-deterministic, non-mechanistic, and indeed indefinite, model of nature, such that while a reductionism to constituent parts may still be part of what the sciences do, this is no longer a reductionism that entirely eliminates topics such as freedom, the negative, and the subject from the picture (see Johnston 2008). This is what Žižek's call to situate psychoanalytic insights within the brain sciences should accomplish: rather than relying on an account of how what psychoanalysis says and does is true because it is, or can be, grounded in the neurosciences, instead the basic structures psychoanalysis reveals will also be seen to be structures unveiled by the neurosciences themselves.

There is a more expansive version of this type of claim in *Less than Nothing*, with the idea that a philosophy such as Hegel's can help us to understand the universe described by quantum physics. Žižek observes that with quantum physics we can hold the view that the natural real actually has properties homologous

to aspects of human reality that Hegel (and Freudo-Lacanian psychoanalysis) have brought to light, even if what both have to tell us remains unclear to or simply not visible within ordinary lived experience. Thus, Žižek writes that "the 'spookiness' of quantum physics is not its radical heterogeneity with regard to our common sense, but, rather, its uncanny resemblance to what we consider specifically human – here, indeed, one is tempted to say that quantum physics 'deconstructs' the standard binary opposition of nature and culture" (*Less than Nothing* , p. 920). In *The Parallax View*, we saw how Žižek did discuss, and endorse, the gap between the natural real and experience; now the claim is that our inability to properly imagine and understand what is going on in quantum physics is not the eeriest thing about it. Rather, the striking thing is that quantum physics shows us that there actually is a *homology* between a specifically human realm and the quantum realm. Here we see how Žižek revives the Hegelian position on the relationship between thinking and being.

This use of physics certainly does contrast with other uses of the sciences in philosophy, in which the sciences basically lead philosophy around by the nose, or, in which philosophical claims are expected to be validated by having a ground in what the sciences tell us. Or, as the quantum maniacs would have it, if quantum physics tells us that something like time travel is not impossible, then it becomes a worthwhile endeavor to think through the philosophical consequences of that. The manner in which Žižek portrays the relationship between science and philosophy is different. It is a relationship in which a particular philosophy (Hegelian, Lacanian, dialectical, negative, transcendental, materialist) helps us to "understand" the universe as the sciences describe it, or, in other words, it is one in which philosophy and physics dovetail, both giving us the same fundamental account of the real; although philosophy manages to do so in a more discursive manner than the sciences.

To be clear, the homology that Žižek posits between being and thinking is still not to be found between quantum physics and conscious life, between which there is still the gap discussed earlier; instead, the homology is between quantum physics and something else, this other order that can be thought of along the lines of the symbolic and/or the Other in Lacanian theory, as well as along the lines of Hegelian Geist. To keep things straight from here on out, let me point out that there are three distinct orders at play here, three versions of the real – there is the real as quantum physics tells us of it, then there is human experien-

tial/phenomenal reality, and then there is this other level of human experience for which Lacanian theory is well suited for describing, as well as Hegel's Logic, and, Žižek argues, Deleuze's notion of the Virtual. This order is in fact what is called the Real by Žižek, and is the one he typically marks with a capital letter. In a discussion of Deleuze he writes: "we thus have to posit a kind of ontological triad of quantum proto-reality (the pre-ontological quantum oscillations), ordinary physical reality, and the 'immaterial' virtual level of Sense-Events" (*Less Than Nothing*, p. 921). I think this triad applies to Žižek's philosophy as well. We can think of this as a distinction between a real real, an imaginary real, and a symbolic real, where the real real would be quantum mechanics, the imaginary real would be human reality, and the symbolic real would be the order of the symbolic, the Other, Geist… But Žižek will prefer to describe what I've been calling the natural real as Being, and usually calls the symbolic real alone the Real (with a capital letter). Thus, "the order of Being and the Real are mutually exclusive: the Real is the immanent blockage or impediment of the order of Being, what makes the order of Being inconsistent" (*Ibid*., p. 958). And furthermore, this Real is "an effect of the symbolic, not in the sense of performativity, of the 'symbolic construction of reality,' but in the totally different sense of a kind of ontological 'collateral damage' of symbolic operations: the process of symbolization is inherently thwarted, doomed to fail, and the Real *is* this immanent failure of the symbolic" (*Ibid*., p. 959). Clearly, this is a Real affected by the symbolic, and so it could be thought of as the "symbolic real" as I suggest above, although it is not produced entirely by the symbolic, and is also not anything like "symbolic reality," which would be something that I presume would be available within ordinary experience. It might be preferable to qualify the Real Žižek describes as a *structural*, or *structuring*, Real.

So the point is that the same impasses, failures, and oddities that quantum physics details for us in the natural real, or Being, are the ones that are characteristic of the linguistic, negative, temporal domain of the Lacanian symbolic. Thus, in fact the Real for Žižek is something like a Logic – a structure that bestows its traits and its rules on whatever it affects, be it human existence or being qua being. Žižek wishes to retain the adjective "transcendental" for his materialism, though, because his philosophy must not be a Logic in the *full* Hegelian sense; if it were, then it would actually be constitutive of, and not just regulative for, Being. This would go against materialism. Thus, Žižek's Real functions more like Kantian categories do: it operates on something other than

itself, it requires a trigger, a receptivity, to kick in to operation. This point does allow Žižek's philosophy to be materialist, where Hegel's is (badly) idealist. But the similarity to Kant's philosophy is striking and worth dwelling on some more, because it raises questions about the status of dialectics in Žižek's philosophy, as well as the precise position of the natural sciences.

Hegel himself generally *did not* consider his philosophy to be transcendental because its most important insights involved constitutive claims. And must a *dialectical* philosophy not be in the business of making constitutive claims? The structures Hegel was unveiling were not only conditions for the *possibility* of experience and appearance: they were structures responsible for both the *actuality* of experience, and of being itself. Of course, this was a move that Kant could not allow himself to make: the categories, and the schemata, are not responsible for the *actuality* of experience – for that, being affected by something external, something not already included in the structure, is always required. Husserl, another great transcendental philosopher, also considered the constitutive move to be unwarranted. The phenomenological epochê required an abstention from ontological questions, from questions about the reality and actuality of appearances. Phenomenology, instead, outlines the basic structures of conscious lived experience – again, these are just *conditions* for any possible experience and any conscious act. They are not sufficient to bring anything about.

The reasons for avoiding a full-on Hegelian Logic are probably obvious. Žižek no doubt does not wish to argue that there is a dialectical *relationship* between thinking and being when it comes to the natural real. What he asserts instead is a homology between the *structure* of the natural real (being) and the *structure* of the realm of human experience (albeit not human experience as it is available to us straightforwardly in everyday experience). This would not be troubling, if it were not for the strong case the natural sciences continue to have for reductionism: the case they can make that *they* are the disciplines that are about what constitutes being. The structural Real in Žižek must always act upon something else – upon being, as well what used to be called the realm of *Geist*. Žižek's transcendental materialism, as a materialism, should hold that this real was not floating around before there was anything at all. So, here we are back to the model I began this paper with: only now, not only is there a gap between being (understood as the natural real) and experience, but there is a gap between being and the *structural* real as well. (This also suggests that the laws of nature are

contingent: if the structural real emerges from being itself, it could have emerged otherwise.)

To start concluding, let me return to a consideration of quantum physics in Žižek's work, which is said to echo the insights of a dialectical materialism. Of course the sciences, whatever model of nature they give us, cannot in and of themselves lead to a dialectical materialism; that is, we just aren't going to get that kind of philosophy with the help of physics or other sciences, even if they do happen to tell us the exact same things that a dialectical, materialist philosophy does. This is precisely because of their intrinsic reductionist tendencies. No science *requires* that consciousness and thinking be vigorously real components of the processes they describe; while philosophy does require this for the processes and objects it describes. The sciences are fully capable of, and entitled to, describing human experience and consciousness in terms other than those that are available from within human experience and consciousness. A materialist--reductive science may not be able to *rule out* a dialectical materialism (despite efforts to do so – in, for example, eliminativism): that is, the sciences may not be able to disallow it. But it is equally important to point out that they cannot get us to such themes either. For example, quantum physics is not, *as* quantum physics, in need of a Hegelian, dialectical-materialist supplement. Such a supplement is only *for us*: that is, it is for our attempts to *understand*, in discursive terms, the order that quantum physics is describing. I've already argued that in one sense, such an attempt at understanding needs to be given up. Žižek is saying however that we *can* understand nature as quantum physics describes it to us because what it is describing is a *structure* familiar to us from Hegelian and Lacanian philosophy – a structure that we can articulate in non-mathematical, ordinary languages. This structural real is the same in both cases – in the case of what used to be called Geist, and in the case of the natural real. This is a very good philosophical move to make. I read it as an attempt to avoid the distressing gap that the model I've been discussing in this paper implies. But the key problem is that while something like dialectics might well be functioning in and present in the natural real, this view of a dialectics-in-the-Real still does not assert a genuinely dialectical *relationship* between thinking and being. It asserts a homology. Therefore, there is still a gap.

So, what is to be done with the sciences' claims to reductionism? The materialism of Žižek's philosophy seems to require that the structural Real depends for

its efficacy on the being(s) from whence it arose – had things gone differently in the order of being, the structural real could well be different, for example. Thus, it is hard to avoid equating the structural real with a merely virtual order, not in Deleuze's sense but in a more ontologically derogatory sense. As important as it is, this order would not necessarily deserve the title of the really real – a title that being qua being would always have a stronger claim to. And if this is the case, the natural sciences would seem to have a stronger claim to getting us access to that real.

It seems that the gap I have been referring to must be upheld. But there are different ways of dealing with it, or philosophizing about it. For example, there is no reason to conclude that the natural, constituent parts of a thing are more real than they thing they constitute. Yet, this is our tendency. We have now seen that Žižek's transcendental materialism asserts another troubling gap alongside the one between experience and nature; one between the structural real and being. While the structural real is the way in which being is organized, this structural real could still be considered to be *ontologically* dependent on being, the natural real. Thus, this relationship would be more one-way than it is dialectical. And such a one-way relation does not offer any arguments against an extreme reductionism, and therefore also does not offer an argument against the de-realization of thinking.

It is difficult for us not to think that the things that compose something are more fundamental than the things they compose. For example, if the structural Real is just the Logic of being, no matter how appropriate this Real is for expressing such notions as Geist in Hegel or the Other in Lacan, if one wishes to defend a materialism one would expect to encounter the view that there is no structural Real without Being: and that whatever beings emerge are conditioned by this Being. This turns out to be a reductionism, which is fine, but it does not address the main problem contained in the model I began this paper with: the implied de-realization of thinking, consciousness, and what is available to us through natural human languages. However, I maintain that the sciences are genuinely reductive, but this does not mean they are exhaustive, since there is a domain of objects, real objects, in which thinking is in fact in a vigorous dialectical relationship. There is no reason to think that a thing's constitution is what is always most real about it, since a constitutive story is only a partial story about whatever thing is in question. Hegel's philosophy shows this quite well by hig-

hlighting the importance of processes and development: *Wesen ist was gewesen ist*. Lacanian psychoanalysis also suggests this, in numerous ways.

But I would like to conclude on the following point. There is still a possible view on these matters, according to which what is available to us through ordinary human languages is affirmed to be clearly important (to us) and may even be granted to contain truths. Yet an extreme reductionistic tendency persists in this view I have in mind, which must admit (even if it does not want to) that these truths are de-realized and degraded because of their ontological dependence. To correct this, perhaps some kind of ordering of actuality is required along the lines of what Hegelian philosophy encourages us to do: one according to which beings and processes that have thinking added to them or involved in them become more actual than those which do not. For example, consider the famous claim in the introduction to Hegel's *Aesthetics*, according to which "even a silly fancy such as may pass through a man's head is *higher* than any product of nature" (p. 4). Lukács quotes a different version of this idea given in Lafargue's *Reminiscences of Marx and Engels*: "Even the criminal thought of a malefactor has more grandeur and nobility than the wonders of the heavens" (Lukács, p. 544). What such things have is a quality that the sun, for example, lacks, even though, as far as *quantity* of being goes, and even as far as *power* goes, a silly fancy, a child's drawing, a criminal thought, are things that are clearly inferior to celestial objects. The key point, in any case, is to develop an argument for why the constitutive level of being is not the highest sort of actuality that things may have, even though every being is still reducible to something else as far as its constitution goes, or as far as its quantity or power goes. To begin such an endeavor, I would suggest that arguments for reductionism be embraced but also reconsidered: does the claim that every being reduces down to more simple constituents – a claim that does need to be defended – necessarily entail the claim that those constituents are the really real, the ontologically fundamental level? While spiritualisms and dualisms may not be able to put up with such a vigorous reductionism, a version of dialectical materialism should be able to, when it is drawing on the legacy of Hegel, Marx, Freud, and Lacan.

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Between Truth and Relativism: the Choice of Psychoanalysis

My aim is to draw your attention to the position of psychoanalysis regarding the opposition between the quest for truth and relativism, which is a conventional opposition of contemporary thought.

I will do this by means of Lacanian teachings. It is my intention to take up the theoretical tools of psychoanalysis and the consequences of clinical facts in order to arrive at a critical consideration of this topic.

Before proceeding to the exact argument, I will briefly review the historical ground correlated to modern subjectivity, characterized by the vanishing of the guarantee of both truth and knowledge.

Then I will go into the topic by means of a survey of Lacan's reading of the path of modern logic. Lacan had a peculiar interest in logic, and his interpretation of the whole history of logic transforms the achievements of modern logical thought into the writings of a *point de capiton* for collective rationality.

The key here is to focus on the capital role of what is called in the conclusion *the supposition of the inaccessible* for both individual and collective life. This is the issue I will address in the last point.

My paper is divided into five parts: 1. The relativistic drift; 2. The guarantee of knowledge; 3. The guarantee of truth; 4. Logic and the *point de capiton*; and 5. The signification (*Bedeutung*) of the phallus.

Relativism is a key word of our era. It is a *leitmotiv* at several levels of social and cultural life. It is an implicit condition of living together in a non-dogmatic democracy and world; a condition of the cohabitation of various kinds of knowledge.

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Simply, we could say that relativism claims that no knowledge holds the truth, rather each type is a construction. Relativism can be considered the position which rejects any absolute principle. It shows that every knowledge is based on a set of beliefs; this is its disenchanting value. On the other hand, relativism is a discursive device, unfolding in a spiral, going through unfathomable layers of both collective and individual identity structures. This results in an endless drift that reduces each position to nothing but an opinion. The effect is a bewilderment that captures the pragmatic man, who is molded into a relativistic *humus*.

For its part, psychoanalysis arises from a question of truth. As Lacan stated, "truth is inscribed in the very heart of analytic practice."[1] Truth is the engine of its therapeutic effectiveness. The historical moment in which psychoanalysis arose was when scientific knowledge abandoned any claim to truth and religious authority declined. From then on, this claim was taken up by psychoanalysis as a discipline of truth, both its cause and its end. A truth that is not revealed but is a "material cause," to cite Lacan's definition.[2]

Now, to go deeper into this, Lacan places psychoanalysis in the wake of relativism. His structuralist perspective leads him to relativize customs, institutions, and laws; he endorses Pascal's famous aphorism:

> Three degrees of latitude reverse all jurisprudence; a meridian decides the truth. Fundamental laws change after a few years of possession; right has its epochs; the entry of Saturn into the Lion marks to us the origin of such and such a crime. A strange justice that is bounded by a river! Truth on this side of the Pyrenees, error on the other side.[3]

From this perspective, geography, history, and culture produce human identities that take shape among various possibilities which are radically different from each other. No dogma remains unchanged by crossing times and latitudes.

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[1] Jacques Lacan, "The Freudian Thing, or the Meaning of the Return to Freud in Psychoanalysis", *Écrits. The First Complete Edition in English*, New York and London, W.W. Norton & Company, 2006, p. 338.

[2] Jacques Lacan, "Science and Truth", *Écrits. The First Complete Edition in English*. New York and London, W.W. Norton & Company, 2006, p. 743.

[3] Blaise Pascal, *Thoughts* (1660), translated by W.F. Trotter, Internet Modern History Sourcebook, Paul Halsall, August 1998, p. 294.

At the same time, Lacan deconstructs the relativistic device in order to show that in its purest and most radical form, i.e. moral relativism, it slips on a deceptive surface, mesmerized by the air of modern times. Lacan's interpretation states that the invention of psychoanalyst is an epochal symptom, an answer to the de-subjectivizing effects of modernity. His teachings make psychoanalysis the suture thread of a *point de capiton* that stops the endless drift of relativism. The ethics of psychoanalysis and the psychoanalyst's desire converge at this point.

1. The relativistic drift

Thus, is Lacan's psychoanalysis relativistic? Yes, it is. It can seem paradoxical to define Lacan as a relativist, yet no one could classify him as dogmatic without appearing equally paradoxical. Let us look at this quote:

> It starts from a certain degree of relativism, and of the most radical type of relativism with respect not simply to morals and institutions, but to truth itself, that there can begin to be posed the problem of ethics.[4]

The ethics of psychoanalysis falls within the tradition of modern relativism, for it can be worked out only from the crisis of truth that has been ongoing since the 16th century. A new ethical era began after Luther's attack against the *regula fidei* of the Christian truth, along with the subversion of the natural order by modern science. I would like to pause at these two events, which overlapped at the threshold of the 16th century. They mark the beginning of the deep symbolic seismic event that shook the foundations of western subjectivity.

2. The guarantee of knowledge

The first event marks the transition from a pre-modern conception of natural knowledge to the new science. The new knowledge and new scientific language put forth by Galileo and Newton are made up of mathematical characters. While ancient knowledge of nature was still anthropomorphic, the new science is totally free from any anthropomorphism. "There comes a moment, with the sex-

[4] Jacques Lacan, *Le Seminaire. Livre XVI. D'un Autre à l'autre*, Paris, Seuil, 2006, p. 191: « Eh bien, c'est à partir d'un certein degré de relativisme, et du type le plus radical, relativisme au regard, non pas seulement des mœurs et des institutions, mais de la vérité elle-même, que peut commencer de se poser le problème de l'éthique. »

ual initiation of the mechanism, when the moorings are broken,"[5] said Lacan. The importance of this passage cannot be exaggerated: the symbolic order is no longer anchored to a sexual lack and therefore is no longer a symbolic order, strictly speaking, but it intrudes as a register without order.[6]

The split introduced by the new knowledge construction is an internal rift in knowledge itself. Knowledge is no longer guaranteed by *truth*. What is lacking is not technical performativity, but the ultimate legitimacy of produced knowledge: the new science brings forth nothing but models, which are considered to asymptotically approach the truth of nature. In order to fully grasp the meaning of this rift, it is worth paying attention to the *pre-modern knowledge architecture*. In the dogmatic construction of natural theology, codified by Scholasticism, nature was conceived as *"the Creation"* and knowledge of nature included an understanding of God as its cause. In this orientation, God is both the principle of explanation and the guarantor of truth. This system of knowledge is interwoven with faith, partly built with reason (knowing nature), and partly grounded on faith (knowing God). On the contrary, if nature is conceived, as Galileo stated, as "a book written in mathematical characters," then the act of divine creation falls beyond scientific knowledge; God is no longer necessary to the system of knowledge. And when God evaporates, the guarantee of truth about knowledge evaporates as well. Modern subjectivity emerged through this historical passage. Carved in a new topology, as described by Lacan in *Science and Truth*, modern subjectivity lies between knowledge and truth; this subjectivity is the subject of scientific discourse, but also the subject of psychoanalysis.

3. The guarantee of truth

The second event is marked by Luther's position in the dispute over the proper standard of religious knowledge. Luther denies the *regula fidei* as a criterion of truth. Namely, he refuses to consider as a criterion judging religious claims' possible agreement with the Church tradition and authority. The two main consequences are: first, the refusal of the principle of the Pope as the only religious

[5] Jacques Lacan, *The Four Fundamental Concepts of Psychoanalysis (1964). The Seminar of Jacques Lacan. Book XI*, New York and London, W.W. Norton & Company, 1978, p. 152.
[6] "It's all to do with the intrusion of the symbolic register." In Jacques Lacan, *The Ego in Freud's Theory and in the Technique of Psychoanalysis (1954–1955). The Seminar of Jacques Lacan. Book II*, New York and London, W.W. Norton & Company, 1988, p. 88.

authority; second, the assertion of a different principle according to which Christianity has one Gospel and all Christians have "the power to test and judge what is correct or incorrect in matters of faith."[7] Accordingly, any criterion for establishing the truth in religious matters, guaranteed by God through the Pope, vanishes, making room for the relativization of truth and the advancement of heresies.[8] Truth is no longer guaranteed and begins to fade into opinion. All people are entitled to their opinion and all opinions are equal. It is the triumph of modern relativism.

A gap opens with the new science and the rejection of the *regula fidei* – a gap between knowledge and truth. It is to this gap that Lacan returns by defining the truth as unfathomable. He makes it the *point de capiton* on which belief is based, causing dupes to not err. Modern relativism radically questions the possibility of both religious and gnoseological truth. Its extension and depth re-launch the pre-Christian topics of radical scepticism stated by Pyrrhon and Sextus Empiricus, founders of Greek sceptical thought.

This is precisely the perspective that Lacan calls on regarding the truth. According to him, the analyst is: "the one who offers himself in the position of a subject supposed to know and who must, nevertheless, initially, and in a Pyrrhonian fashion, renounce any access to the truth."

To this effect, the position of the analyst regarding the truth is even more than relativistic. It is, as Lacan says: "the fundamental position, then, of a subject imposing on himself an arrest at the threshold of truth."[9] In other words, the analyst is the one who assumes the subjective topology from the modern disjunction between truth and knowledge.[10] And yet, Lacan does not yield to relativism.

[7] Martin Luther, *An Open Letter to the Christian Nobility of the German Nation Concerning the Reform of the Christian Estate* (1520). Quoted by Richard H. Popkin, *The History of Skepticism from Erasmus to Spinoza*, Berkley, University of California Press, 1979, p. 2.

[8] Michel De Certeau, *The Writing of History*, New York, Columbia University Press, 1988, p. 126.

[9] « ...celui qui s'offre dans la position de sujet supposé savoir et qui doit pourtant, initialment et de façon pyrrhonienne renoncer à tout accès à la vérité... La position donc fondamentale d'un sujet comme s'imposant son proprie arrêt au seuil de la verité », in Jacques Lacan, *Le Séminaire. Livre XIII. L'objet de la psychanalyse,* 2 February 1966 (unpublished).

[10] « Il y a eu un petit éclair – entre deux mondes, si je puis dire, entre un monde passé et un monde qui va se réorganiser comme un superbe monde à venir. [...] la psychanalyse [...] aura

4. Logic and the *point de capiton*

On the one hand, Lacan follows the tradition that starts with Pyrrhon and flourishes again with Montaigne, Pascal, and Nietzsche; on the other hand, he puts forth his *point de capiton* to stop the relativistic drift. By so doing, he points to the very place defined by modern logicians. This place was defined by these same logicians, although they failed to achieve their goal, i.e. the ultimate, absolute, not relativistic foundation of mathematical knowledge. In order to show the unavoidable degree of relativism that still affected the most powerful logical positivism, Lacan focused on Frege, Russel, Gödel, Carnap, and Quine.

Logical thought unwillingly came upon the division between knowledge and truth, and demonstrated that it could not be saturated. This was done by means of the formalism peculiar to the exact sciences. It aimed at stitching together knowledge and truth; instead it found a black hole, an *umbilical point*. Hence, for Lacan, "it is logic that serves here as the subject's navel."[11]

This umbilical point is where the logical construction of Frege[12] fails. Frege's goal was to find the ultimate foundation of mathematical knowledge. In other words, he aimed at rendering mathematical knowledge into logical terms by building a perfect language with neither "variations of meaning nor contradiction." By so doing, he wanted to make arithmetical knowledge *definitely true*.

When Frege was about to publish the second volume of *The Foundations of Arithmetic* he received a letter from Bertrand Russell (1902) announcing that he had found a fundamental contradiction which invalidated Frege's whole work. Indeed, his theory entails an antinomy. The contradiction is now known as Russell's paradox. Frege's theory can be demonstrated as contradictory at its core, by means of the definition of a very particular type of set: *the set containing all sets that are not members of themselves*. Such a set does and does not contain it-

été un moment privilégié pendent lequel on aura eu une assez juste mesure de ce que c'est que ce que j'appelle dans mon discours le "parlêtre". » Jacques Lacan, *Le triomphe de la religion*, Paris, Seuil, 2005, p. 87.

[11] Jacques Lacan, "Science and Truth", *Écrits. The First Complete Edition in English*, New York and London, W.W. Norton & Company, 2006, p. 731.

[12] *The Foundations of Arithmetic: The Logical-Mathematical Investigation of the Concept of Number. Grundgesetze der Arithmetik*, Vol. I (1893); Vol. II (1903). Jena: Verlag Hermann Pohle.

self as a member ("the set of all the sets that do not contain themselves contains itself if and only if it does not contain itself"). As a result, Frege's definition of the set could not be used as a foundation for the concept of numbers, on which the foundation of mathematics itself depends. There are many versions of this antinomy, for example, "Suppose there is a village with only one barber, a man well-shaved who shaves all men who do not shave themselves. Does the barber shave himself?"

If answered yes, it is true (for he is well-shaved) but also false (for he shaves only the men who do not shave themselves); if the answer is no, it is also true (for he does not shave the men who shave themselves), as well as false (for he is well-shaved).

This antinomy cannot be overcome; it is real, even though we cannot decide on the truth of what is stated (Is it true or false that the barber shaves himself?). It is a gap. The ultimate foundation of arithmetical knowledge as truth begets an antinomy according to which one cannot decide whether the truth is true or not. In 1931 Gödel succeeded in positively stating this irreducible gap with his theorems on incompleteness. The simplified form of the second theorem goes like this: "No consistent system can be used to demonstrate its same consistency." It is a demonstration that a principle of heteronomy governs mathematics: to establish the coherence of a system, a point of external support is needed.

As Lacan states, in mathematics: "we put our finger, in a domain that is apparently the most certain, on what is opposed to the whole grasp of discourse, of logical exhaustion, what introduces into it an irreducible gap. This is what we designate as the real."[13]

This irreducible gap, inherent to language consistency, which points to the "impossible solution," is what Lacan calls the Real.

[13] « …à aborder quelque chose en principe d'aussi simplifié comme réel que l'arithmétique, il a pu être démontré que quelque chose peut toujours s'énoncer, offert ou non à la déduction logique, qui s'articule comme en avance sur ce dont les prémisses, les axiomes, les termes fondateurs dont peut s'asseoir ladite arithmétique, permettent de présumer comme démontrable ou réfutable. Nous touchons là du doigt, en un domaine en apparence le plus sûr, ce qui s'oppose à l'entière prise du discours dans l'exhaustion logique, ce qui y introduit une béance irréductible. C'est là que nous désignons le réel. » In Jacques Lacan, *Le Séminaire. Livre XIX. …ou pire*, Paris, Seuil, 2011, p. 41.

> The real, something that can be easily accessed, can be defined as impossible; it is impossible insofar as it proves from the very grasp of discourse the discourse of logic; this impossible, this real ought to be privileged by us. By us, by whom? By analysts.[14]

The Real ought to be privileged by analysts, for it is through the absence of a true guarantee that the analyst reaches a stopping point at the relativistic drift: "There is something that resists, I mean something about which one cannot just say any old thing."[15]

What was a setback for those who, like Frege and Russell, ventured into the "real of mathematics" with the intention of proving its truth, is instead a success for Lacan. For this "impossible exhaustion" of logical truth "proves that one cannot give it any meaning whatsoever, [...] It resists [and] the style in which this imposes itself is that of the real; neither truth nor meaning dominate in it."[16] Meaning [*Sinn*] grasps the Real when it is pushed up to the point where its foundation is impossible.

Since truth is not knowledge *per se* but rather a point of failure, the lack of an ultimate foundation of knowledge, it cannot be confused with any opinion, being that each opinion is a kind of knowledge. Opinions are not equivalent in the position of truth, because it is a place inaccessible to knowledge, a foundation determining its consistency. Paradoxes of logic are umbilical points that work as

[14] « Ce point vif illustre ce que je dis de la béance logicienne. Le réel peut se définir comme l'impossible, en tant qu'il s'avére de la prise même du discours logicien. Cet impossible-là, ce réel-là, doit être par nous privilégié. Par qui, nous ? Par les analystes. » In Jacques Lacan, *ibidem,* p. 42.

[15] « C'est en cela que nous intéresse que soit ancré le réel. Ce réel, je le dis, pas pour rien, être mathématique, parce que, somme toute, à l'expérience de ce qu'il s'agit, de ce qui se formule, de ce qui s'écrit à l'occasion, nous pouvons toucher du doigt que, là, il y a quelque chose qui résiste, je veux dire dont on ne peut pas dire n'importe quoi. On ne peut pas donner n'importe quel sens au réel mathématique. » In Jacques Lacan, *ibidem*, p. 184.

[16] « que la mathématique s'articule d'une façon telle que, en fin de compte, on ne sait même pas si c'est vrai, ni si ça a un sens. Ça prouve ceci, à savoir qu'on ne peut lui donner n'importe quel sens, ni dans l'ordre de la vérité, ni dans l'ordre du sens. Ça résiste, au point que ça abouti au résultat suivant, que je considère comme un succès, le succès même - le mode sous lequel ça s'impose est celui du réel, justement parce que ni le vrai ni le sens n'y dominent, ils sont secondaires. La position seconde de ces deux machins qui s'appellent le vrai et le sens restait inhabituelle aux gens, et ça leur donne un peu le tounis quand ils prennent la peine de penser. » In Jacques Lacan, *ibidem,* p.184.

limits and give consistency. If "truth has the structure of fiction," it is ultimately because truth is limited and supported by an inaccessible point, illustrated by paradoxes.

What Lacan calls the "*supposition of the inaccessible*" is necessary in order to have a logical coherence of discourse.[17] Analysts know that the rejection of this supposition is what clinically leads to interpretative delusion, with the implied loss of consistency.

At any rate, this supposition is a mere belief. Those who trust it are spared suffering the setback experienced by Russell and Frege. It is a fundamental belief which prevents those who are *duped* from erring and stops the drift that might make the discourse and the subjects lose their way in language.[18]

5. The Signification (*Bedeutung*) of the Phallus

Belief in the inaccessible prevents the loss of subjects in the endless referral to equivalent opinions. It is a "point of blockage."[19] It works within the language, thanks to a signifier marking the umbilical point of disjunction between truth (*Bedeutung*) and meaning (*Sinn*)[20]. This point is inaccessible to meaning (*Sinn*), it is precisely where truth does not mean anything. And through it, the discourse may be consistent. It is the signifier of the very *Bedeutung*, the only "significance" of the language. This is the only reference, the only signifier referring to an object that is nothing but a lack; it is the signifier that has no meaning and, because of this, it can be the foundation for any possible meaning.[21]

[17] « Supposition de l'inaccessible », in Jacques Lacan, *ibidem*, p. 178.

[18] This is exactly the difference between the neurotic position and the psychotic position, which corresponds to the refusal of belief as such: "But how, then, does Freud define the psychotic position? Precisely by what he strangely calls, *Unglauben*, not wanting to know anything about the spot where truth is in question." In Jacques Lacan, *The Other Side of Psychoanalysis (1969-1970). The Seminar of Jacques Lacan. Book XVII*, New York and London, Norton & Company, 2007, p. 91.

[19] « Le point se définit… par le coinçage », in Jacques Lacan, *Le Séminaire. Livre XXI. Les non-dupes errent*, 13 November 1973 (unpublished).

[20] Lacan follows on the path opened by Gottlob Frege in his classic paper *Über Sinn und Bedeutung*.

[21] « *Bedeutung*, il n'y en a qu'une, die *Bedeutung* des *Phallus*. C'est là seul ce qui est, du langage, dénoté, mais sans que jamais rien n'y répond. » In Jacques Lacan, *Le Séminaire. Livre XVIII. D'un discours qui ne serait pas du semblant*, Paris, Seuil, 2006, p. 170.

According to Lacan, the symbolic phallus[22] bears the *Bedeutung* of the paradoxical point described by Frege, Russel, and Gödel as the inaccessible pivotal point of any logical language.

> Because in tackling this field from the outside, from logic, nothing prevents us from forging the signifier by which there is connoted what is wanting in the signifying articulation itself. [...] this signifier with which a subject, in the final analysis, can be satisfied by identifying himself with it as identical to the very lack of discourse.[23]

In clinical practice Freud discovered the cardinal rule of this signifier in the psychic life of all human beings. If it is present: 1) it acts as the fundamental identification of the subject (the identity principle); 2) it introduces him into the register of truth; 3) it permits the construction of a coherent discourse, following the laws of language and its inter-dictions. If it is absent, its role is not less cardinal. Its absence produces the disappearance of the subject from language as well as the endless drift of truth and meaning.

In modern times this endless drift has become the dominant characteristic of the symbolic life that sets discourses and subjectivities. At this point the psychoanalyst is to play his historical role, becoming the *synthome* of our era. It would be difficult to explain in a few words what the consequences of this thesis are. In short, speaking of the psychoanalyst as a *synthome* of our era means that psychoanalytic ethics are not relativistic. They do not mix truth as an empty value with truth as an opinion. Truth is an inaccessible value, marked by a cardinal signifier, writing the impossible sexual relationship between knowledge and truth. This cardinal signifier is the end of any psychoanalytic itinerary.

Among the four discourses Lacan presented at the end of the 1960s, psychoanalytic discourse is the one which allows that this cardinal signifier exits from "the apparent necessity of the phallic function" and "turns out to be mere contin-

[22] Jacques Lacan, "The Signification of the Phallus", *Ecrits*, New York and London, Norton & Company, 2002, pp. 575–584.

[23] « Rien ne nous a jamais empêchés, semble-t-il, de forger le signifiant dont se connote ce qui fait défaut dans l'articulation signifiante même. [...] Peut être pourrons nous [...] démontrer [...] que ne peut se situer ce signifiant dont un sujet se satisfasse au dernier terme pour s'y identifier, comme identique au défaut même du discours, [...] la notion de la castration – que vous avez sentie au passage, j'espere, être l'analogue de ce que j'énonce. » Jacques Lacan, *Le Séminaire. Livre XVI. D'un Autre à l'autre*, Paris, Seuil, 2006, p. 85.

gency." Indeed, "it is as a mode of the contingent that the phallic function stops not being written."[24]

Through the writing of this signifier, psychoanalytic discourse marks the connection between truth and knowledge as mutually exclusive. Knowledge aroused during a psychoanalytic itinerary is constrained "to the production of S_1 that is, of the signifier by which can be resolved what? Its relation to truth."[25] The analyst can support anyone in his search for a sound point to hook on to, in the absence of any guarantee. Since the analyst found it for himself in "the point of radical eccentricity with respect to itself," which is the point of "the radical heteronomy that Freud's discovery shows gaping within man [and which] can no longer be covered over without whoever tries to hide it being fundamentally dishonest."[26]

[24] Jacques Lacan, *On Feminine Sexuality, The Limits of Love and Knowledge (1972–1973). Encore. The Seminar of Jacques Lacan. Book XX*, New York and London, Norton & Company, 1999, p. 94.
[25] Jacques Lacan, *On Feminine Sexuality, The Limits of Love and Knowledge (1972–1973). Encore. The Seminar of Jacques Lacan. Book XX*, New York London, Norton & Company, 1999, p. 91.
[26] Jacques Lacan, "The Instance of the Letter in the Unconscious, or Reason Since Freud", *Ecrits*, New York and London, Norton & Company, 2002, p. 436.

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Three Notes on Science and Psychoanalysis

Freud and science

In my text I would like to focus on the relation between formalization and psychoanalysis in Lacan's later teaching, wherein I shall discuss the problematic in close relation to Freudian scientism, on one hand, and to the question of contingency, on the other. When entering this topic the first question that might arise is why one should bring together such apparently heterogeneous fields as mathematics and psychoanalysis: Why would psychoanalysts need something like the formulas of sexuation, the graph of desire, the vector of drive, aspheric topology, and Borromean knots, to name the most notorious examples from Lacan's teaching? What is the "use-value" of mathematical formulas, and simultaneously, what is their epistemological lesson?

Here Lacan's interest in mathematical formalization needs to be traced back to a broader question that occupied Freud from the earliest stages of his discovery: how does psychoanalysis relate to the positive sciences? Or more precisely, what scientificity is at stake in the discovery of the unconscious?

In his work Freud formulated a decisive bet that psychoanalytic findings will eventually find their justification in the existing positive sciences. He was addressing physics and biology in particular. In a famous passage from *Introductory Lectures* he claimed that psychoanalysis is the offspring of the modern scientific revolution, a consequence of the epistemological break that had already given birth to modern physics and biology. As we know, this break essentially consists in the progressive decentralization of reality: of the universe in physics, of life in biology, and finally of thinking in psychoanalysis. The discovery of the unconscious and the invention of psychoanalysis are for Freud nothing other than logical consequences of the modern scientific revolution in the psychic life, displacing the decentralization from exteriority to interiority: *Acheronta movebo*, "I shall move the underground," is the famous line from Virgil that

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inaugurates Freud's *The Interpretation of Dreams*. This decentralization, on the other hand, has its specific concretisation in the introduction of contingency in the field of knowledge, an introduction that subverts the classical understanding of not only natural laws, but of lawful necessity as such. But I shall return to this later.

Freudian scientism formulates the bet that the progress of the positive sciences will provide the knowledge and method that will enable an integral translation of psychoanalytic discoveries into the vocabulary of the positive sciences. This already points out the exceptional status of psychoanalysis in the Freudian epistemological trinity. Psychoanalysis is not yet a science, it appears to be a science-in-becoming, or better said, a not-all science.[1] It shows us that there is a specific complication in the asserted passage from the physical and biological real to the real of thinking. The relation between psychoanalysis and science can therefore be approached from a specific angle: does psychoanalysis immanently produce a new type of scientificity, so that the understanding of science as such is modified? But then the Freudian claim for scientificity turns out to be more ambiguous than it appears: it means either that psychoanalytic contents should be translated into scientific contents, or that the link between psychoanalysis and modern science should be sought on the terrain of logic. While Freud chose the first direction, Lacan's response to Freudian scientism will take the second option: the tendency towards formalization means that psychoanalysis articulates its scientific moment in its logical form, and not in its contents. Put differently, it is not the translation of psychoanalytic vocabulary into the jargon of biology, energetics, or cognitive sciences that will make a science of psychoanalysis, but rather the formalization of its own field. Lacan's answer to Freud's scientific ambitions therefore consists in a turn of perspective. The true question one needs to raise is not whether psychoanalysis is a science, but rather what is science that includes psychoanalysis,[2] that is to say: what modification of sci-

[1] Or as Lacan will later say, *pas science du tout*, not science at all, but also not science *of the all*.
[2] This turn of perspective is explicitly formulated by Lacan himself in his "Compte rendu du Séminaire *Les quatre concepts fondamentaux de la psychanalyse*", in: *Autres écrits*, Paris: Éditions du Seuil, 2001, p. 187: "The question that makes our project radical has thus persisted: the question that goes from: *Is psychoanalysis a science?* to: *What is science that includes psychoanalysis?*" This is then one way to claim that Freud was not radical enough in thinking the intervention of his own invention in the field of science. All translations from French are my own, unless otherwise indicated.

entificity as such is introduced with the invention of psychoanalysis, how does psychoanalysis change the face of science?

Lacan's teaching will consist in making a turn towards what he perceives to be the "rational kernel" of modern science, thereby following his "*maître*", Koyré: the formalization, or as Jean-Claude Milner has put it, literalization of the real. But the *differentia specifica* of Lacan's approach consists in the fact that he links formalization back to the question of the subject, and hence to the irreconcilable discrepancy between knowledge and truth. The cornerstone of Lacanian epistemology is the identification of the subject of the unconscious and the subject that emerges with modern science. The only problem is that modern science does not speak about the subject; on the contrary, it constitutes itself on its foreclosure. When psychoanalysis reintroduces the notion of the subject in the field of science, and it does so in times when the use of this notion is anything but self-evident, it throws new light on what defines modern science in its very essence: the discrepancy between knowledge and truth. The unconscious is in the end the return of the foreclosed subject of science.[3] But let us here take some steps back to Freud.

When it comes to science, Freud was betting primarily on the alliance between psychoanalysis and biology. This is probably most clearly formulated in the famous and highly ambiguous claim: "anatomy is destiny", destined to underline the ultimate gravitational point of sexuality. But this destiny seems to be more flexible than it appears, since it also points out an antagonism between the biological and the sexual difference. On another occasion, in *Analysis Terminable and Interminable*, Freud describes the anatomical "sexual" difference with the curious expression *gewachsener Fels,* living rock, thereby bringing together life and the paradigmatic case of the lifeless. Here it is worth noting that this paradoxical formulation already indicates the limits of Freudian biologism and shows us that Freud already indicated a much more conflictual relation between body and thinking. The object of psychoanalysis here assumes the limit position between the field of positive sciences and the field of what we might conditionally call speculation. Let us remember that Popper, Wittgenstein, and

[3] For the question of the subject and truth in relation to science, see Jacques Lacan, "La science et la vérité", in: *Écrits,* Paris: Éditions du Seuil, 1966, p. 855 ff. For a systematic discussion of the Lacanian equation "the subject of psychoanalysis = the subject of modern science", see also Jean-Claude Milner, *L'oeuvre claire*, Paris: Éditions du Seuil, 1995, especially Chapter II.

other advocates of scientific positivism criticised psychoanalysis precisely for this reason: its object is too ambiguous, not "empirical" enough; psychoanalysis remains unverifiable because of the speculative character of its object.[4] This dispute raises the question of the realism of the scientific object, and it is well known that Freud initiated this quarrel by situating the object of psychoanalysis in the grey zone between the biological body and what he continues to call the psychic. The problem here is that the psychic stands for the libidinal and the linguistic body, whose effects are too material to be integrated in the classical opposition between the mind and the body. The Freudian living rock is therefore not simply reducible to the biological body, but is actually aiming at the conflictual split within the body itself. Behind the mind/body problem there is a more fundamental body/body problem, the split in the biological and the libidinal body. Here we encounter the definition of the human body as *Fremdkörper*, the foreign or alienated body that accompanied psychoanalysis from the very beginning.

In his theory Freud insistently underlines the grey zone that remains concealed within classical dualism. This grey zone is constitutive of the drive as such. Let us remember that in *Drives and Their Vicissitudes* the drive is defined as the psychic representative of the bodily stimulus, while the *New Introductory Lectures* compare it to a mythical being, a phantom entity which we can never be entirely certain if we see it clearly. In this second case the drive is not simply a fictional entity, a theoretical illusion or hallucination, but a particular effect or product that springs out of the translation of the bodily stimulus into representation. The drive would then represent the biological body in the signifierized body. Or put differently, being a product of the inscription of language into the living body, the drive names the border between biological materiality and linguistic materiality. This is why Freud thinks it in terms of representation, but one that is essentially productive, precisely because the representation produces within the body a surplus that is irreducible to the biological body. This surplus that divides the biological body from the linguistic body is what Freud named the libido (and Lacan jouissance).

[4] For a critique of this critique, see Jean-Claude Milner, "De la linguistique à la linguisterie", in: *Lacan, l'écrit, l'image*, Paris: Flammarion, 2000, pp. 7=25.

The drive is then an immanent border that traverses and decentralizes the body in relation to itself, thereby problematizing the univocity of the biological, rather than taking it as a solid and positive ground. The drive transforms the understanding of the body, since it is simultaneously too bodily to be purely psychic, and too linguistic to be purely biological. But this problem is not only specific of the drive. It can be related to any other unconscious formation, and finally to the unconscious as such. For instance, the hysteric symptom is bodily, but it nevertheless acts as if anatomy does not exist, something Freud will explicitly claim already in the early stages of his discovery.[5] The symptom hence testifies, on the contrary, that anatomy is *not* destiny. It should rather be linked with contingency, and this is where the discussion of modern science becomes crucial for psychoanalysis.

Science and contingency

The relation between formalization and contingency is the main point in Lacan's take on modern science, also because he rephrases the question in relation to the "encounter": the encounter that marks the field of sexuality, the relation between body and language, etc. But before I finally outline some specificities of the use of formalization in psychoanalysis, I would like to consider a specific problem with contingency that produces a dilemma both within the scientific discourse and within philosophy. This detour is not unrelated to the discussed topic because it significantly marked Lacan's take on formalization and modern

[5] In an article originally written in French in 1893: "J'affirme par contre que la lésion des paralyses hystériques doit être tout à fait indépendante de l'anatomie du système nerveux, pusique *l'hystérie se comporte dans ses paralyses et autres manifestations comme si l'anatomie n'existait pas, ou comme si elle n'en avait nulle connaissance*." Sigmund Freud, "Étude comparative des paralyses motrices organiques et hystériques", in: *Gesammelte Werke,* Vol. 1, Frankfurt am Main: Fischer Verlag, 1999, pp. 50=51 (the last part of the sentence was underlined by Freud). This lesson will soon be repeated and elaborated in *Studies on Hysteria* (Freud and Breuer, 1895). In the very core of hysteria stands a rejection of anatomic and biological knowledge; hysteria does not want to know anything about anatomy or biology. The problem opened up by the discovery of the unconscious then amounts to the substitution of the mind/body problem with the body/body problem. This is the point of the third substance that Lacan introduces in Seminar XX: the enjoying substance (*substance jouissante*), a substance that is no longer reducible to either *res extensa* or *res cogitans*, and which abolishes the Cartesian dualism, without simply landing in monism. If anything, the enjoying substance then points towards an "antagonistic monism".

science: What are the subjective consequences of the scientific introduction of contingency in the field of knowledge?

In addressing this question, I would like to depart from the present day discussions. Catherine Malabou[6] recently proposed an interesting critical reading of Meillassoux's *After Finitude*, a book that significantly influenced contemporary discussions of modern science. Malabou's critique departs from the distinction between two concurrent understandings of contingency that announce themselves in physics and biology. Here I will not trace her entire argument but I will merely stop at her claim that biology implies a different type of contingency than the one philosophy has deduced from the lessons of Galilean science.

Malabou's critique of Meillassoux consists in pointing out the "Kantian" moment in his understanding of contingency: to be contingent means to be susceptible to change. But there are two ways to think this change. One would be what Malabou calls "occurential contingency", which is the most common and spontaneous understanding of contingency, and which supposedly functions as the point of encounter between speculative realism and transcendental idealism. To this contingency Malabou opposes the "gradual contingency" that she illustrates with the adaptability of the human mind or so-called "mental Darwinism". Thought adapts to the world without noticing the changes taking place behind its back, thereby overlooking contingency as such. The conclusion she draws from this orientation may appear as an infinite judgment: "Change is stability." Instead of remaining caught in the dichotomy between change and stability, she proposes that we speak of the plasticity of laws as a different mode of their stability, one that is no longer grounded on the opposition between necessity and contingency (or between continuity and discontinuity).

Meillassoux was naturally not the first one to systematically advocate the idea of the contingency of natural laws. The idea was already addressed in 1874, when Émile Boutroux, today a rather marginal figure in the history of French philosophy, published his dissertation entitled precisely *On the Contingency of Natural*

[6] Catherine Malabou, "It does not have to be like this", *SEP-FEP 2012 Conference*, Manchester, 5 = 7 September 2012. Audio recording available at: http://backdoorbroadcasting.net/2012/09/sep-fep-2012-conference/ (last accessed on 11 September 2012).

Laws.[7] In it Boutroux formulated a problem that was of clear philosophical and epistemological relevance, but nevertheless quickly fell into oblivion until the publication of *After Finitude*.[8] Nevertheless, at the turn of the century his philosophical position stood at the centre of a controversy that involved no other than the mathematician Henri Poincaré.[9]

Lacan referred to this polemic in 1974 during his press conference in Rome. The context of this reference is not unimportant for an understanding of the role of formalization in psychoanalysis. An audience member reproached Lacan that he was using the Kantian notion of the real. Lacan's response to this "provocation" was decisive:

> But this notion is absolutely not Kantian. I insist on that. If there is a notion of the real it is extremely complex, and because of this it is ungraspable, ungraspable in a way that would make a whole. It would be an incredibly anticipatory understanding to think that there is a whole of the real.[10]

The ungraspable character of the real is in this case not the same as the unreachable character of the Kantian thing in itself. The real is not ungraspable because it is out of reach, but because it does not form a totality. The real is then graspable but not whole. Lacan here rejects two features of the Kantian epistemology. One is the in itself insurmountable division between the thing in itself and phenomenal reality: being non-all, the real also undermines the totalization of the constituted reality in relation to transcendence; and secondly, while the thing in itself cannot be subjected to positive knowledge, the real is inscribed into the field of knowledge precisely through mathematical formalization. The latter constantly demonstrates that the real is not constituted in a way that would form a totality, and also that the non-all is closely intertwined with the question of contingency. It is at this point that Lacan refers to the debate between Boutroux and Poincaré:

[7] Boutroux discusses the link between contingency and law in modern science in two major works, the already mentioned *De la contingence des lois de la nature* (Paris: Félix Alcan, 1874) and in *L'idée de loi naturelle dans la science et dans la philosophie* (Paris: Vrin, 1895).

[8] Strangely enough, Boutroux is not mentioned in Meillassoux's book.

[9] As a biographical note, Boutroux was married to Henri Poincaré's sister, Aline Poincaré. Their son, Pierre Boutroux, would later become a mathematician.

[10] Jacques Lacan, *Le triomphe de la religion*, Paris: Éditions du Seuil, 2004, p. 97.

> I came across a short article by Henri Poincaré on the evolution of laws. [...] Émile Boutroux, who was a philosopher, asked himself whether we could not think that laws, too, have an evolution. Poincaré, who was a mathematician, was absolutely opposed to the thought of this evolution, because what scientists search for is precisely a law as something that does not evolve. It is very rare that a philosopher is more intelligent than a mathematician, but here, by chance, a philosopher raised an important question.[11]

Lacan then concludes: "One absolutely does not see why the real would not support a law that moves,"[12] a dynamic law that is strangely comparable to the Freudian growing rock. We can note that Lacan seems to praise Boutroux not only because he linked natural laws with contingency, but also because this link pointed beyond the dichotomy between contingency and necessity, thereby indicating a differentiation within the understanding of contingency as such. To put it again in Malabou's terms, the contingency of natural laws is not occurential but gradual, and the real of these natural laws is constitutively without stability, or as Lacan will say later, without the law, that is, without an underlying stabilizer that would make of the real a predictable and whole entity.

If we return to Poincaré's response to Boutroux thesis we can quickly notice why scientists themselves cannot welcome this connection of natural laws and contingency as something self-evident, even if this connection is implied by the very foundations of modern science.[13] Poincaré's problem with the evolution of natural laws is that it seems to undermine the very foundations of positive science, "the legitimacy and even the possibility of Science."[14] If Science (*la* Sci-

[11] Lacan, *Le triomphe de la religion,* p. 97.

[12] *Ibid.*, p. 98.

[13] At this press conference Lacan will claim that science is an impossible profession, alongside governing, educating, and psychoanalysing (the Freudian triad of impossible professions). We can see that the impossibility of the scientific profession lies in the fact that the effects of modern science deviate from thinking, thereby reducing scientists themselves to mere *parlêtres*, speaking beings.

[14] Henri Poincaré, "L'evolution des lois", in: *Dernières pensées*, Paris: Flammarion, 1917, p. 5. It is not a coincidence that Poincaré speaks of Science – the idea of an instable, contingent, or evolutionary natural law would not only imply a non-all image of nature, but it would also undermine the ideal of Science. If the object of science is not totalizable, then science, too, is non-all. In the end, this is the consequence of formalization as such. The three Lacanian negative characteristics of the real, as noted in Seminar XXIII, should be read as logical consequences of contingency and the non-all: the real has no order (it does not form a totality), the

ence) adopts the perspective of instable laws, then the very grounding of science is brought into question. From the perspective of contingent laws, Science does not exist. But this is precisely the logical consequence of mathematical formalization. To say that mathematical logic is "science of the real" (Lacan) means precisely to exclude the possibility of totalization not only from the field of the real, but first and foremost from the field of science. But let us trace Poincaré's argument against gradual contingency for a bit longer.

Poincaré asks himself a fundamental question: What is a law? He gives the following definition: a law is a "constant link between the antecedent and the consequent, between the actual state of the world and its immediate posterior state."[15] In other words, a law is grounded on the principle of causality, the continuous causal link between the present and the future. The reference to causality is, of course, classical, and it appears that Poincaré remains at the horizon of Kantian epistemology. He then continues with an example that is also mentioned by Lacan:

> Knowing the actual state of every part of the universe, the ideal scientist, who would know all the laws of nature, would possess fixed rules to deduce the state that these same parts would have tomorrow; we understand that this process can be pursued indefinitely. From the state of the world on Monday we will deduce the one on Tuesday, and with the same procedures we will deduce the one on Wednesday, and so on. But that is not all; if there is a constant link between the state on Monday and the one on Tuesday, we will not only be able to deduce the second from the first one, but also the inverse, that is, if we know the state on Tuesday we will be able to deduce the one on Monday; from the state on Monday we will infer the one on Sunday, and so on. We can climb up the course of time, just as we can climb down. With the present and the laws we can predict the future, but we can also predict the past. The process is essentially reversible.[16]

Inferring the future from the present and the past from the present is one and the same operation. In this procedure lies the argument against the evolution of the past, and consequently of the contingency of the future, which gives economic

real is without a law (that is, without a *necessary* law), there are only pieces of the real (the real is non-all graspable through formalization).

[15] Poincaré, *Dernières pensées,* p. 7.

[16] *Ibid.*, pp. 7–8.

speculation such headaches.[17] Poincaré admits that scientific conclusions are possible only under the presupposition that the laws are stable and unchangeable; and the other way around, if the laws are changeable and instable, that is to say, if we admit the possibility of their evolution, they are no longer laws, that is, they do not support the continuous link between the present and the future – they do not support causality, and thereby they do not promise any future: the univocal and unambiguous character that makes them something "true" is undermined: truth and knowledge drift away in separate directions. The functioning of the real can be equated with the functioning of the law only under the condition that science is grounded on positive knowledge, that it is supposed to know, and additionally that scientific truth does not deceive.

The quoted passage begins rather unusually because Poincaré introduces his entire argument by speaking of the *ideal scientist*. The ideal scientist is here very clearly presented as the position from which it is supposedly possible to totalize the field of natural laws, from which the natural real itself appears as susceptible to totalization; and also the position from which science, as such, is supposed to know. It is for this reason that Lacan will claim that mathematicians tend to treat mathematics as a person.

This position is again the perfect counterpart to the figure of knowledge that is at work both in the unconscious and in mathematics.[18] Let us recall that Freud discovers in the unconscious the connection between knowledge and labour. Lacan translates this connection as the *ideal worker* because labour in the production of unconscious formations does not involve thinking, calculating, or judging. To quote the famous passage from *The Interpretation of Dreams:*

> The dream-work is not simply more careless, more irrational, more forgetful and more incomplete than waking thought; it is completely different from it qualitatively

[17] See Pierre-Noël Giraud, *Le commerce des promesses*, Paris: Éditions du Seuil, 2011. We could say that capitalists and scientists share the same belief in the necessity of laws, and the same anxiety: what if contingency cannot be integrally formalized? But here, again, the understanding of contingency remains occurential.

[18] "As language that is most appropriate for scientific discourse, mathematics is science without consciousness [...]." Jacques Lacan, "L'étourdit", in: *Autres écrits,* Paris: Éditions du Seuil, 2001, p. 453.

> and for that reason not immediately comparable with it. It does not think, calculate or judge in any way at all; it restricts itself to giving things a new form.[19]

The double character of such unconscious labour is not irrelevant for understanding under which presupposition Poincaré rejects Boutroux. Freud underlines that this labour takes place on two different levels and produces two effects that appear to be mutually connected but in fact operate in completely different registers and follow two separate logics. The primary level is that of condensation and displacement, the two fundamental operations of unconscious labour that Freud will call the "skilled workers", the cornerstones of unconscious production leading to the satisfaction of unconscious desire. But there are two other operations of unconscious labour, consideration of representability and secondary elaboration. If the first two processes formalize the dream material – not only by giving the material a new form, but also by ignoring the tendency to closure and finalization – then the second two precisely totalize the dream. The second level of dream formation "fills the holes" in dream products, thereby creating the appearance of coherence, consistency, and linear narration. In order to demonstrate the point of this second level of unconscious labour, Freud quotes the famous lines from Heine, where the latter mocks the philosopher as someone who stuffs the holes in reality with pieces of his morning gown (the very same lines that will serve Freud three decades later to criticize philosophy). Poincaré thus seems to be making a step in the direction of this "spontaneous philosophy", presupposing a totality of natural laws, or rather a totality of the natural real based on which one can support the predictability of natural phenomena: the real functions according to stable and unchangeable laws; in the real there is, supposedly, knowledge, and this knowledge is discovered by scientific procedures, be it experimentation or mathematical formalization. Poincaré's Science does not play dice, in other words, there is no contingency in natural laws. But again, in both cases there seems to be a misunderstanding of contingency, in its external opposition with necessity and stability.

In Boutroux we find an interesting specification of his understanding of contingency, one that reveals that there is something fantasmatic in the occurential understanding of contingency. In his discussion he claims the following:

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[19] Sigmund Freud, *Standard Edition*, Vol. IV, London: Hogarth Press and The Institute of Psychoanalysis, p. 506.

> The reality of change is not less evident than the reality of permanence; and if one can conceive that the two changes operated in an inverse sense engender permanence, it is unintelligible that the absolute permanence encourages the change. It is therefore the change that is the principle: the permanence is merely a result: so things need to admit the change in their most immediate relations.[20]

Permanence is a retroactive effect of change, or to refer back to Malabou, change is stability. But the "is" between change and stability is not reflexive or reversible. Change may be stability but stability is not change. If that were the case we would again fall back into the hypostasis of necessity under contingencies. Boutroux then continues:

> The cause as such is indifferent to harmony and to disorder: causes, left to themselves, evolve only by fighting each other and give results that are identical to the ones of chance.[21]

There are two regulative fantasies at work here that Boutroux seems to expose and play out with the thesis of the contingency of natural laws: chaos and harmony, undoubtedly two of the oldest fantasies in the field of cognition. Contingency undermines the understanding of the real in terms of harmonic totalization, which would be the regulative ideal of the pre-modern cosmologies; but contingency does not simply imply anarchy either. It is precisely for this reason that Lacan in his Seminar on Joyce firmly rejected the question of whether he was an anarchist – which would be the opposite of the transcendental idealism that was attributed to him in Rome. In this case, too, the question was addressed to him because of his notion of the real. The three fundamental features of the real which Lacan's teaching amounts to in the late seminars are only apparently anarchist: the real is without a law, the real forecloses sense, the real is non-all. What is truly at stake is the connection between formalization and contingency that Lacan describes as a deadlock. It may therefore appear unusual that he brings together psychoanalysis and formalization on the terrain of sexuality, of something that would be the paradigmatic case of the impossible-to-formalize.

[20] Émile Boutroux, *Sur la contingence des lois de la nature*, p. 27.
[21] *Ibid.*, p. 42.

Physics and psychoanalysis

For psychoanalysis, the question at stake in formalization is how to transmit the experience of the impossible that traverses the unconscious and language, without simply falling back into the frames of necessity and order, something that the case of Poincaré testifies to. The doctrine of transmissibility should be understood as one of the main efforts of Lacan's teaching, notably because his contemporary readers often claim that Lacan's later teaching culminates in an irreducible deadlock and dichotomy between formalization (*matheme*) and jouissance (*lalangue*).[22] But if psychoanalysis is not a mere "autism in two", as Lacan wonders in Seminar XXIV, then a minimum of transmissibility needs to be *forced* within its field. The matheme doctrine, no matter from which angle we take it, was conceived in order to provide a minimum of such transmissibility. Of course, Lacan introduced the matheme in order to theorize transmission as something that concerns psychoanalytic knowledge, and in this respect the matheme is modelled on the way formalization is supposed to work in modern science. This is also how psychoanalysts themselves usually understand the matheme. Very soon, though, Lacan started to accentuate the moment of the impasse in formalization, thereby orienting it towards the dimension of truth and towards the impossibility of knowledge and truth to form a whole. It was for this reason that Lacan progressively "dramatized" the question of transmission by claiming that psychoanalysis appears to him as something non-transmissible. Namely, what is transmitted is not some supposed knowledge in the real, but the very deadlock of the impossible. The shift from knowledge to truth can be best situated in relation to a famous passage from Seminar XX, where Lacan

[22] To name only two influential examples: Jean-Claude Milner (*L'oeuvre claire*, pp. 159–171) concludes his brilliant book with the rather hastily asserted dichotomy between Wittgenstein (topology) and Joyce (literature), the numb showing, on one hand, and the endless babbling of *lalangue*, on the other; Collete Soler (*Les affects lacanienns*, Paris: P.U.F., 2011) constructs her reading of the later Lacan around the tension between the matheme and the poem, concluding that Lacan's final doctrine of interpretation was to orientate psychoanalysis towards poetry. It does not need to be added that both positions risk pushing psychoanalysis into some sort of esoteric mysticism of clinical experience. This does not mean that the opposite direction, where the "essence" of psychoanalysis is the matheme, the theory, is better. I cannot elaborate further on this question here, but I would like to add that what Lacan calls "transmission" should not be understood exclusively in relation to the matheme, but in relation to the *letter* (the "*littoral*"), that is to say, the transmission takes place in the space in-between formalization and poetization, so that for Lacan both Wittgenstein and Joyce are names of two psychoanalytic *problems* and not of two concurrent psychoanalytic doctrines.

provides a strong image for the functioning of formalization and for the use of mathematical letters:

> If I were allowed to give an image for this, I would easily take that which, in nature, seems to most closely approximate the reduction to the dimensions of the surface writing requires [...] the textual work that comes out of the spider's belly, its web. It is a truly miraculous function to see, on the very surface emerging from an opaque point of this strange being, the trace of these writings taking form, in which one can grasp the limits, impasses, and dead ends that show the real acceding to the symbolic.[23]

Contingency stands precisely for this transcription of the real in formalization, and Lacan focuses not so much on what the spider is constructing, but on the opaque point within structure, where the symbolic is internally broken, perforated, hence non-all. Lacan then emphasises that this procedure needs to be related to truth rather than knowledge:

> That is why I do not believe that it was in vain that I eventually came up with the inscriptions *a*, the $ of the signifier, A, and Φ. Their very writing constitutes a support that goes beyond speech, without going beyond language's actual effects. Its value lies in centering the symbolic, on the condition of knowing how to use it, for what? To retain a congruous truth – not the truth that claims to be whole, but that of the half-saying.[24]

What needs to be retained in this procedure is the half-saying of truth, that is, truth that holds on to the real[25] and that goes against its traditional understanding in terms of *adaequatio* (the truth of cognition that is supposed to be one with knowledge). The encounter of truth and the real is not something that would simply occur but something that traverses the symbolic. As Lacan explicitly states, formalization helps one to go beyond speech, without therefore claiming to go beyond the effects of language, or put differently, without forming a metalanguage. It is not difficult to spot the role of contingency in relation to

[23] Jacques Lacan, *Seminar,* Book XX, *Encore*, New York: Norton, 1999, p. 93.
[24] Lacan, *Seminar,* Book XX, *Encore*, p. 93. Translation modified.
[25] Recall the beginning of *Television:* "I always say the truth, not all truth, because we never arrive at saying it all. To say it all is materially impossible: for this the words are lacking. It is even through this impossibility that truth holds on to the real." Jacques Lacan, "Télévision", in: *Autres écrits*, p. 509.

this traversing. Contingency is one of the four possible "vicissitudes of the letter": necessity, possibility, contingency, and impossibility. Let us recall Lacan's translation of these modalities in Seminar XX. The necessary is defined as something that does not cease to write itself, while its opposite, the impossible, is translated as something that does not cease *not* to write itself. In this context, contingency does not simply disrupt the necessary or abolish the impossible. It also does not simply translate the impossible into the necessary, or make the impossible possible. On the contrary, what is translated as something that ceases to not to write itself contingency is a modality of writing that transcribes the very persistence of non-writing.

These vicissitudes of the letter show that formalization does not demonstrate a functioning but rather aims at a dysfunctioning within apparent functioning. It does not serve to bridge the gap that separates the necessary from the impossible, but instead transcribes it, because it operates on the opaque point within language where the structure is not simply a system of signifying differences, but something that is capable of producing real effects precisely for being non-all. Formalization uncovers a discrepancy between the appearance and the real within the appearance, and this uncovering is the fundamental lesson that Lacan draws from modern science, notably from Kepler, who is for him the true epistemological revolutionary:

> The true turn takes place thanks to Kepler and, I insist, in the subversion, the only one worthy of the name, that constitutes the passage [...] from the imaginary of the so-called perfect form, the circle, to the articulation of the conic, and occasionally of the ellipse, in mathematical terms.[26]

And the same point with a slightly different emphasis:

> What is crucial, as some people have noticed, is not Copernicus, but more specifically Kepler, due to the fact that in his work it does not turn in the same way – it turns in an ellipse, and that already throws into question the function of the center. That toward which it falls in Kepler's work is a point of the ellipse that is called a focus,

[26] Jacques Lacan, "Radiophonie", in: *Autres écrits,* p. 431.

> and in the symmetrical point there is nothing. That is assuredly a corrective to the image of the center.[27]

The question of science and thinking needs to be situated in this passage from correct forms to the *mathematization of the non-all*. Formalization moves not so much the underground, but the surface, the appearance, or the semblant. The semblant is here simply the observable, the empiric – the circular movement, its repetition that supports the prediction of future events and for the totalization of the real; whereas the real is not some transcendent exteriority but the distortion of the correct form itself. With this use of formalization modern science inaugurates the decentralization of the space of thinking. For this reason Lacan insists on the necessity of differentiating two revolutions within the emergence of modern science, of which only one can be understood in terms of subversion. The Copernican, for instance, still remains within the old epistemological paradigm:

> The strangest thing is that no one, namely: the specialists with the exception of Koyré, emphasises that Copernicus's "revolutions" do not concern the stellar bodies but the spheres.[28]

Movement, in particular circular movement, is the presence of the semblant in nature. Saying "It moves." is therefore not enough to produce an epistemological revolution because this movement continues to be represented in correct forms. Copernicus thus remains within the space of thinking defined by the Ptolomaic cosmology. Newton and Kepler, on the other hand, break out of this paradigm by substituting, respectively, the circle with the ellipse and turning with falling:

> *Hypotheses non fingo,* Newton believed he could say, "I assume nothing". But it was on the basis of a hypothesis that the famous revolution – which wasn't at all Copernican, but rather Newtonian – hinged, substituting "it falls" for "it turns". The Newtonian hypothesis consisted in positing that the astral turning is the same as falling.[29]

Scientific thinking does not aim at the observable but at what within the observable remains symptomatic, the distortions of the semblant. In Newton's case,

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[27] Jacques Lacan, *Seminar,* Book XX, *Encore*, p. 43.
[28] Lacan, "Radiophonie", p. 430.
[29] Lacan, *Seminar,* Book XX, *Encore*, p. 141.

the semblant of turning is replaced with falling. But this replacement would not necessarily produce a revolution if it were not for what Lacan calls Newton's hypothesis, the equivalence of turning and falling. Only this equivalence decentralizes the semblant because it continues the line opened up by Kepler's mathematization of the elliptic movement, that is, of movement that does not presuppose a fixed central point. The last revolution in this line is for Lacan the Freudian introduction of the unconscious, which is in itself also a hypothesis that concerns the decentralization of knowledge and thinking:

> We can see that the unconscious is merely a metaphoric expression to describe knowledge that supports itself only by presenting itself as impossible, so that from this I confirmed it to be real (namely real discourse).[30]

The unconscious, or knowledge that does not know itself, is possible only under the paradigm of modern science. We can note that Lacan's accent on formalization implicitly attacks the philosophical ideal of thinking of thinking. The unconscious as decentralized thinking is possible only as far as there is no such thing as thinking of thinking: there is no unconscious in the Aristotelian paradigm, but there is one in Descartes, whose philosophy is already a reaction to the action of thinking in modern science. The problem is then not whether science thinks or does not think. For Lacan it is clear that science thinks (this would be his "*a priori*" anti-Heideggerianism). But the *differentia specifica* of modern science is that it is precisely thinking that does not think itself, or to paraphrase Lacan's point concerning mathematics, *science is thinking without consciousness*, thinking marked by non-identity with itself, hence decentralized thinking.

It is no coincidence that Lacan's central lesson regarding formalization is found in Seminar XX, where he finalizes his two-year development of the formulas of sexuation. The formalization of sexual difference is undoubtedly an unusual project. It brings together two extremes, mathematics and sexuality, thereby responding to the Freudian attempts to reduce sexual drives to biological frames. Looking at the development of the formulas, it becomes more and more obvious that what is formalized is not something positive but an irreducible negativity, the real of psychoanalysis that Lacan condenses in the axiom "There is

[30] *Ibid.*, p. 425.

no sexual relation." To formalize the impossibility of the relation that traverses sexuality also involves the formalization of the irreducible split between the biological and the sexual, the split that is produced together with the inscription of the signifier in the living body and with the constitution of the subject as a speaking being.

If Meillassoux recently summed up the fundamental lesson of formalization in the idea that it enables us to think the Absolute, something that exists independently of life and thinking, then Lacan's use of formalization involves an unusual twist. Here formalization does not aim at something that exists independently outside life and thinking, but rather at something that inexists within life and thinking, not an external exteriority (the great Outdoors), but internal exteriority: the *extimate*, which would be the great Outdoors, that is first and foremost outside of itself, and only afterwards outside subjectivated life and thinking. The point of the inexistence of sexual relation is that it produces real effects precisely as inexistence. Sexual non-relation is an effective inexistence that presents itself as "independent" from the subject: independent in the sense that it deprives the subject's life and thinking of the possibility of their centralization. Both the unconscious and sexuality can be considered as the great Outdoors *within* the subject.[31]

[31] For the speaking being, sexuality and the unconscious mean being expelled from its own interiority, and this is where psychoanalysis again encounters contingency: "I incarnated contingency in the expression "stops not being written". For here there is nothing but encounter, the encounter in the partner of symptoms and affects, of everything that marks in each of us the trace of his exile – not as subject but as speaking – his exile from the sexual relationship." Lacan, *Seminar*, Book XX, *Encore*, p. 145. If for Freud biology was the last resort for a scientific foundation of his theory of sexuality, Lacan's example for thinking the paradoxes of sexuality was modern physics. Just like the notion of the fall and the elliptic model of the planetary orbits revolutionized the field of knowledge, another fall revolutionized the understanding of sexuality: the fall that is etymologically inscribed in the notion of the symptom: the Greek *ptôma* means precisely the fall. Contingency and the symptom are here brought together because they both assume the position of "ceasing not to write itself".

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Triebgesellschaft. Zolas *La bête humaine* und die Kriminologie

I.

Ich möchte Im Folgenden Émile Zolas Roman *La bête humaine* vor dem Hintergrund der Emergenz des kriminologischen Diskurses in der zweiten Hälfte des 19. Jahrhunderts lesen. Meine These lautet dabei, dass sich Zolas Roman auf eine Verdatung des Verbrecherkörpers bezieht, wie sie sich ab der Mitte des Jahrhunderts vollzieht. Es soll also weniger darum gehen, am Beispiel von *La bête humaine* aufzuweisen, wie Literatur und Kriminologie in ein wechselseitiges Austauschverhältnis treten, d.h. wie Figuren aus der Literatur in die Kriminologie und wieder zurück wandern – wie es die Studie von Stefan Andriopoulos und Jutta Person vorgeführt haben.[1] Vielmehr möchte ich aufzeigen, dass Literatur und Kriminologie an der Erzeugung und Erhaltung einer Figur arbeiten, die seit Ende des 19. Jahrhunderts im Zentrum der Sorge der Psychiater, Strafrechtler, Statistiker und Kriminologen steht: dem gefährlichen Menschen.[2]

In Zolas Roman findet sich diese Figur des gefährlichen Menschen in Gestalt des ‚Triebtäters' Jacques Lantier wieder. Lantier wird den Roman hindurch mit den Mitteln der Psychiatrie und der Kriminologie beschrieben. Der Roman zieht

[1] Vgl. Stefan Andriopoulos, *Unfall und Verbrechen. Konfigurationen zwischen juristischem und literarischem Diskurs um 1900*, Pfaffenweiler 1996, S. 29–30; Jutta Person, *Der pathographische Blick. Physiognomik, Atavismustheorien und Kulturkritik 1870-1930*, Würzburg 2005, S. 49–185.

[2] „Throughout the whole second half of the century there developed a ‚literature of criminality' and I use the word in its largest sense, including miscellaneous news items (and even more, popular newspapers) as well as detective novels and all the romanticized writings which developed around crime – the transformation of the criminal into a hero, perhaps, but equally, the affirmation that ever-present criminality is a constant menace to the social body as a whole. The collective fear of crime, the obsession with this danger which seems to be an inseparable part of society itself, are thus perpetually inscribed in each individual consciousness." Michel Foucault, „The Dangerous Individual", in: Politics, Philosophy, Culture: Interviews and other Writings 1977–1984, ed. by L. D. Kritzman, London/ New York 1988, S. 125–151, 142 (Hier nach der englischen Version zitiert, da dieser Absatz in der deutschen Fassung fehlt).

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sowohl Bénédict Augustin Morels Theorie der Degeneration, der „progressiven Entartung“ von Familien durch das Zusammenwirken von Milieu und Vererbung heran, wie auch Cesare Lombrosos Lehre vom geborenen Verbrecher.[3] Er inszeniert dabei eine Nähe von heterogenen Zuständen, Ereignissen und Metaphoriken: Tiermetaphoriken überblenden sich mit thermodynamischen Prozessen, Unfälle verweisen auf unwillkürliche Automatismen und zwanghafte Handlungen und Liebesakte stehen in unmittelbarer Nähe zu Gewaltakten. So etwa wenn die mit Soldaten vollbesetzte Lokomotive am Ende des Romans führungs- und steuerungslos und mit Überdruck im Kessel ihrem Ende entgegeneilt, sie damit zum Symbol einer energetisch wie politisch entfesselten Gewalt sowohl der Epoche als auch des Zweiten Kaiserreichs wird, das auf seinen Untergang im Deutsch-Französischen Krieg zuhält und all dies wiederum mit dem Galopp einer ungezähmten Stute verglichen wird[4]; so wenn Lantier „ungestüm“ den Regler schließt, das Steuerungsrad herumdreht und sich mit „unbewußter Hand an den Griff der Dampfpfeife“[5] hängt, um vergeblich in letzter Sekunde den Zusammenprall der Lokomotive mit einem auf den Gleisen stehenden Lastfuhrwerk zu verhindern, während Flore, die das Fuhrwerk auf den Gleisen abgestellt hat, um den Zug zum Entgleisen zu bringen und so den von ihr geliebten Lantier und dessen Geliebte Séverine zu ermorden, nach dem Unfall „Erleichterung von einem Drang“[6] verspürt; und so wenn die Abfahrt des „Zug[es] vier Uhr fünfundzwanzig nach Dieppe“[7] zufällig durch Rangierarbeiten auf dem Bahnhof aufgehalten wird und damit ein „Durcheinander“ auslöst, in dem sich die „Signale, die Pfiffe, die Signaltonhörne“ vermischen und von allen Seiten „rote, grüne, gelbe, weiße Lichter“ auftauchen. Jeder Schienenstrang, wie der zwischen Paris und Le Havre auf dem Lantier mit seiner Lokomotive verkehrt, führt so letztlich in ein „unentwirrbarres Schienengeflecht“, in eine Unübersichtlichkeit und Unüberschaubarkeit, in ein „Wirrwarr“[8] von Zufällen, Vernetzungen und Gemischen.

[3] Vgl. Émile Zola, *Das Tier im Menschen* [1890], Berlin 1983, 49. Bénédict Augustin Morel, *Traité des dégénérscences physiques, intellectuelles et morales de l’espèce humaine et des causes qui produisent ces variétés maladives*, Paris 1857; Cesare Lombroso, *Der Verbrecher in anthropologischer, ärztlicher und juristischer Beziehung*, Bd. 1, 2. Aufl. Hamburg 1894.

[4] Zola, Tier im Menschen, a.a.O., S. 321–322.

[5] Ebenda, S. 255.

[6] Ebenda, S. 257.

[7] Ebenda, S. 17.

[8] Alle Zitate ebenda, S. 27.

Es waren eben diese Zufälle und gemischten Zustände, die *La bête humaine* von Seiten Lombrosos den Vorwurf der Unwahrscheinlichkeit eingetragen haben.[9] Doch es sind gerade diese unwahrscheinlichen Übertragung aus einem Feld ins andere, durch die sich der Roman all jenen Verläufen der Entdifferenzierung und Vermischung annähert, deren Präsenz er permanent beschwört. *La bête humaine* ist so selbst ein Roman des Kurzschlusses und nicht von ungefähr verhandelt er daher all jene Kurzschlusshandlungen, mit denen sich die Sozialstatistiker, Kriminologen und Psychiater des 19. Jahrhunderts konfrontiert fanden: den Unfall, das Verbrechen, die Tat ohne Motiv.

Es ist genau diese Frage nach Taten ohne Motiv, die auf die Genealogie des gefährlichen Menschen verweist. Denn zwischen 1800 und 1835 zieht eine Reihe von Rechtsfällen die Aufmerksamkeit der Juristen, Psychiater und Kriminalisten auf sich. Es handelt sich dabei um Mordtaten, die anscheinend ohne Motiv, ohne Leidenschaft, ohne Interesse und ohne besondere Anzeichen von Wahn verübt werden. Bei all diesen Fällen, die man seit der ersten Hälfte des 19. Jahrhunderts als Monomanie fasst, hat man es also mit sinnlosen Taten zu tun. Der bekannteste Fall ist wohl der jener Hausmagd namens Henriette Cornier in Paris, die eines Tages bei einer Nachbarin vorspricht mit dem Vorschlag, deren kleine Tochter für ein paar Minuten zu hüten. Henriette Cornier nimmt das Mädchen in ihre *chambre de bonne*, schneidet ihr den Kopf vom Rumpf ab, wird verhaftet und äußert dann, nach dem Grund befragt: „Das war so eine Idee."[10]

Letztlich nicht mehr als eine Idee erschien aber aus der Sicht der Kriminologen und Psychiater der zweiten Hälfte des 19. Jahrhunderts die Diagnose der Monomanie selbst. Denn mit dem Auftauchen des Begriffs des gefährlichen Mensch, der seitdem nach und nach Eingang in die psychologischen und juridischen Institutionen findet, vollzieht sich gegenüber den großen Fällen der Monomanie eine Verschiebung im kriminalistischen und psychiatrischen Diskurs. Michel Foucault, der das Thema des gefährlichen Menschen untersucht hat, hat die zwei wesentlichen Züge dieser Transformation des kriminologischen Diskurses

[9] César Lombroso, *La „Bête humaine" et l'anthopologie criminelle*, in: *La Revue des revues. Receuil des articles parus dans les revues françaises et etrangères*. Vol. IV-V, Paris 1892, S. 260–264.

[10] Michel Foucault, *Die Anormalen. Vorlesungen am Collège de France (1974–1975)*, Frankfurt am Main 2003, S. 147–148.

unterstrichen[11]: Erstens rücken die Psychiater und Kriminologen von der Auffassung ab, dass die großen und rätselhaften Verbrechen wie der Fall Cornier Ausdruck eines partiellen Wahnsinns sind, der auf einen einzigen und bestimmten Punkt bezogen und nur in bestimmten Augenblicken zum Ausbruch kommt. Man ersetzt also die Idee der Monomanie durch den Gedanken einer Analyse des Affekt- und Trieblebens. An die Stelle eines temporären und transitorischen Ausbruchs, der so schnell verschwindet wie er erschienen ist, tritt die Analyse automatischer Verhaltensweisen. Zweitens gibt man die Idee der Monomanie auf, weil man den Gedanken fasst, dass die Verbrechen selbst eine Geschichte haben. Man geht nunmehr von der Auffassung aus, dass sich das Verbrechen in bestimmten Phasen ankündigt oder ankündigen kann. Dazu sucht man die Symptome und Zeichen, die auf die Möglichkeit des Verbrechens verweisen, entweder in der Entwicklung des Einzelnen oder auf der Ebene der Abfolge der Generationen auf. Was somit im Verbrechen auf dem Spiel steht, ist nicht mehr, wie noch im Konzept der Monomanie, der Umstand, dass die Tat keinen Grund hat. Die Analyse des Trieb- und Affektlebens ermöglicht gerade eine neuartige „Kausalanalyse aller Verhaltensweisen, ob strafbar oder nicht und bei strafbarem Verhalten ganz unabhängig von der Schwere des Verbrechens“[12].

Es soll hier nicht weiter darum gehen, welche Auswirkungen diese Transformation des kriminologischen Diskurses für die Frage der Strafe und des Strafrechts hatte[13]; vielmehr nur um den Sachverhalt, dass die Frage nach den Faktoren, die durch das Milieu oder die Vererbung vorgegeben werden, ab der zweiten Hälfte des 19. Jahrhunderts ins Zentrum der Aufmerksamkeit des kriminologischen Diskurses rückt.

Was also – und das wäre ein erster Punkt – an der Figur des gefährlichen Menschen in Erscheinung tritt, ist nichts weniger als die Gesetzmäßigkeit noch des scheinbar Ungesetzlichen, Unerklärlichen und Unerwartbaren. Über alle Kontroversen hinweg nimmt die Kriminologie gegen Ende des 19. Jahrhunderts den Verbrecher in den Blick, weil sich gerade an ihm und an seiner Tat, die

[11] Michel Foucault, *Die Entwicklung des Begriffs des „gefährlichen Menschen“ in der forensischen Psychiatrie des 19. Jahrhunderts*, in: *Schriften in vier Bänden. Dits et Ecrits, Bd. III: 1976–1979*, herausgegeben von Daniel Defert und François Ewald unter Mitarbeit von Jacques Lagrange, Frankfurt am Main 2003, 568–594. Ich folge an dieser Stelle meiner Argumentation Foucault.

[12] Ebenda, S. 584–585.

[13] Vgl. dazu Andriopoulos, *Unfall und Verbrechen*, a.a.O., S. 57–92.

Gesetzmäßigkeiten im Menschenverkehr aufweisen lassen. Dazu greift sie auf die Mittel empirischer Beobachtung zurück. Die „Statistik", schreibt der italienische Kriminalsoziologie Enrico Ferri, ist eines der „wirksamsten Hilfsmittel der Beobachtung des Kriminalanthropologen."[14] Und Franz von Liszt wird festhalten, dass das Verbrechen „seinen juristischen Ausdruck in den Ziffern der Rückfallsstatistik" findet. [15] Aus den Daten, Ziffern und Verlaufskurven schließt man so auf ein „Gesetz der Kriminalität"[16] und verweist dafür zugleich auf die moralstatistischen Studien von Quetelet, Guerry oder von Oettingen.[17]

Es war die Sozial- und Moralstatistik Adolphe Quetelets, die seit Mitte des 19. Jahrhunderts erstmals systematisch die Ziffern der Verbrechensdelikte auswertete. Das „Budget"[18] an Verbrechen, das laut Quetelet die Gesellschaft Jahr für Jahr ohne Mithilfe der Individuen aufbringt, erschließt dabei ein Gefahrenfeld, in dem sich das Soziale nach dem Modell von Unfällen und wie eine „Dynamitexplosion" oder „ein entgleisender Zug"[19] verwirklicht. Vor allem aber werden darin eine Gesetzmäßigkeit und eine treibende Kraft ausgemacht, die nicht mehr mit einzelnen Antrieben und Motivlagen übereinstimmen. Bei Quetelet heißt es: „Die Gesellschaft birgt in sich die Keime aller Verbrechen, die begangen werden sollen, zugleich mit den ihr zu ihrer Vollführung nothwendigen Gelegenheiten. *Sie* ist es gewissermaßen, die diese Verbrechen vorbereitet, und der Schuldige ist nichts als das Werkzeug, das sie vollführt."[20] Was die Sozialstatis-

[14] Enrico Ferri, *Das Verbrechen als sociale Erscheinung. Grundzüge der Kriminal-Soziologie*, Leipzig 1896, S. 111.

[15] Franz von Liszt, *Der Zweckgedanke im Strafrecht, Marburger Universitätsprogramm 1882*, in: Strafrechtliche Vorträge und Aufsätze. Bd. 1, 1875-1891, Berlin 1905, S. 126–179, 167.

[16] Adolphe Prins, *Criminalité et répression. Essai de science pénale, Bruxelles 1886*, S. 13.

[17] Il n'y a relativement que peu de temps que Quetelet, dans ses célèbres aperçus des physique sociale, Guerry, dans ses travaux de statistique, récemment encore von Oettingen dans son grand ouvrage de statistique moral, et les disciples de ces savants éminents ont fait ressortir la constance des tendances et des penchants de l'homme et la vaste portée sociale de la loi des grands nombres." (Prins, *Criminalité et répression, a.a.O.*, S. 11-12). „Viel wird hier die Moralstatistik, viel insbesondere ihre Anwendung auf die heute noch einer verläßlichen Methode entbehrende Kriminalanthropologie leisten können." (von Liszt, *Der Zweckgedanke im Strafrecht, a.a.O.*, S. 167)

[18] Adolphe Quetelet, *Über den Menschen und die Entwicklung seiner Fähigkeiten*, hrsg. von A. Riecke, Stuttgart 1838, 6, 612, 656. Zur sozialen Physik Quetelets vgl. Michael Gamper, *Masse lesen, Masse schreiben. Eine Diskurs- und Imaginationsgeschichte der Menschenmenge 1765-1930*, München 2007, S. 308-323.

[19] Gabriel Tarde, *L'opinion et la Foule* [1901], Paris 1989, S. 145.

[20] Quetelet, *Über den Menschen*, a.a.O., S. 7.

tik als ‚Trend', als wahrscheinliche ‚Tendenz' oder ‚Neigung' angibt, erweist sich so „als sozialer Schatten eines unwiderstehlichen Triebs, mit dem die einzelnen nur insofern handeln, als sie bar aller Absichten sind"[21]. Der Kriminalanthropologe Cesare Lombroso wird das auf den Punkt bringen, dass jedes Verbrechen Ausdruck eines „Trieb[s] zum Verbrechen" sei. [22] Aus anthropometrischen, physiologischen und psychologischen Daten, die massenhaft in Gefängnissen, Besserungsanstalten und Asylen erhoben werden, gewinnt Lombroso einen *delinquente nato*, den die „wenigen vereinzelten Geschichten"[23] einer traditionellen Kasuistik nicht mehr erzeugen können.

Der Verbrechertypus, der aus diesen empirischen Zahlenkolonnen entspringt, entspricht dabei nicht einer realen, in der Wirklichkeit vorfindbaren, auffindbaren und identifizierbaren Person, sondern „muss mit demselben Vorbehalte aufgenommen werden, wie die mittleren Zahlen in der Statistik".[24] Dem Verbrechertypus bei Lombroso kommt also eine virtuelle Existenz zu, er ist im Kern eine fiktive Entität, die auf einen atavistischen Zustand der Menschheitsgeschichte verweist.[25]

Aus all diesen Bemühungen um den gefährlichen Menschen entspringt also die Erkenntnis, dass das Verbrechen nicht länger ein individuelles, sondern „ein so-

[21] Joseph Vogl, *Über soziale Fassungslosigkeit,* in: *Unfassbare Körper. Über Zeitgeist und andere kollektive Gespenster,* herausgegeben von Michael Gamper und Peter Schnyder. Freiburg im Breisgau 2006, S. 171-189, 186

[22] Cesare Lombroso, *Neue Fortschritte in den Verbrecherstudien,* Gera 1896, S. 303.

[23] Lombroso, *Der Verbrecher*, a.a.O., S. 124.

[24] Ebenda, XVII. Der Verbrechertypus ist also Ausdruck dafür, dass „die Gesellschaft ... im Grunde genommen nichts anderes ist, als ein Einzelmensch, der stets existiert hat." (Lombroso, *Neue Fortschritte in den Verbrecherstudien,* a.a.O., S. 286.)

[25] Ich würde also vorschlagen, den Rückbezug des Verbrechertypus auf einen atavistischen Zustand der Menschheitsgeschichte, wie er bei Lombroso und der italienischen Schule vorkommt, als eine Interpretation des fiktiven Charakters jeden Verbrechertypus zu deuten. Erst an dieser Stelle also würde der biologischen bzw. biologistischen Strang bei Lombroso einsetzen. Man vgl., was Havelock Ellis schreibt: „So kommt es, dass unsere Verbrecher in physischer wie in psychischer Hinsicht so oft den *normalen Individuen* einer niederen Rasse gleichen. Es ist dies der Atavismus, den man so oft beim Verbrecher beobachtet hat, und der zu so zahlreichen Diskussionen Anlass gegeben hat." (Havelock Ellis, *Verbrecher und Verbrechen*, autorisierte, vielfach verbesserte deutsche Ausgabe von H. Kurella, Leipzig 1895, 225, meine Hervorhebung, M.P.) Die Rede vom Vergleich, die Ellis bemüht, scheint mir darauf hinzudeuten, dass man die statistischen Daten, aus denen der Verbrechertypus hervorgeht, biologisch *interpretiert*.

ziales Phänomen", eine „soziale Erscheinung"[26] ist. Ohne Zweifel fasst dabei die Kriminalanthropologie von Cesare Lombroso, Enrico Ferri und Raffaele Garofalo den Begriff der Gesetzmäßigkeiten anders auf als es zum Beispiel Adolphe Prins tut. Über alle Kontroversen hinweg zeigt sich aber, dass sowohl die Kriminalanthropologie wie die belgische Schule von Adolphe Prins ihren Begriff von Gesetzmäßigkeit aus einer Interpretation statistischer Daten ableiten.

II.

Die große Zahl an Daten, die dem kriminologischen Diskurs und der Moralstatistik zur Verfügung gestellt werden – und die im Fall Lombrosos zum Vorwurf führen, sein Verbrechertypus stütze sich auf eine zu geringe Anzahl von Daten[27] – verweisen dabei auf jene Zahlenlawine, die die Ämter und statistischen Büros seit 1800 nicht aufhören in die Welt zu bringen. Und so ließ sich ab 1825 an den Kriminalstatistiken ablesen, wie es empirisch um das rechte Maß bestellt war, das Pierre de Laplace für das Verhältnis von Verbrechen und Strafen eingefordert hatte.[28] Für Laplace gewann die Frage nach der Urteilsfindung im Rechtsprozess und damit der Anwendung der Probabilität auf die Urteilsproblematik ihr Recht dadurch, dass in sie bereits eine andere Frage eingelagert war: welche Gefahren drohen der Gesellschaft durch ein Fehlurteil? Der Wahrscheinlichkeitskalkül wird damit in der Laplaceschen Interpretation zur Richtschnur, die nicht nur das rechte Maß zwischen Verbrechen und Strafen zur Verfügung stellt – einem geringfügigen Verbrechen entspricht eine milde Strafe, einem schweren Verbrechen eine harte Strafe; der Kalkül kann darüber hinaus zum allgemeinem Mittel werden, Risiken und Gefahren in der Gesellschaft abzuschätzen und berechenbar zu machen. Zum Gegenstand der Analyse wurden die vom französischen Justizministerium jährlich veröffentlicht Kriminalstatistiken dann in Siméon-Denis Poissons *Lehrbuch der Wahrscheinlichkeitsrechnung und deren wichtigsten Anwendungen*. Dort wird nicht nur die Wahrscheinlichkeit auf die Urteilsfindung zum letzten Mal angewandt; zum ersten Mal, werden statistisch

[26] Prins, *Criminalité et répression, a.a.O.*, S. 13. Enrico Ferri, *Das Verbrechen als soziale Erscheinung*, Leipzig, 1896.

[27] Vgl. Lombroso, *Der Verbrecher,* a.a.O., S. XVIII. Gleichwohl sind Lombrosos Arbeiten von Statistiken und Tabellen durchzogen.

[28] Aus den mathematischen Berechnungen zum Artikel 351 des Code d'instruction criminelle ergab sich daher für Laplace auch unmittelbar die Forderung nach einer Rechtsreform. Vgl. Pierre Simon de Laplace, *Theorie analytique des probabilités*, Paris 1812, S. 529–530.

gewonnene Daten über die Rechtsprozesse unter dem Gesetz der großen Zahl interpretiert.[29] Poissons Interpretation der Verbrechens- und Kriminalstatistiken bleibt dabei ganz auf der Linie, die Laplace noch ohne ausreichendes empirisches Material gezogen hatte. Denn an den erhobenen Daten ließ sich zeigen, dass Fehlurteile in Gerichtprozessen, ganz wie Geburts- und Sterberaten, konstanten Gesetzen unterworfen waren. Wenn aber Fehlurteile eine regelmäßige Erscheinung im Rechtssystem sind, kann der Blick des Statistikers getrost von den individuellen Fällen und ihren Irregularitäten absehen und die Aufgabe einer Verteidigung der Gesellschaft ins Auge fassen. O-Ton Poisson: „[…] das Produkt aus der Unrichtigkeit eines freisprechenden Urtheiles, und der Wahrscheinlichkeit, dass es ausgesprochen werden wird, ist ebenso das Maß der Gefahr, welcher die bürgerliche Gesellschaft ausgesetzt ist, und welche man ebenfalls kennen muss, weil es die Größe dieser Gefahr ist, welche allein die etwaige Verurtheilung eines Unschuldigen rechtfertigen kann.“[30]

Mit dem Gesetz der großen Zahl stellt Poisson der Gesellschaft also ein Bild von sich gegenüber, an dem sie anhand von Tabellen Aufschluss über sich selbst gewinnen kann. Am Beispiel der Anwendung der Wahrscheinlichkeit auf die Urteilsfindung stößt Poisson dabei auf ein Phänomen, dass Quetelet zur gleichen Zeit das statistische Gesetz nennen wird. Damit kommen ein Phänomen und ein Begriff in die Welt, die Quetelet zur gleichen Zeit gebrauchen wird, wenn er die Probabilität auf die Statistik anwendet, das Ergebnis in graphischen Kurven anschreibt und deren Referenz Gesellschaft nennt: der Durchschnittsmensch. Doch nach einem statistische Gesetz zu fragen, setzt erstens jene Zahlenlawine voraus, von der Ian Hacking gesprochen hat[31], und zweitens Leser oder Interpreten der Zahlen. Beides wird bei Poisson zur Aufgabe des Staates. Die Verwaltung hat durch statistische Ämter und Büros die Daten zu erheben und zu sammeln,

[29] Diese Episode in der Geschichte der Anwendung der Wahrscheinlichkeit als Anwendung der Probabilität auf die Urteilsfindung verläuft von den Arbeiten des Marquis de Condorcets über Laplace bis zu Poisson, der sie gleichsam zum Abschluss bringt. Vgl.dazu: Lorraine Daston, *Mathematics and the moral science. The Rise and Fall of the Probability of Judgments, 1785-1840*, in: *Epistemological and Social Problems of the Sciences in the Early Nineteenth Century*, herausgegeben von Hans Niels Jahnke und Michael Otte, Dordrecht and Boston 1981, S. 287–309.

[30] Siméon-Denis Poisson, *Lehrbuch der Wahrscheinlichkeitsrechnung und deren wichtigsten Anwendungen,* Braunschweig 1841, S. XII.

[31] Ian Hacking, *Biopower and the Avalanche of Printed Numbers*, in: *Humanities in Society* 5 (1982), S. 279–295.

um sie dann in einem zweiten Schritt mittels des Gesetzes der großen Zahl dahingehend auszuwerten, welche administrativen Maßnahmen einzuleiten sind.

Aber nur durch die umfassende Applikation des Wahrscheinlichkeitskalküls auf statistische Daten, wie sie die *physique sociale* zu ihrer Aufgabe erklärt, lassen sich Verteilungen von Körperdaten und Vorhersagen über soziales Verhalten an eine staatliche Administration adressieren. *Mundum regunt numeri* lautet mithin der Wahlspruch, mit dem der junge Quetelet die Universalität der Zahlen proklamiert. Dazu hat die Statistik die „Gestalt eines unendlichen Inventars“[32] anzunehmen. Von nun an wird man zu zählen beginnen und nicht mehr aufhören. Denn je zahlreicher, feiner und infinitesimaler die Beobachtungen sind, desto zuverlässiger werden die Resultate der Anwendung des Kalküls auf die erhobenen Daten. Unter der Prämisse einer Physik der Gesellschaft treten Wahrscheinlichkeitstheorie und Statistik so in eine Spirale des beständigen Anwachsens immer zahlreicherer und präziserer Aufzeichnungen ein, in einen Regelkreis der Beobachtung, der permanent um einen konstitutiven Mangel an Daten kreist. Man wird von nun an in Tabellen, Diagrammen, Schaukurven und Grafiken sprechen, in der Hoffnung, dass die lang erwartete Entstehung eines positiven Diskurses über die Gesellschaft, den Kontroversen ein Ende bereiten wird. Was Quetelet bereits 1832 „Neigung zum Verbrechen“[33] und Franz von Liszt 1896 „Hang zum Verbrechen“[34] nennt, fasst Gabriel Tarde zur Aufgabe der Statistik zusammen, die verborgenen Tendenzen in der Gesellschaft durch statistische Diagramme und Kurvenverläufe zur Darstellung zu bringen[35].

Die *physique sociale* ist also ein Mittel, das es ermöglicht, eine Population, eine Kollektivität und die Individuen, aus denen sie besteht, nicht mehr auf etwas zu beziehen, das außerhalb von ihnen liegt, etwa auf ihren verborgene Ursprung, ihre glückliche Zukunft oder eine Ziel, sondern einzig auf sich selbst. Die Konstruktion des Durchschnittsmenschen als Theorie der Mittelwerte erlaubt es, die Gesellschaft ohne Bezugnahme auf etwas anderes als sie selbst zu denken. Man

[32] François Ewald, *Der Vorsorgestaat*, Frankfurt/M 1992, S. 180.
[33] Adolphe Quetelet, *Recherches sur le penchant au crime aux different ages*, in: Nouveaux mémoires de l’académie royale des sciences et belles-lettres de Bruxelles 7 (1832), S. 1–49.
[34] Franz von Liszt, *Die strafrechtliche Zurechnungsfähigkeit [Zweite Fassung]*, in: *Strafrechtliche Vorträge und Aufsätze, Bd. 2, 1892 – 1904*, Berlin 1905, S. 214–229, 221.
[35] Vgl. Gabriel Tarde, *Die sozialen Gesetze. Skizze zu einer Soziologie* [1898], Leipzig 1908, 44. Vgl. dazu: Mark Potocnik, *Gabriel Tarde und die Statistik*, in: *Latenz. 40 Annäherungen an einen Begriff*, herausgegeben von Stefanie Dieckmann und Thomas Khurana, Berlin 2007, S. 176–181.

kann in der sozialen Physik so das Prinzip eines Regierungswissens entdecken, dass auf Konzepte der Selbststeuerung und Selbstregulierung zuhält. Der Souverän, das Recht und die Policey reichen nicht mehr hin, den Zusammenhang von Ereignissen und Akteuren, das Verhältnis von Austausch und Kommunikationen zu organisieren. Es geht vielmehr um eine Regierungswissen, das im Bezug auf Rückkopplung, Regelkreise und Selbstreferenz sich vom Diktat souveräner Repräsentation wie auktorialer Intervention absetzt. Mit dem *homme moyen* zeigt die *physique sociale* ein fiktives Zentrum an, das als Mittel und Maß zum Prinzip der Steuerung gesellschaftlicher Prozesse wird. Erst das Schwanken um den Mittelwert erlaubt es, die sozialen Kräfte und Tendenzen auf ein gemeinsames Prinzip und einen allgemeinen Kode zu beziehen. Die Gesellschaft wird so zum eigentlichen Gegenstand der Reform. Denn sie ist es, die auf sich selbst einwirkt – so lautet die Maxime dieser Doktrin. Mittels Tabellen, Karten, Kurven und Graphiken stellt die soziale Physik der Gesellschaft den Verlauf ihrer Geschehensprozesse vor Augen. Die Kunst der Steuerung besteht nun darin, nicht mittels eines Ausgleichs von Kräften zu arbeiten, sondern die Gesellschaft als ein System aus Rückkopplungen und Regelkreisen zu begreifen, das in einer oszillierenden Bewegung permanent und kontinuierlich zwischen den Minima und Maxima von Verlaufskurven pendelt. In einer solchen Physik der Gesellschaft kann man den steuerungstechnischen Unterschied zwischen starren und kybernetischen Steuerungen wiedererkennen, wie er später am Beispiel technischer Regulatoren in *moderators* and *governors* vorgenommen wurde[36].

Diese „politische Kybernetik“[37] oder vielleicht besser post-politische Kybernetik, diese Theorie autoregulativer Sozialsysteme, die spätestens Mitte des 19. Jahrhundert auf das Soziale zugreift, verweist dabei auf eine Dichotomie, die den politischen Körper vom 17. bis ins 19. Jahrhundert durchzieht. Eine Dichotomie, die sich dadurch konstituiert, dass man den Grund des Staates einerseits im Rechtlichen verankert, während sich andererseits zugleich Modelle eines empirischen Staatswissens in den politischen Traktaten etablieren. Zum einen nimmt man an, dass sich das Gemeinwesen auf dem Modell eines Gesellschaftsvertrags gründet, es wird eine Logik entwickelt, die sich über die Stellvertretun-

[36] James Clerk Maxwell, *On Govenors* [1868], in: *The scientific papers,* herausgegeben von W.D. Niven, New York 1965, S. 105–120.

[37] Joseph Vogl, *Regierung und Regelkreis. Historisches Vorspiel*, in: *Cybernetics – Kybernetik. The Macy-Conferences 1946–1953*. Essays & Documents. Essays & Dokumente, Bd. 1, herausgegeben von Claus Pias, Berlin 2004, S. 69-79, 79.

gen, über eine Theorie der Masken und Rollen ausbildet und sich im Begriff der Person verdichtet. Es wird ein Theater der Repräsentation entworfen, in dem jedes Individuen durch ein anderes vertreten wird und alle Individuen durch einen Dritten, der eines jeden Stellvertreter ist. Zum anderen beginnt man, den Staat in seinem aktuellen Zustand, in seinem tatsächlichen Vermögen und seinen Kräften zu analysieren. Es wird eine Mechanik der wirklichen Staatskräfte projektiert, die Bevölkerung, Zahlen und Statistiken miteinander verzahnt und sich in der Darstellung von Tabellen verdichtet. Es geht also darum, sich ein Bild vom Staat zu machen. Bereits in den Vertragstheorien eines Hobbes oder Pufendorf kann man diese Dichotomie verfolgen. Denn die juridischen Grundsätze des Staates bilden dort nicht mehr die alleinige und ausschließlich Basis für das Regierungshandeln. Anders als in der Souveränitätslehre Bodins, die noch die "Regierung auf der Grundlage des Rechts"[38] definiert, formiert sich bei Hobbes bereits ein Staatswissen, dass sich schon um das Problem der Trunksucht sorgt[39] und dass einen sanitären und medizinischen Blick auf Massenversammlungen und Massenanhäufungen wirft[40]. Denn die Policey ist bei Hobbes nichts anderes

[38] Jean Bodin, *Sechs Bücher über den Staat* (1576), Bd. 1, herausgegeben von Peter Cornelius Mayr-Tasch, München 1981, S. 101.

[39] Thomas Hobbes, *Leviathan oder Stoff, Form und Gewalt eines kirchlichen und bürgerlichen Staates* [1651], herausgegeben und eingeleitet von Irving Fetcher, 7. Aufl, Frankfurt am Main 1996, 120: "Dies sind die natürlichen Gesetze, die den Frieden als Mittel zur Selbsterhaltung der in einer Menge lebenden Menschen befehlen und die ausschließlich die Lehre von der bürgerlichen Gesellschaft betreffen. Es gibt auch noch andere Dinge, die zur Vernichtung von einzelnen Menschen führen wie Trunksucht und alle anderen Arten von Unmäßigkeit, die man deshalb ebenfalls zu den Dingen rechnen kann, die das natürliche Gesetz verboten hat." Vgl. auch: Thomas Hobbes, *Behemoth. The History of the Causes of the Civil Wars of England* [1682], in: *The English Works of Thomas Hobbes of Malmesbury, 11. Vol., Now First Collected and Edited by Sir William Molesworth, Vol. VI, London 1839–45,* S. 347.

[40] Vgl. dazu Hobbes, *Leviathan,* a.a.O., S. 183. Hobbes spricht dort über gesetzliche und ungesetzliche Vereinigungen, aus denen ein Problem für den polizeilichen Blicks resultiert, der sich mit Massen und Massenaufläufen konfrontiert sieht: „Es mag für tausend Menschen gesetzlich sein, sich einer Bittschrift anzuschließen, die einem Richter oder der Obrigkeit überrecht werden soll – doch wird sie von tausend Leuten übergeben, so ist das eine aufrührerische Versammlung, da zu diesem Zweck eine oder zwei Personen genügen. Aber in Fällen wie diesem wird die Versammlung nicht durch eine bestimmte Zahl ungesetzlich, sondern durch eine solche, die von der anwesenden Polizei nicht bezwungen und dem Gericht zugeführt werden kann." „Ungesetzlich wird die Versammlung nicht nur, weil sie ein Gewalt- und Kräftepotential freisetzt, welches das der vor Ort zugegenen Officers zu übersteigen droht, sondern auch weil der Blick der Officers hier auf eine unbestimmte Anzahl von Personen trifft. Dieser polizeiliche Blick kreuzt sich im weiteren Verlauf des Kapitels mit einem medizinischen Blick, der den politischen Körper homuralpathologisch betrachtet: "Und das ist alles, was ich

als der Arzt des Staatskörpers. Und bei Pufendorf tritt ein Regierungswissen auf den Plan, das sowohl Krankheiten wie Unfälle, die Kommunikation wie den Warenaustausch und ganz allgemein die Bevölkerung in den Bereich eines Wissens überführt und zum Gegenstand der Fürsorge macht[41]. Man mag somit wie Carl Schmitt in der Logik des Leviathans selbst schon eben jene Staatsmaschine am Werk sehen, die das Konstrukt der Vertragstheorie destruiert, um sich im Verlauf der Historie dann ihre Stelle zu setzen[42]. Festzuhalten ist, dass sich schon in den natur- und vernunftrechtlichen Traktaten ein Regierungswissen etabliert, das unter und jenseits des souveränen Staatskörpers nicht mehr den Glanz der Repräsentation und ihren Status, sondern Beziehungen zwischen Menschen und Dingen, mithin also den gesamten gesellschaftlichen Verkehr in den Blick nimmt. Man hat daher in diesem Zusammenhang von einer Theorie der zwei Körper des Staates gesprochen[43].

Mit dem Übergang zur post-politischen Kybernetik der *physique sociale* wird diese Dichotomie des politischen Körpers aber nicht obsolet. Vielmehr lässt sie sich auch in Begriff wie Figur des *homme moyen* auffinden. So vereinigt die *physique sociale* eine Repräsentationslogik, die zwar nicht wie seit Hobbes den Staat an den Vertrag, die Stellvertretung und eine *persona ficta* bindet; vielmehr liefert sie über eine Vielzahl von Diagrammen, Karten, Tabellen und Kurven ein Modell der Gesellschaft, an dem der Staat ein umfassendes Bild von den aktuellen Tendenzen und Neigungen des *système social* gewinnen kann. Der Durchschnittsmensch ist so Figur wie Funktion, denn einerseits gehorcht er als fiktives Wesen einer Logik des *Als ob*, die sich um den Akt und die Performanz eines Sprechens „im Namen von" verfestigt. Er besetzt damit den Platz einer das soziale Band erst stiftenden Position, den man einen Ort des Anderen nennen könnte. Er ist als Typus diejenige Figur, an dem die Vielen das Ganze in den

über Vereinigungen und Volksversammlungen sagen möchte, die, wie ich ausführte, mit den entsprechenden Teilen des menschlichen Körpers verglichen werden können – die gesetzlichen mit den Muskeln und die ungesetzlichen mit Geschwülsten, Beulen und Geschwüren, die durch den unnatürlichen Zusammenfluß übler Säfte erzeugt werden." (S. 184)

[41] Samuel Pufendorf, *Einleitung in die Historie der vornehmsten Reiche und Staaten, so iztiger Zeit in Europa sich befinden,* Frankfurt/M 1683.

[42] Carl Schmitt, *Der Leviathan in der Staatslehre des Thomas Hobbes. Sinn und Fehlschlag eines politischen Symbols* (1938), Stuttgart² 1995.

[43] Vgl. Joseph Vogl, *Kalkül und Leidenschaft. Poetik des ökonomischen Menschen,* München 2002, 49-51. Joseph Vogl, *Die zwei Körper des Staates*, in: *'Aufführung' und 'Schrift' in Mittelalter und früher Neuzeit*, herausgegeben von Jan-Dirk Müller, Stuttgart 1996, S. 562–574.

Blick nehmen können, das niemals auf die Gesamtheit seiner Teile zu verrechnen ist, und an dem sie also ihr permanentes Anderssein erfahren können. Andererseits kommt dem Durchschnittsmenschen eine virtuelle Existenz zu, die sich aus der Anwendung der Theorie der Mittelwerte auf die statistischen Daten ergibt. Er ist in dieser Version das Korrelat ‚von konstanten Ursachen', die aus den Datenmengen und – massen statistischer Erhebungen abgelesen werden können. In der *physique sociale* werden die aus den Datenerhebungen so gewonnenen Gesetz- und Regelmäßigkeiten auf ein „fiktive[s] Wesen" verrechnet, auf eine virtuelle Größe, die Quetelet als den Durchschnittsmenschen dieser Population bezeichnet.[44] Die Figur verweist auf Funktionszusammenhänge, die physiologischen Vorgänge mit moralischen Entscheidungen verklammern, den Wechsel der Jahreszeiten mit Verbrechensraten korrelieren und historische Entwicklungen an sittliche Verhaltensweisen koppeln. Die Zahl, die Eigenschaften und den Zustand der Bevölkerung, Meteorologie und hygienische Standards, die Zahl der Selbstmorde und der Unfälle – all dies versammelt sich in der virtuellen Existenz des Durchschnittsmenschen. Er ist "das einheitliche Maß"[45], nach dem die Individuen zu beurteilen sind. Und schließlich ist der *homme moyen* in der „Gesellschaft das, was der Schwerpunkt in den physikalischen Körpern ist; er ist der Mittelwert, um den die Elemente des sozialen Systems oszillieren."[46] Er ist die Gesellschaft selbst, wie sie von der *physique sociale* objektiviert wird.

III.

So wie sich Quetelets soziale Physik in der Figur des *homme moyen* und Lombrosos Kriminalanthropologie im *delinquente nato* verdichten, so laufen auch in *La bête humaine* die Sprech- und Verhaltensweisen der Figuren auf eine virtuelle Gestalt zu, eine verdichtete Gestalt, die zugleich alle und niemand ist. Es handelt sich dabei um jene „wunderliche[n] Kriminal-Legende", die sich nach dem Mord an dem Präsidenten der Eisenbahngesellschaft, Grandmorin, den Roubaud gemeinsam mit seiner Frau begeht, bildet, um „die Legende von einem unbekannten, nicht zu fassenden Mörder, einem Abenteurer des Verbrechens,

[44] Vgl. Adolphe Quetelet, *Zur Naturgeschichte der Gesellschaft* [1848], Hamburg 1856, S. 13.
[45] Adolphe Quetelet, *Soziale Physik oder Abhandlung über die Fähigkeiten des Menschen* [1869], Bd. 2, Jena 1921, S. 147.
[46] Adolphe Quetelet, *Soziale Physik oder Abhandlung über die Fähigkeiten des Menschen* [1869], Bd. 1, Jena 1914, S. 165.

der überall zugleich war, dem man alle Morde zur Last legte und der sich beim bloßen Auftauchen der Polizei in Rauch auflöste."[47] Was die Kriminalsoziologie des Romans so mit der Kriminalstatistik teilt, ist also zweitens die Idee, dass die Fiktion im Herzen der Gesellschaft ruht. Denn die Legende vom Verbrecher führt vor, was die Sozial- und Moralstatistik noch an der Figur eines *homme moyen* aufweisen wollte; nämlich dass die verstreuten und unzusammenhängenden sozialen Ereignisse ihr gemeinsames Zentrum einzig in einer fiktiven Figur finden. Es scheint so, als sei die Erfindung des Sozialen im 19. Jahrhundert wie sie von der Sozialstatistik in enger Nähe zur Kriminologie Psychiatrie und Literatur betrieben wird, weniger mit einem gleichmäßig verteilten Verstand, mit einer Logik von Interessen, einem Willensakt oder einem System der Begierden verknüpft, als mit der Beschreibung eines Bandes, das aus fiktiven Figuren, Trieben und Automatismen besteht.

Aus diesem Komplex von Verdatung und Fiktionalisierung eines Körpers entspringen im Roman und in der Kriminologie, was man die zwei Körper des Verbrechers nennen könnte. Es geht dabei um einen Individual- und einen Gattungskörper, um den Körper des Verbrechers und den Körper der Eltern, der Generationen, der Genealogie. Wenn Lantiers Gesicht gegen Ende des Romans beschrieben wird – „sein Unterkiefer aber sprang vor wie bei einem zubeißenden Wolf, so daß sein Gesicht dadurch ganz entstellt wurde"[48] –, so gilt es diese Stelle zusammenzulesen mit jener vom Anfang, in der es heißt: „In der Familie war nicht alles ganz im Lot, viele hatten eine Schaden (*fêlure*). In manchen Stunden spürte er ihn genau, diesen erblichen Schaden (*fêlure*)."[49] Was die Stelle aufruft, ist der Komplex der Vererbung, den der kriminologische Diskurs unter dem Schlagwort Degeneration führt. Am Gesicht Lantiers, an seinem Merkmalen und Eigenschaften entzündet sich so die Frage nach ihrem Verursachungsgrund. Wenn Lantiers Gesicht, den Klassifikationen eines Verbrechergesichts entspricht, wie sie Lombroso entwickelt hat, so wird es notwendig, gleichsam einen anderen Körper hinter dem Individualkörper zu entdecken, einen genea-

[47] Zola, *Das Tier im Menschen*, a.a.O., 136. Zolas Phantom der Kriminal-Legende trägt die Züge einer literarischen Figur, die zwischen 1911 und 1913 das Licht der Welt erblicken wird: Fantômas. Zum Komplex Fantômas und Kriminologie siehe: Nanette L. Fornabai, *Criminal Factors: „Fantômas", Anthropometrics and the numerical Fictions of Modern Criminal Identity*, in: *Yale French Studies* 108 (2005), S. 60–73.

[48] Zola, *Das Tier im Menschen*, a.a.O., S. 288.

[49] Ebenda, 49 (Übersetzung leicht modifiziert). Zur *fêlure* vgl. Gilles Deleuze, *Zola und der Riß*, in: *Logik des Sinns*, Frankfurt am Main 1993, S. 385–397.

logischen Körper, durch dessen Ursächlichkeit das Erscheinen des Individuums erklärt werden kann. Es ist also die Frage nach der Genealogie als einer Genetik des Sozialen, die sich hier Bahn bricht. Im Roman ist das der Strang, der die Geschichte der Familie der Rougon-Macquart erzählt; es ist der Stammbaum der Familie, den Zola im letzten Teil des Rougon-Macquart Zyklus, dem Roman *Doktor Pascal*, abdruckt.[50] An Lantiers Gesicht lässt sich so nicht nur eine individuelle Prägung ablesen, sondern die Wahrscheinlichkeit einer Degeneration, die nicht nur den Körper Lantiers, sondern auch den seiner Eltern umfasst.

In all diesen Störungen und Stockungen, die mit der Frage des genealogischen Körpers verbunden sind, scheint aber auch noch so etwas wie eine Energetik des Sozialen auf. So zum Beispiel gegen Ende des Romans, wenn der führerlose Zug vollbesetzt mit Soldaten in die Nacht rast.[51] Der Roman läuft damit auf einen Prozess zunehmender Unordnung hinaus: in den Explosivitäts- und Auslösungsmomenten der Maschine und der Morde Lantiers, in den Ermüdungs- und Erschöpfungserscheinungen des Materials der Zugmaschine, in den Reglern, Ventilen und den Prozessen der Deregulation, in den entropischen Prozessen, in denen das Kaiserreich versinkt – in all diesen Momenten erweist sich die soziale Physik des Romans als Physik schlechthin. Wenn es im Hinblick auf Lantier und die *fêlure* in der Familie einmal heißt: „in seinem Wesen traten plötzliche Gleichgewichtsstörungen auf, Bruchstellen gleichsam, Löcher“[52] so ist damit nicht nur jener Riss in der Genealogie benannt, in dem sich die Wahrscheinlichkeit einer Degeneration unmittelbar auf die Ermüdungs- und Erschöpfungszuständen bezieht, denen Lantier im Lauf des Romans immer wieder erliegt.[53] Der Riss realisiert sich darüber hinaus auch als technische Gefahr, die in den Steuerungsvorgängen der Maschine selbst auftreten kann, an den Gelenk- und Bruchstellen eines Systems aus Ventilen, Reglern und Zylindern, Treibstangen, Schiebern und Exzentern.[54] Denn das Getriebe der Lokomotive verbraucht nicht nur trotz „einwandfreie[r] Einstellung der Schieber“ unvernünftig „hohe Men-

[50] Vgl. dazu den Anhang zu Émile Zola, *Doktor Pascal* [1893], übers. von H. Balzer und E. Eichholtz, Berlin 1983.
[51] Zola, *Das Tier im Menschen*, a.a.O., S. 321–323.
[52] Ebenda, S. 49.
[53] Vgl. zum Beispiel: ebenda, S. 169. Siehe dazu auch: Ursula Link-Herr, *„La fêlure“: Heredität, Degenereszenz und Kollektivsymbolik bei Zola*, in: *Menschenbilder. Zur Pluralisierung der Vorstellung von der menschlichen Natur (1850–1914)*, herausgegeben von Achim Barsch und Peter M. Heijl, Frankfurt am Main 2000, S. 320–334, 327.
[54] Zola, *Das Tier im Menschen*, a.a.O., S. 29, 255, 256.

gen an Zylinderöl“[55]; im Verlauf des Romans nehmen vielmehr Reibungsverluste, Hindernisse und Hemmnisse im technischen Ablauf überhand, bringen die Maschine mehr und mehr ins Stocken und führen zu einer „schwerfällig gewordenen und müden Gangart“[56] der Lokomotive. Mit der Materialermüdung der Maschine, die ihre Entsprechung in den Ermüdungs- und Erschöpfungszuständen der Romanfiguren findet, gehen Entladungs- und Auslöseprozesse[57] Hand in Hand, in denen unscheinbare Anlässe übergroße Effekte hervorbringen. Man ist hier von einer Welt mechanischer Kräfte und Kräfteverhältnisse zu einer Welt potentieller und dynamischer Energien übergegangen.

Mit den Verkehrswegen aktualisiert sich so eine Gefahrenlandschaft, deren Gestalt durch ein vielfältiges Netz aus Schienensträngen, Verkehrswegen und Signalleitungen geformt wird und deren Gelände durch die Geschwindigkeit der Züge, die durch sie hindurch rasen, zum Erbeben und Erzittern gebracht wird. Dieser Verbund aus Gefahr und Geschwindigkeit umreißt eine Topographie, die durch Löcher, Lücken und Abgründe bestimmt ist: Züge sausen ins „zunehmende Dunkel“[58], stürzen in Tunnel „wie in einen Abgrund“[59] und fahren so einer „Zukunft entgegen“, in der die Maschine wie die Gesellschaft des Zweiten Kaiserreichs unwiderruflich auf ihren Wärmetod zusteuern. Es handelt sich hier um Prozesse der Entropie, die sich im allgemeinen Rauschen, das den Roman durchzieht, verdoppeln, in all dem Pfeifen, Sausen, Röcheln, Getöse, Grollen, Brausen, Rollen, Dröhnen und Krachen, das die Welt des Maschine als eine Welt des *automaton* ankündigt und auf die alle Linien des Romans zuhalten. In der Übertragung thermodynamischen Prozesse auf genetische Abläufe und Vorgänge führt der Roman so eine triebhafte Struktur vor, einen Todestrieb, der alle Prozesse im Roman anleitet.

Allerdings scheinen sich die Vorgaben und Prinzipien einer neuen Kriminologie noch in andere Darstellungsideen des Romans niederzuschlagen; nämlich auf der Ebene der Zeichen und Signale, die den Roman durchziehen: das Netz der

[55] Ebenda, S. 131.

[56] Ebenda, S. 167.

[57] Vgl. Julius Robert Mayer, *Ueber Auslösung* [1876], herausgegeben von Alwin Mittasch, Weinheim 1953. Zur Thermodynamik bei Zola vgl. Michel Serres, *Feux et signaux de brume. Zola*. Paris 1975 und Jürgen Link, *Versuch über den Normalismus. Wie Normalität produziert wird*, 4. Aufl. Göttingen 2009, S. 245–251.

[58] Zola, *Das Tier im Menschen*, a.a.O., S. 27.

[59] Ebenda, S. 199.

Telegraphie, das den gesamte Roman hindurch stabil zu bleiben und niemals von Störungen betroffen zu sein scheint, die vielfachen Signallaternen der Lokomotive, die Abfahrtsignale im Bahnhof[60] – diese Zeichen weisen darauf hin, dass die Zeichen selbst Datencharakter anzunehmen beginnen. Eng verbunden mit dieser Signallogik sind all jene Zeichen, wie die zuckenden Gesichter oder die zuckenden Hände, die eine allgemeine Nervosität und innere Aufruhr anzeigen, die sämtliche Verhältnisse und Personen durchzieht.[61] Die Körper- und Gesichtszeichen werden zu Anzeichen dafür, dass im Individual- wie Gesellschaftskörper sich eine Macht ankündigt, die gleichsam automatisch und unabhängig von den Intentionen der Individuen agiert, eine diffuse Kraft und Energetik, die sich in Stockungen und Störungen Ausdruck verleiht. Wie zum Beispiel bei Lantiers Hände, die, wie es scheint, einem anderen gehören: „Und das Grauen vor seinen Händen ließ ihn diese noch tiefer unter seinem Körper vergraben, denn er spürte wohl, wie sie sich voller Aufruhr, stärker als sein Wille, hin und her bewegten."[62] Was sich hier ankündigt und auf dem Spiel steht, ist nicht nur eine unbewusste Instanz, die sich dem Zugriff des Einzelnen entzieht, vielmehr zeigt sich hier eine Zerrüttung des Willens, eine Willenspathologie, in der es mithin um ein momentanes 'Ausschalten des Willens' geht.[63]

Eine solche Wendung hin zum Signalcharakter scheint mir auch mit veränderten Fragestellungen der kriminologischen Forschung zusammenzugehen, die seit den 70er Jahren des 19. Jahrhunderts den Körper biometrisch abzutasten beginnt und ihn dazu in Signaleinheiten zerlegt. Die „Registratur der Signalemente"[64] bei Alphonse Bertillon etwa vermisst den individuellen Körper des Delinquenten gemäß einer sich immer weiter ausdifferenzierenden Skala, an deren Enden kleinere Gruppen von gleichen Signalementen stehen. Ein solches Vermessungs- und Zerteilungsschema erlaubt zugleich eine statistisch basierte Identifikation von Individuen wie eine Erzeugung von Typen. Ermittlung von Einzelpersonen und Erschaffung von Typen verhalten sich dabei zueinander wie Eliminierung von Messfehlern und Schaffung des Mittelwerts in der Statis-

[60] Ebenda, S. 149, 161.
[61] Ebenda, S. 16, 24.
[62] Ebenda, S. 205.
[63] Ebenda, S. 50. Zu diesen Komplex aus Industriegesellschaft, Ermüdung und Willenspathologien vgl. Anson Rabinbach, *Motor Mensch. Kraft, Ermüdung und die Ursprünge der Moderne*, Wien 2001.
[64] Alphonse Bertillon, *Das anthropometrische Signalement*, Bern/Leipzig 1895, S. xxxvi.

tik.[65] Die Identifizierung einer Person verläuft über eine statistische Verteilung, und von nun an können Gesichtsbeschreibungen von Ermittlungsbeamten so genau vorgenommen werden wie von Dichtern.[66] Literatur und Kriminologie teilen so, den Körper auf der Ebene seiner Signale zu adressieren. Es geht dabei um ein Abtasten des Gesichts nach Devianzen und Anomalien.[67]

Der Zusammenhang von *La bête humaine* und Kriminologie – so ließe sich folgern – ist also nicht rein metaphorischer, sondern struktureller Natur. Denn der Roman situiert sich auf einer Ebene, die mit den Beobachterpositionen einer statistisch fundierten Kriminologie in mindestens 3 Punkten konvergiert. 1. in der Bezugnahme auf den Komplex des gefährlichen Individuums; 2. in der Auffassung, dass alle sozialen Prozesse ihren vorstellbaren Grund einzig in einer fiktiven Figur finden; und 3. im Erschließen eines Gefahrenfelds, das den Gesellschaftskörper entlang einer Verteilungsskala von Norm und Devianz vermisst. All das aber verweist darauf, dass im Gesellschaftskörper wie im Körper des Einzelnen eine diffuse und gefährliche Kraft waltet, eine dem Willen des Einzelnen enthobene Energetik und Triebhaftigkeit, die alle sozialen Verhältnisse durchzieht. Was Zolas Roman so zu isolieren versucht, ist die Grundlosigkeit der gesellschaftlichen Verhältnisse selbst. Und schließlich taucht so – im Umkreis der Kriminologie und der Literatur – die Frage nach der Wahrscheinlichkeit von Ordnung auf, einer Ordnung, die ihren Halt in fiktiven Figuren, virtuellen Gestalten und systemischen Regulierungen findet; in deren Mitte sich aber immer schon zugleich eine Kraft und ein Energiepotential anhäufen, die den Geist eines unbestimmten „Aufruhrs“[68] herbeirufen, ein immer drohender Antrieb. Was sich in Zolas Roman aus der Latenz treibt, ist nicht anderes als eine Triebgesellschaft.

[65] Vgl. dazu auch Alphonse Bertillon, *Appendice. Considération théoretiques sur le signalement*, in: *La photographie judiciaire avec une appendice sur la classification et l'identification anthropométriques*, Paris 1890, S. 81–111, 81: „C'est illustre savant belge Quételet qui, le premier, a demontré que des règles mathématiques présidaient à la répartition mystérieuse des formes et à la distribution des dimension dans la nature.“

[66] Laut Wolfgang Schäffner, *„Es hat sich so ereignet. Aber es hat sich auch nicht so ereignet.“ Zu einer statistischen Poetologie des Wissens um 1920*, in: *Der Mensch – das Medium der Gesellschaft?*, herausgegeben von Peter Fuchs und Andreas Göbel, Frankfurt am Main 1994, S. 323–351, 330.

[67] Vgl. Zola: *Das Tier im Menschen*, a.a.O., S. 65.

[68] Scipio Sighele, *Psychologie des Auflaufs und der Massenverbrechen*, Dresden 1897, S. 85.

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Justin Clemens*

Galileo's telescope in John Milton's Paradise Lost: the modern origin of the critique of science as instrumental rationality?

> "Almost in the same historical moment when Galileo directed all modern physics to the reading of that book which Nature was supposed to have written herself in geometric or, subsequently, algebraic signs, the modern novel and modern theatre stepped in as evidence that modern readers and spectators enjoy the effects of those fictions most of all when they are altogether free of science."[1]
>
> Friedrich Kittler, "Man as a drunken town musician"

1. The Argument

The perturbations introduced into the field of knowledge in the seventeenth century by the emergence of what we would today call the "natural sciences" are so profound – and are immediately recognised as such – that they preclude any authoritative resolution.[2] At the same time, there is no seventeenth-century discourse that remains untouched by these new sciences – if they are not al-

[1] F. Kittler, "Man as a Drunken Town-musician," *MLN*, No. 118 (2003), p. 637.

[2] This paper is part of a large collaborative project on which I am currently working with my colleague Marion Campbell, provisionally entitled "Science and Politics in *Paradise Lost*." The point of this title is that the politics of the poem cannot be understood without a proper understanding of how Milton treats the contemporaneous sciences there, and vice-versa. To try to separate these elements in Milton is an error, an error that Milton in some ways nonetheless wants his readers to make – if only because they then might have the chance of seeing this error as their own. If this situation cannot be adequately sketched here, I will attempt to sketch some of the justifications for our general approach and give some specific arguments about certain elements of the poem. If, for ease of reference, I use a term that is somewhat anachronistic in the seventeenth century context, that is, "science," this term doesn't for all that undermine the argument. The key point is that Milton and his contemporaries knew that something irrevocable was happening in the field of "knowledge," whose consequences were unprecedented, irreversible, and as-yet unformalizable – and this ferment was a necessarily a cause of anxiety and of anticipated conclusions. Yet, at this moment *they knew they no longer knew what it was to know*, they also knew it would be necessary to develop new discourses for continuing, *Paradise Lost* being one paradoxical outcome of such an attempt.

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ways touched in ways that are clear, distinct or perspicuous. I am interested here in the consequences of this emergence for poetry, and *a fortiori* upon poetry that explicitly takes these consequences as one of its own crucial themes. One of the abiding difficulties in the complex historiography of the "scientific revolution" is the interpretation of contemporaneous reactions to the new discoveries, at the very moment where the counter-effects of these reactions often enter immediately back into the situation itself.

John Milton's *Paradise Lost* (1st edition in an original 10-book version 1667; 2nd edition in the now-canonical 12-book version 1674, the year of Milton's own death) is almost-universally acknowledged to be the single greatest and most influential work in English-language poetry. Its author, infamous in his own time not for his poetry but for his radical politics – which had given him a European-wide reputation as a proselytizer for revolution, regicide, divorce and anti-censorship – somehow survived the Restoration of the Stuart dynasty in 1660 (for reasons that are still enigmatic), and, despite suffering penury, blindness, and political opprobrium, not to mention a brief period of incarceration, made a surprising return to public life with this extraordinary work. Even longstanding political enemies were immediately impressed: John Dryden, Poet Laureate and early fellow of the Royal Society, proposed turning *Paradise Lost* into the period equivalent of a big-budget rock opera (lamentably, never performed). Since its publication, the poem has never gone out of print.

If poetico-theological interpretations have understandably dominated the history of its interpretation, there has also been a sporadic puzzling throughout this history about the peculiar status of the new sciences in and for the poem. As the greatest of English epics, with concomitantly encyclopaedic aims, *Paradise Lost* famously attempts to account for the new forms of knowledge (and non-knowledge) introduced in and by the natural sciences: their claims, procedures, personnel, results and consequences. In Milton's attempt to do so, however, he encounters aporias that integrally affect the status of his own presentation. As these aporias cannot be ignored, yet demand resolution, Milton must not only stage the necessity of the emergence of these aporias, but clarify his own response to them within the text itself. Yet the difficulties attendant on such an attempt leave their traces in the text of the poem itself, notably as volatile enigmas, e.g., why is Galileo the *only* contemporary mentioned in the poem? Why the recurrent allusions to the telescope? Why so many fudgings

regarding the status of "infinity"? Why such a bizarrely mixed cosmology? Why do bodies move in such inconsistent ways? With these questions in mind, I will propose a new contextualisation of Milton's poem, as well as a new interpretation of several of its key moments.

My argument can be summarized as a ten-point plan:

1) Milton is very conscious of divisions introduced into the field of knowledge by the new scientific methods, which sever worldly explanation from scriptural inheritance, transforming the status of knowledge and its claims;
2) Milton wants to reunify all knowledge under a single heading or, more accurately, wishes to provide the definitive account of knowledge's necessary dis-unity;
3) Milton's demonstration of *the necessity to work towards a reunification that simultaneously knows that it must fail* requires encyclopaedic reach as part of its self-authorization, thereby implicating the new sciences both as topic and method;
4) This requires a new account of the foundations (onto-theology) and modes of acquisition of knowledge (epistemology), as well as of their necessary limits;
5) This justification requires re-establishing the problem of the *form* (the presentation) of address, not just of its scope (encyclopaedic) or its principles and methodology (knowledge can be *neither* simply observational nor revealed);
6) Yet Milton knows 2) is impossible under contemporaneous conditions;
7) Milton provides a narrative aetiology of this impossibility in *Paradise Lost* in the terms of "the Fall";
8) Milton explicitly makes this impossibility an integral part of the justification for the *form* his intervention takes, i.e., a renovated epic;
9) Milton's attempt is a failure, and betrays its failure in a variety of symptoms;
10) Milton tries to transvalue this failure as if it were a consequence of his success.

To put this another way, *Paradise Lost* is one of the greatest attempts to salvage a possibility for the unity and universality of knowledge at the moment of its

irretrievable fragmentation. In doing so, it has to present itself as necessarily failing, and for reasons which, if they are accepted, show that the unity of thought is only potentially but never actually possible – and that this potentiality can now only be given in the form of *Paradise Lost* itself. If Milton, like Francis Bacon, was indeed concerned with "the advancement of learning," he could not be content with Bacon's own proposals, nor, for that matter, with the proposals offered by other great new philosophers of the seventeenth century. Above all, Milton is essaying to make an intervention into a situation in which the status of poetry has been radically destabilised by the new demands of scientific discourses.

My approach therefore attends to torsions in *Paradise Lost* that, in this case, bear primarily upon epistemological and cosmological issues. These torsions can be discerned at every level of the text, from the nominal (e.g., the use of words such as "infinite," "void," "chaos," etc.) through the thematic (e.g., the cosmological descriptions offered throughout) and the syntactic (the famous "Latinate" expression), to the formal and technical (the extraordinary prosody). In addition to the large-scale strategic goals of *Paradise Lost*, it is also necessary to be attentive to the poem's tactical mobility. Indeed, Milton sometimes intervenes clearly and directly into the contemporary discussions about epistemology, coming down for one side or another; sometimes he uses as-yet undecided disputes as themselves evidence of the irresolvability and *hence* futility of those disputes (e.g. the cosmological account proffered Adam by Raphael), a course which then allegedly justifies a restriction of the quest for knowledge to personal, pragmatic concerns; sometimes he explicitly proposes his own contradictions as evidence of the necessary consequences of the Fall, and the staging thereof as evidence for the rightness of his general position as to immutable human limits to knowledge; sometimes he pretends that he is not engaging at all with such disputes; sometimes he acts as if his refusal to decide one way or another is proof of his own probity, etc. If these tactics are, strictly speaking, inconsistent, a narrative staging of this inconsistency becomes a proof for Milton of the priority that should be accorded his own position.

2. Major interpretations of the sense of science in *Paradise Lost*

The history of interpretation of *Paradise Lost* has itself seen only inconsistent and uncertain attention given to the topic of contemporaneous science. If this

history has often emphasized *Paradise Lost* as a great epic work in a predominantly literary tradition; a theologico-political rewriting of Biblical tropes; an encyclopaedic philosophical essay on abiding problems of free-will and history; a post-Republican lament for the Republic; and so on, it has never really taken on the full force of the scientific revolution, nor its impact upon the writing, publication, and reception of the poem.[3] It is precisely the impact of the scientific revolution on Milton's thought that I wish to point to here.

Certainly, there have been a number of concerted attempts to speak of "Milton and Science." The major twentieth-century monographs on this conjunction include those of Kester Svendsen, Lawrence Babb, Harinder Singh Marjara and, most recently, Karen Edwards and Angelica Duran; there are also a number of related studies, including those by such writers as Douglas Bush, Stephen Fallon, John Rogers and Catherine Gimelli Martin, as well as some quite surprising left-field interventions by such people as the great science-fiction writer Isaac Asimov.[4] There have also several classic studies that focus on particular

[3] Evidence of this neglect is legible in the non-appearance of the category of "science" (or its contemporary synonyms) in almost all of the introductory and companion texts to Milton. See, for instance, T.N. Corns (ed.), *A Companion to Milton* (Oxford: Blackwell, 2001), where we find such headings as "The Cultural Context" (comprising "Genre," "The Classical Literary Tradition," "Milton on the Bible," etc.), "Texts," "Influences and Reputation," and "Biography," but no listing, even in the index, under "science." The closest hit is Diane Kelsey McColley's entry for "Milton and Ecology," pp. 157–173, which, after a minimal scene-setting via Bacon and Descartes, turns to a more traditional exploration of theme. Then there is the D. Danielson (ed.), *The Cambridge Companion to Milton*, Second Edition (Cambridge: Cambridge University Press, 1999), in which such familiar headings as "Milton's politics" and "The genres of *Paradise Lost*" appear, again with no sustained reference to science, even in the index. Then there's R. Bradford's *The Complete Critical Guide to John Milton* (London: Routledge, 2001) with its "Religious and political contexts" and "Civil War and early political writing" but, again, no science. It is then of extreme interest to note the remarks of various authors collected in T.C. Miller (ed.), *The Critical Response to John Milton's* Paradise Lost (London: Greenwood Press, 1997), where there is not only a significant index listing for "science" (albeit in a number of the diverse senses of this word), but some genuine attention paid to its impact on the poem. We also find it in the deferrals of commentators such as William Poole, who writes: "The role of the Fall in later seventeenth-century science is for another book, but the epistemological questions it posed remained," *Milton and the Idea of the Fall* (Cambridge: Cambridge University Press, 2005), p. 198. But these questions cannot be deferred without rendering incomprehensible much of *Paradise Lost*.

[4] See K. Svendsen, *Milton and Science* (Cambridge: Harvard University Press, 1956); L. Babb, *The moral cosmos of Paradise Lost* (East Lansing: Michigan University Press, 1970); S. Fallon, *Milton among the Philosophers: Poetry and Materialism in Seventeenth-Century England*

elements and images in *Paradise Lost*, notably Katherine Morse on cosmology, Marjorie Nicolson's work on the telescope or Grant McColley's work on the import of seventeenth-century theories of the plurality of worlds for Milton.[5] How-

(Ithaca and London: Cornell University Press, 1991); H.S. Marjara, *Contemplation of Created Things: Science in* Paradise Lost (Toronto: University of Toronto Press, 1992); K.L. Edwards, *Milton and the Natural World: Science and Poetry in* Paradise Lost (Cambridge: Cambridge University Press, 1999); A. Duran, *The Age of Milton and the Scientific Revolution* (Pittsburgh: Duquesne University Press, 2007); D. Bush, *Science and English Poetry: A Historical Sketch, 1590–1950* (New York: Oxford University Press, 1950); J. Rogers, *The Matter of Revolution: Science, Poetry, and Politics in the Age of Milton* (Ithaca and London: Cornell University Press, 1996); C.G. Martin, '"What If the Sun Be Centre to the World?": Milton's Epistemology, Cosmology, and Paradise of Fools Reconsidered,' *Modern Philology*, Vol. 99, No. 2 (2001), pp. 231–265. Isaac Asimov's marginalia are often of real scientific interest: *Asimov's Annotated Paradise Lost* (New York: Doubleday, 1974).

[5] See K. Morse, "Milton's Ideas of Science as Shown in *Paradise Lost*," *The Scientific Monthly*, Vol. 10, No. 2 (1920), pp. 150–156; M. Nicolson, "Milton and the Telescope," *ELH*, Vol. 2, No. 1 (1935), pp. 1–32; Lubomir Konecny, "Young Milton and the Telescope," *Journal of the Warburg and Courtauld Institutes*, Vol. 37 (1974), pp. 368–373; G. McColley, "The Theory of a Plurality of Worlds as a Factor in Milton's Attitude Toward the Copernican Hypothesis," *Modern Language Notes*, Vol. 47, No. 5 (1932), pp. 319–325, "Milton's Dialogue on Astronomy: The Principal Immediate Sources," *PMLA*, Vol. 52, No. 3 (1937), pp. 728–762. Indeed, there is an enormous dossier to be revisited on Milton and Galileo beyond the more familiar political references stemming from Milton's own account in *Areopagitica*, particularly regarding the invocation of the telescope in *Paradise Lost*: see Dr. Johnson, "Life of Milton"; T. De Quincey, "System of the Heavens, as Revealed by Lord Rosse's Telescopes," *The Collected Writings of Thomas De Quincey*, ed. D. Masson. Vol. VIII (Edinburgh: Adam and Charles Black, 1890); H. Bloom, *A Map of Misreading* (Oxford: Oxford University Press, 1980); J. Guillory, *Poetic Authority: Spenser, Milton, and Literary History* (New York: Columbia University Press, 1983); R. Flannagan, "Art, Artists, Galileo and Concordances," *Milton Quarterly* XX, No. 3 (1986), pp. 103–105; J. Walker, "Milton and Galileo: The Art of Intellectual Canonization," in J.D. Simmonds (ed.), *Milton Studies* XXV (Pittsburgh: University of Pittsburgh Press, 1990), pp. 109–123; J. Scherer Herz, '"For whom this glorious sight?" Dante, Milton, and the Galileo Question,' in Mario Di Cesare (ed.), *Milton in Italy: Contexts, Images, Contradictions* (Binghamton: Medieval and Renaissance Texts and Studies, 1991), pp. 147–57; D. Friedman, "Galileo and the Art of Seeing," in Di Cesare, pp. 159–174; D. Albanese, *New Science, New World* (Durham and London: Duke University Press, 1996); D. Palmieri, "Milosz and Einstein, Milton and Galileo: the cosmologic poet and the physicist," *West Virginia University Philological Papers* (Fall 2002), pp. 4–11; J. Ulreich, "Two great world systems: Galileo, Milton, and the problem of truth," in *Cithara*, Vol. 43, No. 1 (2003), pp. 25–36; E. Spiller, *Science, Reading, and Renaissance Literature: The Art of Making Knowledge, 1580–1670* (Cambridge: Cambridge UP, 2004); M. Brady, 'Galileo in Action: The "Telescope" in *Paradise Lost*,' *Milton Studies* 44 (2005), pp. 129–152; J. Sawday, *Engines of the Imagination: Renaissance culture and the rise of the machine* (London and New York: Routledge, 2007); I. McAdam, "Milton, Satan, Galileo and Gunpowder," *Notes and Queries*, September 2008, pp. 289–291. Beyond the specialist

ever, the methodologies, evidence and results of these studies are so heterogeneous that they are difficult, if not impossible to reconcile.

Svendsen, in his classic work on the subject, argues that Milton's "science" was in fact already anachronistic in his time, a judgement essentially echoed by Lawrence Babb; Bush, on the other hand, argues that Milton was familiar with, but ambivalent about, the new cosmological theories of Copernicus, Brahe, Kepler and Galileo; Stephen Fallon examines the development of Milton's metaphysical monism as an up-to-the-minute response to countervailing tendencies in the reigning 'mechanical' theories of the time; Harinder Singh Marjara claims that Milton's attitude towards such discoveries was neither mediaeval nor obscurantist; John Rogers has shown how *Paradise Lost* draws from diverse sources in seventeenth-century vitalist materialism; Karen Edwards has argued for the determining role played by natural history, of a comparable order to that of Thomas Browne and Robert Hooke, in the poem; and Catherine Gimelli Martin demonstrates that Milton's cosmology is informed by Baconian and Galilean themes.

Moreover, several of these studies not only attempt to show how modern Milton is in his uptake of science, but how this scientific content is redeployed for specific political and poetic effects within the text of *Paradise Lost*. Thus Edwards argues that the very modes by which the poem depicts the natural world are calibrated to inspire in its readers a new kind of attentiveness that is continuous with the endeavours of seventeenth-century natural scientists. For Edwards, it is not just that Milton draws on the new *content* available from the new researches into nature, but that, in doing so, he develops an absolutely novel poetic procedure that attempts to induce, in and by the poetry itself, his readers into thinking differently about science, politics and the world. This "performative" element is therefore crucial to take into account when reading *Paradise Lost*, for it implicates the content, imagery, syntax, language, aims and ends of the poem.[6]

academic studies, and the small industry involved in constantly re-broaching the question as to whether the two ever really met, there is also an enormous interest in Milton and Galileo in other realms, e.g., J. Rosen, "Return to Paradise," *The New Yorker*, Vol. 84, No. 16 (2008), pp. 72–76, or H. Henderson, "A Dialogue in Paradise: John Milton's Visit with Galileo," *The Physics Teacher*, Vol. 39, March 2001, pp. 179–183.

[6] In this, Edwards is in some ways following the testimonies of scientists such as John Tyndall, who claims that 'The piercing through the involved and inverted sentences of *Paradise Lost*; the linking of the verb to its often distant nominative, of the relative to its distant an-

In any case, we are confronted by a rattle-bag of opinions regarding Milton's relationship to science. Milton allegedly knew very little of contemporary science and did not care for it, though he worried a lot about its consequences and drew on it for his imagery (Svendsen); he knew a lot about it, and affirmed much of it, particularly the cosmology (Martin); he drew heavily on the medical vitalist texts of the period and drew political consequences (Rogers); he recognised that science had radically shattered the unity of knowledge and responded ambivalently (Bush); he knew a lot about science and drew happily on it for his poetic ambitions, and nothing more (Marjara); he liked the technological innovations and their implications, but only really for poetic inspiration and effects (Nicolson); he knew a lot about the particularities of nature, and, taking on the injunction to encourage people to assume a scientific attitude, tried to use the poem itself as a re-educative goad for the reader (Edwards); he is part of a general enthusiasm for poetic and scientific collaboration, with no real sense of irreconcilable differences (Duran), etc. What emerges, then, from these studies is that none of the authorities can agree on what, exactly, the "science" of Milton is, what use he makes of it, or its significance for understanding the poem. What is lacking in the authorities to date is an adequate theory of discourse able to account for the very radical shifts in the course of the seventeenth-century that stem from the emergence of what is already recognisably "modern science"

tecedent, of the agent to the object of the transitive verb, of the preposition to the noun or pronoun which it governed, the study of variations in mood and tense, the transpositions often necessary to bring out the true grammatical structure of a sentence – all this was to my young mind a discipline of the highest value, and a source of unflagging delight. How I rejoiced when I found a great author tripping, and was fairly able to pin him to a corner from which there was no escape! As I speak, some of the sentences which exercised me when a boy rise to my recollection. For instance, "He that hath ears to hear, let him hear;" where the "He" is left, as it were, floating in mid air without any verb to support it. I speak thus of English because it was of real value to me,' J. Tyndall, "An Address to Students" in *Fragments of Science: A series of detached essays, addresses and reviews*, 6th edition, Vol. 2 (London: Longmans, Green and Co, 1879), available online. Citing this passage, Gillian Beer writes that "It is not surprising that the ambitiousness and mastery of [Milton's] epic should have drawn those seeking to gain a new centrality for the scientific imagination. It is to Milton's work that Tyndall turns in his essay on the use of the scientific imagination," *Open Fields: Science in Cultural Encounter* (Oxford: Oxford University Press, 1996), p. 210. However, I would be tempted to suggest that, rather than itself exemplifying the impact of the new sciences, this aspect of *Paradise Lost* has rather more Protestant roots: the injunction to read and reread endlessly the sacred texts (these positions are of course not incompatible).

and, *a fortiori*, the effects of this emergence on such discourses as poetry and political theory.[7]

3. Science slits the throat of poetry

For if Galileo, Francis Bacon, René Descartes, among a host of others, also had, like their Renaissance predecessors, an extreme consciousness that they were forging an entirely new way, *this* "great instauration" didn't – as had the program of the earlier humanists – promote itself as a *rupture-restoration*. For the new philosophers, authority came not from the past, from the incomparable titans of antiquity, but from a future that *essentially* threatened all inherited ancestral knowledge. Bacon's work is exemplary here: there must be a radical suspicion towards all received wisdom (the "idols" which he denounces in *The*

[7] Indeed, this lack is often noted in the review literature – without ever having been made good in the dedicated studies. For example, both Ronald J. Corthell and Stephen Fallon mark this fact in their reviews of Marjara's book. Corthell notes that Marjara's "lack of a theory of discourse seriously undercuts his ability to explore the relationship between scientific and poetic texts" and that: "One might turn [Marjara's] argument around to ask why Milton felt the need to include so much scientific discourse in his poem. In any case, the challenge of a fresh approach to Milton's poetic use of science would entail an analysis of the competing systems of humanist and scientific power/knowledge in *Paradise Lost*," R.J. Corthell, "Review of *Contemplation of Created Things: Science in* Paradise Lost," *Renaissance Quarterly*, Vol. 47, No. 3 (1994), pp. 702–4. For his part, Fallon points out that, Marjara "is sometimes insensitive to the rhetorical complexity of seventeenth-century natural philosophy," "Review of *Contemplation of Created Things: Science in* Paradise Lost," *The Journal of English and Germanic Philology*, Vol. 93, No. 3 (1994), pp. 428–431. On the other hand, the emergent strategies of seventeenth century political discourse have received nothing but sophisticated attention, for example, in the work of David Norbrook, David Lowenstein, Sharon Achinstein, and so on. However, it is worth remarking that either these scholars ignore the scientific revolution entirely or they do everything they can to reduce its effects, notably in the sphere of mathematical deduction and experimental innovation. Skinner is of course an exception to this, for example, in his chapters on Hobbes and science in *Reason and Rhetoric in the Philosophy of Hobbes* (Cambridge: Cambridge University Press, 1996), esp. pp. 294–326, where he recognises that Hobbes "fully endorses Descartes's sense that all the genuine sciences proceed deductively, and that their goal must be the attainment of knowledge in the form of demonstrative certainty," p. 296. Yet most such attempts can be located in the revisionist, essentially 'culturalist' ideals of commentators as diverse as S. Shapin and S. Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985) and A. Grafton, *Defenders of the Text: The Traditions of Scholarship in an Age of Science, 1450–1800* (Cambridge and London: Harvard University Press, 1991).

Advancement of Learning); knowledge must be refounded on unprecedented new principles; this refoundation must be pragmatic, technical and testable; it requires new forms of collective work and institutions to support it; it is cumulative, acquisitive and in principle endless; it is directed towards power over nature (indeed, in Bacon's extraordinary dictum, "knowledge is power"). However one interprets Bacon's program or its import, its crucial elements are linked to a new vision of rupture-without-precedent – and thus without any real continuity with the ancients.[8]

In a word, early modern science was born as a self-conscious 'rupture with the rupture,' that is, as a deliberate break with the break of the Renaissance. Moreover, its major protagonists were not only convinced of their own novelty, but considered it crucial to proselytize for it in a variety of manifesto-like forms.[9] It effected: a crisis of authorization (which is tantamount to opening the possibility of republicanism-of-thought, since knowledge can no longer be authorised by any proper name but rather by methods available in principle to absolutely anybody); a dispersion of knowledges (not all that counts as knowledge can be treated as the *same* kind of knowledge, religious utterances for instance); a temporalisation of knowledge, insofar as it is the pressure of the future upon the received notions of the past that leads to the urgency to test the validity of knowledge-claims (this is, by the way, why Bacon can be considered the father

[8] As Stephen Gaukroger notes, "Bacon is criticizing the exclusivity both of the guilds, where practical information is esoteric by virtue of keeping knowledge or techniques within a trade or profession to which access is then restricted, and of the universities, where an esoteric and often convoluted language renders information inaccessible to all but those accepted into the university system," *Francis Bacon and the Transformation of Early-Modern Philosophy* (Cambridge: Cambridge University Press, 2001), p. 9. On the Baconian influence on subsequent thought, see L. Lampert, *Nietzsche and Modern Times: A Study of Bacon, Descartes, and Nietzsche* (New Haven: Yale University Press, 1993).

[9] Indeed, even the revisionists are forced to acknowledge the extraordinary polemical polarisation between the new scientists and their old enemies, even as they deny that the differences are as real as they are supposed.

of plagiarism in its modern sense)[10]; and an asymmetry of information, in that "rejected knowledge is not knowledge at all, but error."[11]

In this unprecedented restructuring of the very foundations of knowledge – and even if Karl Popper's theorisation of falsification in science is centuries away – it is already immediately evident that the status of knowledge is radically altered. Despite the strenuous and concerted attempt by culturalist obscurantists today to try to ignore, misunderstand and undermine the status of the scientific revolution, everybody who matters in the seventeenth century is fully aware of at least the following consequences of the new sciences: authorisation crisis; fracturing of knowledge; temporalisation of knowledge; asymmetry of knowledges.

Certainly, the program is hardly unified. On the contrary, it is taking a number of very different directions at once: logical, mathematical, philosophical, observational, experimental, technological. The program is not fully separated, indeed it is not always clearly and distinctly identifiable as *a* program. Residues of the very Aristotelianism they dislike inhere in the work of the period's greatest scientists and mathematicians, unacknowledged; often they do not admit any difference between what we would call "science" and what we would now call "magic," "theology," or "astrology." Even more strongly, to the extent that there is a "scientific" "program" at all, it is in no way separable from religious tenets and, indeed, is bound up with the problem of rethinking the consequences for religious practices and beliefs. Into the bargain, not only is it neither uni-

[10] In such a context, the conditions of the emergence of the specifically *modern* problem of plagiarism become clear. Plagiarism in fact has a double aspect, one unimaginable before the post-Baconian injunction for novelty in knowledge: 1) if knowledge must be "new" (or, at least, newly re-established), then plagiarism must become a problem for the first-time insofar as it threatens self-dissimulating repetition, an issue of the past pretending to be of the future, and therefore undermining the very principles under which knowledge can be properly produced, circulated, received and archived; 2) if knowledge must be "new," the novelty still requires authorisation; such authorisation, as post-Foucauldian research has conclusively demonstrated, comes to be provided by the renovation of the institution of the author itself, in a circular suture of the proper name (whether of an individual or a corporation) to each new product. One notes immediately that the tension between "knowledge wants to be free" and "knowledge wants to be expensive" is therefore irreducible in modern conditions: both universalising novelty and proper name must be in play at once, and each affronts, as it supplements, the other.

[11] Shapin and Schaffer, *Leviathan and the Air-Pump,* p. 11.

fied nor separated, but the program of natural science is not even available *as* a program to the key actors themselves, who are often working without really being able to say clearly and explicitly what they are doing.[12]

This is because the key players often *cannot* say what they are doing, sometimes for political reasons (whether they censor themselves pre-publication or, à la Galileo, are punished post-publication), sometimes for epistemological reasons (they don't themselves quite know what they're doing), sometimes for essential reasons (it is discursively inexpressible as the language is lacking). Nonetheless, these features – which obviously require a detailed historical approach in order to track their development – don't vitiate the attribution of a clear epistemological break to the seventeenth century, nor the attribution of the prime causes of the break to natural science in particular.[13] Indeed, despite the triple obscurity just mentioned (not-unified, not-separated, and not-expressible), this did not prevent the actors in the situation from themselves recognising that a revolution in the status of knowledge was in process *even if they knew they did not know what it now was to know.* This recognition is perhaps most clear in the express polemics of the time, and it is necessary to remember that the seventeenth century was an eminently *polemical* century. So Francis Bacon denounces the "Four Idols" and Galileo mocks the idiocy of his opponents. Moreover, new institutions are developed to disseminate the new thought, and their

[12] One of the best accounts of the development remains Hans Blumenberg's *The Genesis of the Copernican World*, trans. R.M. Wallace (Cambridge and London: The MIT Press, 1987), which provides extraordinarily detailed analyses of the complexities of the emergence of the new cosmos, from Copernicus through Galileo and beyond. For an earlier overview, see Hannah Arendt's *The Human Condition*, 2nd edition (Chicago and London: The University of Chicago Press, 1958).

[13] As Zachary Luke Fraser summarizes the concept of "epistemological break": "The term itself is somewhat unfortunate, and misleading in its connotations of suddenness. It tempts us to imagine the break as a specific instant, a singular historical moment. It tempts us, moreover, to draw premature analogies between epistemological break and event. For both Althusser, as well as for his teacher Bachelard, from whom he inherited the term, what is at issue in the epistemological break is not an instant in time but an ongoing process, an interminable struggle between the scientific and the ideological at the heart of scientific practice," "Introduction. The category of formalization: From epistemological break to truth procedure" in A. Badiou, *The concept of model: an introduction to the materialist epistemology of mathematics*, ed. and trans. Z.L. Fraser and T. Tho (Melbourne: re.press, 2007), p. xvii.

founding documents present themselves as conscious of the radical novelty of their enterprises.[14]

The consequences of these new discoveries and physical theories are overwhelming, transforming the very ways in which knowledge is acquired, inscribed and transmitted. Such knowledge cannot be given in experience, only repeated by experiment (simple observation would be more likely, as Alexandre Koyré has emphasized, to confirm Aristotle's findings); it cannot be formalised by natural languages, only written mathematically, as Galileo famously put it; it cannot be derived from authority (whose paradigm is Holy Scripture), only ceaselessly retested to exhaustion (even if Protestantism and religious humanists proved key in this development).[15] The scientific revolution is all the more

[14] "The primary aim of the Royal Society has never been in doubt, for it was recorded in the minutes of the first, preliminary meeting on 28 November 1660. Then those gathered in the room of Lawrence Rooke (d. 1662), Gresham Professor of Astronomy, spoke of "a designe of founding a Colledge for the promoting of Physico-Mathematicall Experimentall Learning," which it seemed might best be done by having "a more regular way of debating things, and according to the manner of other countries" in order to "the promotoing of experimentall philosophy." The repeated emphasis upon experiment is the more worthy of notice because it was entirely original," Marie Boas Hall, *Promoting Experimental Learning 1660–1717* (Cambridge: Cambridge University Press, 1991), p. 9.

[15] On the import of Protestantism for the new philosophies, see P. Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998) and the essays in K. Killeen and P.J. Forshaw (eds.), *The Word and the World: Biblical Exegesis and Early Modern Science* (Houndmills: Palgrave, 2007). There is also the extraordinary account of Koyré's which argues that Judeo-Christian monotheism was in fact a necessary precondition for modern science. Koyré's analysis suggests that Galileo's *scientific* genius derived from his taking the Bible absolutely *seriously*: 'Curious thing: two thousand years earlier Pythagoras had proclaimed that number was the very essence of things; and the Bible had taught that God founded the world on "number, weight, measure." Everyone repeated this – but no-one believed it. At least, no one up to Galileo took it seriously,' A. Koyré, *Etudes d'histoire de la pensée philosophique* (Paris: Gallimard, 1971), p. 349. The French psychoanalyst Jacques Lacan took up this hypothesis, noting that: "[Descartes'] reference to a nondeceiving god, the one accepted principle, is based on results obtained by science… It need hardly be said that matter does not cheat, that it has no intention of crushing our experiments or blowing up our machines. This sometimes happens, but only when we have made a mistake. It's out of the question that it, matter, should deceive us. This step is not at all obvious. Nothing less than the Judaeo-Christian tradition was required for it to be taken with such assurance," J. Lacan, *The Psychoses: The Seminar of Jacques Lacan, Book III 1955–1956*, trans. R. Grigg (New York: Norton, 1993), pp. 64–5. Or, as Lacan adds elsewhere, "modern science, the kind that was born with Galileo, could only have developed out of biblical or Judaic ideology, and not out of ancient philosophy and the Aristotelian tradition," *Seminar VII: The Ethics of Psychoanalysis*,

disturbing at the time given that its propositions are as-yet inadequately unified, its methods still confused and erratic, and its doctrinal consequences still unsettled. Yet the very intensity of the disputes between and within Baconian, Galilean, Cartesian, neo-vitalist and neo-atomistic strains of the new sciences show how immediately and universally intellectual Europeans recognised the import of the advances in scientific methodologies, technologies and results.[16] If not a single verity remains untouched in this uproar, it is vital to avoid the temptation of nominating this complex "complexity": on the contrary, the irreducible complexity of what was happening is belatedly able to be referred to the clarity of what I am calling a "rupture-with-the-rupture."[17]

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trans. D. Porter (London: Routledge, 1992), p. 122. See also the ongoing work of J.-C. Milner, above all, *L'Oeuvre Claire: Lacan, la science, la philosophie* (Paris: Seuil, 1995).

[16] One almost universal consequence was, as a number of authorities have emphasized, that the *problem of method as an uncircumventable problem* emerges at the centre of thought. So Jacob Klein notes that "modern mathematics… turns its attention first and last to method as such. It determines its objects by reflecting on the way in which these objects become accessible through a general method," *Greek Mathematical Thought and the Origin of Algebra*, trans. E. Brann (Cambridge: The MIT Press, 1968), p. 123. Or, as Yirmiyahu Yovel puts it in a more general frame, "From Bacon and Galileo through Descartes to Locke and Kant, modern philosophers have given logical priority to the study of method," Y. Yovel, *Spinoza and Other Heretics: The Adventures of Immanence* (Princeton: Princeton University Press, 1989), p. 35.

[17] Although there is not the space to go into it here, it is precisely *space* that bears much of the brunt of the new sciences: thinking about what a body is, what it does, and what it can do, is thereby fundamentally transformed. This is due, moreover, to the new physics, in which the problem of bodies is integrally linked to a problematic of *falling* bodies. As Peter Damerow et al. remark in their *Exploring the Limits of Preclassical Mechanics*: "The discovery of the law of free fall is usually considered to be a milestone in the development of modern physics and a major step in superseding medieval ways of thought," *Exploring the Limits of Preclassical Mechanics*, Second Edition (New York: Springer, 2004), p. 1. First formulated by Galileo in 1604, this fundamental law of modern dynamics proves central to the development of the revolutionary scientific theories and practices of the century, culminating in Newton's work of 1687. For the new physics, a body no longer falls, as Aristotelian doctrine maintained, as a return to its "natural" place; on the contrary, this new fall can only be treated in ways irreconcilable with all preceding classical and Christian forms of thought. The key claim that seized seventeenth century thinkers was precisely that *rest is a special case of motion*: the law of inertia states, quite to the contrary of all possible sense perceptions, that movement is the basic state, and that rest, as opposed to being that toward which all movement tends, is rather a special case of movement. See A. Koyré, *From The Closed World to the Infinite Universe* (Baltimore and London: The Johns Hopkins Press, 1957); M. Jammer, *Concepts of Space: The History of Theories of Space in Physics* (Cambridge: Harvard University Press, 1969); E. Grant, *Much Ado About Nothing: Theories of Space and Vacuum from the Middle Ages to the Scientific Revolution*

Most importantly here: those identifying with the new sciences almost invariably and explicitly scorn poetry. As Douglas Bush puts it: "In the world of the new philosophy, a mechanistic and deterministic world inhabited by mechanistic and egotistic beings, there was little room for imagination and intuition, for spiritual struggle and mystical contemplation. Even if poets did not accept the new creed, they could not help breathing a different air."[18] This scientific scorn

(Cambridge: Cambridge University Press, 1981). For an account of some of Milton's issues with space, see J. Gilles, "Space and place in *Paradise Lost*," *ELH*, Vol. 74, No. 1 (2007), pp. 27–58.

[18] Bush, *Science and English Poetry*, p. 43. So, despite the uncircumventable confusions, some of the consequences of their new science are pretty clear to Bacon, Galileo, Descartes and others, whether or not they felt compelled to polemicise in its favour or tried to avoid undue publicity. As Ernst Cassirer comments of Galileo: "when Galileo draws the dividing line between the objective truth of nature and the world of fable and fiction, both poetry *and* art are relegated to the latter world," *The Individual and the Cosmos in Renaissance Philosophy*, trans. M. Domandi (New York: Harper, 1964), p. 157. Bluntly, this means that rhetoric, logic and grammar – the classical *trivium* – are excluded from the avant-garde of knowledge, which, indeed, is genuinely an avant-garde for the first time. What was perhaps most horrific to the educated men of the seventeenth century were the implications for belief. There is a general sense of irreversible and radical epistemological division, sometimes idealised (as with Bacon), sometimes pathologized (as with Burton); there is a transformation of the ground and a proliferation of methodologies, whether observational or experimental, inductive or mathematized (e.g., a general hostility to the explanatory use of formal and final causes); there is a radical deconsecration of authority (whose epitome is provided for Protestantism by the Pope as Antichrist); uncertainty as to the relationship between appearance (as given to the senses) and reality (as given in anti-commonsensical experiments and observations); scepticism in regard to natural languages and measuring devices (à la the concerted seventeenth-century efforts towards the creation of artificial and coded languages, from Bacon through Wilkins to Leibniz); proliferation of new specialised academies, which emerge out of the older patronage networks and circles of enthusiasts (from the academies of Italy to the learned patronage entourages of England); the concomitant development of new forms of transmission of knowledge (for which Descartes' *Meditations* can stand as emblem); there is a transformation in the nature of space (on the one hand, there is now no hierarchy of spaces with different laws, e.g., sub- and super-lunary spheres, but the universe is everywhere governed by the same mathematical order; on the other hand, this order can often only be discerned by cutting out an experimental space in the real spaces of life, that is, by establishing an artificially-produced place). There is a celestial unhinging: geo- or heliocentric, geostastic or heliostatic – or something else? Above all, we find the horror of a contingency that can no longer be ignored or explained-away (as exemplified by the horrified enthusiasm in the rediscovery and multiple translations of Lucretius' *De rerum natura*, regarding which see, *inter alia*, S. Greenblatt, *The Swerve: How the World Became Modern* (New York: Norton, 2011)). Finally, we find that the *status* of truth changes irrevocably: scientific truth is at once absolute and transient, ever-ready to be falsified by *discoveries* but no longer by the *debates* of scholars, if it can even be accepted in the first place...

for their enterprises cannot be mistaken by poets themselves, who are forced to find some way to respond to the new epoch. This was particularly pressing in England following the Restoration, with the establishment of the Royal Society. As Jonathan Sawday elaborates in his *Engines of the Imagination*:

> To the savants of the Royal Society, the reform of language and the promotion of the mechanical philosophy were seen as allied endeavours... The tropes, conceits, metaphors, similes, the entire panoply of rhetorical devices beloved by the poets, had to be banished in order to produce a "strict account" of nature.[19]

And:

> For Milton, committed (as he was) to a language impregnated with simile, fable, allusion, and reference, Thomas Sprat's attack on the language of "wits and scholars," published in the same year that *Paradise Lost* first appeared, was an attack on his very identity as a poet and as an intellectual. More than that, Sprat's appeal to the language of "artisans," "countrymen," and "merchants" was an appeal to the language of the practical men of business who, in their anxiety to secure their economic privileges had (so Milton believed) been foremost in betraying the ideal of an English Republic.[20]

My main point should now be clear: the rupture introduced into the field of knowledge by the new philosophy is radical and irreversible; at its limit, particularly in the realm of cosmology, the new philosophy relies on mathematisation, technological application, and propositions that have no authority but experiment as their conditional validation. The new philosophy is at best indifferent to poetry, at worst, flagrantly hostile. And it is politically emergent, redistributing all existing social and epistemic stratifications. No educated person can ignore the consequences for the personnel, production, circulation and validation of knowledges in general. One of the consequences is, as Leo Strauss notes, is that "[c]orrespondingly, poetry is no longer understood as inspired imitation or reproduction but as creativity."[21] These consequences have, natu-

[19] J. Sawday, *Engines of the Imagination: Renaissance culture and the rise of the machine* (London and New York: Routledge, 2007), p. 257.
[20] Sawday, pp. 258–9.
[21] L. Strauss, *An Introduction to Political Philosophy*, ed. H. Gildin (Detroit: Wayne State University Press, 1989), p. 88. Niklas Luhmann puts this in a slightly different way: "When science –

rally, political as well as poetic resonances that integrally concerned Milton. The paradox is that Milton becomes radically new in his attempt to remain old-fashioned. He wishes to preserve and extend the highest ambitions for poetry, but in a context which he both knows and doesn't know is putting an end to such ambitions. To advert to terms recently provided by Alain Badiou, it is *because* Milton is a scientific *reactionary* and a republican *radical* that he comes to incarnate a *resurrected subject* of poetry itself.[22]

4. Milton and Galileo

Having belaboured this point, I want to essay a close reading of an element of *Paradise Lost* that has always exercised its critics: its invocation of Galileo. Why is Galileo repeatedly mentioned in connection with the telescope in particular? How does this mention affect, if at all, a global interpretation of the poem itself? Does it have consequences for our understanding of Milton's theory of knowledge? Of action? And so on.

Galileo had already notoriously functioned as a reference for Milton in *Areopagitica* (1644), a political treatise arguing against pre-publication censorship, in which the latter writes of his own trip to Italy in the late 1630s: "There it was that I found and visited the famous *Galileo* grown old, a prisner [sic.] to

in the wake of Copernicus and Galileo, assisted by the telescope and mathematics – set out to explore realities that seemed at first implausible, rhetoric, in alliance with poetry, conceived its task to be finding lasting forms for astonishment and wit," *Art as a Social System*, trans. E.M. Knodt (Stanford: Stanford University Press, 2000), p. 258. It is precisely this situation that T.S. Eliot denominated "the dissociation of sensibility," which, in its own way and with serious reservations (not least its politico-theological dismissal of Milton as a real thinker), remains a strong reading of the effects of the scientific revolution upon the poetry of the seventeenth century.

[22] See A. Badiou, *Logics of Worlds*, trans. A. Toscano (London: Continuum, 2009), esp. pp. 45–78. What is odd, in the terms of the tables Badiou provides on p. 77 and p. 78, is that one could quite directly say that *Paradise Lost* is evidence at once of Milton's communist invariance in politics, neo-classicism in art, and second encounter in love (*Paradise Lost* is mainly composed while married to his "3rd and Best Wife") – but of reactionary pedagogism in science. Badiou himself would not have any truck with such a typology (his truth-procedures being radically incommensurable in the real of their self-production), but such a possibility certainly remains real if unrealizable for Milton himself, and it can usefully exemplify what I am arguing more generally here: Milton's unprecedented poetic radicality can only emerge on the basis of an attempt to retain an active fidelity to politics *and* a reactionary pedagogism of science, the latter thereby returning in symptoms throughout the text itself.

the Inquisition, for thinking in Astronomy otherwise then the Franciscan and Dominican licensers thought."[23] Whatever the veracity of Milton's testimony here, it only emphasizes the importance of the reference. For Milton explicitly names "Astronomy" as the cause of Galileo's imprisonment, as well as the two Catholic orders he most despises – which also turn up again in *Paradise Lost* as "Embryos and idiots, eremites and friars/White, black and gray, with all their trumpery" (3: 474–5). An immediate political reading is imaginable and, certainly, there is a long tradition in Milton studies which would read such figures as Galileo as, in John Guillory's words, "a cryptic self-portrait."[24] For there are certainly some personal traits which might induce Milton to forge an identification. Both men went blind, both became political outcasts, and both certainly considered themselves geniuses. But these are merely external traits. When Galileo appears in *Paradise Lost*, it is as coupled integrally with the telescope, that is, as a *kind* of "astronomer" – though, significantly, no longer as an astronomical *thinker* as such (as in *Areopagitica*) but as a *technician-observer*. Galileo, indeed, had become famous throughout Europe for his construction of a telescope, the most powerful then available.

The first and best-known reference in *Paradise Lost* comes in the form of an epic simile:

> He scarce had ceased when the superior fiend
> Was moving toward the shore; his ponderous shield
> Ethereal temper, massy, large, and round,
> Behind him cast; the broad circumference
> Hung on his shoulders like the moon, whose orb
> Through optic glass the Tuscan artist views
> At evening from the top of Fesole,
> Or in Valdarno, to descry new lands,
> Rivers or mountains in her spotty globe (1: 283–291).

The telescope is such a crucial invention for the seventeenth century that it's difficult not to find it discussed by an extraordinary range of thinkers of mo-

[23] J. Milton, *Complete Prose Works of John Milton*, Vol. II, 1643–1648 (New Haven: Yale University Press and London: Oxford University Press, 1959), p. 358.
[24] J. Guillory, *Poetic Authority: Spenser, Milton, and Literary History* (New York: Columbia University Press, 1983), p. 161.

dernity, far beyond the field of history and philosophy of science. There are certainly a number of notable features about the instrument. Lenses had been introduced into Europe at the end of the thirteenth century. If classical antiquity had been aware of the magnifying properties of lenses, it was only in the fourteenth century that spectacles began to be made to supplement magnifying glasses for scholars. One of the questions arising from this, relevant in the present context is: why wasn't the telescope invented by the fifteenth century, when all the necessary components were available? The first known telescopes are invented in Holland in late September 1608, with a contested origin and patent applications.[25] These devices magnified only three to four times; they were immediately used as demonstrations for rulers. Very quickly, the device spread across Europe. The English researcher Thomas Harriot looked at the moon with a 6x telescope by August 1609.[26] But it is Galileo who gives the telescope its decisive impetus.

According to his own account, Galileo first heard reports about the instrument, then reconstructed it, sight unseen, on the basis of theoretical principles. His first version magnified 8x; his next version, the one with which he made his famous discoveries, 20x. It's true, of course, that a great deal of craft skill is involved in this reconstruction, and that the theoretical basis on which Galileo does this has to be normed by the materials themselves, through a painstaking process of trial and error. But Galileo's craftwork depends on his theory, and not the other way around, and it is this *theoretical* priority which it is critical to understand in modern science. In 1610, he published *Sidereus Nuncius*, announc-

[25] For an accessible recent account of this invention, see E. Reeves, *Galileo's Glassworks: The Telescope and the Mirror* (Cambridge: Harvard University Press, 2008). For an overview of the uses Galileo made of the telescope, see N.M Swerdlow, "Galileo's discoveries with the telescope and their evidence for the Copernican theory," in P. Machamer (ed.), *The Cambridge Companion to Galileo* (Cambridge: Cambridge University Press, 1998), pp. 244–270. As Swerdlow emphasizes, Galileo was not an astronomer in the sense of Copernicus, Tycho Brahe or Kepler (p. 244), and that "his originality lies not so much in what he found as in how he interpreted his discoveries. Even his discoveries with the telescope, as interesting as they are in themselves – and it is hard to think of more surprising discoveries in the entire history of science – are of still greater interest for the conclusions that he drew from them," p. 244. This confirms the tendentiousness of Milton's characterisation of Galileo as an "artist."

[26] See R. Kargon, *Atomism in England from Harriot to Newton* (Oxford: Clarendon Press, 1966), p. 20.

ing his discoveries.[27] In this book, Galileo gives an account of his discovery that the moon is spotted; indeed, that it contains mountains and valleys like the earth. In addition, Galileo measured those mountains, discovered earthshine (solar reflection off the earth), many more stars than had been supposed, observed four moons of Jupiter (which he denominated the "Medici satellites"), as well as seeing "ears" on Saturn (his telescope was not powerful enough to resolve them as rings).

As Harold Bloom argues about the passage in question, picking up on Dr Johnson's famous remarks: "Satan, excelling both [Achilles and Radigund] in his bad eminence, is seen accurately through the optic glass of the British artist's transumptive vision, even as Galileo sees what no one before him has seen on the moon's surface."[28] There is thus an implicit equation drawn here between Galileo's technologically-enhanced vision and the muse-enhanced vision of the blind poet; moreover, this equation enables, as Bloom shows, a very effective assault on Milton's literary precursors, including Homer, Virgil, Ovid and Spenser. The problem for Milton is that, if Galileo can indeed aid him in these literary-political struggles, Galileo also harbours dangerous and volatile properties.

For the consequences of Galileo's observations literally unleashed a kind of cosmic pandaemonium.[29] If the moon is like our own earth, what becomes of the otherness of the heavens? If planets looked like discs through the telescope, but the stars didn't, then there may well be immense differences in the distances between them. If the earth shone with reflected light, why not the planets? And so on. A number of postulates of Aristotelian physics are immediately destroyed by these observations, first, the immobility of the earth, and, second, any clear distinction between sublunary and celestial spheres. Yet heliocentric theory didn't proceed from observations with the instrument but the other

[27] See G. Galilei, *The Sidereal Messenger*, trans. with intro and notes E.S. Carlos (Pall Mall: Dawsons, n.d).

[28] Bloom, p. 133.

[29] Along with a surprising number of other words (he is certainly one of the first to use the now-ubiquitous psychological term "self-esteem"), *Pandaemonium* is Milton's own coinage, for the city the fallen devils construct in hell. One of the implications, then, for Milton of Galileo's discoveries is that, with the latter's utter destruction of the Aristotelian cosmos, the totality of fallen creation is Lucifer's capital itself.

way around.[30] Moreover, entirely new materials, technologies, and principles of practice take priority.[31] As if that wasn't enough, in order to use the new instrument, the human sensorium itself had to be retrained. As Joseph Vogl puts it:

> The telescope's "self-referentiality" means three things. First, the telescopic view pinpoints the observer as much as the object observed. Second, any relation to the object in Galileo's observations is also a relation of observation to itself. Finally, the telescope's medial character is also revealed in its self-referential structure.[32]

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[30] As Denise Albanese notes, invoking Paul Feyerabend's *Against Method*, "the early telescope was an undependable apparatus and no guarantor of proof; rather, it seems to have demanded the conceptual a priori of heliocentrism in order for it to underwite any demonstration of heliocentrism's veracity," D. Albanese, *New Science, New World* (Durham and London: Duke University Press, 1996), p. 174. However, this point has implications that go against one dominant revisionist strand in the history of science. For the very undependability of the instrument in itself can be taken to reveal the undependability of *all* forms of knowledge, not only of revelation but of observation too. Next thing you know, Descartes, Hobbes and Spinoza will purport to resolve the issue altogether by adverting to the constructive apodicity of mathematics: since Milton incontrovertibly knew the work of the first two, and possibly, through his correspondence with Oldenburg, something of the third, it is undoubtedly crucial that it is *not* Galileo's famous dictum about the book of the world being written in mathematical script that is invoked here. As a poet – and not a philosopher – Milton cannot accept this claim without attempting to overturn its grounds. For possible connections with Spinoza, see D. Saurat, *Milton: Man and Thinker* (New York: Haskell House, 1925), pp. 323–4.

[31] "Galileo was the first man in history to realise fully that there was a certain system of science that had begun to disappear – namely the Aristotelian system based on the common-sense's view of things as individual substances – and that a new system was about to take its place: mathematical science. That meant transforming the universe into a set of letters and numbers arranged into equations, and by the same token transforming the man of science into a subject that has nothing to do with subjectivity since it is devoid of all psychological or human attributes; its sole definition, as given by Descartes, lies in thought. Moreover, Galileo improved the quality of the lenses in his telescope, which enabled him to discover the four moons of Jupiter – a discovery which amounted to a visible refutation of the Aristotelian thesis according to which the earth was the only centre around which the other planets rotated," M. Safouan, *Why are the Arabs not free? The politics of writing* (London: Blackwell, 2007), pp. 37–8.

[32] J. Vogl, "Becoming-media: Galileo's Telescope," *Grey Room*, 29 (2008), p. 18. As Vogl also points out, 'the telescope creates the senses anew: it defines the meaning of vision and sensory perception, turning any and all visible facts into constructed and calculated data. Ultimately, all the phenomena and "messages" it produces bear the mark of theory... Galileo's telescope thus erases the coordinates of natural vision, the natural view, and the natural eye,' p. 17. Or again, as Peter Dear emphasizes, Galileo's visual observations were directed towards his program of mathematization of the cosmos. See *Discipline & Experience: The Mathematical Way in the Scientific Revolution* (Chicago and London: Chicago University Press, 1995).

In other words, the telescope is integrally linked to the dissolution of the Aristotelian cosmos: at once agent, proof, and index of the new confusion. The telescope implies cosmic pandaemonium, a perspectivalism; that is, a universal relativity of observation without any localisable centre (if such relativity is not, strictly speaking, a *relativism*). If a stronger telescope reveals more stars invisible to the unaided eye, what might a yet-stronger telescope reveal? It is not simply new worlds that are seen through the telescope: the telescope is evidence not only of human frailty, but of technology's incapacities as well. A new relation between seeing and knowing is at stake. With a telescope, seeing is no longer believing; rather the telescope shows seeing's limitations, and this showing operates upon, as it forces its observers to acknowledge, unprecedented theoretical principles. These principles are altogether other than those that would make great humanists comfortable. As Denise Albanese writes, following John Guillory, "As an apparatus that signifies the 'New Science' of the seventeenth century, and a technology that makes 'new worlds' available for inspection, the telescope seems a useful index of the transfer of cultural authority from humanism's printed texts to colonialism's and science's natural ones."[33] The question of authorization is clearly at stake in the comparison.

Why Galileo, then, for Milton?

1) Galileo and his telescope, coupled irremediably for the period, are the exemplary agents and exemplars of the new sciences, which are now instituting their dominance in a public way;
2) Galileo is a victim of the idolatrous hand of Catholicism, the victim of the censorship of new knowledge by sclerotic and Satanic institutions;
3) Galileo is a great man, both of science and politics, persecuted by his enemies for his genius.

If Milton strongly identifies with Galileo, Galileo has also become exemplary of a form of knowledge that is irreproducible by any form of traditional humanistic knowledge, and which indeed threatens integrally the practices of humanists

[33] Albanese, p. 122. Indeed, this link between colonialism and science is made clear in John Keats's very famous sonnet, "On First Looking into Chapman's Homer," where the writer-narrator becomes a reader-explorer: "Then felt I like some watcher of the skies/When a new planet swims into his ken;/Or like stout Cortez when with eagle eyes/He stared at the Pacific…" (with, of course, its notorious mistake that substitutes Cortez for Balboa).

and the truth-claims of poetry. Milton thus has to operate a number of incommensurable identifications simultaneously. Certainly, he can work a paralogism:

— like Galileo, Milton has gone blind;
— like Galileo, Milton has been politically persecuted for truth-telling;
— like Galileo, Milton is a great man.

But that's not enough. Let's take the denomination of Galileo as an "artist" in the aforecited passage as symptomatic, all the more so since it is, as Roy Flannagan has observed, the only use of the word in Milton's poetic oeuvre.[34] After all, Milton could have called him an "astronomer," "philosopher," "observer," even an "experimenter" (leaving metrical concerns aside). Although clearly parasiting on Galileo's reputation, by playing on the much broader semantic range of the word at the time, Milton seems to be implying, all at once:

— like Milton, Galileo is a great artist;
— like Milton, Galileo is therefore not a "new scientist" (or, at least, that Milton's "art" is comparable and not inconsistent with Galileo's "art");
— unlike Milton, Galileo is merely an artisan (a mechanic or practical man);
— unlike Milton, Galileo is an artist in the sense of a "schemer" or "contriver."[35]

[34] Flannagan, p. 103. The *Oxford English Dictionary* 2nd Edition defines "Artist" thus: I. 1) skilled in liberal arts (eg Chettle 1592, Shakes Tr & Cr 1606); 2) One who pursues some practical science; a scientific man, man of science, savant. Obs. 1667. Milton P.L. II.288 "The Moon, whose Orb Through Optic Glass the Tuscan Artist views"; 3) physician, astrologer, alchemist; II. One skilled in the useful arts: 4) 'One who follows any pursuit or employment in which skill or proficiency is attainable by study or practice; hence a. A skilled performer, a proficient, a connoisseur. b. A practical man, as opposed to a *theorist*. Obs. 5) a 'A follower of a manual art; an artificer, mechanic, craftsman, artisan. 6) "In this sense now influenced by 7 and applied to: One who practices a manual art in which there is much room for display of taste; one who makes his craft a 'fine art'"; III. One who pursues an art which has as its aim to please. 7) a. "One who cultivates one of the fine arts..." b) fig. 8. a) one skilled in music, b) skilled in dramatic art, c) now especially one who practices the arts of design; IV One who practises artifice. 9. "One who practises artifice, stratagem, or cunning contrivance "; a schemer, contriver. Cites 1649 Bp Hall Cases Consc III. Ii (1654), "The Devill is a most skilfull Artist", 10) Usu. Preceded by a defining word: a person, "chap," "fellow,"; also, one devoted to or unusually proficient in something (reprehensible).

[35] Flannagan has pointed out that the word 'artist' may here be linked to black magic, for it has these connotations in the period; for his part, in modifying Neil Harris's position, McAdam suggests Milton may be allusively placing 'the Italian philosopher in the same class as the (incorrectly reputed) inventor of gunpowder, the English scientist and magician, Roger Bacon,' McAdam, p. 291.

As Brady notes, Milton's *not* calling the telescope a telescope (it is an "optic glass") is to denominate the instrument with terms that were already outdated by 1667, and is in any case itself a distancing literary device.[36] Milton is therefore covertly presenting himself as newer than the new sciences: he can beat them on their own terms. Moreover, just as Galileo saw and told the truth about the fallen cosmos, Milton can see and tell the truth about the prelapsarian cosmos too. Galileo can describe what happens in the book of nature, but Galileo cannot give any account of, nor justify, "the ways of God to men."

To return to the first passage, we should also emphasize how it links Galileo to Satan in a peculiarly ambivalent way, a link which will be taken up later in *Paradise Lost*. Moreover, some kind of bizarre locational scrambling is going on here: the Tuscan artist seems to scrying the moon's "spotty globe" from both "the top of Fesole" (one of the hills overlooking Florence) and in "Valdarno" (the Arno valley), where, in fact, Galileo had been imprisoned by the Inquisition. Given that the simile in Book 1 comes just after Satan has woken and arisen in hell, that is, in the ultimate imprisonment, one might even discern an obscene and shadowy assault on Galileo himself by means of the simile: like Satan, Galileo has fallen through his own actions from the top of Fesole to his imprisonment in the depths, and, like Satan, he deserves his fate. The man simply doesn't know where he is.

Perhaps surprisingly, it is the word "spotty" that proves to be crucial here.[37] Indeed, "spot" and cognates appear in a number of significant spots throughout

[36] "The instruments Galileo constructed and presented to audiences in 1610 and 1611 are distinguished from the telescope by nomenclature. In *The Starry Messenger* (1610) Galileo refers to his device as 'organum,' 'instrumentum,' and 'perspicillum,' while in his Italian correspondence of the period his most common name for it is 'occhiale.' These terms do not specify how the device worked or what it did: 'instrumentum' and 'organum' designate simply a tool; 'perspicillum' means something that is looked through; and 'occhiale' indicates spectacles or eyeglasses. By contrast, the term 'telescope' is fairly specific; it is a Greek neologism meaning, literally, 'to see from afar.' It was proposed at the feast celebrating Galileo's induction into the Accademia dei Lincei in the spring of 1611, an occasion that has also been taken to mark the certification of his discoveries," Brady, p. 132.

[37] See Amy Boesky, "Milton, Galileo, and Sunspots: Optics and Certainty in *Paradise Lost*," in *Milton Studies 34*, ed. A. Labriola (Pittsburgh: University of Pittsburgh Press, 1996), pp. 23-44.

the poem.[38] The word "spot" is a good Middle English word, which, according

[38] In the 1667 10 book version of the poem, we find: "spotty globe" (1.291); III: "Thou wilt not leave me in the loathsom grave/His prey, nor suffer my unspotted Soule/For ever with corruption there to dwell;/But I shall rise Victorious, and subdue/My Vanquisher, spoild of his vanted spoile"; 2) "a spot which like…"; 3) "that spot to which I point is Paradise" (3.733); IV: "Sin-bred, how have ye troubl'd all mankind/With shews instead, meer shews of seeming pure,/And banisht from mans life his happiest life,/Simplicitie and spotless innocence"; V: "Evil into the mind of God or Man/May come and go, so unapprov'd, and leave/No spot or blame behind: Which gives me hope/That what in sleep thou didst abhorr to dream,/Waking thou never wilt consent to do"; 2) the Galileo reference; 3) "The grosser feeds the purer, earth the sea,/Earth and the Sea feed Air, the Air those Fires/Ethereal, and as lowest first the Moon;/Whence in her visage round those spots, unpurg'd/Vapours not yet into her substance turnd"; VII: 1) "At once came forth whatever creeps the ground,/Insect or Worme; those wav'd thir limber fans/For wings, and smallest Lineaments exact/In all the Liveries dect of Summers pride/With spots of Gold and Purple, azure and green:/These as a line thir long dimension drew,/Streaking the ground with sinuous trace; not all/Minims of Nature; some of Serpent kinde/Wondrous in length and corpulence involv'd/Thir Snakie foulds, and added wings"; 2) & 3) "When I behold this goodly Frame, this World/Of Heav'n and Earth consisting, and compute,/Thir magnitudes, this Earth a spot, a graine,/An Atom, with the Firmament compar'd/And all her numberd Starrs, that seem to rowle/Spaces incomprehensible (for such/Thir distance argues and thir swift return/Diurnal) meerly to officiate light/Round this opacous Earth, this punctual spot,/One day and night"; 4) "What if that light/Sent from her through the wide transpicuous aire,/To the terrestrial Moon be as a Starr/Enlightning her by Day, as she by Night/This Earth reciprocal, if Land be there,/Feilds and Inhabitants: Her spots thou seest/As Clouds, and Clouds may rain, and Rain produce/Fruits in her soft'nd Soile, for some to eate/Allotted there; and other Suns perhaps/With thir attendant Moons thou wilt descrie/Communicating Male and Femal Light,/Which two great Sexes animate the World,/Stor'd in each Orb perhaps with some that live"; Book VIII: "Neerer he drew, and many a walk travers'd/Of stateliest Covert, Cedar, Pine, or Palme,/Then voluble and bold, now hid, now seen/Among thick-wov'n Arborets and Flours/Imborderd on each Bank, the hand of EVE:/Spot more delicious then those Gardens feign'd/Or of reviv'd ADONIS, or renownd/ALCINOUS, host of old LAERTES Son,/Or that, not Mystic, where the Sapient King/Held dalliance with his faire EGYPTIAN Spouse." Spots also turn up elsewhere in Milton's work, as in *Comus*: "Above the smoke and stir of this dim spot/Which men call earth…" (5–6); "the spotted mountain pard" (444); "And from her fair unspotted side/Two blissful twins are to be born" (1009–10). Aside from *Comus*, I could not find the word in the 1645 volume of Milton's poems, but in the 1673 reprint of this early volume (which adds a number of poems and the treatise *Of Education*), Sonnet 23 has the line: "Mine as whom washt from spot of child-bed taint,/Purification in the old Law did save…" *Spot* is linked in this line both to the Fall and to the blight of sexual difference as maternal transmission. Neither could I find any uses of the word in *Paradise Regained* nor *Sampson Agonistes*; nor in *Areopagitica*, *Of Education*, *Martin Bucer*, *The Tenure of Kings and Magistrates* – except, suggestively, as part of "despot." In *Of Reformation*, however, he speaks of "mere necessity to vindicate the spotless truth from an ignominious bondage," and "Then was baptism… thought little enough to wash off the original spot"; in *Of Prelatical Episcopacy*,

to the *Oxford English Dictionary*, can mean "a moral stain, blot or blemish," "the stigma of something disgraceful," "a substance causing strain or disfigurment," "a particular place," and so on.[39] "Spot" therefore combines the senses of topology, a physical mark and the index of a moral fault.

It is therefore not entirely unexpected that the next mention of Galileo in *Paradise Lost* would also bring up the word, thereby recapitulating these anxieties and ambivalences.

> There lands the fiend, a spot like which perhaps
> Astronomer in the sun's lucent orb
> Through his glazed optic tube yet never saw (3: 588–90).

This "spot" – Satan landing *on* the sun, an alien object – is, moreover, a clear reference to Galileo's 1613 work on sunspots, itself a response to Christoph Scheiner's argument that sunspots were little planets circling the sun. Galileo showed, by contrast, that the spots moved together, moved slowly, were irregular, were foreshortened at the edge of the sun – and were therefore connected to the sun's surface. They were not planets, but literally spots upon or in the face of the sun.[40] Milton thereby reinforces the links we've already noted: first, the connection of Galileo with Satan; and, second, with Milton's ability to see further and other than Galileo. As Amy Boesky notes, "for Milton, the telescope

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of "the spotless and undecaying robe of truth"; it also turns up in *The Doctrine and Discipline of Divorce*, *The Reason of Church Government*, *Tetrachordon*, *Colasterion*, and *An Apology for Smectymnuus*, most often in such locutions as "unspotted law" and "unspotted churches." Perhaps not incidentally, if Milton did indeed have glaucoma, the symptoms can include: tiny spots at edge of vision that slowly get larger and spread; blurred vision; halos around lights; affecting peripheral vision; and problems adjusting to dark rooms. Milton's own careful self-presentation of this can be found in "To Mr Cyriack Skinner Upon his Blindness": "Cyriack, this three years" day these eyes, though clear/To outward view, of blemish or of spot;/Bereft of light their seeing have forgot,/Nor to their ideal orbs doth sight appear/Of sun or moon or star throughout the year,/Or man or woman.' For a recent medical opinion, see G.B. Bartley who thinks the most likely diagnosis is of "bilateral retinal detachments," in "The blindness of John Milton," in *Documenta Ophthalmologica*, No. 89 (1995), p. 27.

[39] "Spot" can be a mark or discoloration, pips on playing-cards, a variety of domestic pigeon, a small quantity; note too, as a verb, one can "spot" (i.e., which creates spots) or "spot" (i.e., which clears up spots), both of which are at stake in looking at the world...

[40] See Galileo, *Letters on Sunspots*.

appears to be an overdetermined symbol, a magnification of vision that is at once an augmentation and a distortion."[41] Quite.

The third invocation of Galileo introduces a new note. Rather than Satan, Galileo comes up in the course of God's mission for Raphael, the affable angel speeding from gates of heaven:

> From hence, no cloud, or, to obstruct his sight,
> Star interposed, however small he sees,
> Not unconform to other shining globes,
> Earth and the garden of God, with cedars crowned
> Above all hills. As when by night the glass
> Of Galileo, less assured, observes
> Imagined lands and regions in the moon:
> Or pilot from amidst the Cyclades
> Delos or Samos first appearing kens
> A cloudy spot… (5: 257–265).

Here Raphael's sight – and, of course, Milton's – is explicitly compared to Galileo and his "less assured" technology. Note the recurrence of the "spot" along with Galileo and his glass. There is a play on the ambivalence of Galileo's accomplishment ("*Imagined*" is not just "imaged"), not to mention the comparison with the "pilot." The word "kens" here returns us to Book 1 of the poem, where Satan's fall and his vision are linked: "At once as far as angels" ken he views/The dismal situation waste and wild…' (1: 59–60). And, a little further on in the same book, we find another "pilot of some small night-foundered skiff" who blindly mistakes Leviathan for an island… In other words, Milton, unlike Galileo, will not be misled by false appearances, mistaking a whale for a refuge. Moreover, to the extent that Milton and Raphael are implicitly identified here *against* Galileo, we shouldn't neglect Raphael's warning to Adam in Books 7 and 8 for "knowledge within bounds" (7: 120) and for restraint in cosmological speculations.

[41] Boesky, p. 30. She immediately continues: "I do not think Milton forgets Galileo's blindness in *Paradise Lost*; rather, blindness becomes associated for him with the telescope, an instrument Milton suspected not because he was less prescient than his contemporaries, but because he questioned the scopic power represented by Galileo's optic glass (Pepys' "great pleasure of seeing and gazing") even as he applauded it."

But there is also something else going along here with the recurrent linkage of "spots" to mortal sight. For Milton, of course, unlike Galileo, is blind when he makes his own great work:

> ... cloud in stead, and ever-during dark
> Surrounds me, from the cheerful ways of men
> Cut off, and for the book of knowledge fair
> Presented with a universal blank
> Of nature's works to me expunged and razed,
> And wisdom at one entrance quite shut out.
> So much the rather thou celestial Light
> Shine inward, and the mind through all her powers
> Irradiate, there plant eyes, all mist from thence
> Purge and disperse, that I may see and tell
> Of things invisible to mortal sight (3: 45–55).

That is, of things invisible to *Galileo's* sight. Milton's "universal blank," by contrast, gives him access to a media technology so much better than the telescope: the muse Urania. Urania, of course, functions as a very singular medium, whose proper name is itself a necessary catachresis: "the meaning, not the name I call" (7: 5). The chains of association thereby return us to *Areopagitica* and the problem of purification, of the two "blanks" that are indiscernible in the world. Milton writes: "That virtue therefore which is but a youngling in the contemplation of evil, and knows not the utmost that vice promises to her followers, and rejects it, is but a blank virtue, not a pure; her whiteness is but an excremental whiteness."[42] There are two virtues, then, that look identical: an "untested" as distinct from achieved virtue, and, if they necessarily appear the same in our fallen world (just as Edmund Spenser's Red Crosse Knight cannot initially tell Una from Duessa in his incomplete epic *The Faerie Queene*), that is, as blanks, one, the untested, is defective, whereas the other, the achieved, is the true purity. But to have been achieved, that virtue must have passed through all the spots of the world (spots as both places and occlusions of place-within-place). What Milton's "im-mortal" (i.e., "purified") blank vision therefore literally traverses in *Paradise Lost* are the spots that are the moon, Satan himself as a spot on the sun, and a cloud or clouded spot. And it is therefore no surprise that, in

[42] Milton, *Areopagitica*, pp. 515–6.

Book 3 of *Paradise Lost* (3: 248), the Son speaks of his own "unspotted Soul," that is, his *immaculate* soul: regularly we find in Milton that the negation of a privation proves the ready and easy way both to designate purity *and* exemplify the work of purification, in the necessarily-compromised language of a postlapsarian situation which can never speak straight, and must continually work to expose its own duplicity *through* its duplicity if it is not to deceive.[43]

A final point. I have already noted how, between Milton's first allusion to Galileo in *Areopagitica* and Galileo's later reappearance in *Paradise Lost*, that the latter moves from being characterised as a "thinker" to being *essentially* identified with a piece of optical technology, an "optic glass." In this shift, Galileo is not only intellectually demoted, but his expertise is linked to an artisanal engineering of the fallen world, with all the implications I have noted. Yet there is another allusion to Galileo in *Paradise Lost*, one that has only recently been identified because it is covertly intercalated into the poem itself. Ian McAdam has noted a clear paraphrase of a line from Galileo's *Dialogue concerning the two chief world systems* (1632), in the devils' response to Satan's invention of gunpowder:

> Th'invention all admir'd, and each, how hee
> To be th'inventor miss'd, so easy it seem'd
> Once found, which yet unfound most would have thought
> Impossible... (6: 498–591).

McAdam comments that this is "a perfect paraphrase of Galileo's maxim" that "*Or vedete come e'facile da intendersi... Tali sono tutte lecose vere, doppo che son trovate; ma il punto sta nel saperle trovare*." This identification not only con-

[43] Strikingly, and although he frequently uses words such as "immortal," "immutable," "infinite," and so on, Milton hardly ever uses the word "immaculate," and not, as far as I know, in any of the major poems – much preferring instead the word "unspotted." I would speculate that this is for a number of reasons, above all, due to the crucial role the word plays in Catholicism; its *non-appearance* in the context of Galileo may itself be more directly politically freighted (i.e., it's the Latin of the Dominicans and Franciscans who are allegedly persecuting and censoring him). It may, moreover, be directly linked to the linguistic politics of the poem (e.g., Milton's staging of his anxieties vis-à-vis the geohumoral problems of living in a too-cold climate too-far north, his literary belatedness vis-à-vis Italian and Roman poetry, his desire to write a specifically *English* epic, etc.). I would like to thank Geoffrey Gilbert for alerting me to this immaculate absence in Milton's text.

firms the movements I have been tracking in regards to the explicit allusions to Galileo in the poem (although I will shortly dispute McAdam use of "perfect"), but enables a decoding of Milton's fundamental, wish-fulfilling interpretation of the status of the new sciences: *the essence of science is technology; the essence of technology is destruction*.[44]

Although McAdam does not note this, there are immediately two other crucial intertexts that must be referenced here (although others are operative too). The first is linked to Francis Bacon's famous dictum regarding the "arts of printing, gunpowder and the nautical compass," "which have changed the whole aspect and state of things throughout the world."[45] This Baconian line had deeply impressed the young Milton, in a peculiar double way: around 1626, he wrote four Latin epigrams on the 1605 Gunpowder Plot, the Catholic attempt on the life of James I, the first Stuart and father of then-king Charles I (whose trial and execution Milton would later become the greatest ideologue for), as well as one on the inventor of gunpowder (then regularly mis-identified as Roger Bacon). All these

[44] This enables us to see that Martin Heidegger's interpretation of modern science has its origins nowhere else than in *Paradise Lost*: Milton is the first modern that I know of to establish this link as such, in this way, and to draw all the consequences that will later be taken up and reconfigured by Heidegger: science as a *techné* that does not think; an analysis of the current desolation of the times as "nihilism" (though Milton obviously does not use this word in its post-Enlightenment sense); the originary revelation of the sense of being as delivered poetically; and a reconstruction of the becoming of humanity as coupled integrally with the historicity of grace ("Being"), etc. M. Heidegger, *The question concerning technology and other essays*, trans. W. Lovitt (New York: Harper and Row, 1977) should therefore be reread in tandem with the final books of *Paradise Lost*, where the problem of human history in its imbrication with technology is explicitly at stake. For different accounts of this issue, see K.J. Knoespel, "Milton and the Hermeneutics of Time: Seventeenth-Century Chronologies and the Science of History," *Studies in the Literary Imagination*. Vol. 22, No. 1 (1989), pp. 17–35; A. Guibbory, "Milton's 1667 *Paradise Lost* in Its Historical and Literary Contexts," in M. Leib and J.T. Shawcross (eds.), "*Paradise Lost: A Poem Written in Ten Books*": *Essays on the 1667 First Edition* (Pittsburgh: Duquesne University Press, 2007), pp. 79–96. Guibbory is concerned to place Milton's position in a specific political context: "Milton's treatment of the invention of gunpowder (6.498) or the disembowelling of the earth for gold (1.688–90), his location of experiments, dangerous inventions, or building bridges (1.1027–30) in demonic impulses and hell, demand to be read in the specific context of the 1660s, when the Royal Society, founded and patronized by Charles II, was being lauded as a means for recovering paradise. Although atomistic philosophy could provide a scientific model for populist or revolutionary politics, Milton's 1667 poem insistently places itself at odds with the experimental new science of the Restoration," p. 86.

[45] F. Bacon, Book 1, 129.2, *Novum Organum*, trans. J. Bennett, available online, http://www.earlymoderntexts.com/f_bacon.html.

share an extraordinary rhetoric of "Tartarean fire" and anti-Papist bombast, entirely consonant with the later Miltonic sublime.[46] Yet *In Inventorem Bombardae* expresses a paradigmatically Baconian enthusiasm for the priority of modern technology over ancient fable: the human inventor of a new mode of power over nature is celebrated as greater than Prometheus. It is this position that Milton modifies in *Paradise Lost* insofar as the *truths* of which Galileo speaks are now absolutely identified with the (torturing) *instruments* to which Bacon alluded when he spoke of putting "nature to the question."[47] For Milton, knowledge and truth have come apart in the Fall, and are expressed in the relation between science-qua-technology (the paradigm of fallen knowledge as destructive instrumental power) and poetry-qua-vitalism (essential truth as ethical modality). What has been variously called Milton's "materialist vitalism" or "animist materialism" is therefore itself a *reactionary consequence* of his struggle to confront the challenges of science and technology by fusing the two.

To conclude. I want to emphasize, first, just how serious and extensive is the work that "Galileo" is doing for Milton, how it implicates an extraordinary and perhaps unexpected range of elements of *Paradise Lost* (those I have too-briefly discussed are merely among the most evident); and how, second, this work – absolutely desirable, useful and necessary as it is in and for the poem – also necessarily slips from Milton's grasp. It is not that Milton did not know what he was doing, or what the risks were. It is that his struggle with the new sciences induces him to make identifications which are unable to be sustained without a fall into an inconsistency that eludes logic. The benefits that Milton expects to gain – indeed, actually gains – from the citations of Galileo, according to the sorts of identificatory paralogisms I have outlined, are quite clear. But

[46] See *The Poems of John Milton*, ed. J. Carey and A. Fowler (London: Longmans, 1968), pp. 33-36. At the same time, Milton was also composing a much longer Latin poem on the Plot, *In Quintum Novembris*.

[47] See the strong (if controversial) claims of C. Merchant in this regard, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Francisco: Harper Collins, 1980) in this regard, as well as Merchant's recent defences of her position in such essays as "The Scientific Revolution and the Death of Nature," *Isis*, No. 97 (2006), pp. 513–533 and "Francis Bacon and the Origins of Experimentation," *Isis*, No. 99 (2008), pp. 731–760. Merchant's demonstration that Bacon's scientific rhetoric is integrally linked with implications of information-extraction through legal means such as torture seems incontrovertible – not least because it is independently confirmed in the current context by Milton's own position. In fact, once again, I would propose that Merchant's position is an offshoot of a Miltonic lineage.

what also needs to be emphasised is that these citations only enable Galileo to function as a power-name insofar as it is also covertly assaulted, and put in its proper place – something only Milton is allegedly able to do. Yet Milton's rhetoric of self-authorization renders itself suspicious, precisely because, after Galileo, it no longer has any good way of preventing its rhetoric from appearing as no more than, precisely, *rhetoric* in the modern sense, i.e., empty if persuasive speech with no traction on the real.

Such remarks can only be a beginning of a study into Milton's response to the new sciences, but they already permit us to draw certain conclusions. Milton knew a great deal about the new sciences, knew that he had to go at least some way with them, yet at the same time knew the sciences' costs for the humanist project, and this ambivalence is legible throughout the poem. In the end, he is perhaps the first great modern thinker to forge a position that is still with us today: the essence of science is technology, and this essence is inherently destructive; it can only be combated by a return to the originary disclosure of world through words that make evident unactualised possibilities for new life. To the extent that Milton is conscious of the consequences of the impossibility of reconciliation, this consciousness itself becomes a feature of the work. And since he has set out to "justify the ways of God to men," this consciousness of possible impossibility threatens to overrun the work itself. A work that takes its own possible impossibility absolutely seriously is necessarily going to encounter difficulties at every level. For the traces of the threat of its own impossibility leave their mark within the work, at the very least as textual traces of struggle. One could even turn this into a hypothesis about *Paradise Lost's* achieved authority: part of the reason why it becomes so authoritative as a poem is that it not only struggles so directly with impossibility; but that it presents the failure of its struggle with impossibility as an integral aspect of the success of its presentation itself. As I have shown, this also opens a question about the discursive conditions under which such a struggle with such an impossibility becomes necessary and desirable. My argument here has been that it is due, above all, to one of the most thoroughgoing epistemological ruptures in human history, that of the emergence of modern science

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Abstracts | Povzetki

Graham Harman

Concerning Stephen Hawking's Claim that Philosophy is Dead

Key words: philosophy, science, arts, reductionism, constructionism

The article begins from Stephen Hawking's well-known claim that philosophy is dead, and considers several other quotations in which philosophy is either belittled or subordinated outright to the natural sciences. This subordination requires a downward reductionism that is paralleled by the upward reductionism of the linguistic turn and social constructionist theories. Rather than undermining or overmining mid-sized individual entities, philosophy must deal with objects on their own terms. This suggests a possible tactical alliance between philosophy and the arts.

Graham Harman

O trditvi Stephena Hawkinga, da je filozofija mrtva

Ključne besede: filozofija, znanost, umetnost, redukcionizem, konstruktivizem

Članek izhaja iz znane trditve Stephena Hawkinga, da je filozofija mrtva, in upošteva še nekaj drugih citatov, po katerih je filozofija manjvredna ali kar podrejena naravoslovni znanosti. Ta podreditev temelji na redukcionizmu od zgoraj navzdol, ki je vzporeden redukcionizmu od spodaj navzgor lingvističnega obrata in teorij socialnega konstruktivizma. Namesto podcenjevanja ali precenjevanja srednje velikih posamičnih entitet, se mora filozofija ukvarjati z objekti pod pogoji, ki jih določajo sami. To sugerira možno taktično zavezništvo med filozofijo in umetnostjo.

Mark Potocnik

The Society of Drive. Zola's *La bête humaine* and Criminology

Key words: abnormal, criminology, drive, society

Since the studies of Adolphe Quetelet, Franz von Liszt, and Cesare Lombroso, an empirical discourse has been established at the borders of statistics, criminology, and jurisprudence that sees in the dangerous individual a paradigmatic figure of the abnormal. Zola's novel *La bête humaine* converges with this statistically induced criminology in at least three points: 1. in the reference to the complex of the dangerous individual; 2. in the assumption that all social processes have a reason in a fictitious figure; and 3. in the detection of a danger area in which the social body is measured alongside a distribution scale of norm and defiance. These aspects point to the fact that a diffuse and dangerous force

is working within the social body as well as within the body of the individual. All social relationships are pervaded by an energetics and a drive that functions automatically and out of reach of the will of the individual.

Mark Potocnik

Družba gona. Zolajeva *La bête humaine* in kriminologija

Ključne besede: nenormalno, kriminologija, gon, družba

Na podlagi študij Adolpha Queteleta, Franza von Liszta in Cesara Lombrose se je na mejah statistike, kriminologije in pravne vede izoblikoval diskurz, ki v nevarnem posamezniku prepozna paradigmatsko figura nenormalnega. Zolajev roman *La bête humaine* se s statistično naravnano kriminologijo stika na vsaj treh točkah: 1. pri sklicevanju na kompleks nevarnega posameznika; 2. pri predpostavki, da imajo vsi družbeni procesi svojo utemeljitev v izmišljeni figuri; 3. pri odkritju nevarnega področja, v katerem se družbeno telo premeri na podlagi distribucijske lestvice norme in odklona. Ti vidiki kažejo na dejstvo, da tako v družbenem telesu kot v telesu posameznika deluje razpršena in nevarna sila. Vsa družbena razmerja prežema energetika ali gon, ki deluje avtomatično, izven dosega volje posameznika.

Adrian Johnston

Reflections of a Rotten Nature: Hegel, Lacan, and Material Negativity

Key words: negativity, materialism, subjectivity, philosophy of nature

Herein, I distinguish between two basic, fundamental conceptions of the sorts of negativity associated with subjectivity throughout modern European philosophy up to the present: on the one hand, a mystical vision in which the unexplained explainer of a mysterious nothingness is appealed to as a ground-zero given; on the other hand, a materialist idea according to which the real privative causes of absences and antagonisms are internally generated out of precisely specifiable natural and human historical processes involving accumulations of multitudes of concrete elements and features. Arguing against the former as complacently resting upon the dogma of a "myth of the non-given" (to borrow a phrase from Wilfrid Sellars so as to refer to the notion of the factical givenness of negativity as itself non-given), I plead for the latter and sketch a dialectical-speculative "more is less" dynamic in which surpluses of positivity immanently give rise to negativities. This dynamic is an essential part of a non-reductive materialism including within itself lacks and conflicts as causally efficacious factors. I flesh out these lines of thought through reinterpretations of the transition from the organic to the anthropological in Hegel as well as the mirror stage as an account of ego- and subject-formation in Lacan.

Adrian Johnston

Refleksije pokvarjene narave: Hegel, Lacan in materialna negativnost

Ključne besede: negativnost, materializem, subjektivnost, filozofija narave

Na tem mestu razlikujem med dvema osnovnima oz. temeljnima pojmovanjema tiste vrste negativnosti, ki jo v moderni evropski filozofiji vse do danes povezujemo s subjektivnostjo: na eni strani mistično vizijo, po kateri se na nerazloženo razlago skrivnostnega niča naslavljamo kot na osnovno danost, in na drugi strani materialistično idejo, po kateri so resnični privativni vzroki odsotnosti in antagonizmov notranje generirani iz natančno določljivih naravnih in človeških zgodovinskih procesov, ki vključujejo akumulacijo multitud konkretnih elementov in lastnosti. Proti prvi, za katero trdim, da samozadovoljno pristaja na dogmo »mita o ne-danem« (če si izposodim izraz Wilfrida Sellarsa, s katerim ciljam na pojmovanje faktične danosti negativnosti, ki sama ni dana), bom zagovarjal slednjo in orisal dialektično-spekulativno dinamiko »več je manj«, v skladu s katero se presežki pozitivnosti imanentno porojevajo iz negativnosti. Ta dinamika je bistveni del nereduktivnega materializma, ki vključuje manke in konflikte kot vzročno učinkovite faktorje. Te misli izdolbem skozi interpretaciji tranzicije iz organskega v antropološko pri Heglu ter zrcalnega stadija kot pojasnila izoblikovanja ega in subjekta pri Lacanu.

Ed Pluth

On Transcendental Materialism and the Natural Real

Key words: dialectics, quantum physics, materialism, the real, Slavoj Žižek

This paper considers the status of both the natural real and thinking in transcendental or structural materialisms, and questions whether the relationship between thinking and being in such philosophies can really be considered dialectical or not. Looking at the recent work of Slavoj Žižek, but with an eye to work being done by thinkers such as Brassier, Johnston, and Meillassoux as well, I consider what is said about quantum physics in some of Žižek's recent books, and argue that it is difficult to see how any version of the natural real – quantum or not – can have a status in a dialectical philosophy that does not end up at least implicitly giving ordinary human experience and thought a de-realized or ontologically degraded status, in a manner that is in fact very un-dialectical. The sciences basically require a reductionist perspective, such that it is hard to argue that there is any vigorous relationship between thinking and being in them. There is much about human experience and thinking that does need to be de-realized, of course. Hegelian philosophy and Freudo-Lacanian psychoanalysis have always done an excellent job of that.

Ed Pluth

dialektika, kvantna fizika, materializem, realno, Slavoj Žižek

Ključne besede: Lacan, Butler, Connolly, Rose, psihoanaliza, fantazma, politika, identiteta, politika

Članek razpravlja o statusu naravnega realnega in mišljenja znotraj transcendentalnih ali strukturnih materializmov, ter se sprašuje, če razmerje med mišljenjem in bitjo v takšnih filozofijah res lahko razumemo kot dialektično. Ob novejših delih Slavoja Žižka, pa tudi z ozirom na delo avtorjev kot so Brassier, Johnston in Meillassoux, premišljujem o tem, kar je tam rečenega o kvantni fiziki, ter trdim, da ni jasno, kako ima lahko kakršnakoli različica naravnega realnega – naj bo to kvantno ali ne – nek status v dialektični filozofiji, ne da bi pri tem na pravzaprav precej nedialektičen način običajnemu človeškemu izkustvu in mišljenju vsaj implicitno podelila derealizirani ali ontološko degradirani status. Znanosti v osnovi zahtevajo redukcionistično perspektivo, zaradi česar v zvezi z njimi težko govorimo o kakršnemkoli močnem razmerju med mišljenjem in bitjo. Seveda pa je v človeškem izkustvu in mišljenju veliko takšnega, kar je res treba derealizirati. Heglovski filozofiji in freudo-lacanovski psihoanalizi je to vedno odlično uspevalo.

Frank Ruda

The Speculative Family, or: Critique of the Critical Critique of Critique

Key words: Quentin Meillassoux, speculative realism, materialism, critique

Quentin Meillassoux has made his step to the forefront of contemporary philosophy with harsh criticism of the very idea of critique and any critical project following Kant's philosophy. The article provides a critical assessment of Meillassoux's approach (and in passing also tackles those of Graham Harman and Iain Hamilton Grant). The basic argument is that the so called "speculative realist / materialist" approach is less materialist than such approach assumes by fundamentally repeating a Heideggerian move that surprisingly does not turn to poetry but to science. In the final part, the politically problematic outcomes of such an endeavour are delineated in a polemical discussion of the work of Elie Ayache. The totality of the article argues for a revivifying of the idea of critique – not in its traditional guise but in what the author calls a meta-critical approach.

Frank Ruda

Spekulativna družina ali Kritika kritične kritike kritike

Ključne besede: Quentin Meillassoux, spekulativni realizem, materializem, kritika

Quentin Meillassoux je svoj korak v ospredje sodobne filozofije naredil z ostro kritiko same ideje kritike in kakršnegakoli kritičnega projekta, ki bi sledil Kantovi filozofiji. Čla-

nek prinaša kritično oceno Meillassouxjevega pristopa (ter ob strani obravnava tudi pristope Grahama Harmana in Iaina Hamiltona Granta). Osnovni argument se glasi, da je t. i. »spekulativno realistični/materialistični« pristop s svojim ponavljanjem heideggerjanskega obrata, ki se, presenetljivo, ne obrača k poeziji, marveč k znanosti, precej manj materialističen, kot sam predpostavlja, da je. V zaključku so politično problematični nasledki takšnih prizadevanj orisani skozi polemično razpravo z delom Elie Ayache. Članek kot celota si prizadeva za ponovno oživitev ideje kritike – ne sicer v njeni tradicionalni obliki, temveč skozi tisto, čemur avtor pravi metakritični pristop.

Rado Riha

Does Science Think?

Key words: science, philosophy mathematical formalization, object, thought, real

The objective of the present essay is to show that the traditional dilemma of philosophy, namely, does science think or does not think, has today become the problem that science itself has to solve. To assert that science thinks means first that science, when it thinks, constructs its object in an always specific manner; second, in construing its object, it adds to it the real, i.e., a reference, external to the scientific construction itself, which science then discovers as the basis and source of its construction. This article argues that it is for strictly scientific reasons that science is today faced with the task of affirming itself as a domain of thought in both aforementioned meanings. Affirming the view that science thinks is a *scientific struggle* for the existence of politics of emancipation.

Rado Riha

Ali znanost misli?

Ključne besede: znanost, filozofija matematične formalizacije, objekt, mišljenje, realno

Članek skuša pokazati, da je tradicionalna dilema filozofije, ali znanost misli ali ne misli, danes postala vprašanja, ki ga mora rešiti znanost sama. Da znanost misli, pomeni dvoje. Prvič, znanost misli, ko na vselej specifičen način konstruira svoj objekt. In drugič, znanost misli, ko svojemu konstruiranemu objektu dodaja še realno, se pravi, neko znanstveni konstrukciji »zunanje« referenco, ki jo znanost potem odkriva kot temelj in vir za svojo konstrukcijo. Prispevek razvija tezo, da je znanost danes iz strogo znotrajznanstvenih razlogov prisiljena, da se afirmira kot področje misli v navedenem dvojnem pomenu. Uveljavljanje stališča, da znanost misli, pa je tudi oblika znanstvenega boja za obstoj politike emancipacije.

Luisella Brusa

Between Truth and Relativism: The Choice of Psychoanalysis

Key words: truth, knowledge, logic, signifier, phallus, Jacques Lacan

My aim in this paper is to draw attention to the position of psychoanalysis regarding the opposition between the quest for truth and relativism. It is a conventional opposition of contemporary thought. On one hand, the quest for truth, and on the other, relativism, as the fundament of our intellectual and political life. I do this by means of Lacanian teachings. My objective is to take on the theoretical tools of psychoanalysis and the consequences of clinical facts, in order to enable a critical reflection on this topic. Before proceeding to the precise argument, I briefly introduce the historical ground correlated to modern subjectivity, characterized by the vanishing of the guarantee of both truth and knowledge. Then I then go into the topic by means of a survey of Lacan's reading of the path of modern logic. Lacan interprets the whole history of logic as a bungled action, "every bungled action is a successful discourse." In fact, it points to the cardinal place of lack, which is the topic of psychoanalysis. It opens towards a deeper understanding of the role of the signifier of signification – the *Bedeutung des Phallus*. Lacan's interpretation of the whole history of logic transforms the achievements of modern logical thought into the writings of a *point de capiton* for collective rationality. The key here is to focus on the capital role of what I call in conclusion "an inaccessible point" for both individual and collective life. This is the issue I address in the last point. The article is divided into five points: 1. the relativistic drift; 2. the guarantee of knowledge; 3. the guarantee of truth; 4. logic and *point de capiton*; and 5. the signification (*Bedeutung*) of the *Phallus*.

Luisella Brusa

Med resnico in relativizmom: izbira psihoanalize

Ključne besede: resnica, vednost, logika, označevalec, falus, Jacques Lacan

Moj namen je pritegniti pozornost na stališče psihoanalize v zvezi z opozicijo med iskanjem resnice in relativizmom. Gre za konvencionalno opozicijo sodobne misli. Iskanje resnice na eni in relativizem na drugi strani sta temelja našega intelektualnega in političnega življenja. S pomočjo Lacanovega poučevanja, teoretičnih orodij psihoanalize in konsekvenc kliničnih dejstev nameravam ponuditi kritično refleksijo te teme. Pred poglavitnim argumentom na kratko predstavim zgodovinsko podlago, ki ustreza moderni subjektivnosti, ki jo zaznamuje izginotje jamstva tako resnice kot vednosti. Nato se teme lotim skozi pregled Lacanovega branja razvoja moderne logike. Lacan celotno zgodovino logike interpretira kot spodletelo dejanje: »vsako spodletelo dejanje je uspešen diskurz«. To pravzaprav zadeva osrednje mesto manka, ki je tema psihoanalize. Kaže nam pot h globljemu razumevanju vloge označevalca pomena – *Bedeutung des Phallus*. Lacanova interpretacija celotne zgodovine logike preobrazi dosežke moderne

logične misli v pisavo *point de caption* za kolektivno racionalnost. Ključno se je osredotočiti na poglavitno vlogo tega, čemur v zaključku pravim »nedosegljiva točka« tako kolektivnega kot individualnega življenja. Ta problem obravnavam v zaključku. Članek je razdeljen na pet delov: 1. relativistično odstopanje; 2. jamstvo vednosti; 3. jamstvo resnice; 4. logika point de caption; in 5. pomen (*Bedeutung*) *Phallusa*.

Samo Tomšič

Three Notes on Science and Psychoanalysis

Key words: formalisation, contingency, non-all, Jacques Lacan

The paper discusses the relation between psychoanalysis and science from the perspective of formalization and contingency. It departs from the role of biology in Freud, pointing out the insufficiency of his scientific preferences to account for the specific epistemological status of the unconscious and sexuality. Lacan's notable reference to mathematical formalization then appears as a critical response to Freudian scientism. The paper in particular underlines the relation between formalization and contingency, which for Lacan was the central issue not only of psychoanalysis but also of modern science. This problem is addressed in reference to the polemic between the philosopher Émile Boutroux, who advocated the idea of the contingency of natural laws, and the mathematician Henri Poincaré, who decisively rejected Boutroux's "speculations". The paper then concludes with a brief outline of the main features of Lacan's use of formalization, focusing especially on the "mathematization of the non-all" in which Lacan saw the point of encounter between scientific thinking and the real.

Samo Tomšič

Tri beležke o znanosti in psihoanalizi

Ključne besede: formalizacija, kontingenca, ne-vse, Jacques Lacan

Članek obravnava razmerje med psihoanalizo in znanostjo iz vidika formalizacije in kontingence. Izhaja iz vloge biologije pri Freudu, pri čemer pokaže na nezadostnost njegovih znanstvenih preferenc za pojasnitev specifičnega epistemološkega statusa nezavednega in seksualnosti. Lacanova znamenita referenca na matematično formalizacijo je nato prikazana kot kritični odziv na freudovski scientizem. Članek posebej poudari razmerje med formalizacijo in kontingenco, ki je bilo za Lacana osrednji problem ne le za psihoanalizo, temveč tudi za moderno znanost. Ta problem obravnavamo s sklicevanjem na polemiko med filozofom Émilom Boutrouxom, ki je zagovarjal idejo kontingence naravnih zakonov, in matematikom Henrijem Poincarejem, ki je odločno zavrnil Boutrouxove »spekulacije«. Članek zaključi kratek oris osnovnih potez Lacanove rabe formalizacije, s posebnim ozirom na »matematizacijo ne-vsega«, v kateri je Lacan videl točko srečanja med znanstvenim mišljenjem in realnim.

INFORMATION FOR CONTRIBUTORS

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1. Gilles-Gaston Granger, *Pour la connaissance philosophique*, Odile Jacob, Paris 1988, p. 123.
2. *Cf.* Charles Taylor, "Rationality", in: M. Hollis, S. Lukes (Eds.), *Rationality and Relativism*, Basil Blackwell, Oxford 1983, pp. 87–105.
3. Granger, *op. cit.*, p. 31.
4. *Ibid.*, p. 49.
5. Friedrich Rapp, "Observational Data and Scientific Progress", *Studies in History and Philosophy of Science*, Oxford, 11 (2/1980), p. 153.

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