

Another Beginning of Philosophy is Possible Towards a Democratic and Disruptive History of Systems of Thought

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Abstract: As an analytic prolongation of Laruelle’s particulate and democratic picture of philosophy, non-commutative ontology treats philosophical variables, whether continuous or discrete, on an equal footing. Lined up with a spectral paradigm, the notion of variability gives rise to certain indeterminacies with regard not only to the future but also to the past. Therefore, by radicalizing freedom within a democratic and disruptive history of systems of thought another beginning of philosophy is possible.

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1. Non-commutative Ontology

François Laruelle undertakes two interesting steps in his “non-classical or ‘non-standard’ philosophy:”¹ first, a *technical* step toward “a quantization of thought”² by applying a logico-algebraic language to philosophy and, second, a *conceptual* step by embracing the notion of “wave function” as a “formula or equation combining the symbols of philosophical or real variables”³ like “the transcendentals (the One itself, Being, Other, the Multiple, Unity, Beings, etc.)”⁴ or “the pairs of great transcendentals (Being and Non-Being, Same and Other, Good and Evil as Non-Good, True and Non-True, etc.)”⁵ The emphasis lies on the fact that the wave function designates a “law of an undulatory process and not of a ‘state.’”⁶ Laruelle refers to “states” of a system of thought attributing certain values to philosophical variables as “isolated conceptual points”⁷ but as wave functions or “state vectors” in “an onto-vectorial configuration space.”⁸ One property of such a system is that every state can be expressed in the

form of linear combinations of other states. A state is described by a vector, the superposition of states corresponds to the addition of vectors, and a “Hilbert configuration space” consists of “a plurality of vectors.”¹⁰ The ideas of “quantics-oriented theory”¹¹ in relation to a classical model of thought owe much to David Hilbert. The quasi-Hilbertian onto-vectorial space plays a fundamental role in Laruelle’s “immanent” or “onto-material formalism.”¹² Yet, as Alain Connes and Matilde Marcolli point out:

This [algebraic] viewpoint on quantum mechanics was later somewhat obscured by the advent of the Schrödinger equation. The Schrödinger approach shifted the emphasis back to the more traditional technique of solving partial differential equations, while the more modern viewpoint of Heisenberg implied a much more serious change of paradigm, affecting our most basic understanding of the notion of space. Heisenberg’s approach can be regarded as the historic origin of non[-]commutative geometry.¹³

Moreover, “the elevation of the wave function or of the state vector to the function of an *a priori* legislation of the empirical domain”¹⁴ con-

¹ François Laruelle, *Philosophie non-standard. Générique, quantique, philo-fiction* (Paris: not Éditions Kimé, 2010), 31: “philosophie non-classique ou ‘non-standard.’”

² Laruelle, *Philosophie non-standard*, 13: “une quantification de la pensée.”

³ Laruelle, *Philosophie non-standard*, 53: “Fonction d’onde. Formule ou équation combinant les symboles des variables philosophiques ou réelles.”

⁴ François Laruelle, *Principles of Non-Philosophy*, trans. Nicola Rubczak and Anthony Paul Smith (London: Bloomsbury Academic, 2013), 281; François Laruelle, *Principes de la non-philosophie* (Paris: Presses Universitaires de France, 1996), 344: “des transcendants (l’Un lui-même, l’Être, l’Autre, le Multiple, l’Unité, l’État, etc.)”

⁵ François Laruelle, *Introduction aux sciences génériques* (Paris: Éditions Pétra, 2008), 112 f.: “les paires de grands transcendants (Être et Non-Être, Même et Autre, Bien et Mal comme Non-Bien, Vrai et Non-Vrai, etc.)”

⁶ Laruelle, *Philosophie non-standard*, 53: “Désignant la loi d’un processus ondulatoire et non d’un “état.””

⁷ *Ibid.*, 13.

⁸ François Laruelle, *Christo-Fiction: The Ruins of Athens and Jerusalem*, trans. Robin Mackay (New York: Columbia University Press, 2015), 90; François Laruelle, *Christo-fiction. Les ruines d’Athènes et de Jérusalem* (Paris: Fayard, 2014), 139: “un espace de configuration vectoriale.”

⁹ François Laruelle, *En dernière humanité La nouvelle science écologique* (Paris: Éditions du Cerf, 2015), 167: “un espace de configuration de Hilbert.”

¹⁰ Alain Connes, Danye Chéreau and Jacques Dixmier, *Le spectre d’Atacama. Trio pour la fin du temps* (Paris: Odile Jacob, 2018), 232: “une pluralité de vecteurs.”

¹¹ Laruelle, *Christo-Fiction: The Ruins*, 67; Laruelle, *Christo-fiction: Les ruines*, 107: “théorie orientée-quantique.” For ‘quantics’ see Marcelo Alonso and Edward J. Finn, *Physics*, Harlow: Addison Wesley, 1992, p.956.

¹² Laruelle, *Philosophie non-standard*, 77: “formalisme matériel” ou encore “immanent.”

¹³ Alain Connes and Matilde Marcolli, “A Walk in the Noncommutative Garden,” in *An Invitation to Noncommutative Geometry*, ed. Masoud Khalkhali and Matilde Marcolli (Washington, DC: World Scientific Publishing, 2006), 9.

¹⁴ François Laruelle, *Anti-Badiou. Sur l’introduction du Maoïsme dans la philosophie* (Paris: Editions Kimé, 2011), 78: “l’élévation de la fonction d’onde ou du vecteur d’état à la fonction de législation a priori du domaine empirique.”

fers a certain “ontological weight”¹⁵ on these notions. By emphasizing the analogy with optics, as Erwin Schrödinger has shown in his second article of 1926,¹⁶ and by comparing the trajectory of a “conceptual particle”¹⁷ with a ray of light, Laruelle tries to approximate the behavior of a subjacent “wave” in “the philosophical space”¹⁸ such as the transcendental field of Jean-Paul Sartre¹⁹ and the “plane of immanence”²⁰ of Gilles Deleuze. This seems to suggest that the “wave function” or “the generic quantum”²¹ state represents the “Real”²² underlying the particulate nature of concepts. The base for attributing an ontological weight to the generic wave function or state vector is, in the first place, the affirmation that quantum-oriented theory is a theory of waves in philosophical space or “an immanent ontology or aesthetic of the undulatory *a priori*.”²³ However, it is not clear how one could express a generic quantum state of two or more “conceptual particles”²⁴ as a set of wave functions in such a space. Secondly, the wave formulation misses the key feature of the generic quantization project, that is, the *discreteness* of the lived experience (“*Erlebnis*” in Edmund Husserl). “The energy is discrete,” writes Laruelle, “why would not the lived that replaces it be

discrete either?”²⁵ Such a property had to be recovered by supplementary suppositions, as there is no reason why a lived should be a wave related to the frequency. Last but not least, if one treats the wave as the “Real,” one falls immediately into what could be called the “generic measurement problem:” How can a wave expanding over the onto-vectorial space suddenly manifest itself at a single spot as a “conceptual particle?”²⁶

All these difficulties render the “ontologization” of the wave function difficult. On the one hand, this notion has a “philosophical plasticity,”²⁷ more than “the algebraic logos as a complex number,”²⁸ and it is much easier to grasp by giving a linear representation in a quasi-Hilbertian space. On the other hand, the algebraic logos of non-commutative observables is an important concept, while the importance given to the onto-vectorial space could be understood as an indirect confirmation of the ontological weight of generic quantum states. However, it would be a misleading idea to consider the generic notions of the wave function, the state vector or the quantum state as a faithful description of the “Real.” We should deal with quantum-oriented theory rather as a question of values of philosophical variables. “Real human experience,” as Alexander Galloway remarks, “is thus not so much a fact but a variable, not so much an object but a formal relation, just as the algebraic equation $x = 2y$ tells how x and y are related without saying anything about what x and y actually are. [...] Laruelle proposes what he calls a ‘materialized algebra’ of elements held as variables in superposition with each other.

¹⁵ Carlo Rovelli, “Space is Blue and Birds Fly through it,” *Philosophical Transactions of the Royal Society* 376, no. 2123 (2018), 1.

¹⁶ Erwin Schrödinger, “Quantisierung als Eigenwertproblem (Zweite Mitteilung),” *Annalen der Physik* 79 (1926), 489–527.

¹⁷ Laruelle, *Philosophie non-standard*, 57, 64, 72, 420.

¹⁸ See, for instance, Laruelle, *Philosophie non-standard*, 78, 165, 301, 310, 387, 426, 467, and Laruelle, *Anti-Badiou*, 135: “l’espace philosophique.”

¹⁹ Jean-Paul Sartre, *La Transcendance de l’ego et autres textes phénoménologiques* (Paris: Vrin, 2003), 96: “champ transcendantal.”

²⁰ Gilles Deleuze and Félix Guattari, *Qu’est-ce que la philosophie?* (Paris: Éditions de Minuit, 1991/2005), 38–59: “*Le plan d’immanence*.”

²¹ Laruelle, *Philosophie non-standard*, 85 f. (“*Vers le quantum générique*”), 420 f. (“*Le quantum générique*”).

²² *Ibid.*, 59 f., and Laruelle, *Anti-Badiou*, 23.

²³ Laruelle, *Philosophie non-standard*, 244: “une ontologie et une esthétique immanentes de l’a priori ondulatoire.”

²⁴ *Ibid.*, 72, 401: “particules conceptuelles.”

²⁵ Laruelle, *En dernière humanité*, 136, 166: “L’énergie est discrète, pourquoi le vécu qui la remplace ne le serait-il pas ?”

²⁶ Laruelle, *Philosophie non-standard*, 57, 64, 72, 420: “particule conceptuelle.” See Rovelli, “Space is Blue,” for objections.

²⁷ Laruelle, *Philosophie non-standard*, 420: “plasticité philosophique.”

²⁸ Laruelle, *En dernière humanité*, 126: “le logos algébrique comme nombre complexe.”

By following, on the one hand, Werner Heisenberg rather than Schrödinger and, on the other hand, Laruelle who introduces “the democracy into the interior of transcendental Logic and Aesthetic”²⁹ with the result that “Logic, as elsewhere the Aesthetic itself, escapes the disjunction of intellectual or sensible forms,”³⁰ the aim is to establish the foundations for a *non-commutative ontology* based exclusively on the relations between, in principle observable, quantities of “intension” (that is what the qualitative quantity of the lived expresses) or of intensity, since non-philosophy does not aim at inflating ontology but in the contrary to rarefy it, as Laruelle states: “*The generic degrowth intends [...] to reduce philosophy to the state of a productive force.*”³¹

2. The Emergence of Space

With the discovery of a philosophical analog of the Heisenberg commutation relation $[p, q] = pq - qp = ih$,³² Laruelle’s quantic-oriented theory thus means first of all *non-commutative onto-vectorial space*. Non-commutativity entails many advantages. In standard ontology of “dualistic philosophies”³³ from Parmenides (*Thought = Being*) via René Descartes (*Cogito ergo sum*) to Alain Badiou (*Set Theory = Ontology*), the commutativity assumption appears as a welcome simplification making certain logical identifications easier. But in fact our use of the written language makes us perfectly familiar with non-commutativity, if

²⁹ Laruelle, *Principles of Non-Philosophy*, 281; Laruelle, *Principes de la non-philosophie*, 344: “la démocratie à l’intérieur de la Logique et de l’Esthétique transcendantales.”

³⁰ Ibid.: “la Logique, comme d’ailleurs l’Esthétique elle-même, échappe à la disjonction des formes intellectuelles ou sensibles.”

³¹ Laruelle, *Christo-fiction*, 71: “La décroissance générique se propose au contraire de réduire la philosophie à l’état de force productive.”

³² The brackets “[...]” denote the commutator, p and q observables, q the position, p the momentum of a particle, i the imaginary number and $\hbar = h/2\pi$ the reduced Planck constant.

³³ Anthony Paul Smith, *Laruelle: A Stranger Thought* (Cambridge, UK, and Malden, MA, USA: Polity Press, 2016), 45.

we consider anagrams, i.e., writings that become equal when “abelianized” but nevertheless have quite different meanings as long as the order of letters is respected. One could only switch to what could be called a “communicative shadow”³⁴ of “the World”³⁵ or “World-thought”³⁶ at the expense of a “loss of meaning”³⁷ encoded by non-commutativity. Another key feature of the non-commutative “Universe”³⁸ or “Universe-language”³⁹ is that *the non-commuting discrete variables of the simplest kind generate the commuting continuous variables*. In other words, the “reality”⁴⁰ arises out of the “Real”⁴¹ of the quasi-Hilbertian

³⁴ Marcolli and Tabuda, “Noncommutative Motives and their Applications,” 207. See also Alain Connes, “Geometry and the Quantum” (2017) arXiv: 1703.02470v1, 16: “commutative algebraic shadow”

³⁵ Laruelle, *En dernière humanité*, 145: “Monde.” For “commutative world,” see also Matilda Marcolli and Gonçalo Tabuda, “Noncommutative Motives and their Applications,” in *Commutative Algebra and Noncommutative Algebraic Geometry: Volume I: Expository Articles, Mathematical Sciences Research Institute Publications*, ed. David Eisenbud, Srikanth B. Iyengar, Anurag K. Singh, J. Toby Stafford, and Michel Van den Bergh (New York: Cambridge University Press, 2015), 195, 202, 205.

³⁶ François Laruelle, *Dictionary of Non-Philosophy*, trans. Taylor Adkins (Minneapolis: Univocal, 2013), 170 f., and François Laruelle, *Dictionnaire de la non-philosophie* (Paris: Éditions Kimé, 1998), 152 f.: “Pensée-monde.”

³⁷ Alain Connes, Danye Chéreau and Jacques Dixmier, *Le théâtre quantique. L’horloge des anges ici-bas* (Paris: Odile Jacob, 2013), 77: “passer au commutatif est une perte de sens.”

³⁸ Laruelle, *En dernière humanité*, 145: “l’homme générique aura l’identité sous la forme d’une superposition quantique c’est-à-dire d’une dimension d’Univers et non plus de ‘Monde.’ Laruelle distinguishes between “world” and “universe,” as Anthony Paul Smith clarifies, in order to “point out the difference between a form of existence that is not sufficient (universe) and a hallucinated totality that in reality refers to the set of actual but not necessary forms of authority (world).” Smith, *Laruelle*, 124. For “non[-]commutative world,” see Marcolli and Tabuda, “Noncommutative Motives and their Applications,” 202.

³⁹ Cf. the entry “Langage-univers” in Laruelle, *Dictionnaire de la non-philosophie*, 91–93, and “Universe-language” in Laruelle, *Dictionary of Non-Philosophy*, 160–162.

⁴⁰ Laruelle, *Anti-Badiou*, 23.

⁴¹ Ibid., and Laruelle, *Philosophie non-standard*, 59 f.

space.⁴² A “classical philosophy”⁴³ emerges from Laruelle’s “*generic ontology*”⁴⁴ of non-commutative space implying, among others, the “Non-Parmenidean Equation” $Practice = Thought$ or “*the (non-) relation of theory and practice.*”⁴⁵

For demonstrating this, we conceive of “intentional” or qualitative and “non-commutative variables”⁴⁶ as linear operators or generic matrices in an onto-vectorial space. The complex algebraic system of generic matrices only represents *discrete* variables taking at most two values such as “productive forces” and “relations of production,”⁴⁷ “man” or “human” and “animal,”⁴⁸ “Logos” and “Torah,”⁴⁹ “immanence” and “transcendence,”⁵⁰ etc.; but as soon as one adjoins another non-commuting bivalent variable Y , one generates all *continuous* functions in a so-called “connected space.” Since the product of two self-adjoint operators verifying the matrix relations of “self-adjunction” ($Y = Y^*$) is not self-adjoint unless they commute, we deal with the algebraic logos as a complex number endowed with an antilinear “involution” ($Y^2 = 1$). That is the simplest example of a philosophical continuum constituting a two-dimensional

sphere that can be called “two-sphere.” The involutive logos generated in such a way contains plenty of “continuous variables.”⁵¹ The sphere itself is recovered as the *spectrum* of the algebraic logos, and the “points” of the sphere are the “actors” or, as one says in the categorical jargon, the “arrows” or the “morphisms” of the involutive logos to the complex numbers. This is a prototype example of how a connected space or the two-sphere of philosophy can emerge from the discrete, that is, from the algebraic logos as a complex number and a second variable, due to non-commutativity. What happens is that the connected space of the commutative two-sphere emerges in a spectral manner from the characters of the non-commutative “Universe.”⁵² Non-commutativity allows to generate the continuum from completely discrete variables. There is another great advantage of non-commutativity: the “natural” logos which springs out of the non-commuting logos and the other variable contains the first one but is larger and gives the commutative logos with *continuous* values on the philosophical continuum of the two-sphere.⁵³ Thus, non-commutativity can help, instead of being a disadvantage. It permits to generate *continuous* variables from *discrete* ones on a “a generic plane.”⁵⁴ The idea is that the onto-vectorial Hilbert space is not a continuous space but we try to *approximate* it with such a space “as a ‘good finite’ discrete approximation.”⁵⁵ This is a new paradigm for “intensive or conceptual spaces,”⁵⁶ allowing one to treat the

⁴² Connes, Chéreau, and Dixmier, *Le spectre d'Atacama*, 122: “la réalité ultime naît de l'espace hilbertien.”

⁴³ Laruelle, *En dernière humanité*, 171: “une philosophie classique.”

⁴⁴ Laruelle, *Philosophie non-standard*, 93: “ontologie générique.”

⁴⁵ François Laruelle, *Struggle and Utopia at the End Times of Philosophy*, trans. Drew S. Burke and Anthony Paul Smith (Minneapolis, Minnesota: Univocal, 2012), 149; François Laruelle, *La lutte et l'utopie à la fin des temps philosophiques* (Paris: Kimé, 2004), 126: “le (non-) rapport de la théorie et de la pratique.” See also John Ó Maoilearca, *All Thoughts Are Equal: Laruelle and Nonhuman Philosophy* (Minneapolis, London: University of Minnesota Press, 2015), 244.

⁴⁶ Laruelle, *En dernière humanité*, 62: “des variables non-commutatives.”

⁴⁷ François Laruelle “Marx with Planck: The Quantization of Non-Standard Marxism,” in *Superpositions: Laruelle and the Humanities*, ed. Rocco Gangle, and Julius Greve (London and New York: Rowman & Littlefield, 2017), 160 f.

⁴⁸ Laruelle, *En dernière humanité*, 126 f.

⁴⁹ Laruelle, *Christo-Fiction: The Ruins*, 142; Laruelle, *Christo-fiction: Les ruines*, 210.

⁵⁰ Laruelle, *Philosophie non-standard*, 327.

⁵¹ Connes, “Geometry and the Quantum,” 16.

⁵² Laruelle, *En dernière humanité*, 145.

⁵³ Connes, “Geometry and the Quantum,” 16 f.

⁵⁴ Laruelle, *Anti-Badiou*, 124: “un plan générique.” See also Laruelle, *Philosophie Non-standard*, 58: “Plan générique.”

⁵⁵ Mochizuki, Shinichi [望月新一], “The Mathematics of Mutually Alien Copies: from Gaussian Integrals to Inter-universal Teichmüller Theory,” Research Institute for Mathematical Sciences, Kyoto University, 2020, 30 (emphasis adapted), <http://www.kurims.kyoto-u.ac.jp/~motizuki/Alien%20Copies,%20Gaussians,%20and%20Inter-universal%20Teichmuller%20Theory.pdf>

⁵⁶ Rocco Gangle, *Diagrammatic Immanence: Category Theory and Philosophy* (Edinburgh: Edinburgh University Press, 2016), 239.

continuous and the discrete lived on the same footing. The new tool is the spectral paradigm and the new outcome is that commutative ontology emerges from non-commutative ontology, that is, from the onto-vectorial space and linear operators. The onto-material or immanent formalism of linear operators in non-commutative space encompasses the parameterized variables of philosophy. What Laruelle suggests is that the variables obey the rules of “the generic quantum matrix”⁵⁷ which leads to formalize non-philosophy in terms of linear operators in onto-vectorial Hilbert spaces. It is essential for “a nonset-theoretic matrix ontology of the lived”⁵⁸ to understand subtler, that is, *non-commutative* spaces of thought as suggested by Laruelle.

3. The Emergence of Time

Non-commutative ontology does not simply consist in a rational generalization of classical ontology to the case where philosophical coordinates no longer commute. It is also a matter of opening up completely new things which have no analog in the commutative “World.” On condition that “[t]here exists a minimal scale for all phenomena,”⁵⁹ Laruelle assumes “a scientific, generic constant”⁶⁰ determining the divergence in relation to classical philosophy. From there, one can deduce that non-commutative ontology, by simple non-commutativity, generates its own time, that is, changes over time. It can be summarized as follows: the commutative ontology of “World-thought” is *static*, it has neither time nor evolution in time; non-commutative ontology, in contrast, is *dynamic* and *processual*, the

non-commutative “Universe” has this property to generate its own time. Time as we perceive it appears from the generic quantum random. In the “Universe-language” the onto-vectorial states are unpredictable and aleatory. Time can arise in a spontaneous way simply from non-commutativity of the algebraic logos as a complex number as such – no other, supplementary structure is needed. The appearance of time is one of the most interesting conclusions of non-commutative ontology.

In science, the concept at stake is the concept of variable.⁶¹ Variability, as the most elementary notion of non-commutative ontology, is of an “immanent” nature. The spectral variability of the “Real” seems to be more fundamental than its temporal registration and therefore one has to reverse the hierarchy: the generic quantum effervescence generates the passage of time and not the other way round. How can the real time as we perceive it emerge from generic quantum random and variability? To answer this question, we have to consider the Einstein-Podolsky-Rosen (EPR) paradox.⁶² Laruelle thinks “that the generic lifts the antinomy” of the debate that Albert Einstein and Niels Bohr pursued “in dogmatic, positivist, idealist or realist terms and in a practically metaphysical way.”⁶³ His understanding of “unilateral duality” or “complementarity” might allow to overcome *correlationism*, that is, the philosophical standpoint rejected by proponents of “speculative

⁵⁷ François Laruelle, *Photo-Fiction, a Non-Standard Aesthetics. Photo-Fiction, une esthétique non-standard*, bilingual edition, trans. Drew S. Burk (Minneapolis: Univocal, 2012b), 149: “la matrice générique et quantique.”

⁵⁸ Laruelle, *En dernière humanité*, 125: “une ontologie matricielle et non ensembliste du vécu.”

⁵⁹ Carlo Rovelli, *L'ordre du temps*, trans. Sophie Lem (Paris: Flammarion, 2018), 101: “Il existe une échelle minimale pour tous les phénomènes.”

⁶⁰ Laruelle, *En dernière humanité*, 59: “une constante scientifique, générique et minimale d’humanité.”

⁶¹ François Laruelle, “‘I, the Philosopher, Am Lying,’ A Reply to Deleuze,” in *The Non-Philosophy Project*, ed. Gabriel Alkon and Boris Gunjevic (New York: Telos Press Publishing, 2012), 62.

⁶² Albert Einstein, Albert, Boris Podolsky, and Nathan Rosen, “Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?,” *Physical Review* 47 (1935), 777–780.

⁶³ Laruelle, *Philosophie non-standard*, 392: “Peut-on déplacer le problème EPR [...] ? Bohr et Einstein posent le problème en termes dogmatiques, positivistes, idéalistes ou bien réalistes et de manière quasiment métaphysique. [...] Scientifiquement il faut donner raison à Bohr mais déplacer génériquement le conflit. [...] [Il] est possible que le générique lève l’antinomie.”

realism” that we cannot directly access thinking and being, but only the correlation between them. Laruelle proposes a “generic realism” to be distinguished from speculative realism in the style of Quentin Meillassoux⁶⁴ and from Ray Brassier’s “anti-correlationism.”⁶⁵ His “generic solution”⁶⁶ is “a generic realism of-the-last-instance,”⁶⁷ which “reinforces the EPR objection [that is, the incompleteness argument] but by a different realism, the realism of the generic subject insofar as it is [...] a passive operator being a virtual condition. We do not have to choose between Heisenberg or Einstein and de Broglie, but to come across a generic or non-Einsteinian real.”⁶⁸ For Laruelle, the EPR paradox reflects the same problem of thinking the Real as being subtracted from the concept as in Immanuel Kant’s schematism (*Critique of Pure Reason*). In addition, what Laruelle says about the uncertainty of knowledge and the unrecognizable real insinuating that the absolute secret is a necessary condition for the success of experimentation⁶⁹ lines up, on the one hand, with Kant speaking of faith and the *limits of reason*; on the other hand, it is clearly positioned against Badiou’s materialist conviction or belief distinguishing himself with the words of Mao from Kant’s “obscurantism”: “*We will arrive at knowing everything what we did not*

know before.”⁷⁰ The schematism in Badiou regulates the unity of set theory and Being, whereas in the generic matrix it defines the combination of the algebraic or quantum givens as well as of the given philosophical lived experiences, that is their reciprocal interpretation and their ‘unity’. Laruelle offers a different solution than given by Kant’s transcendental imagination, that is, a hierarchical, empirico-rational dualism, the opposite approaches of Hermann Cohen and Martin Heidegger, or Badiou’s solution by the “count-as-one” (“set of all sets”). As for Laruelle, assuming that the generic is “a human last-instance” whose “scientific or algebraic form” is idempotence $1 + 1 = 1$, i.e., One-in-One = 1, he states as follows:

We suspect that between idempotence and lived vectoriality, as in Kant between the concept and the intuition (between the originally synthetic unity of apperception and formal intuition), there is a schematism problem, to which the transcendental imagination has provided Kant with the solution. In our problem we have to rise once more from formal intuition to a generic solution which is the idempotence of the lived or the last-humanity.⁷¹

The “generic solution” is an “immanent” imagination that combines idempotence and lived vectoriality in the idempotence of the lived or of the “last-humanity.” Non-philosophy re-defines, as Brassier says, “the thing-in-itself as

⁶⁴ Quentin Meillassoux, *Après finitude: Essai sur la nécessité de la contingence* (Paris: Éditions du Seuil, 2006).

⁶⁵ Ray Brassier, *Nibil Unbound: Enlightenment and Extinction* (Basingstoke: Palgrave-Macmillan, 2007), 118–149.

⁶⁶ Laruelle, *Philosophie non-standard*, 391–393: “*La solution générique du paradoxe EPR ou la complémentarité unilatérale.*”

⁶⁷ *Ibid.*, 394: “un réalisme générique de-dernière-instance.”

⁶⁸ *Ibid.*, 394 f.: “Il renforce l’objection EPR mais par un autre réalisme, celui du sujet générique dans la mesure où il est quand même opérateur passif comme condition virtuelle. Nous n’avons pas à choisir entre Heisenberg ou bien Einstein et de Broglie, mais à retrouver un réel générique.”

⁶⁹ Connes, Chéreau, and Dixmier, *Le spectre d’Atacama*, 208: “Le secret absolu était une condition nécessaire au succès de l’expérience!” See also Jacques Derrida, and Maurizio Ferrari, *Le goût du secret. Entretiens 1993–1995*, ed. Andrea Bellantone (Paris: Hermann, 2018).

⁷⁰ Alain Badiou and Jean-Luc Nancy, *La tradition allemande dans la philosophie*, ed. and postscript Jan Völker (Paris: Lignes, 2017), 22: “*Nous parviendrons à connaître tout ce que nous ne connaissons pas auparavant.*”

⁷¹ Laruelle, *En dernière humanité*, 129: “On se doute qu’entre l’idempotence et la vectorialité vécue, comme chez Kant entre le concept et l’intuition (entre l’unité originellement synthétique et l’apperception et l’intuition formelle), il y a un problème de schématisation dont l’imagination transcendantale a fourni à Kant la solution. Dans notre problématique il faut s’élever une nouvelle fois de l’intuition formelle à une condition générique qui est l’idempotence du vécu ou l’endernière-humanité.”

unobjectifiable immanence [...] which Laruelle identifies with ‘the real’.⁷² However, the privileged role of “the human” is no “re-ontologization”⁷³ of the real, it is rather operatory, as the following passage explains:

But we have to maintain a certain privilege of the human or rather admit her immanent duplication, her intervention at the ends of the process, at first as a probable subject, then as being-of-superposition or clone indexed to the latter. But this duplication is not an ontological hierarchy, *it is simply operatory*, the possibility to think or to objectify by underdetermining her initial situation in the biological circle.⁷⁴

The real is compound by lived experiences that are operators in the immanent Hilbert space, so-called “oraxioms” which verbalize “the lived decisions of the generic subject,”⁷⁵ while in Badiou axioms express “the ontological-formal decision of the Idea”⁷⁶ – the Platonic Idea is an operator, and the “mathème” (Jacques Lacan) is the underlying principle.⁷⁷ “The world,” as Laruelle says, “has not been invented from Ideas or Substances, complete waves and parti-

cles, but on the basis of the imaginary root [i.e., the imaginary number] and of its process as a radical origin of things.”⁷⁸

By thinking about the EPR paradox in the context of Laruelle’s “immanent realism” according to which the Real or the “in itself” remains inaccessible,⁷⁹ one understands that there is, as a matter of fact, an analogy between the generic quantum random and time: in case of “the philosophical measurement (position, relation, meaning, truth, value)”⁸⁰ in two causally independent conceptual points, there are not *two* aleatory generic quantum events, but a *single* one, due to correlations. As Laruelle writes:

It is a simple or unilateral duplication of the lived [...], there are not two lived experiences [...], but a single one in two positions or halves [...]. The variable that will play this double game is divided in two functions, as a variable that is internal to the matrix of fusion and as an index [...]. 2 fuse in 1 for the matrix and 1 is divided in 2 for the generic. The generic is the One, always One but in two halves, [...] in idempotence.⁸¹

Therefore there is a maximum *correlation* but no causality. One does not understand the chronology in this case of the process of knowledge. The “wave packet reduction” seems to make no sense, since one cannot say at which moment

⁷² Brassier, *Nilhil Unbound*, 127.

⁷³ *Ibid.*, 136 f.

⁷⁴ Laruelle, *En dernière humanité*, 125: (my emphases) “Mais il faut conserver un certain privilège de l’homme ou plutôt admettre sa duplication immanente, son intervention aux extrémités du processus, d’abord comme sujet probable puis comme être-de-superposition ou clone indexé à celle-ci. Mais cette duplication n’est pas une hiérarchie ontologique, elle est simplement opératoire, la possibilité de penser et d’objectiver en la sous-déterminant sa situation initiale dans le cercle biologique.”

⁷⁵ Laruelle, *Anti-Badiou*, 32: “la NP [non-philosophie utilise] ce qu’elle appelle des ‘oraxiomes’ exprimant les décisions vécues du sujet générique.” For a definition of oraxiom see Laruelle, *Philosophie non-standard*, 57f.

⁷⁶ Laruelle, *Anti-Badiou*, 32: “L’OV [ontologie du vide] utilise des axiomes exprimant la décision ontologico-formelle de l’Idée.”

⁷⁷ Alain Badiou, *Manifeste pour la philosophie* (Paris: Éditions du Seuil, 1989), 22: “Dans l’exemple platonicien, l’Idée est manifestement un opérateur dont le mathème est le principe ‘vrai’ sous-jacent.”

⁷⁸ Laruelle, *Philosophie non-standard*, 395: “Le monde n’a pas été inventé à partir d’Idées ou de Substances, d’ondes et de particules achevées mais sur la base de la racine imaginaire et de son processus comme origine radicale des choses.”

⁷⁹ *Ibid.*, chapter XII, “Le réel non-einsteinien,” 387ff.

⁸⁰ *Ibid.*, 399: “la mesure philosophique (position, relation, sens, vérité, valeur).”

⁸¹ Laruelle, *En dernière humanité*, 128f: “C’est une duplication simple ou unilatérale du vécu [...], il n’y a pas deux vécus [...] mais un seul en deux positions ou moitiés [...]. La variable qui va jouer ce double jeu est dédoublée en deux fonctions, comme variable interne à la matrice de fusion et comme index [...]. 2 fusionne en 1 pour la matrice et 1 se divise en 2 pour le générique. Le générique c’est Un, toujours Un mais en deux moitiés [...] dans l’idempotence.”

the actualization of some products of knowledge out of all possible vectors or virtual observables, that is, generic quantum potentials or potentialities, takes place. In case of $AB = BA$, “the chronology is not important, does not make sense, between two observables *which commute*,”⁸² but if $AB \neq BA$, the chronological order of events plays a role. That is “the emergence of time and even of space”⁸³ in the onto-vectorial Hilbert space. While the Laruellean Real “in characteristic one” ($1 + 1 = 1$)⁸⁴ is atemporal, time seems to originate in the random of the “generic quantum.”⁸⁵ A semi-classical and quasi-philosophical commutativity can reappear only on condition that A is being transformed by *imaginary* time:

$$AB = BA.^{86}$$

Non-commutative ontology of philosophical space and *real* time means to think of time as dependent on non-commutative space. Depending on the latter, time can fail to exist or disappear. The *relative point of view* is the view that time depends on or rises from non-commutative space, as non-commutative space rises from “the ‘origenetical’ point” which “underdetermines the production of the generic lived.”⁸⁷ The generic quantum provides a subtler point of view than “ordinary” or standard, that is, nonvariable and nonspectral, consistent “World-thought” which constantly tries to reconstruct a plausible past:

only when we ask ourselves about the time that has passed, the past exists, so that we can imagine a coherent and logical story. The reduction of the wave packet which happens in any philosophical measurement, that is, during interaction of generic quantum systems given that “[t]he technical term for interaction is ‘measurement’,”⁸⁸ is nothing else than the replacement of a virtual observable by an actual observable which is chosen among the elements in its spectrum.⁸⁹ Thus there is an intrinsic fundamental source of variability in the generic quantum universe which is not reducible to anything classical. The results of actualizations are intrinsically variable quantities. Non-commutative ontology advocates, that the classical vision of the “reality” is just a simple approximation of the “Real” – “The real is the superposition of all possible imaginaries”⁹⁰ (“Feynman histories” or “Feynman paths”⁹¹) – based on John Wheeler’s “Delayed-Choice *Gedankenexperiment*,”⁹² in which the choice of one or the other of two complementary aspects of a quantum phenomenon is made *after* the phenomenon actually took place. What works perfectly for macroscopic phenomena reflected by a macroscopic ontology, can no longer be applied at a microscopic, generic quantum scale – and non-commutative spaces are not “macroscopic” but “microscopic” systems of thought. Laruelle’s “thesis is that the most radical immanence which does not take the form of a point or an ego is the action-at-a-distance, that the immanent or the idempotence allows an

⁸² Connes, Chéreau, and Dixmier, *Le théâtre quantique*, 72: “la chronologie n’a pas d’importance, pas de sens, entre deux observables qui commutent.”

⁸³ Connes, Chéreau, and Dixmier, *Le spectre d’Atacama*, 208: “l’émergence du temps et même de l’espace.”

⁸⁴ Laruelle, *Philosophie Non-standard*, 59f.; Laruelle, *Dictionnaire de la non-philosophie*, 171–173; Laruelle, *Dictionary of Non-Philosophy*, 125–127.

⁸⁵ Laruelle, *Philosophie non-standard*, 85f.

⁸⁶ Alain Connes, “Dialogue with Alain Connes,” “7/ La Géométrie Non-commutative Engendre son Propre Temps,” video, (2014), 26:01–28:19, <https://www.college-de-france.fr/site/alain-connes/Entretien-avec-Alain-Connes.htm>

⁸⁷ Laruelle, *En dernière humanité*, 22: “le point ‘origénétique’ [...] sous-détermine la production du vécu générique.”

⁸⁸ Carlo Rovelli, *L’ordre du temps*, 107, n.1: “Le terme technique pour interaction est ‘mesure’.”

⁸⁹ Carlo Rovelli, “Space is Blue,” 4: “Measurement is an interaction like any other. Variables take value at any interaction.”

⁹⁰ Connes, Chéreau, and Dixmier, *Le théâtre quantique*, 50: “Le réel est la superposition de tous les possibles imaginaires.”

⁹¹ Laruelle *Christo-Fiction: The Ruins*, 158, 176; *Christo-fiction: Les ruines*, 231, 254; Laruelle, *En dernière humanité*, 189, and Laruelle, *Philosophie non-standard*, 331.

⁹² Vincent E. Jacques, E. Wu, Frédéric Grosshans, François Treussart, Philippe Grangier, Alain Aspect, and Jean-François Rochl, “Experimental Realization of Wheeler’s Delayed-Choice Gedanken Experiment,” *Science* 315, no. 5814 (2006), 966-968. See also Connes, Chéreau, and Dixmier, *Le Théâtre Quantique*, 136.

indirect action, in short, that inseparability and non-locality can go together.”⁹³

However, what the generic quantum entanglement shows might not be the existence of any “action at a distance” being faster than light, but simply *a coherence that is hidden by the random of the generic quantum*. A quasi-Hilbertian lived is about “an internal coherence of the entanglement that is strange to the external world.”⁹⁴ Coherence governs the reduction of the wave packets, and while quantum-oriented theory only offers probabilistic expressions, coherence gives an actual result when there is any philosophical measurement. This random is not independently produced but follows the described rules of the onto-material formalism. Hence, the interaction is automatically synchronized, without any intervention, faster than light, at a distance. On the first sight, it seems totally aleatory, but it is a matter of appearance which hides a synchronization. Non-commutativity being an act – just as the “force (of) thought” or “thought power” (similar to the “labor power” in Karl Marx) which “realizes the One-Real as a determination in-the-last-instance,”⁹⁵ is the only formalism that permits to understand the originality of this source of harmony on the generic quantum stage with its superposed states and its operators which interact without commuting. Therefore, it might be a mistake to try to enter the spectral variability in the passage of time, since the latter could be caused by the former in the commutative “World.” That is what is done in the wave package reduction which stipulates that after a philosophical measurement an on-

⁹³ Laruelle, *Philosophie non-standard*, 400: “Notre thèse est que l'immanence la plus radicale (qui ne prend pas la forme-point ou ego) est l'action-à-distance, que l'immanental ou l'idempotence permet une action indirecte, bref que l'inséparabilité et la non-localité peuvent aller ensemble.”

⁹⁴ Connes, Chéreau, and Dixmier, *Le spectre d'Atacama*, 232: “une cohérence interne étrangère au monde extérieur, de l'intrication.”

⁹⁵ Laruelle, *Anti-Badion*, 38: “la pensée défétichisée comme force (de) pensée (cf. “force de travail”) [...] qui [...] effectue le réel-Un comme détermination-en-dernière-instance.”

to-vectorial system sees its entire state reduced to the one that has been measured. Everything becomes clearer if one manages to formulate the interventions of the reduction of the wave packets without entering them in time, by avoiding the pitfall of referring everything always to time.⁹⁶ Time is *not* one of the coordinates in an onto-topological space-time as in transcendental idealism where the *a priori* time belongs to the background framework.

Deleuze gave an analysis of how time was added to the Cartesian cogito in *Kant's Critical Philosophy*⁹⁷: “For Kant, it is a question of the form of time in general, which distinguishes between the act of the I, and the ego to which this act is attributed: an infinite modulation, no longer a mould. Thus time moves into the subject, in order to distinguish the Ego from the I in it.”⁹⁸ In Laruelle, the generic subject does not use causal and spatiotemporal concepts for describing the “corpuscular” thought content, whereas it places phenomena in noncausal connection in space and time, since non-philosophy is not about the causal space-time description that constitutes the criterion of reality, but about a non-classical “*uni-versal* ‘space-time’”⁹⁹ description that constitutes the criterion of the “generic or immanent real”¹⁰⁰ foreclosed to thought.

4. Conclusion

There is a fundamental source of variability in the generic quantum. That is, for thought exper-

⁹⁶ Connes, Chéreau, and Dixmier, *Le spectre d'Atacama*, 256f.: “Tout serait plus clair si l'on arrivait à formuler les interventions de la “réduction du paquet d'ondes” sans avoir à les inscrire dans le temps, en évitant le piège de vouloir toujours tout écrire en fonction du temps.”

⁹⁷ Deleuze and Guattari, *Qu'est-ce que la philosophie?*, 35.

⁹⁸ Gilles Deleuze, *Kant's Critical Philosophy*, trans. Hugh Tomlinson, and Barbara Habberjam (Minneapolis: University of Minnesota Press, 1984), ix.

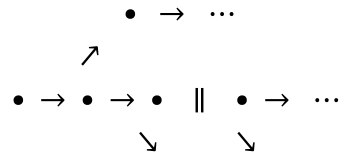
⁹⁹ Laruelle, *Principles of Non-Philosophy*, 2013, 211; Laruelle, *Principes de la non-philosophie*, 257: “un ‘espace-temps’ *uni-versel*.”

¹⁰⁰ Laruelle, *Philosophie non-standard*, 391: “réel générique ou immanent.”

iments in microscopic, onto-vectorial systems of thought one can give no more than probabilities, although Laruelle prefers speaking of a “lived wave of virtuality”¹⁰¹ and an “immanental amplitude”¹⁰² rather than of “probability.” For non-commutative ontology it suffices to have a “non-commutative algebraic logos as a complex number,”¹⁰³ so that starting from non-commutativity real or worldly space-time emerges. Moreover, the generic quantum suggests to *radicalize* freedom instead of absolutizing it (Sartre) by predicting a sort of symmetry between “not only an uncertain future, but also an *uncertain past*.”¹⁰⁴ The past *is moving*, although we constantly try to fix it in our vision. A coherent representation of past events depends on our standard, i.e., nonvariable and nonspectral, *modus operandi* of consistency-oriented “World” or “World-thought.” That relativizes enormously the significance of the present moment and the significance of the past. It shows that the notion of time based on the idea of an uncertain future but a *definite past* is an inappropriate notion and how the generic quantum obliges to think things differently, in a much more subtle and interesting way. The non-commutative “Universe” or “Universe-language” has the property to generate its own time. As a consequence, the passing of time seems to be an emergent phenomenon rooted in immanental phenomena and their specific variability or random. This is the ultimate expression of thought’s orientation toward the unexpected, the undetermined, the openness

with regard to the future as well as to the past.

Walter Benjamin, in his “Theses on the Philosophy of History,” outlines a *disruptive* approach to history which allows for “a Messianic cessation of happening”¹⁰⁵ within a putative “continuum of history.”¹⁰⁶ The introduction of “a new calendar”¹⁰⁷ is claimed to entail “a revolutionary chance in the fight for the oppressed past.”¹⁰⁸ In the field of mathematics, such historical “re-initialization operations (i.e., “| |”)



— that is to say, situations where one forgets the previous history of some object [...] and regards this previous history as being inaccessible in subsequent discussions”¹⁰⁹ give rise to “relatively mild indeterminacies”¹¹⁰ which in turn, being not only aesthetically desirable but also logically necessary and meaningful, form a central part of Laruelle’s particulate and democratic picture of philosophy.¹¹¹ Bearing in mind the is-

¹⁰¹ Ibid., 64: “onde vécue de virtualité.”

¹⁰² Ibid., 309: “l’amplitude immanentale.”

¹⁰³ Laruelle, *En dernière humanité*, 126.

¹⁰⁴ Connes, Chéreau, and Dixmier, *Le théâtre quantique*, 51: “il [Einstein] écrit un article avec deux autres physiciens dans lequel il montre, disons que ‘le quantique nous prédit non seulement un futur incertain, mais aussi un passé incertain’ ! [...] C’est [...] ce qu’ils montrent, toujours à l’aide d’une ‘expérience de pensée.’ Ils en concluent que la mécanique quantique implique une incertitude sur les événements passés entièrement analogue à l’incertitude sur le futur !.. See Albert Einstein, Richard C. Tolman, and Boris Podolsky, “Knowledge of Past and Future in Quantum Mechanics,” *Physical Review* 37 (1931), 780 f.

¹⁰⁵ Walter Benjamin, *Sprache und Geschichte: Philosophische Essays*, ed. Rolf Tiedermann, including an essay by Theodor W. Adorno (Ditzingen: Reclam, 1992), 152 (Thesis XVII): “Zeichen einer messianischen Stillstellung des Geschehens.”

¹⁰⁶ Ibid., 150–151 (Theses XIV, XV, XVI): “Kontinuum der Geschichte.”

¹⁰⁷ Ibid., 151 (Thesis XV): “einen neuen Kalender.”

¹⁰⁸ Ibid., 152 (Thesis XVII): “Zeichen [...] einer revolutionären Chance im Kampfe für die unterdrückte Vergangenheit.”

¹⁰⁹ Mochizuki, “Report on discussions, held during the period March 15 – 20, 2018, concerning inter-universal Teichmüller theory (IUTch)” (February 2019), 7 (emphasis removed), <http://www.kurims.kyoto-u.ac.jp/~motizuki/Rpt2018.pdf>.

¹¹⁰ Mochizuki, 4 (emphasis removed).

¹¹¹ For the “particle picture” of philosophy, see Laruelle, *Philosophie non-standard*, and Laruelle, *Tétralogos. Un opéra de philosophies* (Paris: Éditions du Cerf, 2018). For “democracy of thought” see Laruelle, *Principles of Non-Philosophy*, 49 (“not theoretical democracy but democracy of theory itself”), *Principles de la non-philosophie*, 58 (“démocratie non théorique mais de la théorie elle-même”), and Ó Maoilearca,

sue of “escaping from the cage of [...] narrowly defined deterministic models”¹¹² of scientific development, the proposed spectral paradigm charts “a course that cherishes the privilege to foster genuinely novel and unforeseen evolutionary branches,”¹¹³ following Mochizuki Shini-chi. What interests me is by no means “the End Times of Philosophy”¹¹⁴ but, to the contrary, the rise of philosophy from imaginary or ‘*uni-versal*’ “space-time,”¹¹⁵ since within a democratic and disruptive history of systems of thought *another beginning of philosophy is possible*.

All Thoughts Are Equal.

¹¹² Mochizuki, “The Mathematics of Mutually Alien Copies,” 165 (emphasis removed).

¹¹³ Ibid. (emphasis removed).

¹¹⁴ See Laruelle, *Struggle and Utopia*, and Laruelle, *La lutte et l'utopie*.

¹¹⁵ Laruelle, *Principles of Non-Philosophy*, 211; Laruelle, *Principles de la non-philosophie*, 257.