

# Foreword

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THIS BOOK BY YUK HUI is an exceptional work in many ways, foremost thanks to the scope of the author's questions and the resources he manages to incorporate into his thinking, which he does with unusual rigor and an invaluable openness of mind and spirit. *Ouverture d'esprit* should in this case be taken literally: Yuk Hui practices this openness that is the life of the mind, and he does so methodically, via notions of relations of scale and orders of magnitude. He convokes analytical and continental philosophy, cognitivism and phenomenology, and computational theory alongside the human and social sciences, showing that the relations and nonrelations between them are to a large extent the result of unconceptualized questions of scale. His is a most generous form of thinking: situating philosophies and theorems on scales that relate them in terms of order of magnitude allows room for hospitality toward all manner of rigorous and original thinking.

One might be tempted to see in such a project of rationally ordering the archipelago of contemporary knowledge an outdated desire for systematicity. One would be wrong. The system may indeed be a question for Yuk Hui, but his thinking of orders of magnitude, ordered in terms of their relations, goes far beyond this: it becomes instead a question of milieu. The sciences and technologies of automation and automatism—in their movement from Ludwig von Bertalanffy to big data and passing through cybernetics, information theory, and open systems theory, and by reactivating and transforming the questions of thermodynamics and biology—do indeed, in the broadest sense, lead back to and renew systemic questions. And to the extent that such systems form the production

apparatus of globalized capitalism, they do lead to an expansion of the questions opened by Marx in the *Grundrisse*, in his “Fragment on Machines.” Hence it is also from within this economico-political horizon that we must read the present work.

But with the concept of the *digital object*, Yuk Hui shows that, in the dynamic systems that continuously reconfigure the artifacts emerging from industrial innovation, new relativities of scale form and deform, and from this arise improbabilities that are always in dynamic excess over and above the systems whence they derive. In this context, the system must be understood not just as a system but above all as a preindividual milieu. From out of the preindividual, there forms what Gilbert Simondon called an associated milieu (a term with more than one meaning). Hence Yuk Hui passes through Simondon. But he also revisits Heidegger and stages a reciprocal confrontation between them—and we should not forget that Heidegger was himself a reader of Jakob von Uexküll, for whom the question of milieu became that of the *Umwelt*, which then contributed to the formation of the concept of world in the existential analytic of *Sein und Zeit*.

Understanding contemporary automated systems on the basis of the concept of the digital object, then, means redefining them in a way that passes through the concepts of preindividual milieu, individuation, world, being-in-the-world, *Zuhandenheit* and its associated milieu—which may in addition provide new resources with which to interpret the notions of *Gestell* and *Ereignis*, through which Heidegger explored the cybernetic age. In this light, the analysis of the system that Heidegger conducts in his course on Schelling perhaps merits reinterpretation.<sup>1</sup> The twentieth century would then have been that of systems theory in a sense entirely different from what the philosophies of modernity have generated out of the “system of idealism” that crystallized around Kant. If, as Heidegger argued, the concept of system is for Schelling inseparable from the question of the freedom of spirit (and of spirit as openness), then conversely, the question of the system, which arises in a new way in the *Gestell* of the cybernetic age, must be redefined with Simondon in terms of a realism of relations and an analysis of processes of individuation that are woven as relations of scale and orders of magnitude: such are the conjectures with which *On the Existence of Digital Objects* may inspire us.

The *industrial* milieu—which is here the stake—first began to emerge during that epoch that saw the young Hegel, Hölderlin, and Schelling all debating Kantian idealism. The scientific concepts that arose at that time

(including those of thermodynamics) then become central to the various systems theories formulated in the course of the twentieth century. Yet this still completely escaped these three precocious thinkers of the end of the nineteenth century, and this is so in particular because these scientific concepts (forming the “new rationality” that we find ourselves groping for in the “new alliance” that Ilya Prigogine and Isabelle Stengers try to think) all pass, right up until our time, through the confrontation with their technological concretizations—from the steam engine to nanotechnologies and via network computing, the latter being that in which, since 1993, the digital object has been formed.

The system, then, begins to become a reticulated milieu, or what Simondon began to think in terms of a technogeographical milieu<sup>2</sup> and in terms of a mode of existence in the sense of a *type of existence*. *On the Existence of Digital Objects* investigates of what this specific new type of object consists. As systems turn into reticulated milieus, these technological concretizations of systemic becoming give rise to *functional* challenges—including in the form of *functional stupidity*.<sup>3</sup> If *On the Existence of Digital Objects* does not aim to produce a “system,” its concepts are nevertheless derived from various forms of systemic thinking, but also from those automated systems that produce *computational concretions*.

Among these concepts, recursive function is central: recursion is what is implemented by computerized systems of exploitation through algorithms and computational functions—Yuk Hui is first a practitioner and theorist of computer science and the study of artificial intelligence (AI).<sup>4</sup> Furthermore, recursion as characteristic of the *digital object* lies at the heart of the concept toward which this book leads us through investigation of this object, namely, “tertiary protention.” By passing through Husserl, Yuk Hui utilizes this concept of tertiary protention to attempt to rethink time, today, as a “new synthesis,” after that realism of relations that Simondon himself understood as an attempt to think time.

The digital object is utterly relational. As such, it constitutes, together with the sociotechnical artifacts that are its conditions of possibility (such as the norms and standards of markup languages such as GML, SGML, HTML, or XML), a digital milieu, which cannot be properly understood in terms of what Luciano Floridi calls the infosphere. Beyond the latter, and as we have already seen, we must pass through the concepts of associated milieu, preindividual milieu, *Zuhandenheit*, and *Vorhandenheit*, but in so doing, *these concepts must themselves be redefined*. This theory of the digital object aims at a new “first philosophy.” This is the general context,

in terms of the fundamental references from the side of European philosophy, with which Yuk Hui confronts the questions, problematics, and projects of the World Wide Web Consortium (W3C) and the semantic web as thought and promoted by Tim Berners-Lee; of formal ontologies in Barry Smith's sense; of "extended mind" in Andy Clark's sense, and so on.

Returning to the methodological stakes of the work, its immediate conceptual consequences and its ambition mean that it necessarily involves and aims at the very long term. The realization that Simondon's realism of relations turned technical schemas into transductive operators of communication between orders of magnitude makes clear the importance, the audacity, and, ultimately, the enormity of such an approach—and I use the word *enormity* in the sense cultivated by Rimbaud in and through his thought of "voyance."<sup>5</sup>

On the basis of the immense challenges that orders of magnitude constitute in this realism of relations—spelled out clearly by Vincent Bontemps in his analysis of Simondon's course on technics<sup>6</sup>—Yuk Hui tries to literally refound the question of time by questioning Heidegger and, beyond that, questioning Kant and the *Critique of Pure Reason* in relation to the schematism, and by introducing his own fundamental concept of tertiary protention. Before clarifying this point, we should recall that the question of orders of magnitude first emerges in the work of Gaston Bachelard—of whose work Simondon is a thinker, engaging with it in constant dialogue (his other great interlocutor being Canguilhem)—as and through the question of the instrument, inasmuch as it demands phenomenotechnical thought. In the twentieth century, this is what becomes clear in the field of physics, when the theories of relativity and quantum mechanics pose, in a precise way, the question of the relativity of scale.

The concept of tertiary protention echoes what I have myself tried to think as tertiary retention, doing so, again, via a reconsideration of the question of imagination in Kant's first version of *Critique of Pure Reason* (1781). I argued in the third volume of *Technics and Time* that tertiary retention is the condition of possibility of the play between what Husserl called primary retention and secondary retention and that this hidden condition (generated by the technical exteriorization of vital movement on the basis of which André Leroi-Gourhan described hominization as a process of the conquest of space and time through its technicization) is also the condition of the schematism of the understanding, which is itself the condition of the transcendental deduction of the categories.

Yuk Hui shows that digital tertiary retention requires of philosophy and science that they describe this new type of object, the digital object, in terms of digital protention, in an automated milieu itself constituted through algorithmically implemented recursive functions. The algorithmic belongs to the history of what, after Sylvain Auroux, I call a process of grammatization: the digital and thoroughly reticulated milieu is the most advanced stage of this grammatization. This is what the digital object as conceived by Yuk Hui tries to specify: the digital object constitutes what he calls discursive relations. It is on the basis of these discretised relations that the digital object is woven, reticulating itself and thereby establishing its existential relations.

The goal of this enterprise is Simondonian inasmuch as it continues the project of reconciling culture and technics. But it does so in a context in which the opposition and misunderstanding between culture and technics are being staged in a terrible and dramatic way—such is the context of “social engineering” in general, and Facebook in particular, whose regularized schemas form key examples in *On the Existence of Digital Objects*.

The digital object—that is, the computational object—is of technical essence. But it is not reducible to the technical object as Heidegger and Simondon allow it to be thought. Yuk Hui shows that we must go beyond Simondon to think technical individuation if we are to be able to take account of what no longer constitutes a technical milieu but is instead a dissociation at the heart of a dynamic that Thomas Berns and Antoinette Rouvroy describe as algorithmic governmentality, which gives rise to the question of what Evgeny Morozov calls a politics of technology in the context of the data economy.

The digital object remains, from the perspective of the modern thought of the object (or, in ancient times, of substance), highly enigmatic: it is an object neither of experience nor of intuition in the Kantian sense—a status it shares with the scientific objects that emerge from scientific instruments.<sup>7</sup> The digital object may consist of data, *données*, but this is not the result of a donation in the sense this is understood by Jean-Luc Marion, for example, when he revisits the phenomenological conception. Digital objects consist of data, metadata, data formats, “ontologies,” and other formalisms that all fall within the process of grammatization, and it is as such that they form a digital *milieu* woven through these relations—alongside other objects. But this implies the possibility not just of an associated milieu but of a dissociated milieu, giving rise to new forms of both individuation and disindividuation. The digital object, formed through recursive

functions and thereby constituting a new digital protention, is programmable. This programmability is highly pharmacological (in the Platonic sense given to us in *Phaedrus*), and the question of the therapy and therapeutics required by this digital *pharmakon* amounts to a new question of givenness, that is, of donation.<sup>8</sup>

This is so because human beings exist only under the condition of the anticipation of death, which is a protention they hold in common, but is also their impossible protention (an impossibility in common: death as what will never arrive, as what they will never live through, an indetermination in common inscribed in the heart of noetic life). They record their potential undetermined “potentiality” in tertiary retentions<sup>9</sup> that constitute the network and the milieu of their *Besorgen*—and through which they are constantly threatened with the loss of all *Sorge*, this loss being a forgetting. They must, in other words, externalize their memory in the technics of “language, writing, tools, and gestures,” as Yuk Hui recalls, and it is as such that technics constitutes the already-there conditioning the historicity of which Heidegger named *Dasein*.

Hence existential questions do arise in the digital milieu, a milieu in which, as Hui says in chapter 6, “the human mind can make sense of recursion but can hardly keep track of the recursive process.” It is a question of what happens when the coupling of man and machine becomes *reticulated* (between many machines and many humans) via digital social networks. And it is precisely on this point, and after having introduced the question of a computational hermeneutics,<sup>10</sup> that the question of tertiary protention arises: Hui states, “When both humans and machines are understood from the fundamental perspective of relations, it produces a new faculty, which . . . I term *tertiary protention*.”

The new form of protention, which passes again through the question of passive synthesis and of repetition in *Difference and Repetition*, results from the industrialization of categories and algorithms. It is in this way that a new synthesis of time occurs, set up by the digital object as tertiary protention, and in this situation, “modern technologies bring us much convenience, but this convenience as an expression of convergence (in terms of functionalities as well as of time and space) also threatens to replace care structures (both individual and collective) with the machine form of ‘care’” (chapter 6).

It is, then, a question of “searching for a new structure of care,” con-

fronted with what presents itself as a “dividuation” in the sense in which Félix Guattari and then Gilles Deleuze referred to the “dividuals” produced by the analytical grammatization of psychic and collective individuals in societies of control, wherein “the attention of each social atom [is] sliced into ever smaller pieces and dispersed across the networks by status updates, interactions, advertisements—the mechanisms of tertiary protention—for marketing purposes” (chapter 6).

Yuk Hui concludes his book by opening up a perspective that I call organologico-political, a perspective that projects the conditions of possibility of the reconstitution of existential protentions in the digital milieu through the creation of a new architecture of networks of tertiary protentions. In the digital milieu, this possibility depends on inscribing a process of collective individuation formalized by participation in the formation of one or many groups that constitute horizons of existential protentions. Such processes operate through “creative constraint,” where “the user can only use the full functions when he or she participates in a group or creates a project” (chapter 6), and thereby enable the constitution of an associated milieu. Hence Yuk Hui replaces the graphs of Jacob Moreno with processes of collective individuation in the Simondonian sense.

This approach thus falls within what, at *Ars Industrialis* and the Institut de recherche et d’innovation (IRI), we call general organology. The latter is always both theoretical and practical. The works with which Yuk Hui concludes are those he conducted at IRI with Harry Halpin. These works are currently being undertaken from within the perspective of a hermeneutic web, wherein the formation of project management groups—reconstituting existential protentions in and through processes of collective individuation that are also processes of transindividuation—occurs on the basis of a graphical language of annotations that are shared and through which confrontations can be staged, on a contributory hermeneutic platform and in an online educational context.