

# From Paradigms to Figures of Thought

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To move from an intellectual perspective, dominated by the simplicity principle, toward a complex approach implies a radical transformation of the global system of production, validation, and circulation of knowledge. A complex approach to complexity involves the decision to give up the desire to formalize or trap complexity in a model or to constrain its possibilities in a paradigm. Complexity is not the end of a race but the main characteristic of a cognitive style that does not rely on standards or *a priori* models. Complexity is not a new canon, global theory, worldview, or *Weltanschauung*, but a project in evolution. In order to extend the power of the complexity metaphor and allow it to embody and live in multiple figures of thought, fertilizing different domains of knowledge, crossing boundaries and eroding the wall built up in the modern age—in short, to honor complexity—it is necessary to take seriously Deleuze's warning: "There is no method, no recipe, only a long preparation" (Deleuze & Guattari, 1987).

There are many thinkers, researchers, and even journalists who want the "copyright" on complexity (and, of course, to take advantage of it). If we intend to develop a fruitful and powerful complex way of thinking, we have to face the people who pretend to be the "owners" of the concept (some even look like priests of a new cult). They claim, a brilliant but insubstantial claim, that a "complexity paradigm" or "complexity theory" is possible.

Very few people can deny nowadays that there is a vast proliferation of metaphors, models, theories, and professional practices that induce and allow us to think in terms of a shift in paradigms. What I want to suggest is that the complexity approach is far more than a paradigm shift and that complexity metaphors go far beyond the field of science itself. Here we find a beautiful paradox: The simplicity approach usually tries to present a unified or syncretic worldview while reducing the scope of our view. The complexity approach cannot provide such a *Weltanschauung* but, on the other hand, can enlarge, refine, and sophisticate our scope. I am not denying that there are some people (very well-known and important authors among them) who refer to a "new synthesis" or speak in terms of a "complexity paradigm," or even call for a "new worldview." What I intend to show in this article is that the complexity approach is opposed to this point of view, because complexity can neither be totalized nor reduced to an *a priori* theory, and can by no means be constrained to a completely standardized practice.

## THE METHOD

The classical notion of method, essential to the birth, growth, and legitimation of modern science, has become a straitjacket for the development of complex thinking. An urgent revision of its genealogy, relevance, virtues, limits, and dangers is therefore necessary.

Alexandre Koyré (1978) taught us that no single science has begun with a method treatise or a body of knowledge that progresses based only on an abstract set of rules, even if this was the exact aim of Descartes, his disciples and followers. The *Discourse on Method* (Descartes, 1999) was written after the scientific essays of which it is the preface and not the other way round, as one would logically expect. However, the author led us to believe that the *Discourse* was prior to the essays and independent of them.

This temporal loop, this supposed priority and independence of the method in relation to the content, is a key to understanding the privilege awarded to methodology in modernity and the danger that it implies for complex thinking. Poets, as Antonio Machado beautifully said, "make the way as they walk," but believers in the method usually assume that the way precedes even the creation of the Earth. The "idealized way" (the etymological meaning of method) excludes the living history of thought, its difficulties, errors, confusions, and sidetracks, showing us a straight road that takes us from ignorance to knowledge. There are no loops, no trials, we are only guided by the brilliant light of its rules. In doing so, the devotees of the method have to place it before the main research, so as to abstract it from the muddy field of complexity, uproot it from the problematic human world, and take it up to heaven and pure essence. Evidently, this goal is absolutely impossible to achieve in the real practice of research, but it is always possible to show a posteriori, thanks to a "pedagogic description," which in fact is a reconstruction and deuration of the historical process.

The method's apologists proceed in the style used by Hollywood scriptwriters: In a film, after a cruel battle the soldiers are always clean and impeccably dressed. The same happens with scientific researchers: They never lose their way and always perform their duties with a clear mind, no doubts, and strict rules, in a straight line, without ever getting dirty. Hollywood has accustomed us to this mystifying style: We can cry and shake with the hero who has finished his journey through the desert, under a torrid sun, without a single drop of perspiration. In spite of the incongruity between the scene on the screen and our experience—in fact, we are sweating just watching the film—we tend to believe it. In the same way, Descartes acted as if knowledge were possible without colliding with errors, without getting lost in confusion, without getting dirty with perplexity or groping in the mist of nonsense. He rejected the cultural legacy and appealed only to a noncontaminated faculty: reason. This

point of view became deeply rooted and we find it widespread in western culture even today; it is starting to collapse, but it is still alive.

## THE NONNARRATIVE NARRATIVE

In order to free ourselves from the “charm of the method,” we need to think about the conditions that made it possible for it to become the dominant belief of modernity. It is necessary to pay attention to the narrative style that characterized it and, at the same time, made it possible. Derrida (1997), with his sharp and sophisticated style, denounced this “nonnarrative narrative.” This type of discourse is basically of a kind that denies itself as a discourse. The main strategy consists in stating that a “neutral” and “impersonal” speech is possible; in other words, a speech without a speaker and without a speaking modality.

The “great trick” of objectivism is precisely this: to speak as if there were no talking at all, only the pure truth or the fact itself in the words of the “objective speaker.” Of course, there is an underlying paradox: “The nonnarrative narrative is a narrative.” I want to state that this is the founding paradox of positivist philosophy and, in general, the basis of “simple thinking.”

The “nonnarrative narrative” style erases the real path of research, which usually is tangled, intricate, uneven, full of holes, with straight paths and multiple bifurcations—in other words, its historic complexity—and replaces the real paths of knowledge with a happy-ending, linear fable. Thanks to a “temporal loop,” the methodic doubt gave birth to a methodic illusion: When we finally reach the desired goal, after a long and tortuous journey, full of difficulties and detours, we are able to invent a linear, simple—and abstract—route that links the beginning to the end. Taking shelter in the pedagogic advantages and virtues of rhetoric clarity, we can rewrite history, reconstruct it, straighten it out. The modern educational system has devoted its best efforts to the job of cleaning up, simplifying, and transforming the complex, vivid, and exciting intellectual path of human knowledge into a linear, insipid, and simple cartoon.

The notion of method was essential to the construction of the rhetoric of simplicity and the “nonnarrative narrative” style, because the very idea of method is key to the practices of historical standardization and depuration. The modern concept of method always implies a linear way, an abstract recipe, a standard training in an *a priori* way of thinking. Real and lively history is rejected on principle. The idea of method makes the illusion of a linear and simple history possible and, at the same time, legitimizes it. “Method” is the name for the hard work of combing a disheveled history, depurating the past, exorcizing complexity, and inventing a highway where only a diffuse mesh of interweaved paths can be found.

Cartesian coordinates allow us to find any two points on the surface of the Earth and link them with a line. Nevertheless, nobody can say that this operation enables us to link the two points by walking in a straight line. The simplicity of maps does not correlate with that of the territory. The map gives us a useful geometric abstraction, which excludes (by method) the specific topography, the weather and its changes, the predators and their efforts, the marshes and their dangers, the bifurcations and their threats.

## THE DEVELOPMENT OF MODERN SCIENCE

As mentioned earlier, Descartes wrote the rules of the method *a posteriori* and let us believe that he was guided by them. He had, with their help, found the right way and obtained the certainty he was searching for: a guaranteed absolute knowledge.

Descartes was not a lonely giant who constructed modern science with his method and all by himself. Francis Bacon (1854), his contemporary, suggested in his *Novum Organum* the methodological solution to the “knowledge problem.” Although it was not at the heart of the philosopher’s concerns, the method question occupied an important place in medieval debates. Neither Grosseteste nor Duns D’Escoto nor Occam aspired to overthrow the traditional authority or wanted to establish a new court that would pass judgment on the truth or falsity of knowledge. However, this was exactly the aim of both Bacon and Descartes; this was the difference that made the difference and it paved the way for modern thinking.

At this point it is convenient to consider the fact that Bacon and Descartes’ important contributions to the birth of modern science did not take place in the field of methodology. On the contrary, their legacy in this area was mostly irrelevant, if not harmful. Bacon’s pedestrian empiricism had very little in common with the “experimental model of science” and Descartes’ mechanistic rationalism was so extremely abstract that it could not fertilize any of the fields of scientific knowledge (as a metaphor perhaps, but never as an explicit methodology).

Modern science was born from the fortunate hybridization of the traditions of empiricism and mathematical rationalism, leading to a great sophistication of the experience and finding a new place: the laboratory. The idea of an *a priori* method considered valid for all sciences was, as are all pure things, sterile. However, in spite of the little importance that abstract methodology has had for the development of scientific theories, methodological questions, paradoxically, have been very successful among philosophers and, through them, have had a great impact on social imagination. Modern science was born at a time when it was necessary to transform the criteria about what had to be considered relevant and legitimate; debates on methodology were, therefore, very popular.

When we criticize a methodology we don't aim at the specific content but at the "form." We don't merely question the possible truth, but the pertinence and relevance of the point of view, its entities, variables, and parameters. We don't only judge the results of a specific inquiry but the system that enabled us to produce meaning and validate knowledge. As Kuhn (1996) and Koyré (1978) put it, when a theory, paradigm, or worldview is going through a crisis, the methodological questions appear in the foreground. The prominent place that the method occupied for Bacon and Descartes satisfied the need for a new source of certainty felt during the chaotic times that connected medieval and modern societies, at a time when science, as we know it today, was born. Because of that, no matter how inappropriate or irrelevant Descartes and Bacon's particular solutions to the methodological questions may seem, their value is not related to their suitability for the real development of the new science, but to the hope of a new way of producing, validating, and legitimizing knowledge that they provided.

By placing the method question in the foreground, Renaissance thinkers first and modern scholars later waged the battle to establish a new authority to judge their productions. Galileo had been a pioneer in this battle, and had made it clear that the question was the struggle between two different kinds of truth: the first written directly in heaven—with mathematical characters—and the second inscribed in the Bible. The ecclesiastical hierarchy had the monopoly on interpretation of the holy scriptures and was challenged by the new methodic knowledge embodied in a new ruling class. The idea of a methodic way of thinking was the great weapon to defy religious authority. The immense success of modern philosophy proves its power, but not its truthfulness.

The idea of a new way of validating knowledge by means of an impersonal procedure—the central concept of methodic thinking—proved to be effective in the battle for chairs in the court of knowledge (always occupied by human beings, not gods or abstract procedures). Unfortunately, we cannot say the same for the capability of a priori methods to direct and empower research. The contribution of the idea of method to this field was modest and restrained.

## SHAKING OFF THE TYRANNY OF METHOD

Nowadays, after some centuries under the empire of method yet hypnotized by the modern discourse, we are starting to shake off the tyranny of method. It is not an easy task. We are still shy and cautious because the remaining power of the positivist discourse is still strong in our society. We are witnessing the beginning of a new adventure of knowledge, nevertheless: the navigation of the seas of complexity and the exploration of their strange and changing territories. This journey is a dynamic one, one that always implies fluid territories, uncertainty, and creativity. The price we have to pay for this trip is to forgo the illusion of an absolute and guaranteed knowledge. This is not a simple task or decision. On the contrary, it requires acceptance of our limitations and of the incomplete character of our knowledge. However, this is the only way to open the door of our world to imagination, chance, and diversity; in short, to creativity at large.

To give up the general idea of the one and only method that will guide us directly to the truth, and that is capable of guaranteeing it, does not necessarily imply that we don't need or accept different methodologies, techniques, and proceedings in order to produce knowledge. It only implies that the method is not independent nor precedes (*a priori*) the experience, and that we always have many possibilities for exploring, thinking, and making sense in our interaction with the world. We only have to give up the fetish of method (the golden but abstract way), but we still have many ways, paths, routes, and roads left and we can always construct new ones, or simply create them by walking. To abandon the modern idea of method does not imply that we will fall into an abyss of nonsense. On the contrary, we need to do it in order to open our minds to the multiplicity of meanings.

Complexity is closely related to this resignation, but the loss is at the same time a profit. We abandon the security of the permanent and stable territories of modernity to move toward the waves of changing fluxes. We not only need to invent new cartographies and new paradigms; we need to go further and build up new ways of making maps: We need new ways of figuration and new figures of thought. ("Figures of thought" refers to thinking styles and expresses a more fluid and dynamic conception of knowledge than does "paradigm." Figures of thought appear, evolve, and reshape in a complex way, in a social, nonlinear process of producing meaning or figuration.) Complexity does not end at the products of knowledge, it goes further up to the processes of production of meaning and experience.

The idea of method was the battering ram used by the bourgeois mentality to knock at the door of the medieval citadel. Under its fascination, but not because of its merits, a new way of experiencing and legitimizing knowledge was created. In the sixteenth and seventeenth centuries the idea of method implied a great expansion in terms of thinking, but soon its absolutist connotations appeared and led the way to a new closure. The new "nobility of knowledge" tended to replace the "nobility of blood" and that of the clerical hierarchy. A new knowledge appeared and developed, but freedom from religious restrictions did not mean complete freedom, just different constrictions: the simplicity principle, linear mathematics, causal explanation, analytical thinking, the natural forces and entities in mechanical relationships, and, last but not least, classical logic.

The challenge of our time is to think without certainties and to accept diversity in the ways of thinking and in the styles of producing meaning. In order to accomplish this, complex thinking cannot accept a priori methodological restrictions nor impermeable boundaries between disciplines. It is necessary to jump the cognitive walls built up by the way of approaching the knowledge of modernity and its methodological restrictions, and open our minds and our practices to a multidimensional thinking

capable of producing rich and fertile, but not absolute or guaranteed, knowledge.

Table 1 shows the basic dimensions of the contemporary change: from simplicity to complexity.

Table 1

Dimensions of the contemporary change: from simplicity to complexity
The epistemological turn From "pure reason" to an "embodied social knowledge" From a monolog-like logic to a dialog between multiple logics From analytical thinking to polyphonic thinking
The turn in global metaphors From atoms to networks From the universe to multiple worlds
The turn in the global approach and strategies From a priori theories to cognitive complex practices From controlled experiments to evolving simulations From universal knowledge to a situational production of meaning
The turn in the paradigms of science From conservative laws to nonlinear dynamics From homeostasis to creativity far from equilibrium From causality to emergence

## CONCLUSION

An approach that honors complexity has to be able to make the different levels of change fit together in multiple ways, and allow us to construct specific itineraries referring to the particular problems with which we have to deal. From my perspective complexity is not an imperative but a free choice.

However, it is not merely an intellectual choice but an esthetic, ethic, pragmatic, and political one. It is not a simple shift from one paradigm to another, but a radical transformation of our way of experiencing life and producing meaning, of interacting and living together; in other words, a complete and multidimensional transformation of ourselves and our ever evolving world.

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