CHAPTER 9

Unlikely Affinities: J.L. Borges, Kuhn, Lakatos and Ontological Critique

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> I thought that Argos and I participated in different universes; I thought that our perceptions were the same, but that he combined them in another way and made other objects of them; I thought that perhaps there were no objects for him, only a vertiginous and continuous play of extremely brief impressions.
>
> J.L. BORGES, *The Immortal*

1 Introduction

This article seeks to support the idea that one of the main factors of the lack of alternatives for the various crises that many countries have been facing in recent times is the absence of an ontological critique in which another social world could be envisioned, a social world worthier of humanity and able to captivate people. To uphold the ineluctable nature of the ontological critique for transformative praxis, the chapter firstly explores some of Jorge Luis Borges' essays, in which the writer shows in his own way how ontological notions underlie every social human activity and – differently from what Foucault seems to infer from those essays – emphasizes the objectivity of such notions, which of course are always subject to refutation. From literature to philosophy of science, the chapter also argues that science cannot operate in an ontological vacuum. A brief examination of the conceptions on science and scientific explanation held by logical positivism, Kuhn and Lakatos makes it possible to demonstrate this argument, despite the contempt of those conceptions for ontological issues.

Finally, the chapter argues that Lukács' *Ontology* convincingly demonstrates that genuine science orientates itself by necessity towards the being of things, that is to say, towards truth. Taking into account that a social science cannot

operate in an ontological vacuum either, to orientate itself towards the being of things means that social science has to understand what society is, and therefore it means that it is founded, explicitly or implicitly, on an ontology of the social being. Moreover, if social theory is part of society, if it creates an intelligibility based on which people act preserving or transforming society, it is possible to affirm that the dispute between theories and the corresponding practices they foster and support is an ontological dispute. Hence, the ontological critique is an imperative to any emancipation from social structures that oppress, coerce and degrade human beings.

2 Borges and the Ontology

Before justifying the statement that ontological issues represent a central theme for Borges, it is relevant to say that neither a specialist in Borges nor a literary critic developed the interpretation sustained henceforth. It is rather the result of the impressions caused by the writer's texts, especially because his writings deal, in fiction, with the complex relations between word and concept, conceptual thought and language. It would be nonsense to expect that Borges treated ontological issues in an explicit and systematic fashion since these questions are not an explicit theme not even in philosophy. It seems, though, that such matters featured in his major concerns. To show this I believe few of his texts are enough, two of which will be examined more closely: *John Wilkins' Analytical Language* and *Funes, the Memorious*. Nonetheless, a short mention to two other Borges' pieces, *The Aleph* and *On Exactitude in Science,* can function as an introduction to the subject.

In the short story *The Aleph,* the narrator reports the case of a character who is a writer of an endless poem and lives in a house in whose basement there is a point, the Aleph, precisely located on the nineteenth step of the stairs. The Aleph, when seen from a certain angle, is "the place where, without admixture or confusion, all the places of the world, seen from every angle, coexist." Skeptical, the narrator manages to get into the basement and, astonished, sees the Aleph, the infinity, that object of no more than three centimeters in diameter, in which, however, there was the "cosmic space, with no diminution in size… [e]ach thing… was infinite things," because, asserts the narrator, he could see it/them from all sides of the universe. After watching the vertiginous extensive and intensive flow of all things in a "gigantic instant,"

> […] the teeming sea…daybreak and nightfall…the multitudes of America…a silvery cobweb in the center of a black pyramid, […] bunches of

> grapes, snow, tobacco, lodes of metal, steam…convex equatorial deserts and each one of their grains of sand, […] at the same time saw each letter on each page […] the night and the contemporary day […] tigers, pistons, bison, tides and armies…all the ants on the planet […] the coupling of love and the modification of death…[1]

Having being the spectator of all this, the narrator expresses his despair as a writer: how would it be possible to tell others about infinity if language is a "set of symbols" that presupposes a shared past among its speakers?[2] If language is successive, how to transcribe all the simultaneity caught from experience? How to deal with the insoluble problem of enumerating an infinite set? Besides being incommunicable, or exactly because it is incommunicable, infinity seems to immobilize the mind with the stunning density of its events flow. Maybe this is the reason why the narrator confesses that he only regained control of himself after spending sleepless nights by reliving what had been seen in the Aleph, when he was "visited once more by oblivion."[3]

It can be said that the crucial point of the story is the world's infinitude and our access to it. The world is obviously inapprehensible in its intensive and extensive totality of things, processes and events. The immediate and magic access to such infinity, supposedly enabled by the Aleph, is more likely to represent nescience than knowledge, for the infinity's limitless details are what they are, namely, an instantaneous and paradoxically simultaneous succession of singular events, objects, etc., that by themselves, as singulars, do not convey the knowledge of totality. To draw a parallel, its infinite profusion is like a sudden and endless collapse of the shelves of a huge and assorted warehouse: a tangle of things.

Knowing the world, just on the contrary, does not come down to identifying singulars. It consists in recognizing the universal and particular determinations of the singulars, the categories that specify the effects that the singulars produce on the world and that the world produces on them. In other words, Borges, in *The Aleph*, performs a remarkable critique to one of the moments of the process of knowledge, the analysis, by absolutizing it, precisely by firstly implying that to know is to access the infinite details of everything that exists and happens, and subsequently by suggesting that to know is to forget the details, that is, to synthesize – the other moment of the process of knowledge.

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1 J.L. Borges, "The Aleph." In Jorge Luis Borges, *Collected Fictions.* Trans. H. Hurley. (London: Penguin Books, 1998), 93.

2 Ibid.

3 Ibid.

It is not difficult to notice that in *On Exactitude in Science* Borges deals with the same problem. It is a widespread text, largely used as a sort of "methodological" epigraph, so to speak, in many scientific articles in different areas of knowledge, and as object in literary analyses themselves. The short narrative tells about an alleged empire in which cartography had achieved such high level of perfection that its maps were produced in a gigantic scale: the map of a province could cover a whole city; the map of the empire could reach the total extension of a province. Disappointed with the inaccuracy presented by such exorbitant maps, the faculty of cartographers decided to carry out a 1:1 scale map so that the map of the empire had exactly the same extension of the empire. Useless for the following generations, this map was left to degenerative action of time.

As we can see, Borges again addresses the problem of abstraction, of subject–object separation, of distancing of the subject from the object that constitutes the presupposition of practice. Even dealing with a specific mental appropriation of reality – a map, a graphic representation of any extension –, the text has a meaning that holds to any type of representation and to any sector of reality, be it natural or social. In a word, as Borges sums up in another tale, thinking is abstracting. And, in abstraction, as observes Lukács, reality is "reality" as spiritual possession. For this reason, reality constitutes a

> new form of objectivity…, but not a reality, and – precisely from the ontological standpoint –, it is not possible to equate the reproduction with what it reproduces, let alone identify the two. Just on the contrary.[4]

In the short story *Funes, the Memorious*, the narrator talks about a peculiar character, Irineu Funes, who used to entertain and delight whoever he met with his curious ability to precisely guess the hour of the day.[5] One day, however, a horse knocked him down and he became paraplegic. What was quaint in Funes turned into amazing capacity. As a sequel his senses became hypertrophied, and his memory answered to this by swelling up in order to be able to register the immeasurable volume of information offered by the senses. As an effect of the accident, he was now capable of perceiving

> […] all the leaves and tendrils and fruit that make up a grape vine. He knew by heart the forms of the southern clouds at dawn on the 30th of

4 G. Lukács, *The Ontology of Social Being*, 3. *Labour*. (London: Merlin Press, 1978), 26.

5 Borges, "J.L. Funes, the Memorious." In *Labyrinths: Selected Stories & Other Writings*. (New York: New Directions, 1964), 93.

> April, 1882, and could compare them in his memory with the mottled streaks on a book in Spanish binding he had only seen once [...]. These memories were not simple ones; each visual image was linked to muscular sensations, thermal sensations, etc. He could reconstruct all his dreams, all his half-dreams. Two or three times he had reconstructed a whole day; [...], but each reconstruction had required a whole day.[6]

Funes' senses were so prodigious that the decimal numbering system seemed excessively prolix to him. Hence, one can understand that he started thinking to develop a more synthetic system, in which each number would correspond to a word. Another project that his phenomenal memory demanded was to build a language in which each singular ("each stone, each bird and each branch") would receive a specific name. The narrator of the tale was right to ponder that such projects, though senseless,

> [...] permit us to glimpse or infer the nature of Funes' vertiginous world. [...] [he] could continuously discern the tranquil advances of corruption, of decay, of fatigue. He could note the progress of death, of dampness. He was the solitary and lucid spectator of a multiform, instantaneous and almost intolerably precise world. [...] no one ...has felt the heat and pressure of a reality as indefatigable as that which day and night converged upon the hapless Ireneo, in his poor South American suburb. It was very difficult for him to sleep.[7]

With an extremely tumultuous mind, it is easy to perceive that Funes was not able to conceive general ideas. That is why it was unthinkable for him that "the generic symbol *dog*" could designate not only all dogs but also all sorts of dogs and each dog in their endless circumstances of life. Funes was a tireless and obsessed spectator of the singular, and kept in his mind all the details of everything that his senses could offer him and of everything that he imagined. In spite of Funes' overburdened mind, Borges suspects he was incapable of thinking, since thinking is "to forget differences, generalize, make abstractions. In the teeming world of Funes, there were only details, almost immediate in their presence."[8]

It is needless to emphasize that the problems dealt with in *Funes, the Memorious* are essentially the same ones treated in *The Aleph*. Later it will be seen

6 Ibid.
7 Ibid.
8 Ibid., 97.

that in both stories the observation and/or the identification of the infinite singulars presupposes an ontology, which is implied in the taxonomy from where each of the singulars is identified. If so, the delusion that only singulars are seen in the Aleph or that only singulars matter to Funes is more than evident. Actually, the taxonomy by means of which each singular is captured, seen or identified involves, with its singular, particular and universal categories, relations of identity and difference among the singulars, their specific features and reciprocal connections. In other words, that taxonomy presupposes a notion of the world as totality – namely, an ontology –, even when totality absurdly appears as a mess of atomic singulars, as Borges seems to insinuate. An emphatic evidence of this Borgean conception can be observed in *John Wilkins' Analytical Language*, to be seen next.

In *John Wilkins' Analytical Language*, Borges' advocacy of the objectivity of our knowledge of the world is so clear, so inspired, that it could be placed in the same level of a philosophical treaty. The project of creating a philosophical language, developed by John Wilkins – a character who "abounded in happy curiosities" –, serves as material to discuss the question of objectivity. Wilkins' project aimed at solving the undecipherable and inexpressive nature of the words of any language – despite claims to the contrary. The *Real Academia*, for example, derides Borges, but at the same time mentions the alleged expressive character of the words "in the riches of the Spanish language" and, paradoxically, publishes a dictionary in which the "expressive" words are given a definition.[9] According to Borges, by observing that with the use of "the decimal system of numeration, we could learn in a single day to name all quantities to infinity, and to write them in a new language,"[10] Descartes, in the beginning of the 17th century, thought about something similar: "a language that would organize and contain all human thought. Around 1664, John Wilkins embarked on that enterprise."[11]

Wilkins started from the assumption that people generally share the same principle of reason and the same apprehension of things. That is why it seemed to him that humanity could get rid of such language confusion and its unhappy consequences if the notions in common could be linked to shared written or spoken symbols. Having this purpose in mind, and not without an admitted arbitrariness, Wilkins imagined that forty basic categories or classes subdivided in differences, which in turn were dismembered into species, could

9 Borges, "John Wilkins' Analytical Language." In Jorge Luis Borges, *Selected Non Fictions*. (London: Penguin Books, 1999).

10 Ibid., p. 230.

11 Ibid.

compose the symbols of a kind of inventory of the world. To turn his artificial language expressive, Wilkins put forward the following scheme: to each of the forty classes there is a corresponding monosyllable; to each difference, there is a corresponding letter; and to each type, there is also a corresponding letter. This way, each sequence of pronounceable symbols would immediately express a specific item of the world. Borges exemplifies this device as follows: *de* corresponds to the genre "element"; *deb* is the element increased with the letter that expresses the difference (b) – in this case, fire, the first element; by adding the letter that indicates the type (a), it results *deba*, a portion of the element fire – a flame. Another example would be the class "world," represented by the monosyllable *da.* When *da* is followed by the letter that indicates the second difference (d), which denotes "celestial," it results in the notion of sky (*dad*). The symbol for "Earth" is *dady*, which is composed by the same *dad* plus the symbol of the seventh type (y), resulting in the globe of earth and sea.

That is the scheme conceived by Wilkins. What is essential, though, is Borges' critical interpretation. The fundamental question it raises, Borges says, is "the merit of the forty-part table on which the language is based."[12] To offer an answer, the writer points out the ambiguity of some categories:

> the eighth category: stones. Wilkins divides them into common (flint, gravel, slate); moderate (marble, amber, coral); precious (pearl, opal); transparent (amethyst, sapphire); and insoluble (coal, fuller's earth, and arsenic). The ninth category is almost as alarming as the eighth. It reveals that metals can be imperfect (vermilion, quicksilver); artificial (bronze, brass); recremental (filings, rust); and natural (gold, tin, copper). The whale appears in the sixteenth category: it is a viviparous, oblong fish.[13]

The "ambiguities, redundancies, and deficiencies"[14] of this classification remind the classification of animals of an alleged Chinese encyclopedia – *Heavenly Emporium of Benevolent Knowledge* – mentioned by Franz Kuhn, Borges invents. As we will see, such classification of animals exhibited by the presumed "emporium of knowledge" and Wilkins' classification offer the central elements of Borges' arguments. For this reason, despite the fact that such classification is well known, it is reproduced below. The animals are specified as follows:

12 Ibid.
13 Ibid., 230–231.
14 Ibid., 231.

a) those that belong to the emperor
b) embalmed ones
c) those that are trained
d) suckling pigs
e) mermaids
f) fabulous ones
g) stray dogs
h) those that are included in this classification
i) those that tremble as if they were mad
j) innumerable ones
k) those drawn with a very fine camel's-hair brush
l) *et cetera*
m) those that have just broken the flower vase
n) those that at a distance resemble flies[15]

Leaving aside Borges' most direct statement, to be seen below, the above passages already unequivocally indicate his conviction in the objectivity of our knowledge and, by extension, in the objectivity of the ontology that it always presupposes.

In fact, the ambiguity, the deficiency and, above all, the anthropomorphism of the classifications express the social, historical and, therefore, fallible character of the ontological notions on which our practice is always based.[16] However, its fallibility does not contradict its objectivity, being, instead, its condition. The mention to the whale, defined as oblong, viviparous fish in Wilkins taxonomy, is not pointless. With such expedient, Borges forces the reader to an involuntary reflection. It leads the reader to immediately realize that the classification does not correctly capture the anatomical-physiological structure of the whale – a mammal, and that, therefore, it is false. At the same time and in the same act, though, he compels the reader to claim the objectivity of his/her own knowledge, or his/her own taxonomy, for he/she can only catch a mistake from a point of view held to be true. From this, it can be said that our

15 Ibid., 231.

16 As a moment of practice conditioned by its aims, anthropomorphism must have some objectivity despite its falsity in ontological terms. This objectivity, emphasized by Borges, is also corroborated by Keith Thomas, who points out that "[at] the start of the early modern period, even the naturalists themselves regarded the world from an essentially human viewpoint and tended to classify it less according to its intrinsic qualities than according to its relationship to man. Plants, for example, were studied primarily for the sake of their human uses and perceived accordingly. There were seven kinds of herbs, thought William Coles in 1656: pot herbs; medical herbs; corn; pulse; flowers; grass and weeds." Keith Thomas, *Man and the Natural World.* (London: Penguin, 1988), 52.

classifications based on superficial observations from everyday practice – for example: an animal that swims and lives underwater is a fish – may be superficial, false and can (and should) be corrected. However, they are objective in some degree, for it is on them that daily practice is based. Borges uses the same resource when he resorts to the classification of the Chinese encyclopedia, which provokes laughter exactly because the reader perceives its absurdity. Evidently, the reader can only do so from the point of view of his/her own classification, assumed to be true and objective.

Borges ends the essay in a less allusive way when he declares, with regard to the ambiguities of the classifications quoted, that all classifications of the universe are arbitrary. Nonetheless, he warns that "[the] impossibility of penetrating the divine scheme of the universe cannot, however, dissuade us from planning human schemes, even though it is clear that they are provisional."[17] Being human, knowledge cannot have access to the "divine," to the absolute. However, since human practice is teleological, finalistic, the knowledge of the world is its necessary presupposition. Consequently, nothing can "dissuade us from planning human schemes" indeed. And if human schemes are an inextinguishable condition of practice, it follows that they are objective, despite their fallibility and transience.

This interpretation of Borges, it must be said, totally differs from that held by Foucault regarding the last essay discussed. Even though it is impossible to assert it categorically, the "Analytical Language" seems to owe much of its diffusion to the fact that Foucault, in the preface to *The Order of Things,* reveals that his book was born from the reading of Borges' essay.[18] According to Foucault, the classification of animals shown in the supposed Chinese encyclopedia kept him "laughing a long time, though not without a certain uneasiness that I found hard to shake off."[19] Notwithstanding, the taxonomy provokes very distinct laughters. The first laughter, suggested here, is one that finds humor in the nonsense of the scheme, which it judges, not without mercy, from the objectivity experienced from its own ontology. The second is a laughter of perplexity, of astonishment at a taxonomy that presumably demonstrates the irremediable contradiction of our mental schemes in the face of the impossibility of reaching an objective knowledge of the world. In Foucault's words, such laughter

17 Borges, "John Wilkens."

18 Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*. (New York: Vintage Books Edition, 1994), iv.

19 Ibid., xvi.

> shattered, as I read the passage, all the familiar landmarks of my thought – our thought, the thought that bears the stamp of our age and our geography – breaking up all the ordered surfaces and all the planes with which we are accustomed to tame the wild profusion of existing things, and continuing long afterwards to disturb and threaten… In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that, by means of the fable, is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the stark impossibility of thinking that.[20]

Foucault's reading seems to be a manifestation of what, in connection with the ideas of the neopragmatic philosopher R. Rorty, I called, in another work, as "longing for God."[21] Departing from the somehow trivial assumption that all knowledge, being human and social, is relative, this position mingles objectivity and the absolute. Being the latter unachievable, it advocates the wholesale relativism. Hence, frustrated the megalomaniac aspiration to know everything, all worldly knowledge is deprived of objectivity.

It is important to explore the deepest meanings of the difference between Foucault's reading and the reading argued for here. This discussion will not be carried out in the specific field of literary criticism, but rather taking into consideration the serious repercussions of the skepticism that underlies Foucault's interpretation. In practice, regardless the intention of who advocates it, skepticism means tacit acquiescence with the *status quo*. Such skepticism does not go unnoticed by Norris, for whom the use of Borges' passage by Foucault unmistakably demonstrates Foucault's anti-realist, conventionalist, and nominalist view. Norris asserts that, in fact, for Foucault, the classification of the animals in the "Chinese encyclopedia" is an indication of the parochial and cultural-determinate character of our concepts and categories. In his critique of Foucault's reading, Norris agrees with the interpretation advocated here, noting that "the possibility of thinking such exotic thoughts is demonstrated clearly enough by […] our (i.e. the reader's) capacity to perceive it is as just such an instance of wild and zany categorization."[22] Moreover, Norris agrees that such classifications might constitute a fictional allusion to "our naturalized habits of thought and perception."[23] He argues that it is precisely because of this that it is a total mistake to mean, as Foucault does, that the simple possibility of thinking, and in Borges' case of inventing, such "starkly impossible

20 Ibid., xiv.
21 See Duayer 2010: 72.
22 Norris, 169.
23 Ibid.

thoughts" serves as a sufficient basis to suggest that "*all* our concepts, categories, ontological commitments and so forth are likewise fictive constructions out of one of such 'arbitrary' discourse or another."[24]

In Norris' view, these ideas make up the implicit premise of the whole Foucaultian project, already present in its starting point in the "archeology" of knowledge, of structuralist orientation, up to the genealogical approach (post-1970) of the Nietzschean matrix, which certainly nourish the agendas of the postmodernism, neopragmatism and their theoretical adjacencies.

According to Norris, such a premise can be thought of as *reductio ad absurdum* of the anti-realist proposal that

> begins by locating truth in propositions about things, rather than in the things themselves, and ends up – as with Quine, Kuhn, Rorty, Lyotard *et al* – by holistically relativising 'truth' to whatever sorts of language-games happen to enjoy that title.[25]

As can be seen, the use of the Borgean texts analyzed here serves to very different theoretical – and political – purposes.

The interpretations of those texts can illustrate the conception advocated here, according to which we can never think and act "from nowhere." Our practice and the thinking that guides this practice are based on general characterizations of the world, on ontologies that, as seen in Borges, are provisional and fallible, but have their objectivity corroborated by the practices acted upon them. However, such interpretations can also be taken as an example of the notion that all our beliefs, whether theoretical or not, are equivalent, since truth – objectivity – is held to be unreachable. In this way, the readings and interpretations of these and other texts create, reinforce or refute, stimulate or inhibit the current ideas. There is no way to be indifferent to divergent, conflicting readings, since they express ontological disputes whose impact in practice is impossible to neglect, for it is in the general characterizations of the world that we seek our ideas about the desirable, the possible, the feasible.

3 Philosophy of Science and Ontology

As we announced in the Introduction, we will now move from literature to the philosophy of science and will try to show that science, in spite of so many protests to the contrary, cannot function in an ontological vacuum. A brief

24 Ibid.
25 Ibid.

examination on the conceptions of science and scientific explanation proposed by Kuhn, Lakatos, and logical positivism allows us to demonstrate that claim, despite the contempt and indifference of those conceptions for ontological issues. For this demonstration, it is worth noting, we will use some schemes that try to show graphically the embargo to ontological questions in philosophy. In this sense, instead of intending to elaborate an exhaustive analysis of currents and authors, the following considerations take the formulations of the main currents and/or authors in the orthodox philosophy of science to illustrate how their interdiction on ontology is purely nominal.[26]

To begin, in the figure below there is a schematic representation of how the roughest empiricism conceives the process of knowledge.[27] Between the horizontal parallel lines it is represented the flow of events, that is, everything that is happening in the world. If knowledge, for empiricism, is a generalization of what the sensorial apparatus allows us to grasp from the world, in the scheme this process is illustrated by the movement that begins at the top of the diagonal line and "crosses" the flow of events. Each of the recurring courses along the line permits us to capture new empirical facts and to generalize them, thus forming the knowledge that practice presupposes and produces. Except for misconceptions in the process of generalization of the empiric experienced by the senses, free from metaphysical speculations – ideas without strictly empirical origin – errors that science should avoid – this cumulative process would imply an increasingly comprehensive knowledge of the world. That is to say, this process would imply a continuous empirical improvement of the "belief systems," "ideological coordinates" or "ontological schemas" which, by principle, could be traced to the original sensations and, therefore, are irrefutable.

It is immediately clear that this conception implies a subject of knowledge that can only be an isolated, atomic, pre-Adamic individual, devoid of relations not only with other individuals, but also with nature. This individual, in consequence of all this, would have neither language nor consciousness. It is this individual that suddenly begins to interact with nature and, from these experiences without ideas, embarks on forming them by noticing the similarities and differences between things caught here and there by his/her senses.

26 See Mario Duayer, "Relativismo, Certeza e Conformismo: para uma Crítica das Filosofias da Perenidade do Capital." *Revista da Sociedade Brasileira de Economia Política*, n°. 27, p. 58–83, October 2010, for a more detailed explanation of the arguments elaborated in this section. For a synthetic exposition of Kuhn's and Lakatos' conceptions, see F. Suppe (ed.), *The Structure of Scientific Theories*. (Chicago: University of Chicago Press, 1977).

27 My special thanks to Rômulo A. Lima for the elaboration of the schemes below. I am very grateful for his contribution.

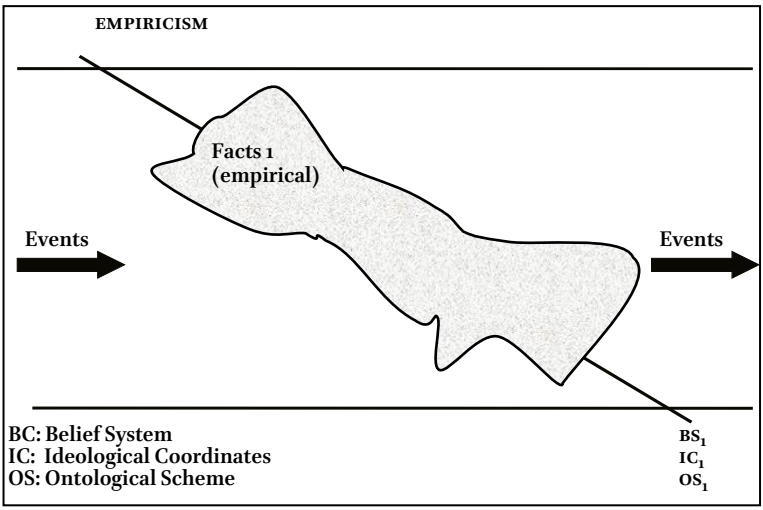

FIGURE 9.1 Empiricism

On that account, this absurd individual gradually constructs particulars and universals, and builds for himself/herself an intelligibility of the world, through which he/she had passed "empirically" and blindly in the beginning, without any intelligibility, as nonsensical as it may seem. Finally, since, according to the empiricist conception, knowledge is a mere mechanical effect of the world captured by our sensorial apparatus – a kind of "drive-thru" effect of the world crossing our senses –, then the belief systems so formed exclusively from the empiric would be free from all "metaphysics." Notwithstanding such a claim, it is not difficult to see, as Bhaskar has shown, that this conception of knowledge implies an empiricist ontology in which the flattened and one-dimensional world, collapsed in the impressions of subjects, is composed of atomic things and events, since their probable characteristics and relations are nothing more than mere concomitances (similarities, empirical regularities, patterns of association) perceived by the subjects. The atomic subject of cognition, therefore, conforms to this implicit ontology.

In logical positivism, the positivist tradition itself sought to overcome the absurd inconsistencies of this conception that, in order to purify the scientific discourse of all metaphysics–its central programmatic point – had to ensure that all items of knowledge could be traced back to the gross empirical datum. This idea implies a sort of creation myth: the isolated individual of cognition, who is none other than the superlative isolated individual of liberal thought, *éminence grise* of so many theories. To reformulate such a position, logical

positivism at least admits, albeit in a very curious way, that the subject who perceives things, forms ideas, gives meaning to the data originated from his/her impressions never exists without ideas.

The result of this reformulation of the conception of science and of scientific explanation of the positivist tradition is illustrated in the next scheme. In accordance with the empiricist gnosiology of the positivist tradition, to which all knowledge is derived from sensory experience and justified on the basis of it, logical positivism inherited the function always claimed by that tradition: to operate as a supervisor of the mind in its scientific generalization processes, curbing metaphysical speculations and thereby holding firm the bonds of the mind with the world, here understood as the reality captured by the sensorial apparatus. Logical positivism imagined playing such normative function by postulating a general structure of scientific discourse, supposedly characteristic of the paradigmatic sciences, physics in particular. According to such prescription, every scientific discourse has to present a hypothetical-deductive structure, also known as the H-D model of scientific discourse. Put simply, H-D postulates that every theory consists of an axiomatic hypothetic-deductive structure. This is to say that, from this point of view, a theory is nothing more than a set of axioms, including at least one general law, axiomatic as well, from which a series of propositions about observable phenomena is deduced.

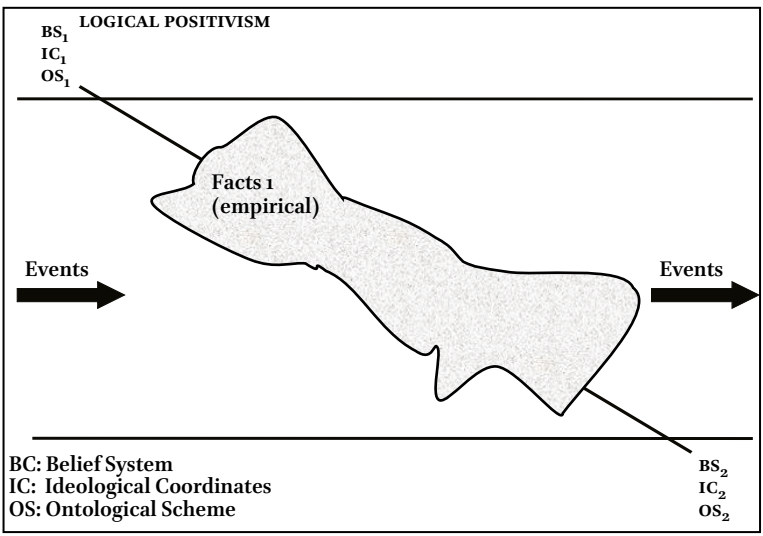

FIGURE 9.2 Logical positivism

It can be seen in the above illustration that, unlike empiricism, in logical positivism the subject of cognition no longer goes to practice devoid of ideas. In a similar way to the previous scheme, the process of knowledge here also begins at the top of the diagonal line and, throughout it, "crosses" the flow of events, capturing new empirical facts in each of the cycles. However, in this case the empirical facts do not give rise to the generalizations. On the contrary, the theories deductively constructed from axioms are postulated generalizations, imagined descriptions of a sector of reality that, according to the positivist injunction, can only consist of empirical regularities among phenomena, or stable functional relations between variables observable from the perspective offered by the theories. The validity condition of the theories, therefore, is its corroboration by means of the observational evidence. In summary, theories postulate empirical regularities or constant conjunctions of events and are validated when the postulated regularities are confirmed by empirical evidence.

Starting from BS_1, OS_1 or IC_1, at the top of the diagonal – that is, from an ontology, a particular figure of the world – the theory "goes across" the flow of events with the purpose to identify the postulated empirical regularities. In each cycle along the diagonal, the theory, based on the same structural axioms, seeks to encompass new empirical phenomena – that is to say, to submit the phenomena to its interpretation. The success of this expansion of the empirical domain of theory is at the same time the empirical validation of the "belief system"– ontology – on which it is founded.

It is not relevant, at this point, to talk about the total absence, in the H-D model, of any mention to the origin of ideas – the set of axioms –, out of which this, so to speak, archetype "belief system," is assembled. For the argument sustained in this article, rather than highlighting all the inconsistencies of this conception of science and scientific explanation, it is mostly important to emphasize that such conception implies a clear refutation of the anti-ontological position of the positivist tradition. Indeed, to uphold that the scientific discourse is axiomatic-deductive is equivalent to saying that every theory is based on a "belief system," on an "ontological schema" or on "ideological coordinates," that is, on an ontology. Consequently, theories can no longer be considered, as the positivist tradition has always intended, the expression of the raw data from experience, for theories are, in fact, interpretation of the world. Thus, it is the theory that conveys meaning to the phenomena captured by the sensorial apparatus and not the phenomena grasped by the senses that naturalistically turn into theory by means of a kind of mechanical process, as empiricism implies. As Bhaskar warns, "[…] facts … are not what we apprehend in

sense-perception, but results of the theories in terms of which our apprehension of things is organized."[28] Hence, for the purpose of this article, it is extremely crucial to bear in mind that logical positivism, while vaguely and ambiguously suggested that the rooting of theories was in the empirical, actually implied the reverse. The apparent anti-ontological attitude conceals an implicit ontology: the empirical ontology uncritically inherited from empiricism, in which the world consists of atomic phenomena.

The next two schemes illustrate the conception of science and of scientific explanation of the post-positivist currents that are now prevalent in the philosophy of science. Post-positivist currents are so called because they stem from the critique of the positivist conceptions. However, it is possible to show that despite the relevance of some of their criticisms these currents do not constitute an effective critique of the positivist tradition. Indeed, taking into account the way post-positivist currents conceive science and scientific explanation, it is possible to say that they hardly differ from the conception of which they imagine to be a radical critique. To support this argument, this paper focuses on the most emblematic authors of post-positivism in the philosophy of science – Kuhn and Lakatos. Their work mainly pays particular attention to natural sciences, but its influence can be seen in the theoretical currents that predominate in social theory today, such as culturalism, postmodernism, pragmatism, constructivism, among others. Currents that directly or indirectly find inspiration in Kuhn's and Lakatos' ideas, especially in the wholesale relativism associated with their theories. The examination of the conceptions of the two authors seeks to highlight the role of ontology in their theories of science. It should not be overlooked, however, that in their theories, just as in logical positivism, the function of science is reduced to the search for empirical regularities among phenomena (variables) and their empirical corroboration. Consequently, from this perspective, the relevant feature of scientific theories is their predictive capacity, not that of offering a true and objective explanation of reality.

The figure below represents the ideas of the "post-positivist" Thomas Kuhn. As widely known, the author affirms that in the dynamics of all science one can observe the pattern shown in the figure. According to him, any science is founded on a paradigm (on an ontology) – BS_1, IC_1 or OE_1 – and is refined in the repeated cycles along the diagonal. Normal science, as Kuhn calls it, distends its empirical domain in this process, as advocated by logical positivism. As pointed out before, science here has the exclusive function of capturing

28 R. Bhaskar, *Reclaiming Reality: a Critical Introduction to Contemporary Philosophy*. (London: Verso, 1989), 60–61.

empirical regularities among relevant phenomena that were caught by its interpretive net. Yet, the very logic of normal science of continually expanding its empirical territory eventually causes it to find a limit. After some time, normal science proves to be inadequate, insufficient, because it cannot "explain" new phenomena or incorporate new phenomena into its domain. Such stagnation, according to Kuhn, inaugurates a revolutionary period in which new theories compete for the interpretive hegemony of the existing normal science, which, in the end, is replaced by another theory – in the case of the scheme, represented by the dark area. For the author, we have here what he called paradigmatic shift: the new normal science is based on another paradigm – BS_2, IC_2 or OS_2 –, on another ontology, on another figure of the world, and presents exactly the same dynamics of the theory that it has replaced.

According to this perspective, in which the empirical is internal to each paradigm, it is impossible to justify empirically the supremacy of the theoretical current that at each time holds the hegemony. In fact, as can be seen in the diagram, the checkered area, which indicates the intersection of the currents' respective "empirical" domains, reveals that the currents are equivalent from the empirical point of view, since the "empirical excess" of each one is irrelevant to the other. In this sense, the supremacy at issue can only be ontological, that is to say, it is the supremacy of the ontology on which the new current is founded. That being the case, the post-positivist author explicitly admits what logical positivism implied, namely, that all science posits and presupposes an ontology. More than this, he shows that what is fundamental in the dynamics

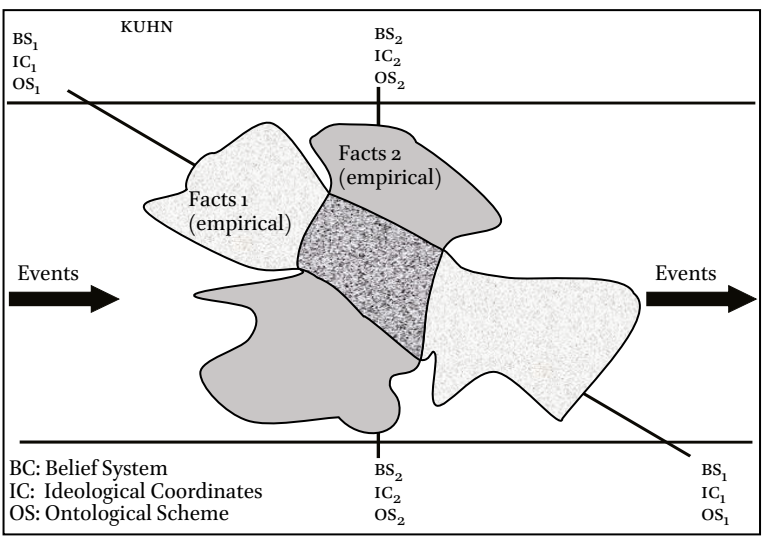

FIGURE 9.3 Kuhn

of sciences is the radical change in the figure of the world, in the ontology that sciences posit and presuppose. Still, this explicit recognition of the absolute relevance of ontology, of its decisive character in substantive scientific disputes, has no theoretical effect in Kuhn's conception of science and scientific explanation, simply because ontology is never thematized in his studies. As can be verified, paradigms, a tag for ontology, are structural elements of any science, but their origin and nature are never analyzed. For this reason, it can be concluded, as did Kuhn's critics, that paradigms are incommensurable, and, therefore, that critique is impossible. This represents a theoretical position whose corollary is the equation of all belief systems and, consequently, the refutation of the objectivity of all knowledge. It is a wholesale relativism of unequivocal sense: truth does not matter, for it is unreachable. Therefore, science can only be legitimized by its effectiveness as an instrument of immediate praxis.

The next figure illustrates the ideas of Imre Lakatos. He substitutes the idea of scientific research programs (SRP) for the polarity "normal science/revolutionary science" of the Kuhnian scheme – not sufficiently nuanced, and, for this reason, incapable of assimilating the coexistence of several theoretical currents competing for the explanatory hegemony in a specific science. In Lakatos' version, science must be understood as consisting of systems or families of theories rather than isolated theories. Science, from this perspective,

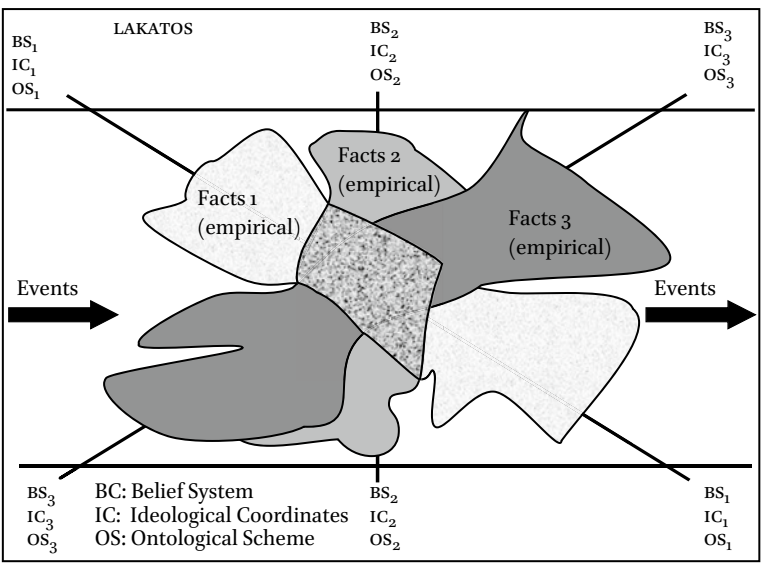

FIGURE 9.4 Lakatos

functions as a system of theories in permanent process of improvement and transformation. Such systems or theoretical traditions, in each particular science, constitute a SRP, so that it is possible to exist in a given science a variety of theoretical traditions in dispute, each evolving according to the protocols of its SRP, illustrated here by BS_1, IC_1 or OS_1, BS_2, IC_2 or OS_2: BS_3, IC_3 or OS_3.

In general terms, in the Lakatosian explanation the SRPs are constituted by two types of methodological rules: a negative heuristic and a positive one. The negative heuristic of a SRP establishes improper investigations within it. Such rules proscribe the examination of the SRP's *hard core* – that is, the set of structural axioms that make up its *irrefutable* part: BS_1, BS_2 and BS_3. The positive heuristic defines the legitimate research lines, endorsed by the SRP, which will constitute the list of guidelines for perfecting and modifying the theories that orbit the hard core. These theories make up the SRP's "protective belt," or its refutable part.

Except for the possibility of coexistence of different theoretical currents, Lakatos' proposal is almost identical to that of Kuhn in its essence. With regard to the dynamics and function of science, one can infer from Lakatos' propositions that theories are constructed to capture empirical regularities among phenomena and that, therefore, each system of theories evolves or not according to its capacity to apprehend new empirical facts under its interpretation. This implies that the function of science is to operate as an instrument of immediate practice. On the other hand, just as Kuhn, Lakatos, while arguing that the difference between the theoretical currents is ontological, *a priori* cancels the possibility of analyzing or discussing the ontological foundations of the different theoretical systems, since the so-called hard cores are irrefutable by definition. Again, if the theories are validated empirically and their hard cores are irrefutable, the result of this conception is the denial of the objectivity of scientific knowledge. In other words, the result is the interdiction of criticism and the consequent equalization of all belief systems – the parity of all ontologies –, whether based on reason and science or on superficial notions of everyday life, on superstition, on magic and mystic.

If not even the scientific knowledge is objective, the conclusion can only being one: the disqualification of truth and the veiled defense of instrumentalism and the conception of science as mere instrument of immediate practice. Lukács had already warned that this was the substantive effect of logical positivism, since in this theory

> it is no longer a question of whether each particular moment of linguistic-scientific regulation … leads to immediate practical results but,

> rather, that the entire system of knowledge is elevated to the condition of instrument of a general manipulation of all relevant facts.[29]

In this context, Lukács could have emphasized the absurd fallacy of the position which claims that science, built in accordance with its prescriptions, does not contribute to form a conception of world, but only offers instruments to manipulate it. As if all the images of the world, hold in modern society, could be composed without the aid of science!

By omitting any mention to ontology in its formulations, logical positivism could evoke the axiological neutrality of science and, consequently, justify its merely instrumental character. Free from any ontology, science could not be at the service of any values or interests. Although such expedient is naturally disallowed to the post-positivist authors examined, it is implicit in their conceptions. Actually it is an irreconcilable inconsistency to sustain that every science is founded on an ontology and, at the same time, to restrict the role of science to an instrument of immediate practice, as Kuhn and Lakatos do. For science, in accordance to their formulations, instead of being axiologically neutral, would always function as an instrument for the realization of the values and interests related to the ontology on which it is founded.

4 Lukács: Labor, Science and Truth

From the foregoing considerations, it is possible to conclude that ontology is inescapable. As Borges wrote, "[the] impossibility of penetrating the divine scheme of the universe cannot, however, dissuade us from planning human schemes, even though it is clear that they are provisional."[30] If we compulsively totalize, if the figure of the world, the general characterization of the world is a fundamental moment of praxis in general, and hence also of scientific practice, it is quite understandable why Marx, already in the *Grundrisse*, goes into the elaboration of a systematic and articulated figure of the capitalist society, critical of the current figurations – scientific or not – that this social form generates and requires. In other words, Marx formulates an ontology of modern society in everything distinct from that which circumscribes praxis to the continuous reproduction of what exists. As Lukács states rightly in the first paragraph of the chapter dedicated to Marx in his *Ontology*,

29 G. Lukács, *Para uma Ontologia do Ser Social*, I. (São Paulo: Boitempo, 2012), 58.

30 Borges, *Selected Non Fictions*. (London: Penguin Books, 1999), 231.

> the attempt to summarize Marx's ontology, in a theoretical sense, leads one into a somewhat paradoxical situation. On the one hand, it must be clear to any unbiased reader of Marx that all of his concrete statements, [...] are ... intended as direct statements about an existent, i.e., they are specifically ontological.[31]

The reason for this necessary ontological approach Lukács himself helps to understand. Among the numerous notable developments in his examination of the labor complex, there are key indications for understanding the importance of the explicit consideration of ontology. To summarize the point, it should be noted that in the analysis of this complex, Lukács emphasizes the specifically human determination of labor and, following Marx, highlights its teleological character. To deal with the principles related to the "positing of the goal" in labor, Lukács, based on Aristotle and on Hartmann's proposed addition to the ideas of the latter, stresses the two central moments of labor: the "positing of the goal" and the analysis of the necessary means to achieve it. Two moments that in the most primitive work can hardly be distinguished, but that in the development of the social being end up being differentiated – aspect that interests us to highlight here. Lukács asserts that the "positing of the goal" presupposes a spiritual appropriation of reality, oriented by the aim set, because only in this way the result of labor can be something new, something that would not spontaneously emerge from the typical processes of nature. However, Lukács points out that the rearrangement of the materials and natural processes required to give rise to the goal posited demands a better knowledge of these objects and processes, exactly to convert them from natural causalities (processes) into posited causalities. Unlike the typical anthropomorphism of the spiritual possession of reality conditioned by the planned end, here the maximum of desantropomorphism must prevail, since the attainment of the end would not be possible without the knowledge of the properties of the objects and processes involved in the transformation of natural causalities into posited causalities.

Thus, if the examination of the labor complex allows to demonstrate the genesis of knowledge at labor, it is not difficult to understand that these two moments of labor – the positing of a goal and the investigation of the means – become relatively autonomous with the improvement and the development of the complexity of labor processes, or of the production and reproduction of the material conditions of life with the evolution of the social being. In the Lukácsian elaboration, science, whose genesis can be referred to the most

31 G. Lukács, *The Ontology of Social Being*, 2. *Marx*. (London: Merlin Press, 1978), 1.

rudimentary labor processes, is the moment of the investigation of the means progressively autonomized in relation to the aims of the particular labor processes. Consequently, even without fully detaching itself from the social determination of ends, by asserting itself as a relatively autonomous sphere, science convert truth into its specific purpose, that is, the most adequate knowledge of reality itself. In an apparent paradox, therefore, even having its origin connected to the socially posited ends (hence, values), by searching truth science contributes to the realization of values, which is not its immediate goal.

This explains the obligatory ontological orientation of genuine science, which could sound like a motto such as: knowing the world as it is in order to change it for our (human) benefit. If it is possible to admit such an interpretation, one can understand why, for Lukács, Marx's statements are "specifically ontological statements" and, to that extent, consist of an ontological critique. In Marx's formulation, the critique of political economy exhibits the mark of the ontological orientation of genuine science: the point is to achieve the most correct knowledge of the social formation governed by capital. Being historical, this social world necessarily changes. For this reason, the adequate social theory for this world must consist in a critique of the theories which, based on an ontology that cuts off historicity, cannot but be confined to the investigation of the structure of modern society and its functioning. By doing so they not only corroborate and convey the impression of a perpetual nature of modern society, but also condition and coach subjects to passively respond to its structural imperatives.

The critique of such theories consists mainly in restoring the effective historicity to the object, to society, in capturing the truth of the historical dynamics of the social form governed by the capital, in elucidating its tendencies, and its possible futures, thereby disclosing new possibilities of practice to the subjects. The relation of humanity with the historicity of the social world produced by its practice is itself historical. It does not have to be an ahistorical relation as it is implicit in postmodernism, post-structuralism and neopragmatism, theoretical currents in which history is conceived at best as pancontingency, as absolute contingency to whose occurrences mankind can only watch and conform to. The ontological critique not only (re)signifies society with its intrinsic historicity, but also opens to the subjects the historicity of the relation between human beings and their own history, in which they are not at all destined to be eternally mere spectators. This truth of Marx's ontological critique is the condition of the transformative praxis: to leave prehistory and reactive praxis behind and actively participate in history, in the construction of a world worth of humanity.