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Alain Testart and the epistemological thought

Abstract

This article presents fourteen propositions summarising the hypotheses advanced in Alain Testart's book Pour les sciences sociales: essai d'épistémologie. Involving the very foundations of these fields, this text crucially challenges the bases of social sciences in general. It mainly analyses, from a unified perspective, the position of the observer, more generally of the subject facing his/her object of study, by highlighting that a poor understanding of this issue has contributed to social sciences' struggle to acquire a scientific status. In this article these positions will be compared to those developed by Jean-Claude Passeron in his book Le raisonnement sociologique: l'espace non poppérien du raisonnement naturel, which at first glance are irreducible. Nonetheless these two approaches seem to be complementary. Passeron focuses his proposal on historicity but he is forced to treat secondarily the nomological aspect. His proposal sets out the non-Popperian character of historical approach. Testart centres his proposal on the nomological aspect but he is forced to consider secondarily the aspect of historicity. This opposition can be incorporated into our epistemological approach inspired by natural sciences.

Keywords: testart, passeron, epistemology, nomological aspect, constructivism, physics

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Introduction

I recently discovered the book "Pour les sciences socials: essai d'épistémologie". I do not understand why this crucial work had such a poor impact on anthropologists, to such an extent that almost nobody cites this work and that I was unaware of its existence until recently. However, this text written by Alain Testart[1] deserves to be placed among the very great theoretical works relating to sociology and contemporaneous anthropology. Its major, provocative proposition, namely that there is no fundamental difference between physics and what we should understand as social sciences, a proposition that is so inconsistent with the positions adopted by those practising social sciences, may explain why the reflections of Alain Testart[1] received little coverage. I will first summarise the main theses of this complex book in fourteen propositions. A presentation of this type, summarising the statements of Alain Testart[1] is widely justified if the way of thinking of this scholar is to be respected and an objective judgement on his approach is to be made.

Pour les sciences sociales: main thèses

The first, essential point concerns the issue of the specificity of social sciences.

Social sciences have no specificity: Currently nothing can be taken for granted if not the certainty that the social fields were not able to form a science. From this perspective the idea that social sciences cannot gain the same status as the natural sciences should be rejected and three biases be eliminated:

I. Social sciences deal with unique facts. (p. 9). But science invariably consists of a general discourse held with regard to unique beings, considered through their generality. (p. 10).

II. Historical events or social facts are not reproducible. With regard to this second issue it can be objected that theory is not based on the identity of the things but that it is the theory that, once constituted by the systematicity of its concepts, justifies the judgement of identity." (p.11). the discourse about the things must be distinguished from the things themselves.

III. Experimentation is impossible. "It is an odd illusion to believe that science starts with experimentation. Any theory first starts by carrying out observations." (ibid.). Science is invariably empirical during the initial stage. It will be possible to define social science only if humans are considered to be the object of multi-disciplinary knowledge, both physical and social. From this perspective an intrinsic specificity is no longer attributed to humans except the one attributed by the various sciences dedicated to their study.

IV. "Any a priori definition regarding human specificities leads us to hopeless philosophical controversies and it is quite senseless to base science on these. The issue of how to know what is specific to humans thus strictly refers to the 'human species', i.e. a field of biology." (p.70).

V. Social science therefore cannot be based on considerations about "human nature". "As social sciences depict exactly the same elements as natural sciences, the epistemological status of both of them is the same. But their object is of course different. The difference arises from the fact that natural sciences, because they are established, have already dealt with the subject within their own field, whereas social sciences, which are in the process of becoming established, still focus all their attention on the subject."(p.57-58).

VI. "Because natural sciences have reached their objectivity and have placed humans within it, they can continue to advance while claiming that they are not interested in humans. It should be added that if one day a theoretical science related to social science does exist, it can consist only of this: to identify the specific objectivity of the social world studied by social science and to place humans within it". (p.60)

Points 3.1.2 to 3.1.6, look at the position of the subject within a scientific approach.

The physical person can only be an object of knowledge: Classical philosophy "builds two worlds each closed in on itself, a world of objects and a world of the subject. Being of different natures, packed with different essences – Descartes' matter and mind – they cannot

communicate." (p. 24). However, this thinking does not account for "the scientific movement with which it is contemporaneous and which builds one and the same world based on an intrinsic duality between the subject (knowing) and the object (subjected to study)." (p.25).

The history of geometrical optics testifies to the deconstruction of the subject in favour of scientific objectivity: Initially, optics supposed that a ray of light started from the eye and therefore located the origin of vision in it. "The history of (geometrical) optics is generally the history of the deconstruction of the subject" (p.38). "In modern optics theory the eye is an object as is the lens. By being considered as an object, it is deconstructed as a subject." (p.41)."As a result of all this, there is no science related to the subject. Or more simply, scientifically, nothing can be said about the subject." (p.55). "To a science without a subject understandably is opposed the contrary illusion of a philosophy related to the subject outside the field of science, which culminates during the 19th century" (p.56).

Methodological individualism is an avatar of the illusory importance accorded to the subject: Methodological individualism advocated by distinct anthropologists[2] is an avatar of the erroneous position attributed to the subject. It has therefore to be rejected on the basis of the discussion about the position of this latter in knowledge, but also on the basis of the rejection of phenomena of emergence. According to methodological individualism, "society is composed of humans and this is thought to be its only reality. It should be based on them and on them exclusively. This kind of attitude has disastrous effects on social sciences." (p.125). This position is wrong because the underlying idea is that "perception would result from indispensable intellectual operations in order to assemble and to recompose basic sensations." (p.130). The world surrounding us is "built" independently from the logical categories considered and from that to which these refer. "Any science is necessarily characterised by its own realism – not a naive one but methodological or epistemological realism – that believes in the reality of its objects, which are different from those related to the neighbouring science" (ibid.).

Subjectivity and the issue of an explicative discourse: In a science the real refers to observations and provides an explanation for observations within a theory. "Once established, only social science will make it possible to distinguish that which is subjective from that which is objective. It would be nonsense to aim to build a science relating to society based merely on objective data – assuming that it is possible to define them a priori – and without taking into account beliefs and discourses." (p. 78). "No more than the physical person, the social person is destined a priori to be defined in an immediate and simple manner. The social person can only be constructed as a perspective on the things." (p.77). "Invariably and only by changing the position, by comparing the points of view, will it be possible to reveal invariants and to define an objectivity." (p.76). From this perspective, the discourse of the actors studied by the ethnologists forms one point of view amongst others and – with a scientific objective –, is not the ultimate explanation of these phenomena. It is nonetheless essential to take it into account as a basis for reflection as with any other point of view stemming from an external observer, explorer, missionary or even scholar.

Understanding versus explanation are the two components of the construction of an emerging anthropological science: This opposition is the "most evident legacy of German idealism" (p.80). The opposition between Erklärung (explanation) and Verständnis (understanding) was formulated for the first time by Wilhelm Dilthey at the end of the 19th century and can be found again in works such as the work of Max Weber. "According to this concept, natural sciences call upon explanation through the reduction of particular phenomena to general laws and are called nomological; social sciences, on the other hand, would call upon understanding and assume that the intentions of the actors are taken into account, or assume moreover, using a clearly phenomenological terminology, the understanding of the sense, an interpretation easily developed by hermeneutics" (ibid.). "This leads to major differences in the practice of the two fields of study [physics, anthropology]. But these are merely differences regarding the manner of data collection or the methods of observation" (p. 87). The distinction between understanding and explanation therefore does conflict with social sciences and natural sciences; this dualism is present within anthropology itself. Understanding concerns the taking into account of the discourse of the actors, whereas explanation applies to scientific approach, which can only develop during a second stage. The understanding of a discourse is a "basic operation", but it is only an "initial stage of the scientific process". Scientific thought, however, cannot be restricted to this initial operation (p.84-85).

Points 7 to 10 concern the issue of cultural diversity.

Cultural diversity forms the basis of general theoretical research: What ethnologists have shown, "is the tremendous diversity of social organisation; what they tried to inventory is neither human specificity nor the essence of this specificity but more precisely the specificity of each society under study, of each social practice, of each discourse that a precise society has held on itself." (p.71). The author adds that anthropology assigned the discovery of a theoretical vision of humans to itself but, in practice, studied the diversity of cultures. The moment has come to move beyond this initial stage of the study field. The subjective diversity of the points of view leads to an overall objectivity.

Comparatism on principle is not based on the concept of resemblance: "Because social sciences have not so far been able to define general laws, they merely study particular cases. But, as is often the case, these weaknesses were established as a dogma." (p.140). The conditions of a comparative approach are, however, well known:

I. Singularity results from a lack of theorisation.

II. A "science of the specific" is invariably comparatism that ignores itself (ibid.). It should be acknowledged that "specific knowledge only exists against generality." (p.141).

III. The "whole" and the "specific" have always been of no use to science. "It is often reported that social facts are incomparably more complex than those related to physics. This strange opinion probably originates from a twofold misunderstanding: first of the so-called 'individualistic' approach, given the fact that each individual is considered as being a small monad with a more or less unknowable interiority, and second of the fact that specific cases, specific social situations or historical events are taken as an example with the aim of contrasting these with theoretical objects with a completely different epistemological status relating to natural sciences." (p. 143).

IV. As Alain Testart reports, "the greatest blunder that French social anthropology can be proud of is no doubt the 'total social fact' [seasonal variations of the Eskimo or of the Kula]. In contrast,

the overall legitimacy of each type of possible analysis should be proclaimed, these types should be described in the same way as epistemological field: these are indeed autonomous . The 'whole' and the 'specific', which embellish the discourse of philosophers, have always been of no use to science, because science is simply fragmented and abstract." (p.144-145).

V. Generality can only result from limitation introduced by theory. "A theory only explains – and in addition does not claim to explain – what is relevant with regard to its issue. The banality is that not a single scientific theory has ever established a theory of a single specific fact, i.e. an object or an event rich in all its determinations." (p.142).

Structure and history: two complementary approaches in anthropology: "The dualism of structure and of history gave rise to much debate amongst social sciences. As is often the case in these studies fields, the concern degenerated into a philosophical dispute about two scientific approaches, which were both legitimate and which in addition coexist in the other sciences." (p.153). I believe that it is possible to distinguish a paradigmatic axis and a syntagmatic axis in any epistemological field. The paradigmatic axis in Alain Testart's work roughly corresponds to the concept of a 'society', which can be found on the side of the structures. Alain Testart adopts this perspective, that of anthropologists such as Morgan, Durkheim, Radcliffe Brown, Lévi-Strauss, etc. "Our conception of the structure is not that developed by Levi-Strauss's structuralism. This is not a 'mind structure', a kind of a priori Kantian condition that would inform social life and come true in it; this is a social structure, rather to be called a 'social form' in order to avoid misunderstandings." (p.165). In the book the syntagmatic axis roughly corresponds to the concept of 'culture' which is on the side of history, and which the author qualifies as a 'naturalist' approach for the lack of a better term. The laws relating to the naturalist field are on the side of history. "They involve a different type of generality because their object is different and consists of reporting the successive transformations of the state of the world. These are general laws of state transformation. Even if one could perfectly explain in a determinist manner each state observed by comparison with a preceding state and so on, the complete series of states remains nonetheless a singular, irreducible and inexplicable phenomenon. The idea of contingency or 'coincidence' in the sense in which the biologists use this notion to describe the evaluative series of life forms, is essential for the approach of these so-called 'naturalist' sciences" (p.157). As regards social sciences, one should characterise "as a naturalist approach that, which is specific to history or what American scholars have called cultural anthropology" (p.160), a field in which scholars such as Franz Boas, Ruth Benedict and Margaret Mead can be grouped together. "Without doubt the difference between these two approaches can be recognised most easily within anthropology: on the one hand, societies, which are conceived as so many entities regarded according to their own life and in their interaction, and on the other hand, structures, which are less the structures of the societies or the society but rather social structures or, better, structures of social life" (p.161-162). The author adopts this second approach in a subtle manner.

The generalities related to anthropology must be specifiable generalities: "False generality directly results from a lack of knowledge about the diversity of societies; as to vacant generality, its lack of relevance results from the fact that it is located beyond this diversity, at too general a level, as a result of which it becomes meaningless." (p.147). "Hopefully, general laws can only be identified when analysing the particularisms in greater detail – I want to specify that these are particularisms, which assumes a comparative work, which by definition is multiple and which assumes that one is not caught up in a narrow circle of a particular, unique case, which would represent the only research horizon." (ibid.).[3] "In sociological law, there is not a single generality, which would make it possible to generate all the particular cases. It therefore follows that each particular case has to be the object of special clarification. For each case it has to be specified how the general law applies to it". In that regard "the term specifiable generality can be used" (p.151). Or, when taking into account the theory of the structures, which generate types within specific configurations, one should use the term "'typifiable generality' for want of a better term." (p. 164).

Point 11 and 12 concern the relationships between the various sciences.

The various sciences form distinct epistemological fields relating to the same world: Each field defines its own objectivity. "Each field defines in its own way a distinct division between the objective and the subjective." (p. 92). "There are therefore no sciences of the subject, of the subjectivity or the 'interiority' or other sciences of the object and the things." (p. 93). The "assumption of the unicity of the world is consistent with our position according to which subjectivity consists of a point of view taken from one place in the world of this same world, and therefore we should not consider the simultaneous existence of a world of things and another world, that of the ideas". (p. 94). "These are not the things of the world that can be organised in distinct drawers, but the intellectual operations applied to the things." (p. 95). "To say that the sciences are autonomous also means that each science has to develop on its own terms, and only in these, the complete explanation of each phenomenon it aims to study. The indecisive fluctuation between several fields only serves to portray the immaturity of each science. This explains why the current fashion of interdisciplinarity, where the so-called 'social sciences' are concerned, does not further the development of genuine scientificity in these fields." (p.108).

The notion of emergence is useless: "The thesis which is defended (the co-extensive of laws of each science in the world as a whole) contrasts with the classical image according to which sciences would be ranked in a successive pile such as a stepped pyramid." (p.99-100). "This image [of an hierarchisation] serves as a background to the discussion that opposes the reductionists, who think that one day all the sciences could be united within a single science, which will necessarily be the largest and will incorporate all the other sciences and explain them as being many particular cases. Those people, who think that the opposite is true, for example Auguste Comte, believe that the so-called superior sciences cover everything that goes beyond anything that is encountered in the inferior levels. Obviously, it is impossible to support either position because the discussion is based on a premise that we cannot accept: the idea of unequal levels of sciences." (p.100).

Points 3.1.13 and 3.1.14 relate to validation issues

The hypothetico-deductive approach must take precedence over strict empiricism: "Finally, the magnitude of the difference between the level at which theory is constructed and the level at which the reality is observed, characterises the science." (p.113). "It is difficult to refute a new scientific theory in its initial state of formulation. This

is the case because there is not a single theory that is constructed from small pieces, in contrast to what distinct empiricism wants to make us believe. Theory rather proceeds in the reverse order, beginning from the top by advancing bold hypotheses or global principles on the fragile basis of poorly observed facts and then deriving further, down-to-earth hypotheses while observation becomes more detailed; the problem of falsifiability will arise only when these two processes, carried out simultaneously and in a sufficiently detailed manner, and only when this long chiselling, which first of all separates the conceptual tool from the raw material, the 'top' and the 'bottom' of the construction can be adjusted in a satisfactory manner;." (p.116).

The falsifiability of social sciences is rather based on matching with the real than on experimentation: There are "three operations that involve a problem relating to method:

I. a method of theory construction, combining a lot of concepts into a consistent whole;

II. a method of observation, subdividing and organising the real into theory-relevant objects or facts, observable using appropriate methods;

III. an 'experimental method' which is improperly considered as being the very criterion of scientific activity that involves a verification of fair matching between theory and facts and that plays the role of a process of self-justification." (p.110).

IV. "Given that experimentation is not possible in most social sciences we will more generally use the term mode of matching [to reality], a manner in which the matching of the theory and the facts can be controlled" (p.112).

Sociological reasoning: opposed perspective and extension

In 1991 a well-argued book was published by Jean-Claude Passeron Le raisonnement sociologique : l'espace non poppérien du raisonnement naturel.[1] The theses developed by Alain Testart must be compared to this book, which defends precisely the opposite positions.[4] Jean-Claude Passeron indeed reflects a way of thinking that currently largely dominates social sciences that consider historical approach as being non-reducible to a nomological scientific approach (Figure 1). It can be stated moreover that Jean-Claude Passeron's position can be evaluated in comparison with the opposition of mechanisms and scenarios, which I had proposed. Jean-Claude Passeron is indeed forced to complete the historical reasoning, which he considers as being specifically non-Popperian with an experimental reasoning, which he qualifies as 'statistic'. This author develops an opposition that matches our opposition between scenarios (the historical reasoning) and mechanisms (the experimental reasoning), (Figure 2).

However, in my opinion, the approaches developed by Alain Testart and Jean-Claude Passeron seems to be complementary and should not be opposed as being irreducible. Jean-Claude Passeron focusses his discourse on historicity but he is forced to recognise also the nomological aspect. The non-Popperian character of his historical approach can be noted from his writings. Alain Testart centres his discourse on the nomological aspect but he is forced to also recognise historicity. His text sets out the autonomisation of the various points of view of a same object, the taking into account of the actor's discourse as one of several points of view and not as an explicative principle, and lastly the constructivist character of the approach. Yet it is possible to evaluate several points of Alain Testart's vision, which correspond to our own work.

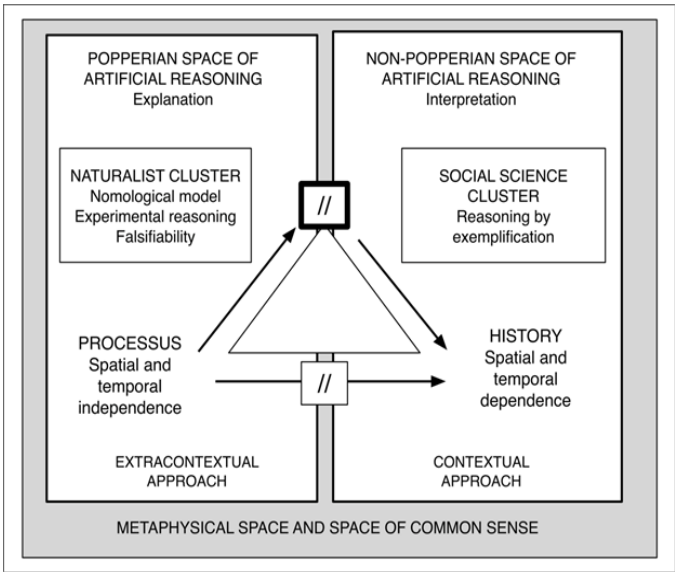

Figure 1 Organisation of the concepts developed by Jean-Claude Passeron (except for the terms regularities, prediction and retro-diction) within a space opposing Popperian and Non-Popperian reasoning. The // symbols mark the irreducibility of the approaches.

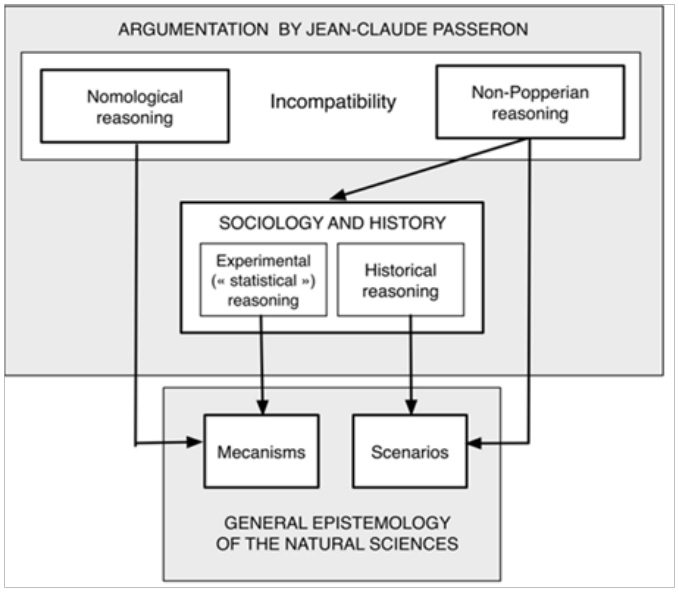

Figure 2 Possible relationship between the distinctions made by Jean-Claude Passeron and the epistemology derived from natural sciences, proposed by Alain Gallay.

A constructivist perspective: The book adopts a constructivist approach with which I fully agree by putting the discourse at the centre of the construction of sciences and by matching it in its relativity to the objectives defined by the various fields.[5]

Primacy of the hypothetico-deductive approach: The primacy

[1]The English translation of Jean-Claude Passeron's book was published in 2013 under the title Sociological reasoning: a non-Popperian space of argumentation.[8]

given to the hypothetico-deductive approach highlighted by Alain Testart appears to correspond to the traditional practices of social sciences according to Robert Franck.[6] This position obviously contradicts the logicist approach that mainly leads to empirico-deductive constructions. But Robert Frank indeed opposes in too much schematic a manner the hypothetico-deductive practice of social sciences to the normative and empirical character of logicism. Jean-Claude Gardin invariably considered both approaches as being complementary. He laughed at the 'Popperian' scholars who claimed that they did not advance their hypotheses from empirical facts.[7] (Figure 3)

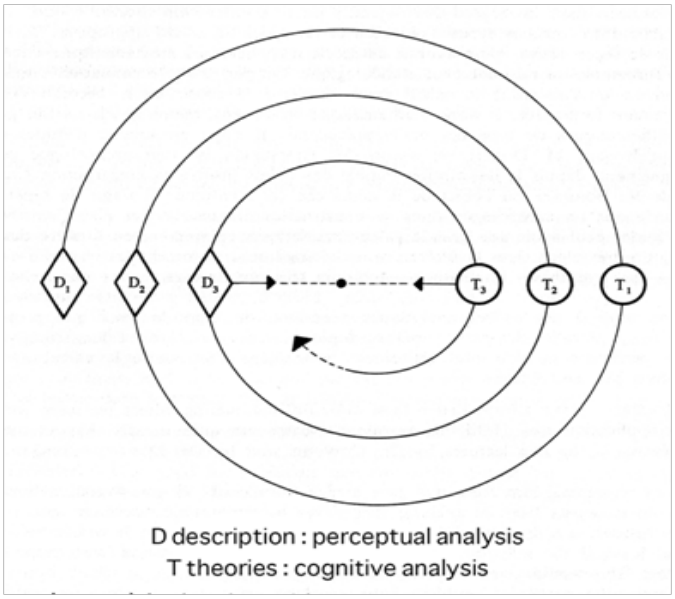

Figure 3 Relationships between perceptual analysis D (description Cc) and cognitive analysis T (theories Ct and Ce).[19]

The process proposed by Alain Testart (point 13) is obviously the one advanced by Francis Bacon and Classical Empiricism in the 16th/17th century. For Francis Bacon, the primary focus is on observation, which forms the basis of the inductive approach and makes it possible to form general propositions, but the construction of knowledge invariably originates from the back and forth between observations and general ideas. This position clearly moves away from the logical empiricism or logical positivism of the Vienna Circle (Hume, Witttgenstein) in the 1920s, which has been the subject of severe criticism. It does not conflict with logicism.[6,9]

The position attributed to the discourse of the actors: Alain Testart provides two complementary visions of the subject. On the one hand the history of sciences in general reveals a deconstruction of the 'essentialist' vision of the subject in favour of the construction of an external scientific discourse, but on the other hand, the examination of social sciences invites us to take the subjective discourses of the subjects seriously, as an initial stage towards the construction of external scientific objectives that may contain various specificities. I have repeatedly advanced, more particularly based on the works of Gerald Edelman on the biology of consciousness,[10] that the discourses of the actors can by no means form a scientific and explicative discourse.[11] My contributions, however, somehow disregarded these multiple discourses as if there was nothing to be said about them. Alain Testart therefore enriches the debate by indicating the role, albeit elementary, that the discourses of the actors play with regard to the construction of a scientific discourse.

Specifiable generalities: The notion of 'specifiable generality' used by Alain Testart perfectly matches the logics position adopted in an ethno-archaeological approach.[5] I have indeed stressed the fact, that in the current state of development of the anthropological sciences, a 'general' law should be incorporated into a context of activation defining the geographical, temporal, social etc. limits of its application. This limitation corresponds exactly to the notion of specifiable generality. This position also makes it possible to reject the explanations of the functionalist schools of thought, thought to be too general to be useful.

Paradigmatic and syntagmatic components: By contrast, I found it more difficult to agree with the distinction made by Alain Testart between a paradigmatic axis and a syntagmatic axis (Alain Testart does not use these terms). I hesitate to place natural history completely on the side of history within the syntagmatic axis. Natural history can be placed on the side of history within the syntagmatic axis if it describes concrete scenarios, but it has to be placed within the paradigmatic axis when it describes general laws relating to status transformation, according to the terminology used by Alain Testart. The general laws of status transformation correspond to the dynamic aspects of the structures and must be placed at the level of what I call regularities. This is moreover the position adopted by Alain Testart in his book on the evolution of hunter-gatherer societies.[12] His notion of evolution, as a way of understanding cladistic approach, relate to structural dynamics and therefore to the paradigmatic axis.[13]

Criticism of Lévi Strauss's structuralism: Lastly, the analysis carried out by Alain Testart on the structures defined by Lévi Strauss perfectly matches our own analysis of this issue. These structures are not mind structures; they are social structures that are entirely located on the side of the scientific discourse including everything this implies with regard to the dissolution of the subject.[11]

A plea for comparative historical sociology: It can be shown that the theme of Pour les sciences sociales is also discussed by Alain Testart, with a concrete approach, in his book Avant l'histoire,[12] in which the concepts of societies and of cultures are distinguished. Both of these books thus form the foundations of comparative historical sociology called for by Alain Testart during a lecture held at the Collège de France in 2010 in a still unpublished text. The aim of this text is to introduce a vision of human evolution that has not been put forward ither by historians or by anthropologists.[2],14 In his book Avant l'histoire Alain Testart[12] contrasts the notion of 'culture' (originating from local scenarios), which reports on human diversity, with the notion of 'society' (concept articulating the major structural trends of economic and social organisation). This latter notion is the only one that makes it possible to report on a consistent evolutive process. It forms the basis of evolutionism defined by Alain Testart (see point 9). It can be demonstrated that this opposition encompasses our concepts of scenarios and regularities.[5]

I have therefore extended this reflection by introducing a cladistic approach into the study of the evolution of African societies according to a perspective that merely systemises, in a more technical form, the approach of the book Avant l'Histoire.[11,15]

[2]The book *Principes de sociologie générale* will be published in 2018 by Éditions du CNRS, Paris.

A general epistemology inspired by natural sciences

The approaches developed by Alain Testart and by Jean-Claude Passeron can actually be perfectly incorporated into epistemology. This is what I want to encourage.[5] If we admit that knowledge about the surrounding world, whether this concerns humans or nature, can support unique epistemology, this authorises a look at natural sciences, which have proved successful in seeking therein a better understanding of the issues raised by the approach to reality. Our scope here is not to discover elsewhere the procedures that could be indiscriminately applied to human realities, but simply to better understand the issues raised and the articulation of the approaches that make it possible to acquire distinct control over the realities. Several fields, such as astrophysics, plate tectonics in geology or evolutionary biology, share with archaeology similar issues that need to be resolved:

I. These are observational sciences the study field of which also includes the past;

II. Past phenomena are affected by various distortions: reduced information, perspective effects, etc.;

III. In any case, reality is holistic and therefore presents, within its historical evolution, a random component that is not controllable.

These various fields are consequently located at the crossroads of three specific types of knowledge, the articulation and heuristic limits of which must be well understood: history, regularities and mechanisms.

History

History is the reconstruction, through invariably incomplete information, of scenarios that characterised the evolution of things over time. As was demonstrated by the French historian Paul Veyne[16] and subsequently by Jean-Claude Passeron, history is mainly a descriptive science. During patient reconstruction work, scholars try to reconstruct events and facts based on invariably incomplete documentation. Occasionally, while constructing the hypothesis of distinct regularities, they manage to complete their information in order to provide the proposed histories with more consistency. I use the term retro diction here, as proposed by Paul Veyne[16] to describe this operation.

The limits of this procedure are obvious. They are of two types:

a. The documentation is incomplete, the proposed scenarios may invariably be challenged by new discoveries,

b. History is commented on; it cannot be explained because these are complex systems evolving through time. There are no laws in history.

Regularities

It is likely that a large part of history may be considered as being indeterminate; however, the possibility of describing scenarios that exhibit distinct generality at a local level cannot be ruled out. The rejection of unique and universal history indeed does not exclude the identification of consistent trajectories within smaller spaces or from a wider descriptive angle. Observation is thus the basis of a process of generalisation. At an initial stage attempts may be made to articulate this knowledge within consistent logical classes, which are the typologies, reporting common-sense statements. Regularities are induced empirically from the examination of the scenarios through an initial global intuition of the presence of distinct consistency within our world. This empirical knowledge forms the basis of most human actions. We may call this traditional knowledge.

As regards archaeology, traditional knowledge may occur in three forms, i.e. in decreasing order of precision:

a. quantified correlations between two types of continuous or discontinuous phenomena,

b. typologies incorporating two or several fields of reality, each being the subject of a subdivision,

c. Discursive relations, formulated in natural language and that can be expressed by sequences of propositions such as: if Pi then Pi+1.

The implicit or explicit limits of knowledge are known:

a. The correlation between two phenomena does not necessarily provide an explanation of this phenomenon,

b. The empirically perceived regularities may be based on a poor knowledge of the reality, even if they have predictive power concerning this latter,

c. The most profound theories are often counter-intuitive,

d. The opposition between scenarios and regularities remains a relative opposition because it strictly derives from the conceptual and classificatory activity of the human mind. A phenomenon will remain particular or may be given a general meaning according to the precision of the proposed description.

Mechanisms

Seeking laws makes it possible, in a distinct manner, to understand partial aspects of reality and hence to justify the presence of regularities. Instead of the term law, preference is given to the term mechanism, which is better adapted to the practical epistemology I try to promote and which is closer to the current scientific approach. These mechanisms are the only explanations that can be derived from a scientific approach. This concept must be distinguished from the notion of 'explanation' sometimes used in a broader sense in archaeology. These explanations are indeed often only high-ranking regularities.[17]

The limits of this type of approach are well-defined:

a. the mechanisms that are highlighted only explain very limited sectors of reality;

b. These latter can only be identified by the observation of today's living world. The hope that mechanisms will be discovered simply from observation of past reality is utopian;

c. The only explanations that are possible are functional and concern the description 'of what happens'. As a consequence, they are nothing to do with the functionalist explanations, proposed by ethnologists such as Malinowski, the finalist connotation of which is still present;

d. These latter relate to the genesis of constructed regularities based on the observation of the world, but by no means to the scenarios of history. It is therefore necessary to rule out global causality in history;

The opposition between regularities and mechanisms remains relative. According to Lewis Binford[18] the highlighting of mechanisms may ensure the validity of distinct transcultural models. The question then will be raised as to how to establish in turn our belief in the generality of these mechanisms given that these latter are only descriptive? The identification of mechanisms in fact means clearly identifying the initial conditions at the origins of regularity, i.e., formally speaking, defining a set of properties Pi responsible for the properties Pi+1. This research frequently leads to the mobilisation of external knowledge with regard to the study field, the foundations of which are based on sciences that are external to archaeology and anthropology. This way of expanding the scope of the discussion makes it possible to ensure distinct legitimacy of the proposed construction by incorporating it into the general scientific field, but it is insufficient to validate the construction.

The diagram of Figure 4 shows that the non-Popperian space of Passeron is located on the axis connecting the regularities with the scenarios and that the nomological space of Testart is located on the opposite side of the axis connecting the mechanisms with the regularities. A general and essential constraint derives from this situation: history cannot be understood directly from mechanisms and has to go through the intermediate stage of regularities.[19,20]

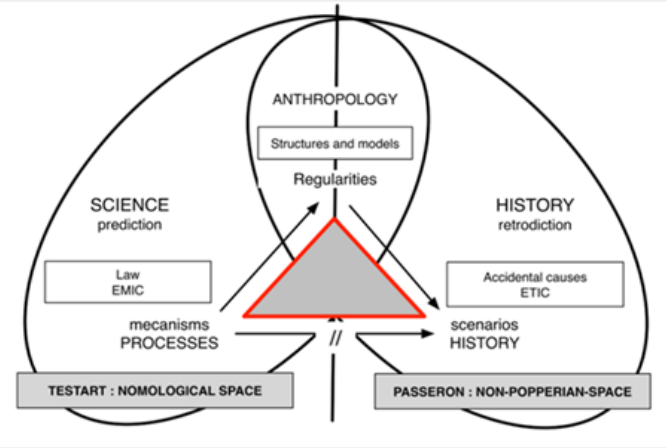

Figure 4 Diagram summarising the points of view of Alain Testart and Jean-Claude Passeron.

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Conflict of interest

Authors declare that there is no conflict of interest.

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