

Beyond Dilthey: The Parallelization of Natural and Social Scientific Methods and the Emergence of Complex Thinking

Marco Crosa (University of Sofia)

Abstract: After two centuries, the Diltheyan idea of the incommensurability of the natural and social sciences remains hegemonic. Alternative visions have since been overlooked; in this regard, the Baden neo-Kantian school showed that any divergence concerns implied method and not the phenomenal object of studies. Windelband coined the terms “nomological” and “idiographic” to underline how each discipline can be explained as a science of both law and events. To begin, I will show how complex thinking can expand and institute a general integrative frame that overcomes the assumed incommensurability.

By “complex,” I mean an anti-reductionist approach to understanding and a consequent ability to reveal the phenomenal world in terms of nesting self-organized systems. Social and natural systems are persistent coalescences of individual entities showing series of inter-duality such as unicity and multiplicity, top-down conservation and bottom-up innovation, constraint of law and freedom of agencies. The two instances are maintained together by the rejection of abstracted and isolated concepts and the embrace of a general principle of indeterminacy resolving the apparent contradiction within the parallelization of the extremes as two different moments of analyses rooted in the social and natural classical methods.

This paper considers both a) the Positivist attempt in the XIX century to approach the study of social phenomena in terms of law and b) the emergence of a general social science embracing the principle of *acasuality*, adapted from the study of the subatomic phenomenal world in quantum theory. Finally, this paper sketches how complex methodology can address historical and social studies with system theory to overcome classical dualities such as determinism vs. freedom, social vs. individual, and top down conservation vs. bottom up innovation in integrative parallelization.

Keywords: natural science, social science, history, nomological, idiographic, ant-reductionism, complex thinking, system theory, principle of indeterminacy, positivism, determinism, acasuality.

The complex method

Complexity can be handled in different ways. E. Morin spoke of a general and restricted approach¹⁹⁹, as an integrative methodology and the understanding of the universe as an emergent nesting of organized systems. Each of these paths leads theoretically to the other. The effort of integration is based on an anti-reductionist approach which opposes the tendency to explain and understand a plexus of sets of affairs, ideas, disciplines, concepts or phenomena. Western thought is fundamentally based on disjunction, abstraction, separation and conceptualization of pure ideas as a coping strategy to deal with the complexity of the phenomenal world. The presocratics exemplified the archetypal method while searching for *physis*, but we have to wait until the nineteenth century to witness an astounding level of specialization, when an extremely parcelized knowledge eventually lost any shared horizon and diverged into self-justificatory discourses hermetically closed to each other. Far from rejecting the importance of specialization, this paper calls for the recovery of the possibility of a shared horizon and a consequent communicability within the scientific discourses.

I refer to three main different levels of disjunction within the theoretical enterprise:

1. among schools within the same discipline;
2. among disciplines related to a common phenomenal object of reference (for example the biological, the social and the psychological stances in regard to *man* as the object of enquiry) ;
3. among sciences with the divergence between social and natural discourses at the center.

I will focus on the third level of disjunction by analyzing theoretical developments following the positivist breakthrough.

¹⁹⁹Morin, E. “Restricted Complexity, General Complexity”, *ArXiv abs/cs/0610049* (2006), <https://goo.gl/t9Gy4t>.

The scientific drifting

During the nineteenth century, “the intellectual life of the whole of western society [was] increasingly being split into two polar groups,”²⁰⁰ as a result of which *humanities* and *sciences* have emerged as two separate and hermetic discourses in the most foucauldian sense. This shift does not relate only to the objects of study and their linked epistemologies but also to something more attitudinal, psychological, emotional and moral. Over time, this separation has become more crystallized, and the two separate traditions have established their own departments, rituals, journals, authors, international organizations, libraries and publishers. The description given by C. P. Snow in his 1959 lecture is, however, a simplified picture of a more complex process of diversification that affected the entire spectrum of knowledge during the 19th and 20th centuries.

The cultural overlapping within the new world-system²⁰¹ and the complexification of the spectrum of human phenomena triggered a demand for new methodologies of research alongside the collapse of the positivist hegemony of the natural sciences. Ethnography and cultural anthropology, including the work of B. Malinowski and F. Boas, stressed cultural immersion and fieldwork with attentive to the role of the observer and her supposed objectivity. Social sciences called for a more conscious definition of universality and relativity of knowledge; this became particularly pronounced in postcolonial studies in the 20th and 21st centuries: “Postcolonial scholarship is committed, almost by definition, to engaging the universals - such as the abstract figure of the human or that of Reason - that were forged in eighteenth-century Europe and that underlie the human sciences.”²⁰²

The edges of the centuries were thus profoundly and dramatically connected with the restructuring of knowledge. The emergence of cultural and social studies alongside the decentering of the lifeworld in respect to causal determinism called for revising the Comtian foundations

²⁰⁰ Snow, C. P. *The Two Cultures and the Scientific Revolution* (Cambridge University Press, 2012), 4.

²⁰¹ Wallerstein, I. M. *World-Systems Analysis: An Introduction* (Duke University Press, 2004).

²⁰² Chakrabarty, D. *Provincializing Europe: Postcolonial Thought and Historical Difference* (Princeton, NJ: Princeton University Press, 2007), 5.

of reasoning. The rejection of methods restricted by the laws of mechanics and causality, together with reflection on the role of researchers' societal bias, led to Diltheyan philosophical hegemony that emphasized the notion of incommensurability. Physical and cultural realities have since tended to be regarded as two different phenomenal systems with correlated dichotomies such as rationality vs. irrationality, determinism vs. freedom and certainty vs. indeterminacy.

The compatibility of methods

A different trend sprouted out of the Methodenstreit controversy which lasted about 10 years starting in 1880. Born within the field of economics, it developed into a debate between two different methods, one founded on laws and the other on history. W. Windelband coined two fortunate neologisms to conceptualize the emerging difference. He named them respectively *nomothetic* and *idiographic* by which "the one comprises sciences of law, the other sciences of events; the former teaches what always is, the latter what once was."²⁰³ He connected these sciences with a long tradition from Plato and Aristotle of searching for the eternal elements of reality by the analysis of the concrete phenomena.

One of the main concerns in continental thinking - following a tradition coming from G. B. Vico and G. W. F. Hegel - is to treat history as a science by a nomothetic method or, as Rickert put it, the idea that "if history is to become a genuine science, it too will ultimately have to employ the method that has been proved in the natural sciences."²⁰⁴ W. Windelband and H. Rickert started a trend opposed to the Diltheyan narrative of incommensurability regarding the two branches of science by asserting a difference based not on objects of study but on applied methods. Following W. Windelband, any phenomenon can be discussed both nomologically (understanding of law) and idiographically (description of events). This approach remains overlooked.

H. Rickert deepened the analyses by asserting that the nomological

²⁰³Windelband, W. and Oakes, G. "History and Natural Science", *History and Theory* 19, no. 2 (1980): 165–68, <https://doi.org/10.2307/2504797>.

²⁰⁴Rickert, H. *The Limits of Concept Formation in Natural Science: A Logical Introduction to the Historical Sciences (Abridged Edition)* (CUP Archive, 1986): p.15.

method finds its limits in individualism; the unicity shows itself as irrelevant in reference to the general conceptualization. When we speak of *leaves*, *snowflakes*, *men*, *women* or *atoms* we are making use of generalizing labels which do not take into account the differences in single instances; they only consider what is common and relevant in regard to specific cognitive interests. This limitation is transferred to higher degrees of conceptualization when from single denotations we move to laws, theories and systems.

In this sense, the scientific method makes constant use of Occam's razor to maintain a sense of constancy in conceptualization. The Western tradition elaborated systems of self-correction and historical dynamics in science with the remarkable work by D. Diderot²⁰⁵ and T. S. Kuhn²⁰⁶. Through these systems, individual elements left outside of the conceptualization break in and force a revision of theoretical constructions and scientific paradigms. This correction confirms the problem of the western scientific enterprise as a top-down approach suspended midway toward the phenomenal world and lost in the hiatus between that world and its conceptualization. Far from abandoning the cognitive role of the latter, it is worth mentioning the risk of the theoretical fallacy inherent in forgetting its one-sidedness. For example, we can consider essentialism in particular as the misinterpretation of the top-down intellectual conceptualization as the bottom-up phenomenal world.

The integration of the two methods is not to be seen as the construction of a new all-embracing theory but rather a parallelization of the nomological and the idiographic, that is, as two different analytical moments pointing to the same phenomenal world. Their slipping into each other must not be seen as an incommensurability but as the inescapability of a general principle of indeterminacy. Taking the concept of *individuality* from those two perspectives, in a top-down point of view, it is the basic elements of an indivisible system of knowledge in respect to its general laws. In a bottom-up approach, individuality emerges as an ag-

²⁰⁵Diderot, D. *Thoughts on the Interpretation of Nature and Other Philosophical Works*, trans. Lorna Sandler (Manchester England: Clinamen Press Ltd., 2000).

²⁰⁶Kuhn, T. S. and Hacking, I. *The Structure of Scientific Revolutions: 50th Anniversary Edition*, Fourth Edition (Chicago ; London: University of Chicago Press, 2012).

gregation of a multitude of sub-elements and as an aggregating element in itself toward a higher-level multiplicity. The former perspective reveals the constraints of a specific law and its context, and the latter reveals the irreducibility of self-organizing agencies.

The social scientisation of natural knowledge

The distress over the nineteenth-century approach toward the scientification of the humanities has at its core a contrast between freedom and determinism. A pure nomological approach and the central role of deterministic causality seems to annihilate any possible space for human agencies. It is only with overcoming classical science through quantum theory that the natural world itself showed up both as events and recurrences.

As P. Forman showed²⁰⁷, the cultural environment is capable of influencing and directing the scientific enterprise in terms of an adaptation to the spirit of the time. When it comes to the German academic debate between the two world wars, the hostility toward causality and determinism seems to have pushed natural scientists toward the possibility of an *acausal* explanation leading to the acceptance of indeterminacy in the atomic realm as expressed by quantum theory. Atoms are no longer the indivisible basic element of classical physics subjected to chemical laws; they are also the result of bottom-up processes. More recently, the Nobel prize-winner I. Prigogine explained those processes in terms of dissipative structures, far from equilibrium systems and the irreversibility of time.

Such scientific evolution of the subatomic world shows the inverse of the positivization of science, namely a peculiar *social scientisation of knowledge*²⁰⁸. If positivism introduced the possibility of understanding social phenomena through scientific law, the new physics opened up the entire spectrum of knowledge to be represented in terms of temporal events. The elements of both the natural and the social are thus dualistic, as they are both integrated systems showing specific recurrences and the

²⁰⁷Forman, P. *Weimar Culture, Causality, and Quantum Theory, 1918-1927: Adaptation by German Physicists and Mathematicians to a Hostile Intellectual Environment*, *Historical Studies in the Physical Sciences* 3 (1971): 1–115, <https://doi.org/10.2307/27757315>.

²⁰⁸Wallerstein, I. *European Universalism: The Rhetoric of Power* (New York: New Press, The, 2006).

results of an aggregation - or transformation - of a multitude of unique individualities. A natural discipline like atomic physics is then confirmed both as a science of laws and a science of events. An integration in this sense means the rejection of the concepts of nomological determinism and idiographic freedom as absolute and independent terms. Both are understood dialogically: 1) the nomological moments ought to ponder any attempt to force or reject elements based on a specific system of laws while 2) the recovery of the historical individuality must not call for a chaotic multitude deprived of any commonality and contextual constraints.

Complex thinking and social theory

The recovery of the bottom-up agencies within the top-down nomological understanding can be well expressed by a theory of self-organization and system analyses. "System" is a general label referring to the resultant stable organization of integrated individual elements, and can also be described as an arrangement of a multitude of agencies into a common network showing both an external consistency and an internal liveliness.

Generally two different kinds of individuality stand out from the multitude: catalysts and anomalies. The former are forces of aggregation and the latter are the possibilities of introducing a novelty or a critical point into the system. With system theory, the Kuhnian anomalies are not left in the waiting room but integrated as positive elements of the dynamics. They contribute to the creation, maintenance and transformation of a system which is the platform for the possibility of their own freedom.

Conservation and innovation are the two main forces which keep a system consistent and adaptive at the same time. Without the first, we have disaggregation; without the second, we have the impossibility of coping with the environment or the collapse of the entire system for lack of adaptability. As a consequence of the general principle of indeterminacy, the dichotomy between the group and the individual appears to present a false dilemma.

From the point of view of a complex approach, everything in the phenomenal world - from subatomic to astronomical levels - can be described as both a system and an infinite nesting of systems. Within these two systems, the socio-biological structures are not forgotten. We can refer to social sciences as those peculiar cognitive interests which focus on a specific range of that system-nesting which goes under the name of

human organizations. A nation, tribe or social class are all admissible forms of organization; all of them concur as basic elements within historical development. History itself can be described as a relentless flocking of social structuring from which individualities stand out for their capacity to aggregate or produce novelties. Their structure and organization thus maintain the typical dynamic of physical systems, although showing a noosphere (the system of the cultural) as a further emergent level of complexity. The noological is nonetheless the ability to filter and hack the plexus of the material and interindividual relations through the construction of symbolic systems.

The concept of *identity* and the process of *identification* standing at the very center of the connection between the individual and the social should be mentioned. The gathering of an individuality within material borders or around material needs and circumstances is a reference to a commonality, the sharing of a noosphere and the construction of a tradition.

Conclusion

A common framework and mutual recognition can be re-established as a consequence of the emergent philosophy of instability, uncertainty and nonlinearity. As E. T. Hall stated, “*if uncertainty were taken seriously, the effect on research methods used in the investigation of complex life forms would be unmistakable.*”²⁰⁹ Complexity can be conceived of as a post-postmodern frame reconnecting a relation broken up by hyper-relativism. Complexity is a superseding approach focusing on integration without falling into a holistic point of view. The innermost needs that led to the relativistic standpoint are not canceled but move in a more *kinesthetic* fashion (taken in its Husserlian meaning) which shows recurrences and events as two moments of analysis.

²⁰⁹ Hall, E. T. *Beyond Culture* (Anchor Books, 1989), 126.