

**INTRODUCTION:  
WORLDVIEWS, SCIENCE AND US,  
GLOBAL PERSPECTIVES**

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This book originated in the regular meetings of several of the contributors scientists of such diverse disciplines as philosophy, anthropology, ethics, physics, methodology, and quantum mechanics. During these meetings, the basic themes that are represented in the book were discussed. The meetings were organised as part of the activities of the research community “The construction of Integrating Worldviews”, under the auspices of the “Fund for Scientific Research Flanders”, headed by the Leo Apostel Centre of the Vrije Universiteit Brussel.

When the Leo Apostel Centre was founded in 1995, the central theme of research at the Centre, namely the construction of integrating worldviews, had been stated explicitly by the late Leo Apostel, one of Belgiums eminent philosophers. According to Apostel and his collaborators, a worldview can be defined as a coherent set of bodies of knowledge concerning all aspects

of our world. It allows people to construct a global image of the world and understand as many elements of their experience as possible. A worldview is a map that people use to orient and explain, and from which they evaluate and act, and put forward prognoses and visions of the future. Hence: (1) orient; (2) explain; (3) evaluate; (4) act and; (5) predict are the basic aspects of a worldview.<sup>1,2,3,5</sup> CLEA presents these basic aspects as follows:

- (1) An orienting model of the world (What are our implicit collective ontological conceptualisations of the nature of the physical, the social and the ethical worlds? In their own way, all three of them have an orienting function for human beings.)
- (2) An explanation model (What range of epistemologies do we have (from phenomenological “verstehen” to materialistically explaining) to understand these worlds, and in what way are they appropriate?)
- (3) An evaluation model (In what way is our worldview able to coherently cover as many elements of our experiences as possible?)
- (4) An action model (How can, do and should we act and create in this world? How do, can and should we influence and transform?)
- (5) A rational futurology (What kind of future is ahead of us? And what are the criteria that guide us in our choices for the future?)
- (6) A model of model construction (How to construct a model of the world such that we can answer the above questions?)
- (7) Fragments of worldviews as starting points (What partial answers can be given to the above questions?)

As one can notice, “worldview” for Leo Apostel inherently included “science” and “society”. The title of our book explicitly refers to these aspects of worldviews to make clear the strong relation within Western culture between worldviews, science and us. Any view of “how the external world ontologically is” will never be a neutral view, but rather one that is influenced by the scientific enterprise in its totality, most of all because in Western culture the status of science is paramount. An important aspect of science, for example, is its predominant focus on a materialistic conception of the world. On the other hand, the demarcations of science have been very much influenced by specific philosophical and societal ideals, ideas and discourses on the world. Both of these, science and philosophical and societal discourses, have an overriding influence on how we understand or judge ourselves as human beings and how we understand or judge other cultural constellations. They influence the way we structure society, and the way we (ethically) act. So there exists a complex relation between worldviews

orienting individuals and sciences, philosophical and societal discourses and human actions giving rise to their own worldviews.

The overall objective of CLEA is the step by step construction of integrating worldviews. Due to a progressive specialisation of the sciences and multiple, sometimes contrasting results in different fields, science often leaves individuals with fragmented views about the body of knowledge of our physical, social and ethical worlds. Examples of major fragmented views in science, which lead to splits in our worldviews, are the ontological and epistemological positions about determination and free will, or the assumptions regarding the potentially knowable universe by sciences versus a knowledge-transcending part of reality. As a result, the main function of a worldview, *i.e.* its orienting power, is seriously hampered. CLEA's goal is to integrate different scientific approaches of reality without, however, aspiring to reach the stage of one final universal and fundamental view. On the contrary, one plausible way of reaching integration might precisely be by taking the totality of compatible and incompatible views, with mutually incompatible views anyhow penetrating into a deeper ontology, much like the differences between two-dimensional incompatible perspectives reach out for a three-dimensional object.

The contributors of this book question aspects of our worldviews and of science that are often taken for granted — whether consciously or unconsciously — and that tacitly determine the boundaries of what we conceive of as “world”, “science” and “us”. Many of the contributors argue that existing demarcations are obsolete and often prevent new insights from emerging. Other contributions contain suggestions for re-demarcating science, sometimes under the nomination of “inclusive science”. One of the goals of re-demarcation is to open the way for new crucial insights, and to stimulate the development of knowledge acquisition and social well-being. Some contributions analyse in detail examples of how knowledge in one field applied to a different field can lead to such new crucial insights, and how the pattern of too strict a demarcation of science — barring new insights — can be identified in these case studies.

The original intention was to write a book about non-exclusive and therefore “all-inclusive science”. However, not all the authors were able to identify with this term. The specific sub-cultural context, interests and orientation towards reality differ from scientist to scientist and so do basic assumptions regarding science. Some authors, for example, naturally assume that the status of science will continue to grow within our worldview. They therefore deliberately opt for the broadening of science and for an

“all-inclusive science”, allowing space for ethics, the search for meaning, and other views of reality. Other contributors argue for a restriction of the status of science since they do not consider science capable of solving social problems or deciding political issues. Yet others, encouraged by experiences of an intercultural nature, are of the opinion that the Western, science-based model is waning. They emphasise the importance of multiplicity and the polylogue between varying views of reality or worldviews.

In what follows, summaries of the authors accounts are given. Although only part of the existing boundaries are investigated, diverse possibilities are offered for a re-demarcation and a fundamental effort is made to de-fragment the Western worldview, as well as an effort to re-demarcate science in such a way as to take into account our ethical human experiences.

*Ilja Maso* asks the question how to distinguish science from non-science, and how to establish hierarchical relationships between scientific disciplines. Ever since the 1930-ies, these two questions have given cause for passionate debate but without yielding any consensus on the answers. This contribution outlines the standpoints of the principal participants in this debate, as well as the most relevant points of criticism of each of the positions. This criticism should reveal the fruitless nature of any attempts at formulating criteria to demarcate the scientific terrain and its hierarchy, and allow for a concept of science that is more suited to endeavours to acquire knowledge of the world and of ourselves than through any demarcation or stratification

*Alexander Riegler* reflects on the notion of worldview within a radical constructivist framework. The epistemology of radical constructivism builds on the premise that cognitive activity consists of constructing a worldview out of experience. Every perception, and every action is the result of a construction process. Consequently, a worldview must be considered a theory about the world, in which experiences of various modalities relate to each other. This definition lends itself to extending the radical constructivist framework to the domain of strictly systematic theory formation, *i.e.* to science and — in the light of the human capability to interweave various modalities — to interdisciplinary research. In his article, Alexander Riegler reviews interdisciplinarity and its various definitions, points at its problems, and finally shows how radical constructivism can be fruitfully applied to overcome these obstacles.

*Adri Smaling* questions the centuries-old principle of simplicity or Ockham’s Razor. This principle determines the nature of preferred theoretical explanations, the choice of research methods and techniques as well as the selection and conception of “data”. Smaling wants to show that Ock-

ham's Razor is not justifiable anymore on ontological or epistemological grounds. For instance, the ontological image of reality has evolved from simple to complex in different scientific disciplines. Therefore, he develops the Chatton-Ockham Strategy.

*Jan Broekaert* wants to see the richness of the ontology which emerges from modern scientific inquiry enter the public worldview in a way that better reflects its pristine nature. The shallow translations of science that are currently made for the sake of a better general understanding easily lead to a poor image of reality, if not of science itself. By contrast, the irreducible multiplicity of understanding at the frontier of science could lead to a more fertile view of reality. This "inclusive" approach to science, and its relation to society, definitely require a more substantial engagement, which our complex and valuable world certainly deserves.

*Roelof Oldeman* explores the jungle to reveal that classical science is less universal than it seems. He rejects the notion of time as a linear, one-dimensional force, as well as the neat three-dimensional spatial boundaries and the present-day four-dimensional axioms in the study of man, organisms and ecosystems. The alternative view of the universe that he presents is inherently "elastic". The precise boundaries assumed by science sit inside broad borders or transition zones in time and space. As held by many non-European societies, volumes are elastic spaces and time is an elastic dimension. Oldeman claims that the old dilemma between structure (being) and process (becoming) can thus be solved. This image, with its own axioms, rather includes than replaces current science, which thus becomes one special case among many.

*Hendrik Pinxten* and *Nicole Note* believe that science can be understood to be culture-gender-context-sensitive or not. They claim and illustrate the importance of all these sensitivities in the description and normative approach (in policy, argumentation) of science. In the light of these remarks, the old debate of relativism versus objectivism is inadequate, since it is blind to these sensitivities most of the time. Social scientific research details the constraints which can be marked for scientific research. At the deepest or most impactful level, a civilisational perspective of heuristic relativism is the most interesting proposal.

*Renaat Devisch* assumes all knowledge, including Western, to be culturally constituted. He advocates a deepened embedding of Western knowledge production in its own culture, and a rectification of our distorted views of knowledge production in other cultures. Devisch does not take a polarising approach towards Western science and indigenous forms and practices of

knowledge, but purports to transcend simplified dichotomies in favour of a non-hierarchical polylogue of multiple views.

*Koo Van der Wal* has doubts about materialist monism, and hence about the idea of the basic form of reality being dead matter. He also questions the relevance of restricting the content of philosophy to contextuality or to historicity. Van der Wal calls for a return to what he calls a high style in life, to be achieved through high style philosophy. This approach to philosophy should make room again for issues relegated to a marginal position by the currently prevailing worldview. Contrary to mainstream thinking, the author considers such issues to be of key importance.

*Nicole Note* and *Hendrik Pinxten* emphasise that, contrary to what humans beings are subtly made to believe, the image of the human self as part of our worldview is formed collectively. Consequently, individuals tacitly try to live up to this collectively established image for their orientation. The authors illustrate how today's collective image lies at the roots of deep individual-philosophical, social and ecological crises in Western society. In order to seriously tackle these problems, a conceptual change needs to occur. Note and Pinxten therefore describe on the one hand the current collective image of the self as based on the development of two potentials, the rational potential and the potential for self-expression, which they define as indispensable, but also as overemphasised and misinterpreted. On the other hand, they conceptually introduce two other potentials, the ethical potential and the potential to be situated in a larger and meaningful whole. The authors claim that the introduction of these new potentials will place the development of the two former ones in a different discursive field, offering perspectives of a conceptual re-orientation on appropriate human action.

*Diederik Aerts* investigates how insights into the nature of quantum processes give rise to a proposal for a new and more natural democratic system. More concretely, he investigates how "consensus decision followed by majority voting" is open to "false play" by the majority, and how other types of false play appear in alternative types of democratic decision procedures. Introducing the combined notion of "quantum parliament" and "quantum decision procedure", he proves it to be the only one, when applied after consensus decision, that is immune to false play. This leads to the proposal of a new, more balanced democratic system, accompanied by a new voting system to favour parties and/or politicians that strive for a more stable and long-term policy as compared to a short-term or emotionally rooted policy.

*Sven Aerts* and *Diederik Aerts* wonder whether it is possible to form a

coherent picture of a phenomenon, if studying the phenomenon leads to a classification that depends on the way we study it. A lead is taken from analytic geometry, which is a simple example of such a dilemma occurring. They show that the mathematics used in analytic geometry has (at least in the finite dimensional case) its exact counterparts in two other scientific disciplines of considerable importance: quantum mechanics and signal analysis. In some instances, the similarities are of such striking resemblance that many of the techniques employed in signal analysis were inspired by earlier, parallel evolutions in quantum mechanics. They argue that this is not a coincidence but rather the result of fitting complementary or mutually incompatible perspectives of a phenomenon into a single framework that is to describe the phenomenon. Without entering too deep into the technical details, they outline some of the mathematical features that emerge in this framework and briefly examine the relevance for other scientific disciplines.

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