

Transdisciplinarity – History, Methodology, Hermeneutics

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Abstract: It is difficult for us to understand why "joint problem solving" must be the unique aim of transdisciplinarity. It is certainly one of the aims but not the only aim. The use of singular seems to us dangerous, as in religion, as allowing unnecessary wars and unproductive dogmatism. Is transdisciplinarity concerning only society, as a uniform whole, or, in the first place, the human being which is (or has to be) in the center of any civilized society? Are we allowed to identify *knowledge* with *production of knowledge*? Why the potential of transdisciplinarity has to be reduced to produce "better science"? Why transdisciplinarity has to be reduced to "hard science"? In other words, the Subject - Object interaction seems to us to be at the very core of transdisciplinarity and not the Object alone.

1. The war of definitions

a. How transdisciplinarity was born

The word itself first appeared in France, in 1970, in the talks of Jean Piaget, Erich Jantsch and André Lichnerowicz, at the international workshop "Interdisciplinarity – Teaching and Research Problems in Universities", organized by the Organization for Economic Co-operation and Development (OECD), in collaboration with the French Ministry of National Education and University of Nice¹.

In his contribution, Piaget gives the following description of transdisciplinarity: "Finally, we hope to see succeeding to the stage of interdisciplinary relations a superior stage, which should be "transdisciplinary", i.e. which will not be limited to recognize the interactions and or reciprocities between the specialized researches, but which will locate these links inside a total system without stable boundaries between the disciplines"². This description is vague, but has the merit of pointing to a new space of knowledge "without stable boundaries between the disciplines". However, the idea of a "total system" opens the trap of transforming transdisciplinarity in a super- or hyperdiscipline, a kind of "science

¹ Apostel et al., 1972.

² Piaget, 1972, p. 144.

of sciences". In other words the description of Piaget leads to a closed system, in contradiction with his own requirement of the instability of boundaries between disciplines. The key-point here is the fact that Piaget retained only the meanings "across" and "between" of the Latin prefix *trans*, eliminating the meaning "beyond". In such a way, transdisciplinarity is just a new, but "superior" stage, of interdisciplinarity. I think that Piaget was fully conscious of this alteration of transdisciplinarity, but the intellectual climate was not yet prepared for receiving the shock of contemplating the possibility of a space of knowledge *beyond* the disciplines. The proof is that, in his introduction to the Proceedings of the workshop, Pierre Duguet honestly recognizes that some experts wanted, in preliminary meetings, to see the word "transdisciplinarity" in the title of the workshop, but authorities of the OECD refused to do so, because they were afraid to confuse some representatives of the member countries³.

In his contributions, Erich Jantsch, an Austrian thinker living in California, falls in the trap of defining transdisciplinarity as a hyperdiscipline. He writes that transdisciplinarity is "the coordination of all disciplines and interdisciplines of the teaching system and the innovation on the basis of a general axiomatic approach"⁴. He clearly situates transdisciplinarity in the disciplinary framework. However, the historical merit of Jantsch was to underline the necessity of inventing an axiomatic approach for transdisciplinarity and also of introducing values in this field of knowledge.

Finally, the approach of André Lichnerowicz, a known French mathematician, is radically mathematical. He sees transdisciplinarity as a transversal play, in order to describe "the homogeneity of the theoretical activity in different sciences and techniques, independently of the field where this activity is effectuated"⁵. And, of course, this theoretical activity can be formulated, he thinks, only in mathematical language. Lichnerowicz writes: "The Being is put between parentheses and it is precisely this non-ontological character which confers to mathematics its power, its fidelity and its polyvalence."⁶ The interest of Lichnerowicz for transdisciplinarity was accidental, but his remark about the non-ontological character of mathematics has to be remembered.

I described in some detail the three different positions of Piaget, Jantsch and Lichnerowicz concerning transdisciplinarity, because they can be found again, a quarter of a century later, in what I call "the war of definitions". The word "war" does not belong to the transdisciplinary vocabulary. But I use it on purpose, because it appeared in the issue "Guerre et paix entre les sciences: disciplinarité et transdisciplinarité / War and Peace Between Sciences: Disciplinarity and Transdisciplinarity" of a French magazine. In this issue, one of the authors asked for the interdiction of the word "transdisciplinarity".⁷ His desire was obviously not satisfied.

I would like to add, in this discussion about the incipient phase of transdisciplinarity, the name of Edgar Morin. A short time after the Nice meeting, Morin begins to use the word "transdisciplinarity" and he even leads a transdisciplinary laboratory in human sciences, in the framework of a prestigious French research institution. It is true that Morin did not give a definition of transdisciplinarity. For him, transdisciplinarity was in fact, at that period of time, *indisciplinarity* - a kind of messenger of the freedom of thinking, a go-between discipline.

b. Beyond disciplines

³ Duguet, 1972, p. 13.

⁴ Jantsch, 1972 a, p. 108. The same ideas are expressed in Jantsch, 1972 b.

⁵ Lichnerowicz, 1972, pp. 130-131.

⁶ *Ibid.*, pp. 127.

⁷ Alain Caillé, in "Guerre", 1996.

I proposed the inclusion of the meaning “beyond disciplines” in 1985⁸ and I developed this idea over the years in my articles and books and also in different official international documents. Many other researchers over the world contributed to this development of transdisciplinarity. A key-date in this development is 1994, when the Charter of Transdisciplinarity⁹ was adopted by the participants at the First World Congress of Transdisciplinarity (Convento da Arrábida, Portugal).

This idea did not come from heaven or just from the pleasure of respecting the etymology of the word *trans*, but from my long practice of quantum physics. For an outsider, it might seem paradoxical that it is from the very core of exact sciences that we arrive at the idea of limits of disciplinary knowledge. But from inside, it provides evidence of the fact that, after a very long period, disciplinary knowledge has reached its own limitations with far reaching consequences not only for science, but also for culture and social life.

The crucial point here is the status of the Subject (see my *Manifesto of Transdisciplinarity*).

The meaning “beyond disciplines” leads us to an immense space of new knowledge. The main outcome was the formulation of the methodology of transdisciplinarity. It allows us also to clearly distinguish between multidisciplinary, interdisciplinarity and transdisciplinarity.

Multidisciplinarity concerns itself with studying a research topic in not just one discipline only, but in several at the same time. Any topic in question will ultimately be enriched by incorporating the perspectives of several disciplines. Multidisciplinarity brings a plus to the discipline in question, but this “plus” is always in the exclusive service of the home discipline. In other words, the multidisciplinary approach overflows disciplinary boundaries while its goal remains limited to the framework of disciplinary research.

Interdisciplinarity has a different goal than multidisciplinary. It concerns the transfer of methods from one discipline to another. Like multidisciplinary, interdisciplinarity overflows the disciplines, but its goal still remains within the framework of disciplinary research. Interdisciplinarity has even the capacity of generating new disciplines, like quantum cosmology and chaos theory.

Transdisciplinarity concerns that which is at once *between* the disciplines, *across* the different disciplines, and *beyond* all discipline. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge¹⁰.

As one can see, there is no opposition between disciplinarity (including multidisciplinary and interdisciplinarity) and transdisciplinarity, but a fertile complementarity. In fact, there is no transdisciplinarity without disciplinarity. In spite of this fact, the above considerations provoked, around 1990, a more or less violent war of definitions. This war is not yet finished.

There is a specific different approach of transdisciplinarity, characterized by the refusal of formulating any methodology and by its exclusive concentration on joint problem-solving of problems pertaining to the science-technology-society triad. This approach is represented by figures like Michael Gibbons¹¹ and Helga Nowotny¹². The point of view of this transdisciplinary current was largely expressed at the Zürich Congress, held in the year 2000¹³.

This version of transdisciplinarity does not exclude the meaning “beyond disciplines” but reduces it to the interaction of disciplines with social constraints. The social field

⁸ Nicolescu, 1985.

⁹ “Charter”.

¹⁰ Nicolescu, 1996.

¹¹ Gibbons, 1994.

¹² Nowotny, 1994 and “The Potential of Transdisciplinarity”.

¹³ Thompson Klein et al., 2001.

necessarily introduces a dimension "beyond disciplines", but the individual human being is conceived of as part of a social system only.

It is difficult for us to understand why "joint problem solving" must be the unique aim of transdisciplinarity. It is certainly one of the aims but not the only aim. The use of singular seems to us dangerous, as in religion, as allowing unnecessary wars and unproductive dogmatism. Is transdisciplinarity concerning only society, as a uniform whole, or, in the first place, the human being which is (or has to be) in the center of any civilized society? Are we allowed to identify *knowledge* with *production of knowledge*? Why the potential of transdisciplinarity has to be reduced to produce "better science"? Why transdisciplinarity has to be reduced to "hard science"? In other words, the Subject - Object interaction seems to us to be at the very core of transdisciplinarity and not the Object alone.

I think that the unconscious barrier to a true dialogue comes from the inability of certain transdisciplinary researchers to think the *discontinuity*.

It is my deep conviction that our formulation of transdisciplinarity is both unified (in the sense of unification of different transdisciplinary approaches) and diverse: unity in diversity and diversity through unity is inherent to transdisciplinarity. Much confusion arises by not recognizing that there are a *theoretical transdisciplinarity*, a *phenomenological transdisciplinarity* and an *experimental transdisciplinarity*.

The word *theory* implies a general definition of transdisciplinarity and a well-defined methodology (which has to be distinguished from "methods": a single methodology corresponds to a great number of different methods). The word *phenomenology* implies building models connecting the theoretical principles with the already observed experimental data, in order to predict further results. The word *experimental* implies performing experiments following a well-defined procedure allowing any researcher to get the same results when performing the same experiments.

I classify the work done by Michael Gibbons and Helga Nowotny as phenomenological transdisciplinarity, while my own work¹⁴, as well as the one of Jean Piaget and Edgar Morin¹⁵, as theoretical transdisciplinarity. In its turn, experimental transdisciplinarity concerns a big number of experimental data already collected not only in the framework of knowledge production but also in many fields like education, psychoanalysis, the treatment of pain in terminal diseases, drug addiction, art, literature, history of religions, etc. The reduction of transdisciplinarity to only one of its aspects is very dangerous because it will transform transdisciplinarity into a temporary fashion, which I predict will disappear soon as many other fashions in the field of culture and knowledge have indeed vanished. The huge potential of transdisciplinarity will never be accomplished if we do not accept the simultaneous and rigorous consideration of the three aspects of transdisciplinarity. This simultaneous consideration of theoretical, phenomenological and experimental transdisciplinarity will allow both a unified and non-dogmatic treatment of the transdisciplinary theory and practice, coexisting with a plurality of transdisciplinary models.

2. Methodology of transdisciplinarity

The most important achievement of transdisciplinarity in present times is, of course, the formulation of the methodology of transdisciplinarity, accepted and applied by an important number of researchers in many countries of the world¹⁶. Transdisciplinarity, in the absence of a methodology, would be just an empty discourse and therefore a short-term living fashion.

The axiomatic character of the methodology of transdisciplinarity is an important aspect. This means that he have to limit the number of axioms (or principles or pillars) to a

¹⁴ Nicolescu, 1985, 1986, 1991, 1996, 1998, 2000, 2002.

¹⁵ Morin, 1999.

¹⁶ Nicolescu (ed.), 2008.

minimum number. Any axiom which can be derived from the already postulated ones, have to be rejected.

i. **The ontological axiom:** *There are different levels of Reality of the Object and, correspondingly, different levels of Reality of the Subject.*

ii. **The logical axiom:** *The passage from one level of Reality to another is insured by the logic of the included middle.*

iii. **The epistemological axiom:** *The structure of the totality of levels of Reality appears, in our knowledge of nature, of society and of ourselves, as a complex structure: every level is what it is because all the levels exist at the same time.*

The first two get their experimental evidence from quantum physics, but they go well beyond exact sciences. The last one has its source not only in quantum physics but also in a variety of other exact and human sciences. All three are in agreement with traditional thinking, present on the earth from the beginning of historical times.

The above three axioms give a precise and rigorous definition of transdisciplinarity.

Let us now describe the essentials of these three transdisciplinary axioms.

a. The ontological axiom: levels of Reality of the Object and levels of Reality of the Subject

The key concept of the transdisciplinarity is the concept of *levels of Reality*.

Here the meaning we give to the word "Reality" is pragmatic and ontological at the same time.

By "Reality" we intend first of all to designate that which *resists* our experiences, representations, descriptions, images, or even mathematical formulations.

Of course, one has to distinguish the words "Real" and "Reality". *Real* designates that which *is*, while *Reality* is connected to resistance in our human experience. The "Real" is, by definition, veiled for ever, while "Reality" is accessible to our knowledge.

By "level of Reality", we designate a set of systems which are invariant under certain laws: for example, quantum entities are subordinate to quantum laws, which depart radically from the laws of the macrophysical world. That is to say that two levels of Reality are different if, while passing from one to the other, there is a break in the applicable laws and a break in fundamental concepts (like, for example, causality). Therefore there is a *discontinuity* in the structure of levels of Reality.

The introduction of the levels of Reality induces a multidimensional and multi-referential structure of Reality. Both the notions of the 'real' and 'levels of Reality' relate to what is considered to be the 'natural' and the 'social' and is therefore applicable to the study of nature and society.

A new *Principle of Relativity*¹⁷ emerges from the coexistence between complex plurality and open unity in our approach: *no level of Reality constitutes a privileged place from which one is able to understand all the other levels of Reality*. A level of Reality is what it is because all the other levels exist at the same time. This Principle of Relativity is what originates a new perspective on all fields of knowledge: religion, economics, politics, art, education, social life, etc.

In other words, our approach is not hierarchical. *There is no fundamental level*. But its absence does not mean an anarchical dynamics, but a coherent one, of all levels of Reality, already discovered or which will be discovered in the future.

Every level is characterized by its *incompleteness*: the laws governing this level are just a part of the totality of laws governing all levels. And even the totality of laws does not exhaust the entire Reality: we have also to consider the Subject and its interaction with the Object. *Knowledge is forever open*.

¹⁷ Nicolescu, 1996, pp. 54-55.

The zone between two different levels and beyond all levels is a zone of *non-resistance* to our experiences, representations, descriptions, images, and mathematical formulations. Quite simply, the transparency of this zone is due to the limitations of our bodies and of our sense organs, limitations which apply regardless of what measuring tools – internal or external - are used to extend these sense organs. We therefore have to conclude that the topological distance between levels is finite. However this finite distance does not mean a finite knowledge. Take, as an image, a segment of a straight line – it contains an infinite number of points. In a similar manner, a finite topological distance could contain an infinite number of levels of Reality.

The unity of levels of Reality of the Object and its complementary zone of non-resistance constitutes what we call *the transdisciplinary Object*.

Inspired by the phenomenology of Edmund Husserl¹⁸, we assert that the different levels of Reality of the Object are accessible to our knowledge thanks to the different levels of perception which are potentially present in our being. These levels of perception permit an increasingly general, unifying, encompassing vision of Reality, without ever entirely exhausting it. In a rigorous way, these levels of perception are, in fact, *levels of Reality of the Subject*.

As in the case of levels of Reality of the Object, the coherence of levels of Reality of the Subject presupposes a zone of non-resistance to perception.

The unity of levels of levels of Reality of the Subject and this complementary zone of non-resistance constitutes what we call the *transdisciplinary Subject*.

The two zones of non-resistance of transdisciplinary Object and Subject must be identical for the transdisciplinary Subject to communicate with the transdisciplinary Object. A flow of consciousness that coherently cuts across different levels of Reality of the Subject must correspond to the flow of information coherently cutting across different levels of Reality of the Object. The two flows are interrelated because they share the same zone of non-resistance.

Knowledge is neither exterior nor interior: it is simultaneously exterior and interior. The studies of the universe and of the human being sustain one another.

The zone of non-resistance plays the role of a *third* between the Subject and the Object, an Interaction term which allows the unification of the transdisciplinary Subject and the transdisciplinary Object while preserving their difference. In the following we will call this Interaction term the *Hidden Third*.

Our ternary partition { Subject, Object, Hidden Third } is, of course, different from the binary partition { Subject vs. Object } of classical metaphysics.

The transdisciplinary Object and its levels, the transdisciplinary Subject and its levels and the Hidden Third define the transdisciplinary Reality (see Fig. 1).

¹⁸ Husserl, 1966.

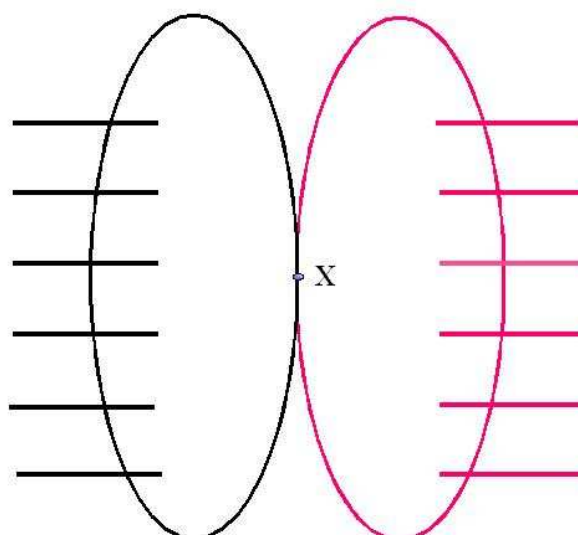


Fig. 1 : Transdisciplinary Reality

b. The logical axiom: the included middle

The incompleteness of the general laws governing a given level of Reality signifies that, at a given moment of time, one necessarily discovers contradictions in the theory describing the respective level: one has to assert A and non-A at the same time.

Our habits of mind are still governed by the classical logic, which does not tolerate contradictions. The classical logic is founded on three axioms:

1. *The axiom of identity*: A is A.
2. *The axiom of non-contradiction*: A is not non-A.
3. *The axiom of the excluded middle*: There exists no third term T ("T" from "third") which is at the same time A and non-A.

History will credit Stéphane Lupasco (1900-1988)¹⁹ with having shown that the logic of the included middle is a true logic, mathematically formalized, multivalent (with three values: A, non-A, and T) and non-contradictory²⁰. In fact, the logic of the included middle of Lupasco goes well beyond the formal logic. It is a true *philosophy of the included middle*.

Our understanding of the axiom of the included middle — there exists a third term T which is at the same time A and non-A — is completely clarified once the notion of "levels of Reality", not existing in the works of Lupasco, is introduced.

In order to obtain a clear image of the meaning of the included middle, let us represent the three terms of the new logic — A, non-A, and T — and the dynamics associated with them by a triangle in which one of the vertices is situated at one level of Reality and the two other vertices at another level of Reality (see Fig. 2). The included middle is in fact an *included third*. If one remains at a single level of Reality, all manifestation appears as a struggle between two contradictory elements. The third dynamic, that of the T-state, is exercised at another level of Reality, where that which appears to be disunited is in fact united, and that which appears contradictory is perceived as non-contradictory.

¹⁹ Badescu and Nicolescu (ed.), 1999.

²⁰ Lupasco, 1951.

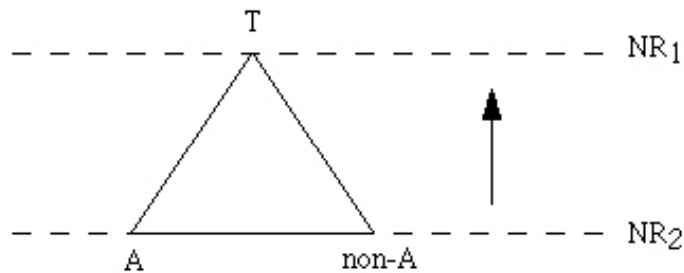


Fig. 2 : Symbolic representation of the action of the included middle logic.

It is the projection of the T-state onto the same single level of Reality which produces the appearance of mutually exclusive, antagonistic pairs (A and non-A). A single level of Reality can only create antagonistic oppositions. It is inherently self-destructive if it is completely separated from all the other levels of Reality. A third term which is situated at the same level of Reality as that of the opposites A and non-A, cannot accomplish their reconciliation. Of course, this conciliation is only temporary. We necessarily discover contradictions in the theory of the new level when this theory confronts new experimental facts. In other words, the action of the logic of the included middle on the different levels of Reality is able to explore the open structure of the unity of levels of Reality.

c. The epistemological axiom: the universal interdependence

There are several theories of complexity. Some of them, like the one practiced at the Santa Fe Institute, with the general guidance of Murray Gell-Mann, Nobel Prize of Physics, are mathematically formalized, while others, like the one of Edgar Morin, are not.

In the context of our discussion, what is important to be understood is that the existing theories of complexity do include neither the notion of levels of Reality nor the notion of zones of non-resistance²¹. However, some of them, like the one of Edgar Morin²², are compatible with these notions. It is therefore useful to distinguish between the *horizontal complexity*, which refers to a single level of reality and *vertical complexity*, which refers to several levels of Reality.

From a transdisciplinary point of view, complexity is a modern form of the very ancient principle of universal interdependence. The principle of universal interdependence entails the maximum possible simplicity that the human mind could imagine, the simplicity of the interaction of all levels of reality. This simplicity can not be captured by mathematical language, but only by symbolic language.

It is interesting to note that *the combined action of the ontological, logical and epistemological axioms engenders values.* The transdisciplinary values are neither objective nor subjective. They result from the Hidden Third, which signifies the interaction of the subjective objectivity of the transdisciplinary Object and the objective subjectivity of the transdisciplinary Subject.

3. Transdisciplinary Hermeneutics

We define *disciplinary boundary* as the *totality of the results – past, present and future – obtained by the laws, norms, rules and practices of a given discipline.* Of course,

²¹ Nicolescu, 1996, 1998, 2000.

²² Morin, 1977, 1980, 1986, 1991, 2001, 2004.

there is a direct relation between the extent to which a given discipline has been mathematically formulated and the extent to which this discipline has assumed a boundary. In other words, the *more* mathematically formalized a given discipline is, the *more* this respective discipline has a precise boundary.

Most of the disciplines are not mathematically formalized and therefore their boundaries are fluctuating in time. In spite of this fluctuation, there is a boundary defined as the *limit* of the totality of fluctuating boundaries of the respective discipline. For example, it must be clear for everybody that the economy will never give information on God, that religion will never give information on the fundamental laws of elementary particle physics, that agriculture will never give information about the neurophysiology, or that poetry will never give information on nanotechnologies.

There is a real discontinuity between disciplinary boundaries: there is *nothing*, strictly nothing between two disciplinary boundaries, if we insist to explore this space between disciplines by old laws, norms, rules and practices. Radically new laws, norms, rules and practices are necessary.

The above definition remains valid for multidisciplinary and interdisciplinarity, which are just continuous extensions of disciplinarity: there are multidisciplinary and interdisciplinary boundaries as there are disciplinary boundaries.

However, *transdisciplinarity has no boundary*. Therefore, transdisciplinarity can never lead to a super-discipline, super-science, super-religion or super-ideology.

This crucial fact is the result of the structural incompleteness of the levels of Reality. In fact, it is precisely this incompleteness which leads to the existence of disciplinary boundaries. This might seem paradoxical but it is only a fake paradox. Disciplines are blind to incompleteness due to arbitrary elimination of the Hidden Third in these disciplines. Once this arbitrary assumption is eliminated, disciplines are inevitably linked one to another.

How does one understand this link between disciplines in the presence of incompleteness and discontinuity of levels of Reality?

In another words, can we imagine a *fusion of disciplinary boundaries*?

Such a fusion is simply impossible in transdisciplinarity, because it would lead to a new boundary, whose even existence is incompatible with transdisciplinarity. Links and bridges between disciplines are still however possible: they are mediated by the Hidden Third, which can not be captured by any discipline and by any boundary. The most obvious sign of the presence of these links and bridges is the modern and post-modern migration of concepts from one field of knowledge to another.

In our view, the only way to avoid the dead end of violent debate around the migration of concepts from one field to another²³ is to adopt *transdisciplinary hermeneutics* as the natural outcome of the transdisciplinary approach.

Hermeneutics covers the art and the theory of understanding and interpretation of linguistic and non-linguistic expressions²⁴. In our times, the area of hermeneutics is that of human life and existence as such, i.e. precisely about what transdisciplinarity is mainly concerned with.

However, the transdisciplinary approach *per se* is not sufficient in order to give birth to a new type of hermeneutics. It has to be *contextualized*. The contextualization of transdisciplinarity is performed by placing the *basic ternary* of transdisciplinary Reality {levels of Reality of the Object, levels of Reality of the Subject, Hidden Third} in the midst of real problems of human life, with all their complexity. A large number of *secondary ternaries*, useful as tools for understanding and interpretation, are therefore generated:

²³ Nicolescu, 2007.

²⁴ Stanford Encyclopedia of Philosophy

<http://plato.stanford.edu/entries/hermeneutics/>

{Levels of organization – Levels of structuring – Levels of integration}
{Levels of confusion – Levels of language – Levels of interpretation}
{Physical levels – Biological levels – Psychical levels}
{Levels of ignorance – Levels of intelligence – Levels of contemplation}
{Levels of objectivity – Levels of subjectivity – Levels of complexity}
{Levels of knowledge – Levels of understanding – Levels of being}
{Levels of materiality – Levels of spirituality – Levels of non-duality}

The *simultaneous* consideration, in a given situation of human life, of the basic ternary and of one or several secondary ternaries constitutes the ground of *transdisciplinary hermeneutics*.

The term «transdisciplinary hermeneutics» was first used by one of us (J. v. B.)²⁵, who already begun to explore its relation to what Hans-Georg Gadamer calls *fusion of horizons*²⁶. Also, Kenneth A. Reynhout used the same expression in trying to formulate a gadamerian model of transversal reasoning²⁷. It is beyond the scope of the present study to enter into a detailed comparison between the transdisciplinary hermeneutics and the hermeneutics developed by Gadamer. In a forthcoming book, we will perform such a comparison and we will give the detailed definition, description and use of the above mentioned secondary ternaries.

Here it is important just to note that the « fusion of horizons » does not mean fusion of disciplinary boundaries. These horizons are essentially horizons of endless interrogations, not of answers. The interpreter has always his/her own prejudices, in a continuous dialogical interplay between past and present. This openness of the human being towards the world gives meaning to what can be called today an « objective reality »: it is because we are limited beings that we can grasp reality as it is. Our prejudices are fruitful: it is precisely the fusion of prejudices which opens towards truth. Understanding presupposes *self-understanding*. The fusion of horizons concerns the confrontation *in time* between understanding and self-understanding. There is no real dichotomy between Subject and Object. Therefore the gadamerian approach is compatible with transdisciplinary hermeneutics. They both share the refusal of relativism, skepticism and foundational grounds of reality.

However, an important distinction has to be stressed: the gadamerian approach concerns humanities, while transdisciplinarity is concerned with the unification between humanities and natural sciences. The root of this difference is the absence of the notion of levels of Reality in the gadamerian approach. Incompleteness is present in Gadamer's philosophy but not discontinuity. Even the possibility of fusion of horizons is conditioned by the presence of the Hidden Third.

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