

# Historical and systematic considerations regarding relativity and relativism

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## Abstract

A brief overview of the emergence of the relativistic challenge to the so-called “exact” natural sciences – such as mathematics and physics is followed by an analysis of the crisis that Husserl experienced in the questioning of rationalism. Against the background of a systematic distinction between modal laws and type-laws the all-pervasive influence of modern nominalism is identified as the root cause of the problems of relativism, since it opened the way to the so-called Copernican turn in epistemology. Crucial *constant* conditions required in every assertion of relativity are highlighted – particularly with a view to the foundational role of logical discernment in respect of language use and with regard to the impossibility to affirm change and relativity outside or independent of a context of constancy – taking into account the philosophical implications of Einstein’s special theory of relativity. Upon this background the “(onto-)logic of relativism” is assessed and a brief characterization is given of the fact that modern Humanism merely *reifies* the human accountable freedom to give shape to underlying (*ontic*) principles in various (historically changing) circumstances.

## Opsomming

'n Kursoriese oorsig van die wyse waarop die relativistiese uitdaging in die sogenaamde “eksakte natuurwetenskappe” na vore gekom het – met name in die wiskunde en die fisika – word opgevolg met 'n analise van die krisis wat Husserl ervaar het by die bevraagtekening van die rasionalisme. Teen die agtergrond van 'n sistematiese onderskeiding tussen modale en tipeiese wette word die alles-deursurende invloed van die moderne nominalisme uitgelig as die wortel-oorsaak van probleme van relativisme aangesien dit die weg geopen het na die sogenaamde Kopernikaanse onwenteling in die kennisleer. Belangrike *konstante* kondisies wat benodig word in elke bevestiging van relatiwiteit word uitgelig – in die besonder met verwysing na die funderende rol van logiese onderskeiding m.b.t. taalgebruik en die onmoontlikheid om verandering en relatiwiteit te bevestig buite of onafhanklik van 'n konteks van konstansie (deur die filosofiese implikasies van Einstein se spesiale relatiwiteitsteorie in ag te neem). Teen hierdie agtergrond word die “(onto-)logika van relativisme” beoordeel en word 'n vlugtige kensketsing gegee van die feit dat die moderne Humanisme bloot die menslike toerekenbare vryheid om vorm te gee aan onderliggende (*ontiese*) beginsels in uiteenlopende (*histories-variabele*) omstandighede sentraal gestel het.

## Orientation

During the past two centuries it was particularly the rise of *historicism* that challenged former certainties and the belief in some or other *absolute*. Whereas, roughly speaking, one can say that the 18th century is the period of extreme (conceptual) *rationalism*, the transition to the 19th century can be designated as an acute awareness of the *historical dimension* of reality. By the end of the 18th century this, first of all, was due to the pioneering work done by Johann Herder, a contemporary of Immanuel Kant. Korff calls Herder the *German Rousseau* and Cassirer praises Herder as the Copernicus of the (science of) history (Cassirer, 1957), 226). Proß (see Herder, 1978:135) finds in Herder the key figure who, in rejecting the “Aufklärung” (*Enlightenment*), prepared the rise of *romantic historicism*.

Although the initial *intention* of historicism was not to *relativize* everything Dilthey, during his later development, indeed discerns its *relativistic* consequences. Even those scholarly disciplines traditionally deemed to be “exact” did not escape from the all-pervasive influence of modern historicism.

## The despair of relativism surfacing in the “exact” sciences

The first candidate apparently not subject to severe intellectual doubt is that of mathematics. In the year 1900 the leading mathematician in the world, the Frenchman Poincaré, still claimed that mathematics has obtained “absolute rigor”. However, almost 75 years later we find the following pessimistic assessment by Fraenkel *et al*:

Ironically enough, at the very same time that Poincaré made his proud claim, it has already turned out that the theory of the infinite systems of integers – nothing else but part of set theory – was very far from having obtained absolute security of foundations. More than the mere appearance of antinomies in the basis of set theory, and thereby of analysis, it is the fact that the various attempts to overcome these antinomies, ..., revealed a far-going and surprising divergence of opinions and conceptions on the most fundamental mathematical notions, such as set and number themselves, which induces us to speak of the third foundational crisis that mathematics is still undergoing (Fraenkel, 1973:14).

In 1980 the mathematician Morris Kline summarized the situation as follows:

The developments in the foundations of mathematics since 1900 are bewildering, and the present state of mathematics is anomalous and deplorable. The light of truth no longer illuminates the road to follow. In place of the unique, universally admired and universally accepted body of mathematics whose proofs, though sometimes requiring emendation, were regarded as the acme of sound reasoning, we now have conflicting approaches to mathematics. Beyond the logicist, intuitionist, and formalist bases, the approach through set theory alone gives many options. Some divergent and even conflicting positions are possible even within the other schools. Thus the constructivist movement within the intuitionist philosophy has many splinter groups. Within formalism there are choices to be made about what principles of metamathematics may be employed. Non-standard analysis, though not a doctrine of any one school, permits an alternative approach to analysis which may also lead to conflicting views. At the very least what was considered to be illogical

and to be banished is now accepted by some schools as logically sound (Kline, 1980:275-276).<sup>1</sup>

In this context the history of the *logicistic* program of Gottlob Frege is both striking and sad. In 1893 his first Volume on the basic laws of arithmetic appeared, but after Russell discovered in 1900 that Cantor's naïve set theory is *antinomous* Frege had to delay for some time the publication of the second Volume until 1903. In the first sentence of the Appendix to this second Volume he conceded that one of the corner stones of his approach had been shaken. Close to the end of his life (1924/25), Frege not only reverted to a *geometrical* source of knowledge, but also explicitly rejected his initial logicist position. He actually completed the circle of the historical pendulum evinced in the development of mathematics in a way similar to the changes that took place within Greek mathematics after the discovery of irrational numbers. In the case of Greek mathematics this discovery prompted the *geometrization* of their mathematics, and in the case of Frege the discovery of the untenability of his "Grundlagen" also inspired him to take refuge to the conviction that mathematics as a whole actually is *geometry*:

So an a priori mode of cognition must be involved here. But this cognition does not have to flow from purely logical principles, as I originally assumed. There is the further possibility that it has a geometrical source. ... The more I have thought the matter over, the more convinced I have become that arithmetic and geometry have developed on the same basis – a geometrical one in fact – so that mathematics in its entirety is really geometry (Frege, 1979: 277).

While still at school Hermann Weyl discovered Kant's *Critique of Pure Reason* in the attic of his grandfather's house. Upon reading it he immediately realized what the famous Copernican turn that Kant experienced was all about. Kant claims that Hume woke him from his "dogmatic slumber".<sup>2</sup> The first intellectual crisis of Weyl occurred when he studied Hilbert's *Grundlagen der Geometrie* (1899) – a work in which the Kantian conception of Euclidean space was abandoned. Having re-oriented him subsequently fully to the (axiomatic) formalism of Hilbert, the after-effect of the above-mentioned antinomies discovered in Cantor's set theory, combined with the opportunity he had to listen to the Dutch mathematician Brouwer early in the second decade of the 20<sup>th</sup> century (presenting a paper on the "untrustworthiness of the logical principles," in particular the principle of the excluded middle), once again shuttered his acquired mathematical certainty.<sup>3</sup> In 1946 Weyl wrote:

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<sup>1</sup> What Hilbert designated as the *paradise* created by Cantor, transfinite number theory (as part of set theory), is discarded by Heyting as a *phantasm* (1949:4).

<sup>2</sup> See Kant's remark in the *Preface* his *Prolegomena* (1983:260; Felix Meiner edition, p.6). Kant says: "Ich gestehe frei: die Erinnerung des David Hume war eben dasjenige, was mir vor vielen Jahren zuerst den dogmatischen Schlummer unterbrach und meinen Untersuchungen im Felde der spekulativen Philosophie eine ganz andere Richtung gab."

<sup>3</sup> In passing we may briefly mention his own account of his life story recapitulated in a lecture given by him at the University of Lausanne in 1954. He explained that his peace of mind in positivism was first shaken when he fell in love with "a young singer whose life was grounded in religion and who belonged to a circle that was led philosophically by a well-known Hegelian." This shock continued to work through until he married a pupil of Husserl: "So it came to be Husserl who led me out of positivism once more to a freer outlook upon the world" (Weyl, 1969:287).

Brouwer made it clear, as I think beyond any doubt, that there is no evidence supporting the existential character of the totality of all natural numbers ... Brouwer opened our eyes and made us see how far classical mathematics, nourished by a belief in the 'absolute' that transcends all human possibilities of realization, goes beyond such statements as can claim real meaning and truth founded on evidence (Weyl, 1946:9).

Yet he had to confess in this same article that he severely suffered from the crisis that emerged in the foundations of mathematics:

From this history one thing should be clear: we are less certain than ever about the ultimate foundations of (logic and) mathematics. Like everybody and everything in the world, we have our 'crisis.' We have had it for nearly fifty years. Outwardly it does not seem to hamper our daily work, and yet I for one confess that it has had a considerable, practical influence on my mathematical life: it directed my interests to fields I considered relatively 'safe,' and has been a constant drain on the enthusiasm and determination with which I pursued my research work. This experience is probably shared by other mathematicians who are not indifferent to what their scientific endeavors mean in the context of man's whole caring and knowing, suffering and creative existence in the world (Weyl, 1946:13).

Already in 1926 Finsler showed that in a pure formal mathematical discipline, defined by axioms and rules of calculus, there are propositions which can be neither proven nor contradicted (cf. *Mathematische Zeitschrift*, 25 (1926); in: Finsler, 1975:1-49; as well as Heitler, 1972:50). But in 1931, at the age of 25, Kurt Gödel shook the world of mathematics with an article on the formally undecidable propositions in the *Principia Mathematica* of Russell and Whitehead, and related systems. Gödel showed that a proof of the consistency of arithmetic cannot be reflected in the formal deductions of arithmetic itself – the consistency of arithmetic therefore cannot be proven in terms of the axioms of arithmetic. In a formal axiomatic system  $Z$  there always is a statement  $A$  which can be neither proved nor disproved with the aid of axioms of  $Z$ . In other words, to prove that the conclusions reached from certain axioms are consistent, it is not possible to use the method in question. In principle every axiomatic system in mathematics is incomplete – it requires and presupposes *insight* into its content which *transcends* its own formalism. Hermann Weyl comments strikingly in this regard:

It must have been hard on Hilbert, the axiomatist, to acknowledge that the insight of consistency is rather to be attained by intuitive reasoning which is based on evidence and not on axioms (Weyl, 1970:269).

Similarly, the discipline of physics evinces a mixed development during the past few centuries. The mechanistic main tendency that dominated the scene since Newton eventually disintegrated in the face of physically *irreversible processes* (captured in the formulation of the second main law of thermodynamics, the law of non-decreasing entropy). Max Plank characterized this mechanistic orientation as follows in 1910:

The conception of nature that rendered the most significant service to physics up till the present is undoubtedly the mechanical. If we consider that this standpoint proceeds from the assumption that all qualitative differences are ultimately explicable by motions, then we may well define the mechanistic conception as the conviction that all physical processes

could be *reduced completely to the motions* (the italics are mine – DFMS) of unchangeable, similar mass-points or mass-elements (1973:53).

Later on a similar assessment is found in Einstein's autobiography where he highlights the difference between (physical) irreversibility and (kinematic) reversibility:

Through this insight he recognized the nature of courses of events which, in the sense of thermodynamics, are 'reversible.' Seen from the molecular-mechanical point of view, however, all courses of events are 'reversible' (Einstein, 1959:42).

Yet, the switch to an acknowledgement of the central role of *energy* within the material world as such did not resolve the tension between *determinism* and *indeterminism* in modern physics. Moreover, with his well-known relation of uncertainty, Heisenberg established that "it will never be possible to determine both the position and velocity of an atomic particle with an arbitrary precision" (Heisenberg, 1956:11). In April 1927, before he made known his relation of uncertainty, Heisenberg (in a personal conversation) said to Von Weizsäcker: "I believe I have disproved the law of causality" (Von Weizsäcker, 1993:132, note). In opposition to both Einstein and Planck we therefore find that Heisenberg and Bohr (from the so-called Copenhagen school) question the validity of (deterministic) *causality*, that is, the belief "that there exist laws of nature determining univocally from the present the future condition of a system" (Heisenberg, 1956:25).<sup>4</sup>

It should be kept in mind that Einstein designated his theory by employing the term *relativity* not because it follows from its internal structure, but because he surrendered to the prevailing historicistic "Zeitgeist."

Add to these relativistic effects of historicism the apparently *new* dimension of relativity introduced by the "linguistic turn" and one soon experiences the feeling of a reinforced relativism.

In its indebtedness to language as the new 'horizon' of philosophy in the 20th century *postmodernism* ultimately surrenders to the appeal of a new 'all'-claim: *everything is text/language/interpretation/vocabulary*. Artigiani highlights the link with de Saussure:

The roots of Post-Modernism are in Ferdinand de Saussure's semiotic analysis of language ... Words, said de Saussure, are merely arbitrary symbolic conventions whose meanings are determined by other, equally arbitrary words. Post-Modernism suggests that what is true of language and literature is true of culture generally. The information communicated by cultural symbols is meaningful only in terms of the behaviors they describe, leaving cultures as self-referential as words and as uprooted from direct contact with reality as texts. Post-Modernists therefore argue that, even if there is an independent external reality, as prisoners of linguistic conventions we cannot know it and ought to abandon the search for it (Rorty 1989) (see Artigiani, 1993:33).

The *lingual field* in which words as *semantic units* are embedded, surely co-constitute their meanings – and help us understand that indeed there is no (*lingually unmediated*) road or access to 'reality'. But before we take a closer look at the complexities involved

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<sup>4</sup> Max Planck supported a *deterministic* understanding of causality. Compare his 1932 article on *Causality in Nature* (Planck, 1973:252).

in the issue of relativism we provide a brief sketch of Husserl's experience of the failure of *rationalism*.

### **Edmund Husserl: the crisis of European 'Man'**

Husserl claims that setting aside the natural attitude (Husserl, 1950-I:65), with one stroke (Husserl, 1950-I:67), is a matter of my full freedom ("meine volle Freiheit" – Husserl, 1950-I:67; a matter of our complete freedom – Husserl, 1950-I:65). It is indeed through the complete freedom of a person that Husserl attempts to ensure the validity of his *intuitionistic (transcendental-idealistic) phenomenological science-ideal*. He does not want to return to the pre-Kantian rationalistic (*mathematical*) science-ideal. In *Krisis* he negatively disqualifies this "rationalistic science-ideal" (Husserl, 1956:119).

However, he maintains that the crisis of Europe and of the disciplines is actually rooted in what he calls a *misguided rationalism* ("einen sich verirrenden Rationalismus") (Husserl, 1954:337). In opposition to such a misguided rationalism Husserl posits the unlimited possibilities of the *intuitionistic, phenomenological reason*. His experience is that this trust is fundamentally threatened by the increasing influence of *naturalism* and *objectivism* as well as the *irrationalism* of his own student, Heidegger (*Sein und Zeit / Being and Time*). Husserl views it with a sense of hopelessness – as the crisis of Europe and the academic disciplines:

He writes:

In order to comprehend what is wrong in the present crisis the concept Europe once again has to be viewed by means of the historical directedness towards the infinite aims of reason; it must be demonstrated how the European world was borne from reason-ideas, that is, out of the spirit of philosophy. The crisis will then clearly emerge as the apparent failure of rationalism. The basis of this failure of a rational culture, however, ... is not inherent to rationalism, since it is only found in its externalization, in its decay into *naturalism* and *objectivism*. The crisis of European existence provides only two options: the decline of Europe in the alienation from its own rational existential meaning, the decay into an animosity towards the spiritual and a lapse into barbarism, *or* the rebirth of European existence through the spirit of philosophy, particularly through a heroism of reason that will consistently triumph over naturalism (Husserl, 1954:347-348).

His deepest trust of the intuitionistically conceived of (transcendental-idealistic, phenomenological) *philosophical reason* explains why he compares the "total phenomenological attitude" and its accompanying epochè, with a *religious conversion*, because it indeed harbours the largest existential change which confronts humankind as a task (Husserl, 1954:140).

Through its complete freedom the European has the calling to establish the intuitionistic, phenomenological science-ideal as the only road to the rebirth of Europe through the spirit of philosophy. The slogan of his article: *Philosophy as a Rigorous Science* (1911), continues to overarch his philosophical endeavours.

Yet, he did not succeed in containing the growing crisis which he experienced. For that matter, his phenomenology was turned into its opposite: an irrationalistic and existentialistic *freedom motive*, which derives its motivating power not from an intuitionistic *science-ideal* but from the ideal of an *autonomously free personality*. This

development ruined his dream of philosophy as an irrefutable, apodictically certain science:

Philosophy as science, a serious, exact, yes apodictic exact science – *der Traum ist ausgeträumt* (Husserl, 1954:508 – “the dream has passed” / “the dream did not become true”).

At this point one may continue to follow the path of an increasing *relativistic* awareness of relativity manifesting itself during the subsequent unfolding of philosophical stances of the 20<sup>th</sup> century – up to the most recent postmodern challenge to metanarratives and absolutistic claims. While keeping this in mind it may be fruitful first of all to look at some important historical contours, for without this detour it will not be possible to come to a proper understanding of the threatening relativism prevailing in the contemporary *Zegeist*.

### **Complexities involved in reflecting on the notion of relativity**

The term “relativity” stems from the word “relative” which always presupposes something in respect of which something else is affirmed to be standing in a *relation of relativity*. In other words what is acknowledged is that there are *relations* between “something” and “something else”. Any attempt to enter into a meaningful discourse about this state of affairs entails that conceiving and designating such relations between different (or similar) *relata* require *relational concepts* and *descriptions* pertaining to the connections between those *relata*. In addition an awareness of the ever-present *mutuality* of *distinguishing* and *identification* surfaces as well.<sup>5</sup>

#### *Concepts of function and thing concepts*

Both Rickert and Cassirer emphasize the important difference between *concepts of function* (relational concepts) and *thing concepts* (Rickert, 1913:68-69, 173, 197 and Cassirer, 1957:34). The latter concerns the horizon of things normally captured by questions about the concrete *what* (many-sidedness) of entities, whereas the former normally surfaces in questions about the functional relations between entities, that is they relate to the fundamental *how* of concrete reality.

The distinction needed to account for this difference is that between *modal* (functional) *laws* and *type laws*. The former holds universally for all possible entities, whereas the latter only holds for a limited class of entities. The laws of thermodynamics hold universally without any specification, while the *law for being an atom* only applies to the limited class of entities called atoms. A type law has a *specified universality*: it holds universally for *all* atoms, but at the same time it (is specified) *only* to hold for atoms and not also for other kinds of entities.

However, what has become “second nature” within the Western philosophical tradition at this point will object that these distinctions still bring to expression a typical *realistic* mode of thought that does not account for the Copernican turn in epistemology since Kant with its acknowledgement of the constructive and constituting element present in all

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<sup>5</sup> Identification and distinguishing proceeds on the basis of *similarities* and *differences*, highlighting also the synonymity in this respect with *abstraction* for the latter rests on the legs of *lifting out* (equivalent to identification) and *disregarding* (equivalent to distinguishing).

human cognition. Therefore another important historical digression is required at this point, directed at the all-pervasive influence of modern nominalism.

*Denying an order for and an orderliness of things – nominalism*

Plato stumbled upon the (universal) *law-for-being an entity* in his account of the transcendent ideal forms (as guarantee for the knowability of what presents themselves as constantly changing within the world of becoming);<sup>6</sup> Aristotle contrasted the view of Plato by emphasizing the (universal) *orderliness* of entities (known as *regularities*, their *law-conformity* or *lawfulness* – “wetmatigheid”). It should be noted that although Aristotle (in his *Categoriae*) commences with a *primary substance* that is purely *individual*, he clearly realized that this substance withdraws itself from every conceptual grasp. For that reason he had to introduce his *secondary substance*, known as the *universal substantial form* of entities (cf. *Metaph.*, 1035 b 32; *De Anima*, 412 b 16). Not only constitutes this general essence (universal substantial form) the basis for *conceptual knowledge* for – similar to Plato – Aristotle holds that the *logos* is not subject to coming into being and passing away – it is after all not *house-ness* but merely *this house* that burns down (*Metaph.* 1039 b 22-26). Implicitly *knowledge* is here identified with conceptual knowledge (based upon *universality*). This age-old and long-standing legacy present already in the thought of Aristotle is continued by the adage: *omne individuum est ineffabile*. That this epistemic conviction persists for millennia can be substantiated with numerous references.<sup>7</sup>

The controversy between Plato and Aristotle acquires a deepened meaning once it is realized that Plato actually stumbled upon the (universal) *law-for-being an entity* in his account of the transcendent ideal forms, whereas Aristotle discovered the (universal) *orderliness of entities* (also currently known as their *regularities* or their *law-conformity* – “wet-matigheid”). These perspectives were united in medieval realism where the conviction is held that *universalia* have a threefold existence, namely *ante rem*, *in re* and *post rem*.<sup>8</sup>

In its radical reaction to this realistic tradition (late Scholastic) *nominalism* rejects all forms of *universality outside the human mind*. In doing that it (theoretically) eliminates the *order for* (law for) entities as well as the *orderliness of entities* – thus leaving *factual reality* undetermined in its assumed unstructured (chaotic) *individuality* and *uniqueness*. This rejection of universality *outside* the human mind effectively amounts to the (theoretically) elimination of the (universal) *order for* (law for) entities as well as of the (universal) *orderliness of entities* – thus leaving *factual reality* unstructured in its assumed chaotic individuality.

Modern philosophy (since John the Scott, William of Ockham as well as Jean of Jandum and Marsilius of Padua) mainly explored this *nominalistic* line of development. If one defines *rationalism* as reifying *conceptual knowledge* (which is always built upon *universal* features) and *irrationalism* as acknowledging *uniqueness* and *individuality* (at

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<sup>6</sup> See Plato's youth dialogue *Cratylus* 439 c- 440 a.

<sup>7</sup> For example, about 50 years ago de Vleeschauwer still adhered to this identification of *knowledge* with *conceptual knowledge* when he categorically states: “But knowledge of the individual is simply impossible” (*De Vleeschauwer*, 1952:213).

<sup>8</sup> Before creation (*ante rem*) as ideas in God's mind, immanent within entities (*in re*) as their universal substantial forms and afterwards (*post rem*) as universal subjective human concepts.

the cost of universality), then nominalism is rationalistic and irrationalistic at once, for it does acknowledge universality within the human mind (concepts or words) contrasted by pure and strict individuality outside the human mind. The impasse of nominalism is given in the last remnant of universality in the external world of (chaotic) individuality – the *being individual of everything* outside the mind is a *universal* feature shared by them all!

*The opening of the road to the Copernican turn in modern epistemology*

Particularly Descartes, with his methodical skepticism, affirmed the autonomy of the thinking subject as the ultimate starting-point for philosophical thought. He carried through the consequences of denying any universality outside the human intellect. The most important implicit consequence of this nominalistic orientation is that it does not acknowledge any order transcending the human being as such. A universal law-order for creatures and also the orderliness of such creatures (as conditioned by the laws making possible their existence), are *transposed* into the *human subject* (the *mind* or *language*). The seemingly innocent remark that “number and all universals are only modes of thought” (Descartes, *The Principles of Philosophy*, LVIII) already exemplifies this radical reorientation caused by nominalism. This all-pervasive process of transformation enthroned the human subject as a law-unto-itself – the defining trait of modern (Renaissance and post-Renaissance) humanism. Already in the thought of Hobbes it gives birth to the new motive of *logical creation*, thus filling the gap (the lack of order-determination) created by the nominalistic denial of external order and orderliness. Hobbes (in his work on *Material Things – De Corpore*) *constructs* a new reality with the aid of the concept of a *moving body* after he introduced a thought experiment in which all of reality is demolished into a heap of chaos. Truth is no longer seen in terms of the realistic yardstick (as the correspondence of thought and reality – *adequatio intellectus et rei*), since it merely concerns the compatibility of concepts. Ernst Cassirer captures this stance as follows: “Truth does not inhere in the things, but belongs to the names and their comparison, as it occurs in statements.”<sup>9</sup>

*Kant: How can subjective conditions of thought have objective validity?*

Kant radicalized the *rationalistic leg* of nominalism in his *Critique of Pure Reason*.<sup>10</sup> He realized that applying the category of *causality* (understood in a deterministic sense) without any restrictions necessarily will lead to an abolition of all human freedom. By confining the application of reason to *sensory phenomena* only he achieved two aims at once: (i) this move leaves open a *supersensory domain* for the ethical autonomy and freedom of the human being, while (ii) it succeeds in containing the classical natural ideal of an encompassing natural science within the boundaries of the phenomenal. In his discussion of the solution of the third cosmological idea Kant once more explains that we are not allowed to ascribe any *absolute reality* to appearances:

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<sup>9</sup> “Die Wahrheit haftet nicht an den Sachen, sondern an den Namen und an der Vergleichung der Namen, die wir im Satze vollziehen: veritas in dicto, non in re consistit” (cf. *De Corpore*, Part I, Chapter 3, Par.7 & 8) (Cassirer, 1971:56). The similarities with Rorty’s position is obvious!

<sup>10</sup> See in this regard Strauss, 1982.

The common but fallacious presupposition of the absolute reality of appearances here manifests its injurious influence, to the confounding reason. For if *appearances* are *things in themselves*, *freedom* cannot be upheld (Kant, 1787:B564; I am italicizing – DS).

That all knowledge begins with experience – as Hume asserts – is not questioned by Kant. But from this concession it does not follow that all knowledge also totally *arises* out of experience (Kant, 1787-B:1). It is well-known that Kant distinguishes between *two* stems of knowledge, namely *sensibility* and *understanding*.<sup>11</sup> Perhaps the most important trait of Kant's "pure reason" is that it *continues* the motive of *logical creation* – carried through to its ultimate rationalistic consequences. In order to understand the radical humanistic assumptions contained in the Copernican turn the influence of Galileo has to be accounted for. Galileo indeed turned the classical conception upside down with his argument that a moving body does not need a dynamic force in order to continue its motion. In a thought-experiment (explained in his *Dialogues and mathematical demonstrations concerning two new sciences*, 1638) Galileo argues that without the effect of impinging forces a body in motion will simply *continue* its motion *endlessly*. On this basis he concludes that the motion of this body will be *uniform* and *ever-enduring*, if the plane is extended into infinity. Holz points out that all of this radically influenced Kant's view regarding the thought categories (cf. Holz, 1975: 345-358). Von Weizsäcker frames Kant's problem in terms of the question:

What is nature, that it must obey laws which one could formulate with one's understanding? (1972:128).

Kant, in fact, in his conception of the categories, actually moved a step further (von Weizsäcker, 1972:128). The striking element in Galileo's thought-experiment is that he did not argue on the basis of any "sense-data" in order to arrive at his *law of inertia*. This law is derived and prescribed to moving entities solely by making an appeal to the *pure understanding* of a person in its *spontaneous subjectivity*. This in fact highlights the crucial epistemological transformation known as the *Copernican turn*: primacy is no longer ascribed to the *object*, but to the (human) *subject*. In a slightly different context Kant asks how "subjective conditions of thought can have objective validity, that is, can furnish conditions of the possibility of all knowledge of objects" (Kant, 1787-B:122). The solution Kant provided to this problem clearly demonstrates his radical *humanistic* conclusion: *the laws of nature are a priori contained in our subjective understanding*:

... the categories are conditions of the possibility of experience, and are therefore valid a priori for all objects of experience (CPR, B:161); Categories are concepts which prescribe laws a priori to appearances, and therefore to nature, the sum of all appearances' (Kant, 1787-B:163).

In his *Prolegomena* one finds this account embedded in his distinction between *empirical laws of nature* and the *a priori form-giving function* of human understanding (paralleling our above-mentioned distinction between modal laws and type laws):

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<sup>11</sup> The a priori concepts of understanding are introduced as categories of understanding and they apply *a priori* to objects of intuition in general (Kant, 1787-B:105-106).

We rather have to distinguish empirical laws of nature, which always presuppose particular perceptions, from the pure or general natural laws, which, without having a foundation in particular perceptions, only contain the conditions of their necessary connection in an experience. In respect of the latter nature and possible experience are entirely the same; and since within these the law-conformity of the necessary connection of appearances in an experience (without which we are totally incapable of knowing any object of the world of the sense), actually is based upon the original laws of the understanding, so it initially does sound strange, but it is nonetheless certain, when I state with respect to the latter: understanding creates its laws (*a priori*) not out of nature, but prescribes them to nature (1783 par.36:320).

In this way Kant attempted to consolidate and strengthen the natural (mathematical) science-ideal of modernity – restricted to the (rationalistically elevated) understanding which he considers to be the (formal) *a priori lawgiver of nature!*<sup>12</sup>

The idea that human understanding constructs (structures) reality in a *rational* way is arguably the most powerful and influential stance of modern humanism. Although Kant explores this orientation in *rationalistic* terms, its nominalistic roots inherently contain the starting-point for the opposing leg of (nominalistic) rationalism, namely *irrationalism*, which by and large succeeded to dominate the subsequent development of Western philosophy up to its most radical form: postmodernism.

#### *The linguistic turn as a reinforced relativizing factor*

Particularly the last two centuries increasingly enforced upon the “Western mind” an awareness of the *provisional, temporal* (in the sense of *historicity*) and *interpreted* nature of the human condition. A rigid rationalism attached to the universality entailed in the formation of concepts was radically challenged. The human predicament is conditioned by contingent historical situations and by social practices that in addition reflects multiple linguistically constructed meanings. Acknowledging changing historical situations, accounting for the incessant flux of linguistic meaning and incalculating constantly altering social practices seem to impregnate our “postmodern” understanding with an image of flow exceeding all possible claims of anything enduring or persistent.

Yet at the very moment that flux, change and alteration are asserted, it is always done with a constantly recurring element. Without assuming an embracing dimension of historicity specific references to particular changing *historical* (!) situations become meaningless, for then the *subject of change* vanishes, annihilating speaking about change at all. Similarly, without the enduring presence of language it becomes meaningless to speak about alterations of and shifts in meaning. And the same applies to varying social practices – what is implicitly assumed is that all (!) such practices are (and *remain*) indeed *social* practices!

The crucial point to observe is that in the very act of affirming the relativity and changefulness of the human predicament<sup>13</sup> a(n implicit) concurrent affirmation is made to enduring conditions making possible all references to relativity and changefulness.

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<sup>12</sup> The emphasis on “formal” is necessary, because human understanding is not considered to be the origin of the chaotic multiplicity of phenomena (the *matter* of experience) given to the senses. In passing it should also be noted that Kant eventually dropped a nature “thing-in-itself” since he transposed this notion to apply only to the freedom of the human soul as an ethical *Selbstzweck*.

The issue of *openness* in philosophy – against metaphysical “closure” – relates to the problem of uniqueness and coherence, or what might be called the problem concerning “the coherence of irreducibles”.

### **Relativity and the modal “seat” of functional terms**

At this point we may return to the brief remarks made earlier about the distinction between concepts of things and function concepts (correlated with the distinction between type laws and modal laws), because the problem regarding the coherence of irreducibles translates into the inevitability of recognizing the “modal seat” of property and relational terms found in our concrete (lived-through) experience – and the other side of the coin is given in the inevitability of exploring the inter-connectedness present between various “primitive” domains.

Within various scholarly disciplines it is acknowledged that the core meaning of the *basic terms* employed within a particular academic special science are *indefinable*.<sup>14</sup> But this is not the full story, since the *meaning* of any primitive domain expresses itself only in its *coherence* with other (modal functional) domains.

### *Remark about the analytical and the lingual*

This state of affairs also sheds light on the difficulties involved in the attempt to distinguish between *thought* and *language* (concept and word). The extreme opposite positions taken in this regard often argue that whoever engages in the activity of thinking automatically activates *language* and whoever uses language is involved in *conceptualization*. These arguments simply state that any concrete human activity necessarily *at once* function both in the *analytical* and *sign* modes (aspects) of reality.<sup>15</sup> Only *after* this distinction between concrete activities and their diverse functions is drawn

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<sup>13</sup> Hurst refers to what is “flexible, adaptable and revisable” – 2004:20. Where she explains that a decision intended to be *just* cannot be ignorant “concerning current conditions (environmental, cultural, socio-economic, political etc.)” (Hurst, 2004:14), her mode of speech (writing) implicitly assumes that specific “cultural”, “socio-economic” and “political” circumstances may change, but what is presupposed all along is that the changing circumstances under consideration continue to exhibit the property of being (some or other) *cultural*, *socio-economic* or *political* constellation/phenomenon. The differences between various *instances* of cultural, socio-economic or political phenomena do not cancel their belonging to the mentioned *enduring* categories. Even if there are differences of opinion about what such enduring elements are, there still will be some or other of them assumed in speaking about change. Plato discovered the insight that change can only be detected on the basis of constancy (metaphysically twisted in his theory of static supersensory ideal forms), Galileo first captured the natural scientific significance of this insight in formulating the law of inertia, whereas Einstein deepened this by postulating the constancy of the velocity of light in a vacuum in his special theory of relativity.

<sup>14</sup> Axiomatic set theory accepts the terms “element of” or “set” as indefinable; the science of pure movement (kinematics) does the same with the idea of *uniform movement*; the discipline of semantics similarly accepts “meaning” as a primitive term; and so on.

<sup>15</sup> Implicit to this statement is the idea of *ontic modes* of reality not only *making possible* the concrete functions entities and events may have within them, but also implying that such modes form the (non-subjective, ontic) transcendental reference-point for human reflection about the uniqueness and coherence of the modal functions under consideration – and this kind of reflection will always remain provisional and open to future correction and reinterpretation (owing to the very conditions of historicity and linguisticity embracing the on-going dynamics of human endeavours).

does it make sense to ask *second level questions* about the *uniqueness* and the *coherence* prevailing between the analytical mode and the sign mode<sup>16</sup> and only at this point will it be possible to address the problem whether or not the sign mode presupposes the meaning of the analytical mode or vice versa.

Without attempting to address this complicated problem in any detail a mere hint may illustrate the kind of argument involved in resolving the problem of foundation, i.e., the question whether or not the analytic mode is foundational to the sign mode.

Analysis actually embraces the “mutuality” of identification and distinguishing referred to in an earlier context. The meaning of the sign mode<sup>17</sup> is based upon this analytical ability to *discern*, for without this foundational analytical function the user of language will be unable to *notice* the lingual significance of nuanced sound or different letters of the alphabet.

However, the act of identification entails a *bringing together* (uniting/synthesizing) a multiplicity of traits, which is what the formation of concepts is all about. Since identification and distinguishing mutually presuppose each other, it should be clear that the counter pole of the *synthetic* act of identification is given in *distinguishing* – the other “leg” of analysis. Therefore it is mistaken to oppose *analysis* and *synthesis*.

The question then becomes intriguing, for now it turns out that there is an intimate connection between *analysis* and *concept formation* – the synthetic act of identifying a multiplicity of (universal)<sup>18</sup> features captured in the unity of a concept). After the linguistic turn the automatic claim would be that forming a *concept* is always *language bound*. A couple of remarks are required:

- (a) First of all we have to observe that *language* involves a concrete activity embracing multiple aspects, explaining why it can never be identified with one aspect only (such as the sign mode).

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<sup>16</sup> Fodor remarks: “The goal we have been pursuing is the traditional one of reducing meaning to some more basic and better understood entity. But analyticity is too intimately related to meaning to provide such a reduction. In fact, as far as anyone knows, there is no meaning-independent way of characterizing either analyticity or meaning” (1977:43).

<sup>17</sup> Normally this aspect is known as the lingual mode. Yet there are important considerations suggesting an alternative formulation. The human ability to *express* meaning and to *interpret* it is a response to the normative demand to *assign meaning*, i.e., to *signify*. Within inter-human contexts such an expressive assignment of meaning or signification always calls forth the interpretative response of another human subject. Suppose we restrict ourselves to the normative sense of our (human) calling to signify and leave aside whether or not it is done with the aid of verbal language, then it may be justified to refer to this aspect as the *semiotic* aspect. But other options are also open to us, for we can just as well focus our attention on the subjective acts of signification, in which case the formation of language (and linguistic structures) acquires a prominent place, apparently once again justifying the designation *lingual* mode. Finally, if we focus on whatever is intended by acts of signification in their relation to the meaning of the words, we may designate this aspect as the *semantic* mode (consider the discipline of semantics that studies the meaning of words). Combining these three options – semiotic, lingual and semantic – while at the same time avoiding the relative one-sidedness contained in each one of them considered in isolation from the others, the entire modal structure of this aspect may simply be called the sign mode.

<sup>18</sup> Concepts are always based upon universal properties, explaining why the unique and individual transcends the grasp of concept formation. The implicit but dominant rationalistic legacy of Western epistemology identifies knowledge with conceptual knowledge and thus eliminates the possibility to do justice to concept-transcending knowledge.

- (b) From the first consideration it follows that any lingual performance at once functions in *both* the logical-analytical aspect and the sign mode – once again explaining that any such performance will always *simultaneously* exhibit both functions.

Arguing for the *foundational role* of the logical aspect does not intend to deny the actual (inter-modal) connectedness prevailing between the logical and sign aspects of reality. An example may highlight foundational role of concept formation.

A little girl who first notices a pigeon and learns its name is capable of abstracting from what is concretely given – for instance when she shortly thereafter refers to a shrike as a pigeon. The child actually has formed the concept “bird” but *designated* it with the *name* (verbal sign) /pigeon/. This is only possible because from the concrete sensorially perceived image of a pigeon the girl has lifted out certain *bird-characteristics*, e.g., a beak, wings, feathers while simultaneously relinquishing the specific characteristics which distinguish a pigeon from a shrike. Given its foundational role for human functioning it should not be surprising that the development of the logical-analytical skills of the child precedes its lingual competency, for although the concept of a “bird” was at hand, the child, as yet, did not have the matching lingual abilities to properly *designate* what was analytically discerned, as it is seen in the fact that the word used to designate a pigeon is also used to designate the concept bird.

This example shows that within the intellectual development of human beings logical concept formation *precedes* matching lingual abilities. Viewed from the perspective of modal distinctness and coherence, language use is built upon the basis of logical skills. Another example may be taken from the double negation of the language Afrikaans. It provides a quite interesting example of this foundational relationship. The double negation present in the Afrikaans language generates its own (linguistic) *logic* that is peculiar to this language itself. It is found that relatively young children (3-5), already displaying a clear sense of logical consistency and logical soundness, answer questions phrased in terms of the double negation with “yes,” where older children and adults, who matured lingually to such an extent that they are “at home” with the (apparently “illogical”) double negation of Afrikaans, will say “no.” In Afrikaans one may ask: “Is jy nie honger nie?” [“Are you not hungry?”] A young child will answer *yes* and more mature language users will answer *no*.

Another argument in favour of the *foundational role* of the logical mode is found by considering normative contraries located in the various functions (distinctively) typical of the behaviour of human beings in comparison with animals. Whereas both animals and human beings are *sentient* creatures, only human beings are evincing an accountable freedom (manifested in norm-conformative and antinormative actions). On the basis of the logical principle of non-contradiction, constitutive of the contrary logical-illogical, we find normative contraries in all the other normative aspects, such as *kind* and *hostile* (within the social aspect), *legal* and *illegal* (within the jural aspect), *thrifty* and *wasteful* (within the economic mode), and *beautiful* and *ugly* (within the aesthetic facet).

### **Relativity and linkages between distinct domains**

Just before we entered into a brief discussion of the foundational relation between the logical and sign modes, the observation was made that the *meaning* of any primitive domain expresses itself only in its *coherence* with other domains. The argument about the

foundational role of the logical mode in respect of the sign mode instantiates an instance of the inter-connectedness of two modal domains, because the very meaning of the sign mode *reflects* the meaning of analysis in the reality of *linguistic distinctions*. Of course linguistic distinctions do not coincide with the original logical meaning of identification and distinction – it merely *analogically* reflects this inter-modal connectedness within the sign mode itself. Purely logically viewed the notion of a square circle<sup>19</sup> is contradictory, it is *illogical*. Yet, precisely because the logical and sign modes are *distinct* the possibility of figurative speech renders it perfectly meaningful to speak about a “square circle”, such as a “boxing ring”. In the linguistic context not all properties of a square and a circle are *designated* – the only shared element lifted out in this metaphorical use of the terms “square” and “circle” is that of an “enclosed spatial surface”. However, if the words *square* and *circle* within the lingual context brought with them the full scope of the proper logical concepts of a square and a circle the lingual expression “square circle” indeed would have been *contradictory*. But precisely because the logical and the sign modes are uniquely distinct *and* mutually cohering figurative speech and metaphoricity (as linguistic phenomena evinced within the sign mode of reality), are neither illogical nor violating any linguistic requirement of meaningful expressions. Commencing our discussion of complexities involved in reflecting on the notion of relativity we have noted that the term “relativity” refers to *relations* or *connections* between *relata*. At this point of our analysis we may ask: where does one find the notion of relatedness or connectedness in the first place?

*The original (primitive) domain where the notion of relatedness / connectedness is found*  
Our integral experiential awareness of relation and connection has its foundation in the domain of *spatiality*. This domain underlies our human intuition of *continuity*. Whatever is *continuous* is *connected* in all its parts, for any instance of “disconnection” will manifest a *hiatus* eliminating the *coherence* between the *multiple parts* of the connected whole. If all the connected or cohering parts are present the whole or totality is also given. Therefore the primitive meaning of relatedness is found within the spatial aspect of reality. Any attempt to define the core (primitive) meaning of this aspect results in generating synonyms – as has just been shown: when it is said that something continuous is cohering on the basis of multiple connected parts nothing is said that is not already entailed in the initial formulation of the idea of *continuous extension* (see Strauss, 2002:2-18).

Locating the term *continuity* and its synonyms within the domain of the spatial aspect does not mean that these terms are merely employed in a *spatial sense*, because every original modal term recurs in divergent universes of discourse. An instance of such a *universe of discourse* is that of *analogical* usages. Language reflects such contexts in compound expressions such as *logical relations*, *social relationships*, *moral ties*, and so on. In all cases like these two primitive domains are interconnected.

One may consider for example the analogical occurrence of the certitudinal term “trust” within an economic context when *credit* is discussed. Within the fiduciary aspect (faith aspect) the term trust (certainty / to be convinced) one finds the original (primitive)

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<sup>19</sup> Most philosophers do not realize that this example used by Bertrand Russell actually stems from Immanuel Kant (see Kant, 1783:341; § 52b). Cassirer uses an example similar to this one: a “rundes Viereck” (a “round square”) (Cassirer, 1910:16).

meaning of the terms. Although Derrida did not develop a *theory* of inter-modal connections he has a clear awareness of the fact that credit interlinks the economic and the certitudinal aspects. His initial remark simply states the presence of “faith” within every society – which suggests the original (primitive) domain of confidence and trust. But when he continues it is clear that he addresses the fiduciary *analogy* within the sphere of the economic aspect:

There is no society without faith, without trust in the other. Even if I abuse this, if I lie or if I commit perjury, if I am violent because of this faith, even on the economic level, there is no society without this faith, this minimal act of faith. What one calls *credit* (I am italicizing – DFMS) in capitalism, in economics, has to do with faith, and the economists know that. But this faith is not and should not be reduced or defined by religion as such” (Derrida, 1997:23).

The closing remark that “this faith” is different from “religion as such” highlights the fact that an analogy lives by the grace of both similarities and differences: although both religious faith (trust) and economic faith (trust) are built upon the similarity given in the element of trust, this very element of similarity brings out the difference since *religious* trust (faith) is not the same as *economic* trust (credit). Within the moment of similarity the difference is shown – a phrase actually *defining* the nature of an analogy.

If we may return to the domain where the terms relativity and relatedness have their original seat, namely the modal aspect of space, then a similar problem arises as that concerning the relationship between concept and word (or: the functional interrelation ship between logical discerning and lingual designating). In our concrete experience *multiplicity* and *extension* (spatial form and shape) are always given at once. The chair on which I am sitting while writing this argumentation has a certain (fairly comfortable) spatial configuration but at the same time evinces quantitative properties (such as being one and having four legs). Although it appears to be fairly easy to identify and distinguish these aspects from each other, it is not equally simple to account for the order relationship between these two modal functions of reality.<sup>20</sup>

#### *The interconnection between primitive domains*

Because intuition can grasp continuity all at once, Fraenkel mentions that “Greek mathematics and philosophy were inclined to consider continuity to be the simpler concept” (Fraenkel et al., 1973:213). Yet, the obviously *analogical* appearance of numerical terms within an analysis of the meaning of space rather suggests that the quantitative aspect is foundational to the spatial aspect. Whenever spatial *dimensions* are considered, number is *presupposed*, for one may speak about *one, two, three* or *more dimensions* – thus analogically reflecting the coherence between the spatial and the numerical aspects. Similarly, there are spatial magnitudes specified in accordance with different dimensions. One dimensional extension is designated as *length*, two dimensional extension as *surface*, three dimensional extension as *volume*, and so on.<sup>21</sup>

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<sup>20</sup> I have argued for an acknowledgement of the *ontic status* of these aspects in Strauss, 2003.

<sup>21</sup> A straight line therefore cannot be defined as the “shortest distance between two points” because *distance* is merely a numerical *analogy* within the aspect of space used as *measure* for the original spatial extension of the line. The continuous extension of the line is indefinable – explaining why Hilbert (in his *Grundlagen der Geometrie*, 1899) had to introduce *line* as one of his three undefined terms (the other two are: “point” and “lies on”). In the third Volume of his *Gesammelte Abhandlungen* Hilbert correctly introduces the problem of the straight line as the shortest

It should be noted that a distinction must be drawn between “aspect analogies” and “entitatory analogies.” Dimension and magnitude are “aspect analogies” whereas speaking about the “nose of the car” is a metaphorical designation of similarities between two kinds of entities (a human being and a car). Modal analogies are irreplaceable (except by synonyms), while metaphors could be replaced by totally different ones. However, in order to explain the *meaning* of an aspect itself the use of metaphors turns out to be inevitable. An aspect may be seen as a *point of entry* (a metaphor), one may refer to an aspect as an *angle of approach* (another metaphor), as a *gateway to reality* or as a *vantage point* (both also instances of the use of a metaphor) – and in all these cases analogies between entities are explored with the aim of helping us to come to a better understanding of the meaning of modal aspects. Therefore, while the modal aspects of reality mediate our experience of the functioning of concrete (natural and social) entities and events, the dimension of entities and events open up the possibility to come to a metaphorical account of the nature of the various aspects. Cognitively and linguistically there seem to be no way out of this “cross fertilization” – it is primitive and it mutually conditions our understanding of reality.

Having briefly indicated that the meaning of space inherently reveals its inter-modal coherence with the (foundational) numerical aspect, it should be pointed out that the reverse is also true: the quantitative meaning of number reveals its connection with the meaning of space in various ways. Particularly the idea of the so-called “continuum” is striking in this regard.

According to Kneale complications are encountered in the attempt to express mathematical continuity in numerical terms (Kneale, 1962; see Hart, 1984:115). The co-worker of David Hilbert, the mathematician Paul Bernays, emphatically claims that the “idea of the continuum is a geometric idea which analysis expresses in the language of arithmetic” (1976:74). More recently Lakoff *et al* – with reference to Weyl’s work on the continuum (see Weyl, 1932) – asks: “Why does mathematics have to understand the continuous in terms of the discrete?” (Lakoff *et al.*, 2000:323).

In the absence of a theory of modal functions (aspects) it is understandable that Lakoff *et al* want to interpret the inter-modal coherence between number and space exclusively in terms of metaphorical mappings. They write:

Indeed, it is an attempt to understand one kind of thing – the naturally continuous continuum – in terms of its very opposite – the discrete. We find it strange that it should be seen as a central task of mathematics to provide a metaphorical characterization of the continuum in terms of its opposite. Any such metaphor is bound to miss aspects of what the continuum is, and miss quite a bit (Lakoff *et al.*, 2000:324).

From the perspective of modal analogies the meaning of the numerical aspect – under the guidance of theoretical thought – can be deepened and disclosed by analogical references pointing towards the (irreducible) meaning of space. This deepening of meaning presupposes an *ontic* coherence between two irreducibly unique modal aspects and the latter is not the result either of theoretical thinking or of the construction of appropriate metaphors. The idea of what should preferably be called the *at once infinite* (traditionally

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*connection* of two points (“[Das] Problem von der Geraden als kürzester Verbindung zweier Punkte” (Hilbert, 1970:302).

known as the actual infinite), attempts to account for the connection between number and space from the perspective of number. In terms of it any successively infinite sequence of numbers can be viewed as if it is present at once as an infinite totality. But this deepened meaning of infinity is not a metaphor; it is an inter-aspectual (anticipatory)<sup>22</sup> structural connection between these two aspects.

It is not accidental that *relativism* is frequently connected with the idea of *flux* and *incessant change*. When any and all forms of normativity (or: *values* as it became fashionable through the influence of the neo-Kantian Baden school), are inherently subject to alteration and change, the (self-contradictory) relativistic claim that there are no constant standards naturally follows. Apart from the destructive influence of modern historicism, this crucial element of relativism entails a self-destructive consequence. Before we look at the (onto-)logic of relativism we have to point out that *dynamics* and *change* lose all meaning outside their *coherence* with something constant. The thought-experiment of Galileo (mentioned in connection with Kant's elevation of human understanding to the level of *a priori* formal law-giver of nature) resulted in his *law of inertia*. Einstein deepened this insight by postulating the velocity of light in a vacuum in his special theory of relativity. The chosen name is misdirected, because the basic assumption of Einstein's theory is given in the *order of uniformity* found in the velocity of light – and whatever moves is moving relative to this constant.<sup>23</sup> We have noted that the historicistic *Zeitgeist* of the early 20<sup>th</sup> century apparently tempted Einstein to speak about a theory of “relativity” instead of a theory of *constancy*.

But it is not only Einstein's theory of relativity that suffered from a misapprehension of the inter-modal connectedness of the kinematical aspect of uniform (constant) movement and the physical aspect of energy-operation, since the first main law of thermodynamics may also benefit from this insight into the foundational role of constancy for all discourses focusing on *change*. Formulating it as the law of *energy constancy* directly unveils the kinematic retrocipation (retrocipatory analogy) within the structure of the physical aspect (to its law-side).<sup>24</sup>

### **The (onto-)logic of relativism**

We are now in a position to assess the (onto-)logic of relativism. In general one can say that relativism does not do justice to the *relativity* of *flux* (change). The meaning structure of change only comes to expression in the coherence between the physical aspect (where the term *change* finds its original “modal seat”) and the other aspects of reality (amongst

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<sup>22</sup> When an aspect is *foundational* to another aspect one finds anticipatory analogies within its structure, and the other way around one encounters retrocipatory analogies with an aspect. *Lingual distinctions* represent a retrocipatory analogy through which the sign mode refers to the (foundational) logical mode, while *economic trust* manifests an anticipatory analogy to the fiduciary aspect within the economic aspect.

<sup>23</sup> Einstein frequently mentions the “Prinzip von der Konstanz der Lichtgeschwindigkeit” (see Einstein, 1922:31 ff.). In his autobiography he emphasizes the fact that it must be in a *vacuum*: “der Konstanz der Vacuum-Lichtgeschwindigkeit” (Einstein, 1959:54).

<sup>24</sup> Within each modal aspect there is a strict correlation between *law-side* and *factual side*. The former conditions and determines the latter. Laws are *universal*. Whatever exists factually displays at once a *universal side* (its orderliness of law-conformity) and an *individual side* (its concept-transcending *uniqueness*).

them the foundational kinematic aspect). As an effect of the order relation entailed in the connection between the kinematic and physical aspects, the following can be said:

Without *constancy* that is foundational to *change* the latter is *impossible* and outside the *constant structure of the physical aspect itself* (physical) change is also impossible because then it is robbed from its original modal meaning.

One can broaden the perspective by stating that whatever is chosen to be merely *changeful* loses its meaning the moment an attempt is made to conceive it in isolation from the coherence of meaning within which it is fitted in reality. Therefore *change* can never be appreciated apart from its meaning coherence with other (non-physical) aspects of reality.

The relativist is guilty of denying the relatedness (i.e., relativity) of flux and change. The irony is that instead of successfully *relativizing* (all of) creaturely reality, *relativism* is only possible by *reifying* (absolutizing) something within reality – and in doing that it achieves the opposite than what it initially aimed at. In the urge to *relativize* in a radical sense the *relativist* invariably (!) ends up in *absolutizing* something within reality.

Historicism shows this in its (relativistic) belief that all of reality is *intrinsically* subject to historical change. Everything – legal concepts, moral standards, convictions of faith, and so forth – is simply subject to the ever-flowing stream of emergence, acme and decline. Yet the first question to be directed at historicism is whether or not in this picture any grounds remain for speaking about something like *legal history*, *religious history*, or *economic history*? One can only meaningfully talk of legal history, economic history, and so on because there exists both a historical and a jural (or economical) aspect within the diversity of reality. Since law isn't history, it cannot have a history. If everything is history, as the historicist claims, then nothing remains that could *have* a history. This is the *cul de sac* of historicism (and every *ism*): that which is exalted to the one and all loses all meaning, since, if everything *is* history, there is nothing left which can *have* a history. Ultimately every one-sided *ism* instantiates a tragic *irony*: it always achieves the opposite than what it aimed for!

Taking serious the *ontic diversity* within reality – in its coherence of what is unique – in a positive way precludes the absolutization of *change* so dominant in relativism. One should therefore not attempt to side-step the relativistic consequences of relativism merely by postulating something else within reality to be *absolute*, because the integral meaning-coherence found within reality will constantly resist such an attempt to absolutize anything creaturely.

We are confronted with the meaning character of reality itself which can only be approximated in concept-transcending ideas. The correlativity of the numerous irreducible (modal) terms ought therefore to be acknowledged within the different primitive domains of reality where these terms find their irreducible seat. Modal aspects open access to modal terms that can be employed in two ways:

- (i) Referring to functional states of affairs (or: events) functioning *within* their confines:
- (ii) Using specific modal functional terms in order to refer thought beyond the boundaries of the aspect under consideration to that which transcends the limits of that aspect.

One may designate (i) as *conceptual* usages and (ii) as *concept-transcending* ideas (in German: *Grenzbegriffe*). The possibility to speak about individuality is twofold. It is (a) made possible by concretely existing entities transcending our conceptual grasp, and (b) it rests upon a concept-transcending use of the original numerical awareness of being distinct. Similarly, the term universality cannot deny its spatial descent – although in using it we are referring to a trait of concretely existing entities (albeit a *universal* feature). Therefore the modal seat of the following four terms, namely *individuality*, *universality*, *constancy* and *dynamics* (change), is respectively founded in the *quantitative*, the *spatial*, the *kinematic* and the *physical* aspects of reality. When employed in a truly concept-transcending manner these terms are embedded in the four *most basic* concept-transcending statements that can be made about the universe:

- (1) Everything is unique;
- (2) Everything coheres with everything else;
- (3) Everything is constant; and
- (4) Everything changes.

Because these statements are derived from irreducibly cohering modal points of entry, they are *not* contradictory even though they may simultaneously be affirmed of all of reality.

Discreteness and continuity are therefore not *opposites* – as Lakoff *et al* claim (2000:323-324), just as little as *constancy* and *change* are *opposites*. Opposites derive from the same core domain of irreducibility. The quantitative aspect enables an awareness of the opposite between *few* and *many*. Within the meaning of the spatial aspect one may speak about the opposites *nearby* or *far away* (or their analogies in other aspects such as when one looks at the President and its body-guard who are – in terms of spatial distance – nearby, but in terms of *social distance* are *far apart*). *Fast* and *slow*, *strong* and *weak* are also true (intra-modal) opposites. Within the logical and post-logical aspects<sup>25</sup> opposites such as logical – illogical, legal – illegal, and so on (as we have remarked) are recognized as *normative contraries*. Irreducible modal aspects do not “oppose” each other but mutually constitute the incredibly rich meaning-diversity and meaning-coherence embracing them all.

### **Reifying the accountable freedom of humankind**

Since Kant the entire *constructivist* project rests on the *subjectivistic* starting-point of nominalism and in fact merely *reifies* the human accountable freedom to give shape to underlying (*ontic*) principles in various (historically changing) circumstances. This orientation rests upon the ultimate commitment to the ideal of an autonomously free human personality, setting the law for itself. Rousseau had a solid awareness of this starting-point: “Freedom is obedience to a law which we prescribe to ourselves” (Rousseau, 1975:247).

### **Concluding remark**

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<sup>25</sup> That is, within those aspects that are founded in the logical aspect (and the principle of non-contradiction).

Entering into an analysis of the modern idea of autonomy in its relation to the problems involved in reflecting upon the normativity of life deserves a different treatment altogether. Therefore it will suffice to conclude by summarizing the basic thrust of our argumentation thus far.

While fully acknowledging the fact that humankind is co-conditioned by its *historicity* and its *linguisticity*, accounting for our awareness of the provisional nature of scholarly insights and other (non-academic) practical endeavours, and the fact that interpretations are bound to be tested and often transformed by new ones, we have tried to show that a genuine *relativistic* stance achieves the opposite than what it aims for, since it invariably results in the (antinomic) absolutization of something relative. Relativism is unable to account for the overwhelming (concept-transcending) meaning-coherence within reality.

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