Scholarly Communication

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Abstract
In this article constructive scholarly communication is positioned within the context of critical thinking and the underlying principles guiding meaningful intellectual interaction. Informal logic is briefly mentioned before it is argued that showing a sense of solidarity is more fundamental just being 'critical' – thus making a plea for the requirement of *critical solidarity*. As an alternative to fruitless transcendent criticism a number of examples of immanent criticism are discussed, anticipating the nature of factual criticism and transcendental criticism, taking into account the difference between the logical principle of non-contradiction and the ontological principle of the excluded antinomy and challenging the idea of objective and neutral scholarship. Finally, the broadening perspective of transcendental criticism is briefly elucidated with reference to one of the examples discussed in the explanation of immanent criticism.

Introduction

It requires no argument that communication is constitutive for being human. It is equally unnecessary to point out that there are different kinds of communication within a socially differentiated society. The particular kind of communication that will form the focus of this article is what could be designated as *scholarly communication*. However, analyzing scholarly communication cannot steer clear of a well-known and widely defended ideal for all forms of scholarship, the ideal of *critical thinking*.

Of course one does not necessarily have to think of formal logic when critical thinking is discussed, for even some of the apparently most 'innocent' statements used in intellectual communication may conceal multiple informal fallacies. Suppose, for example, that an academic concerned about crime and the legal system in South Africa makes the following statement in a class:

> "You are all too bright to reject capital punishment!"

A number of informal fallacies are entailed in this single statement. First of all it makes an appeal to the intelligence (being 'bright') of the students without advancing an argument in favour of or against capital punishment (informal logic calls this an argument *ad hominem*). In the second place it refers to a widely held negative attitude towards not applying capital punishment without justifying this negative attitude (*argumentum ad invidiam*). The third fallacy is seen in the attempt to persuade the students on the basis of flattery – crediting them with the quality of being 'bright', once again without advancing any argument pro or con capital punishment (*argumentum ad captandum*). Finally we discern in the statement a variant of an *ad populum* fallacy (directed towards a general sentiment, empathy or fear), in this case specifically directed

towards the personal fear of students who may be afraid to be seen as non-intelligent by their lecturer or fellow students (*argumentum ad baculum*).

Let us now proceed with a more encompassing constructive assessment of the value and necessity of critical thinking for scholarly communication.

Critical thinking

The ideal of *critical thinking* is itself embedded in a long-standing appreciation of human *rationality*. Particularly scholarly thinking is respected for its claim to *rationality*. Critical thinking is supposed to be a manifestation of rationality *per se*. Yet, when the motto of *critical thinking* is advanced one seldom gets informed about the *criteria* that ought to *guide* critical thinking. Much rather the implicit assumption is that when rationality rules as final judge unanimity (or, as Habermas prefers to call it: consensus) will prevail. This assessment is still quite alive, particularly when it comes to what used to be considered as the acme of sound reasoning, mathematics. Fern, for example, recently writes:

> Mathematical calculations are paradigmatic instances of universally accessible, rationally compelling argument. Anyone who fails to see "two plus two equals four" denies the Pythagorean Theorem, or dismisses as nonsense the esoterics of infinitesimal calculus forfeits the crown of rationality (Fern 2002:96-97).

Unfortunately the history and practice of mathematics (and logic) highlight the fact that even within this allegedly most 'exact' of all the disciplines conflicting approaches are found[1] – and the same applies to logic, because intuitionistic logic does not accept the universal validity of the logical principle of the *excluded middle* in the case of the infinite (see Brouwer 1919). Particularly when the underlying assumption is that rationality ought to be the final judge in intellectual endeavors, this outcome certainly is perplexing and embarrassing.

This state of affairs therefore inspires the following question: how is it possible that rational pursuits generate such radical differences even permeating 'exact' disciplines such as mathematics and logic?

Surely this situation entails significant implications for the possibility of *scholarly communication* between opposing paradigms within diverse scientific disciplines (including the natural sciences and the humanities), and for the widely accepted maxim that students and scholars have to be *critical*. The problem calling our attention is: what is the status and nature of criteria for meaningful scholarly communication.

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[1] Stegmüller writes: "The special character of intuitionistic mathematics is expressed in a series of theorems that contradict the classical results. For instance, while in classical mathematics only a small part of the real functions are uniformly continuous, in intuitionistic mathematics the principle holds that any function that is definable at all is uniformly continuous (Stegmüller 1969:331). The Dutch logician, Beth, underscores this remark when he states: "It is clear that intuitionistic mathematics is not merely that part of classical mathematics which would remain if one removed certain methods not acceptable to the intuitionists. On the contrary, intuitionistic mathematics replaces those methods by other ones that lead to results which find no counterpart in classical mathematics" (Beth 1965:89).

Critical solidarity

The era of *Enlightenment* (18th century) has already advanced under the flag of critical thinking *par excellence*. In the *Preface* to the first edition of his *Critique of Pure Reason* (1781) Immanuel Kant has already appreciated his own time as the true age of *criticism*:[2]

> Our age is, in every sense of the word, the age of criticism, and everything must submit to it. Religion, on the strength of its sanctity, and law on the strength of its majesty, try to withdraw themselves from it; but by doing so they arouse just suspicions, and cannot claim that sincere respect which reason pays to those only who have been able to stand its free and open examination (Kant, 1781:A-12 – translation F.M. Müller).

In practice *being critical* more often than not simply means that when you read a scientific article or book or when you listen to a scholarly presentation that you then notice *differences of opinion*. Picking up a book and finding something you do not agree with within the first couple of pages is not that difficult. However, in order to be able really to benefit from the exercise of a critical spirit, one has to observe something more fundamental than critique, namely *showing solidarity*.

It is indeed much more difficult to highlight what is worthwhile in the thought of a specific thinker, particularly if we accept the challenge to account for it in terms of our own (different) perspective. In other words, if I want to criticize Plato, Aristotle, Kant, or Marx, I have to be able to appreciate positively what they have unveiled before it is meaningful to criticize the way in which they have accounted for their constructive discoveries.

During the hey-day of Apartheid I used to ask first year students what is wrong with Marxism – and immediately several points of criticism surfaced – such as that Marxism has a totalitarian idea of the state, that it sacrifices human freedom to economic determinism, and so on. But then I reversed the question, asking what did Marx see that was worthwhile and that we still have to account for? – and suddenly no one was able to show any sense of solidarity with Marx or with his concern regarding the increasing exploitation of workers during and after the industrial revolution, caused by a political and economic theory (Locke and the classical school of Adam Smith in economics) that resulted in an extension of the working day beyond human limits. One should positively appreciate the concern that Marx has shown for the exploitation of the 'proletariat', as he called it, without necessarily agreeing with his dialectical materialist 'solution' of the problem.

The impact of these considerations is clear – without a sense of solidarity the exercise of criticism is 'cheap'. For that matter, a much larger effort is required if one really wants to understand a thinker good enough to be able to appreciate positively what is worthwhile in the thought of such a person. In other words, critique is only meaningful when it is embedded in solidarity. Therefore the popular motto of *critical thinking* ought to be altered into the requirement of *critical solidarity*.

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[2] This spirit of radically questioning everything resounded quite recently in the stimulating and thought-provoking final address delivered to the Philosophical Society of Southern Africa (hosted at Rhodes University in Grahamstown, January 2003), when Graham Priest (from Australia) addressed the final plenary session on the theme "What is Philosophy"? He made a well-argued plea for the view that the ultimate task of philosophy is to be radically critical in questioning whatever there is.

However, behind this requirement a huge assumption is concealed, the presence of *supra-individual standards* of scholarly communication.

Criteria for scholarly communication

The following questions need to be addressed:

(i) Are the criteria for scholarly communication *derived from* the participating rational agents? or

(ii) do they *hold for* rational pursuits – in the sense that rational agents are subjected to universal normative standards?

Let us briefly look at these two options.

Suppose the criteria for rational conduct are derived from the individual rational agent. This position entails that rational activities *generate* their own norms and that rational behaviour in the full sense of the word is "self-normed," i.e. it is *autonomous*. This well-known word derives from two Greek words – *autos* = *self* and *nomos* = *law*. This position entails that in its rationality the human being is supposed to be a *law-unto-itself*.

Of course the mere idea of *autonomy* may raise numerous questions. For example: am I merely "norming" my *own* (strictly *individual*) "rational" activities? If the answer is affirmative, then the next concern relates to *rational interaction* (such as *scholarly communication*) between *different* individuals. If all these individuals produce their *own* norms for rationality, will they ever share the *same* rationality or be able to agree or to reach any sort of consensus? Does the affirmation of rational insights not much rather require or *presuppose* universal normative standards that are not reducible to the subjectivity of merely one single rational agent? In other words, are we not all bound by supra-individual and non-arbitrary standards for rational behaviour and scholarly communication in the first place?[3]

Yet, as soon as this is conceded, the initial idea of autonomy is seriously threatened, for now we have implicitly accepted *given* norms for rationality to which human beings are subjected in their rational endeavours. This induces us to ask a more radical question: is the familiar idea of autonomy not self-contradictory? In order to answer this question we have to consider a related age-old legacy. From the earliest times a *law* is understood as pertaining to the conditions holding for the existence of something. For example, the conditions for *being an atom* hold universally for all atoms. Yet each individual atom is distinct from the conditions for (law for) being an atom. That is to say: the conditions for being an atom are not themselves an atom, just as little as the conditions for being *red* are themselves red, although one has to acknowledge that in *being an atom* each individual atom in a universal way shows that it is subjected to the law for being an atom.

Obviously there is therefore an important difference between a law, a norm or a principle and whatever is subjected to it – even in the case of rationality. Not only does this imply that rationality is *normed*, i.e. that it is subject to supra-individual universal normative standards, since this "being-subjected" prompts us to reflect on the nature of these *norms/principles for* rationality. Yet the moment we start to investigate this matter we are irrevocably confronted with direction-giving ultimate commitments transcending

[3] We shall argue below that the acceptance of universal standards does not mean that the theoretical account of those standards necessarily will be without differences of opinion.

the realm of rationality itself – since they are embedded in some or other (pre-theoretical) world and life view. We shall return to this below in our discussion of transcendental critique.

It seems inevitable to acknowledge supra-individual principles enabling all forms of rational interaction and scholarly communication. Those who have published on the theme of *critical thinking* normally enter into a discussion of modern (informal and formal) logic. The standard textbook on *Logic* of Copi immediately comes to mind (see Copy 1994), or even a typical work on critical thinking (such as the one written by Bowell and Kemp 2005). Implicit in works such as these is the acceptance of the basic logical principles of identity, non-contradiction and the excluded middle (*tertium non datur*). Without these principles both classical predicate (syllogistic) logic and modern symbolic logic (propositional logic) collapses. The logical validity of particular modes of inference depends upon the logical principle of non-contradiction. Taking this as a provisional starting point we first look at one of the most important criteria for scholarly communication, namely *immanent criticism*.

An example of a self-defeating argument in scholarly communication

Consider the following argumentation against the possibility of divergent standpoints within scholarly disciplines – an argument rooted in the belief that scholarship ought to be 'objective' and 'neutral'. It runs as follows:

> With an implicit appeal to the later Wittgenstein's idea of "language games" (see Wittgenstein 1968) one can argue that only those participants who accept the "rules of the game" are allowed to join the realm of *science*. When it is asked which "rules" ought to be followed, the mentioned three logical principles are specified.

However, we have noted that intuitionistic logic does not accept the universal validity of the logical principle of the excluded middle.[4] The first two principles are embedded in the unity and diversity within reality because the latter make possible all *identification* and *distinguishing*. The normative demand of the principles of identity and non-contradiction is to *identify* A with A and to *distinguish* A from non-A. Therefore the primary formulation of these two principles may be phrased as follows:

1) Identity: Within what is analyzable A is always identical to A.
2) Non-contradiction: Within what is analyzable A is never identical to non-A.

One can also say that the act of identification entails an *affirmation* and that the act of *distinguishing* entails a *denial*. Affirming that A is A is at once denying that A is non-A. This brings truth and falsehood into the picture and therefore makes it possible to give an

[4] It is noteworthy that Wittgenstein followed Brouwer [see Wittgenstein 1968:112 (par.352); cp. p.127 (par.426)] and that the well-known analytical philosopher Dummett also supported the intuitionistic approach (see Dummett 1978) – not to mention prominent mathematicians such as Weyl, Heyting, Van Dalen and Troelstra who continued to work within the legacy of the intuitionistic mathematics of Brouwer.

alternative formulation of these principles in terms of *truth* and *falsity* – as it is done by Copi in his mentioned *Introduction to Logic*:

> The principle of identity asserts that if any statement is true, then it is true.
> The principle of contradiction asserts that no statement can be both true and false.
> The principle of the excluded middle asserts that any statement is either true or false (Copi 1994:372).

However, intuitionistic mathematics and logic reject the idea of an *infinite totality* and without its acceptance the principle of the excluded middle loses it universality validity.[5]

> The crucial question here is: does intuitionism (with its logic) constitute a valid standpoint in mathematics?

Suppose we apply the yardstick of the three mentioned logical principles to this situation, that is, let us assume that only those who accept *all three* logical principles qualify to *play the game* of science. Then the principle of the excluded middle implies that intuitionism either is or it is not a valid mathematical standpoint – there is no *third* possibility. Yet what is presupposed in this application is an implication of the principle of non-contradiction, namely that *affirming* and *negating* the scholarly status of intuitionism cannot both be true at once. However, on the basis of the three given logical principles one does not find *sufficient grounds* for the truth or falsity of two contradictory statements.[6] The moment *grounds* are needed we are irrevocably referred *beyond* the boundaries of logic. This reality caused Leibniz to identify that logical principle pointing beyond logic itself. He called it the *principium rationis sufficientis* and Schopenhauer subjected this *principle of sufficient reason* to an extensive investigation in 1813. He called it the principle of sufficient ground of knowledge (*principium rationis sufficientis cognoscendi*).[7]

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[5] Write for instance the decimal expansion of π down: ρ = 3.1415 ... and the decimal fraction ρ = 0.3333 ... which brakes off as soon as the sequence 0123456789 occurs in the decimal expansion of π. By accepting the principle of the excluded middle, the following must be correct: ρ = 1/3 or r ≠ 1/3. According to the logic of intuitionism, the expression "U or (¬U)" implies that we must be able to construct a proof for every mathematical statement U, or construct, by starting with the assumption that U is valid, a contradiction. But then, the same requirements must apply to the above mentioned case. That is, however, impossible, for in order to prove one of the statements (ρ = 1/3 or r ≠ 1/3), we must first of all be able to decide if the sequence 0123456789 does occur in the decimal expansion of π (cf. Heyting 1971:16-18). Since our present state of mathematical knowledge does not allow this, intuitionism rejects the universal scope of the principle of the excluded middle – whenever the infinite (an infinite totality) is at stake, it is inapplicable.

[6] Immanuel Kant has already noticed this: "Therefore the purely logical criterion of truth, namely, the agreement of knowledge with the general and formal laws of the understanding and reason, is no doubt a condition sine qua non, or a negative condition of all truth. But logic can go no further, and it has no test for discovering error with regard to the contents, and not the form, of a proposition" (Kant, 1787-B:84).

[7] "As such it asserts that if a judgement is to express a piece of knowledge, it must have sufficient ground or reason (Grund); by virtue of this quality, it then receives the predicate true. Truth is

On the basis of the initial argument, holding on to the first three logical principles, the only other option left (next to disqualifying intuitionism as an acceptable mathematical standpoint), is to accept it as a valid standpoint in spite of the fact that it partially truncates the principle of the excluded middle (thus implicitly applying the principle of the excluded middle, for here there is no reference to an *infinite totality*). In other words, if the answer to the question: whether or not intuitionism is a valid standpoint in mathematics? is affirmative, then the principle of non-contradiction is violated, and when it is negative, a new problem arises. Why it is not the case that intuitionism represents the valid mathematical standpoint rather than the Cantorian (or axiomatic formalistic) orientation? Is it unacceptable because the *majority* of mathematicians are not intuitionists?

Unfortunately this option introduces a *new* 'principle', namely the *majority*.[8] Nonetheless it is simply impossible to provide a *justification* for the majority principle. At most recourse could be taken to a *regressus in infinitum*.

> Did the majority decide that *what* the majority believe is true? And:
> Did the majority decide *that* the majority decide *that what* the majority decide is true?! …
> and so on *ad infinitum*.

Clearly, although it is inevitable to accept the existence of universal principles for thinking, this does not entail that there is no room left for disagreement about specific principles of reasoning. But the argumentation that we have pursued demonstrates an instance of immanent criticism, for it has shown that the claim concerning the objectivity and neutrality of scholarship is self-defeating. Let us now explore the different types of criticism that ought to guide meaningful scholarly communication in some more detail. At the outset we mention the following types of criticism in order to elucidate the requirements of meaningful and constructive *scholarly communication*: (a) immanent criticism; (b) factual criticism; and (c) transcendental criticism.

Immanent criticism

The first and most basic meaning of immanent criticism is given in the task to put yourself, so to speak, "in the shoes" of your conversation partner or opponent and then attempt to highlight the inconsistency or inconsistencies of that position.

It frequently happens that intellectual communication derails on the basis of what is known as *transcendent criticism*. It amounts to critique formulated in terms of one's own perspective without an attempt to involve the perspective of one's conversation partner in the argument. The fruitless outcome of transcendent criticism is aptly captured in the proverbial: "You say this, and I say that, so what?"

Let us rather briefly discuss a few examples of immanent criticism.

Example 1: Descartes' proof for the existence of God

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therefore the reference of a judgement to something different therefrom. This something is called the ground or reason of the judgement" (Schopenhauer, 1813:156).

[8] Amongst the "rhetorical ploys and fallacies" discussed by Bowell and Kemp the "fallacy of majority belief" is also mentioned (Bowell and Kemp 2005:131 ff.).

In his Meditations III Descartes posits as general rule, *that all that is very clearly and distinctly apprehended (conceived) is true*. To the question what guarantees the truth of clear and distinct thought? Descartes answers that God will not deceive us and he then proceeds to argue that of all the ideas in the human mind the idea of God is the clearest and most distinct (see Descartes 1965:95-96; 100) This results in *begging the question* (*circular reasoning*), for the existence of God is dependent upon the truth of clear and distinct thinking, while the truth of clear and distinct thinking depends upon (the existence of) the non-deceiving God. This kind of argument, where the conclusion is presupposed in one of its premises, is also known as a *petitio principii*.

Example 2: The attempt of (biological) vitalism to negate the *physical* basis of living entities

Since ancient Greece biological thought explored a vitalistic mode of thought, claiming that there is an immaterial "life-principle" (designated by Aristotle as *entelecheia*) operative in all living entities. The German biologist Hans Driesch continued this tradition in his neovitalist biology that dominated the scene by the end of the 19th century and during the first couple of decades of the 20th century – supported by the experimental study of regenerative phenomena.[9] It caused him to believe that the *entelechie* can 'suspend' physical laws (such as the second law of non-decreasing entropy).[10] Yet the mere fact that this immaterial factor is also described as a *vital force* shows that the physical substrate of living activities supposed to be transcended is still present in the term 'force'.

Example 3: Postmodernism

The motive of *logical creation* was dominant in *nominalistic* trends of thought since Thomas Hobbes and Immanuel Kant explored its rationalistic implications.[11]. Early modern philosophy elevated human reason to become the (formal) law-giver of the world. Impressed by Galileo's ability to derive the law of inertia from a thought-experiment – concerning a body in motion that will continue its motion endlessly if the path is extended into infinity – Immanuel Kant drew the radical conclusion: if, from the spontaneous subjectivity of human thought, one can derive the law of inertia and apply it to the moving 'objects' in nature, then the laws of nature must be present in human thought *a priori* (i.e. before all experience). Kant explicitly states: "Understanding creates its laws (a priori) not out of nature, but prescribes them to nature" (Kant, 1783, II:320; § 36). The irrationalistic side of nominalism, emphasizing the unique individuality of events, inspired the idea of the "social *construction* of reality" – a line moving from Kant

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9 He did research on phenomena of regeneration and discovered that animals are capable, when divided at an early stage of their development, to regenerate the entire living entity. Later on it was shown that in the case of certain animals even a part as tiny as 1/280th can regenerate the entire animal. In general the mere occurrence of processes of growth seem to contradict the second main law of thermodynamics, stating that within a closed system the most probable condition would be an increase in chaos, i.e. disorder.

10 We shall show below, in the context of *factual critique*, why this Neovitalist view is mistaken.

11 Thomas Hobbes is particularly known for his totalitarian view of the state as it is developed in his book *Leviathan* (1651). Immanuel Kant, the giant of the 18th century, is best known for his influential *Critique of Pure Reason* (1781, 1787[2]). We take rationalism to be an over-estimation of universal conceptual knowledge.

and Husserl to Schutz, Berger and Luckmann.[12] Consequently, the contemporary "postmodern" idea that we create the world we live in (either through thought or through language) merely continues core elements of (*early*) *modern* philosophy!
This entire development hinges on the ambivalent nature of modern nominalism – outside the human mind it rejects all universality – universality is only immanent to human consciousness, either as universal concepts or as universal words. Outside the human mind things and events in their unique contingency and individuality are found.
The following *immanent criticism* can be raised against the stance of nominalism. In order to make its claim nominalism implicitly had to hang on to one element of universality outside the human mind – the *being individual* of everything! *Being individual* is a universal property applying to every individual.[13]

Example 4: Relativism and Historicism

The relativist statement: "There is no truth" is famous for its self-defeating nature. Ernst Gellner underscores it with his remark: "Notoriously there is no room for the assertion of relativism itself in a world in which relativism is true" (Gellner 1985:85).

The position of relativism is reinforced by modern historicism in its claim that everything is caught up in the never-ceasing process of (historical) change, including legal practices , moral convictions, aesthetic standards, and economic principles. However, immanent criticism points out that only that which is not intrinsically *historical* in nature can have a history. Therefore, if everything *is* history, nothing is left that can have a history and thus historicism achieves the opposite as that for which it has aimed. Instead of historicizing everything nothing historical is left.[14]

Example 5: Moral commandments and natural law

Within modern Roman Catholic moral philosophy the conviction is found that from the moral law (the "decalogue") rules of "natural law" could be derived. Thomas Aquinas (1225-1274) holds that derivations such as these could be made by using commandments like "You shall not murder," "You shall not commit adultery," and "You shall not steal." What he did not realize is that the concepts *murder*, *adultery* and *steal* presuppose unlawfulness in a jural sense. The prohibition of murder requires that one ought not to show such a lack of love and care towards one's neighbour that the desire to intentionally slay such a person arises. But when it is attempted to reduce the *moral* meaning of this commandment to the jural an antinomy appears, since the meaning of morality presupposes the jural sense of unlawfulness. In order to side-step this antinomy. Victor Cathrein suggested that it is forbidden to murder unlawfully (Cathrein 1909:223).

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12 In Husserl this idea of *construction* was still conceived of in a *rationalistic* way. Existential phenomenology, on the other hand, transformed Husserl's rationalism into an *irrationalistic* perspective.

13 When historicism mounted its intellectual forces at the beginning of the 19th century it also claimed that all historical events are unique, individual and irrepeatable, without realizing that these three features are *universal* because they apply to *all* historical events!

14 A comprehensive critique of historicism and pragmatism is found in Clouser 2005. His closing statement reads: "Therefore I find that Rorty has failed to rescue historicism from the incoherencies native to it. Its central claims are still self-referentially, self-assumptively, and self-performatively incoherent, and Rorty's additions to them only compound the difficulties by being mutually inconsistent" (Clouser 2005:19).

However, since the concept 'murder' presupposes the jural element of unlawfulness (murder = unlawful killing), this escape-route continues to be antinomic. The possibility of an unlawful 'murder' entails that its opposite is also possible: "lawful murdering." But since *murder = unlawful killing* the construction of "lawful murdering" boils down to the following entailed logical contradiction: "lawful-unlawful killing."

The last example introduced a new term, the term *antinomy*, to our discussion. It is not meant to be synonymous with a *contradiction*. As an example of a contradiction Cassirer refers to a "rundes Viereck" (a "round square") (Cassirer 1910:16), thus slightly altering the original example given by Kant in 1783.[15] Confusing two *spatial* figures is merely contradictory, because circles, squares and triangles are all appearing within *one* aspect of our experience – the spatial aspect.

However, when two distinct aspects are confused something worse happens, for then we meet a *clash of laws*. For that reason the attempt to reduce one aspect to a different one inevitably results in an *antinomy* (anti = against; nomos = law). An antinomy necessarily expresses itself in contradictions, but not all contradictions presuppose an antinomy. The classical example of an antinomy has already surfaced in the school of Parmenides in Greek thought. From Zeno, an adherent of Parmenides, we have just four fragments left and the third one contains his attempt to deny motion by reducing it to static positions in space. It reads: "Something moving neither moves in the space it is occupying, nor in the pace it does not occupy."[16] What is actually opposed is first granted – something is moving, but then it is eliminated because such a 'moving' thing does not move where it is or where it is not. However, instead of defining motion in static spatial terms, as if a moving thing from moment to moment occupies a definite (static) place in space, movement has been *reduced* to space. The *antinomy* involved attempts to reduce the kinematic aspect of uniform motion to the spatial aspect of static simultaneity. Since we can refer to the aspects of our experiential world as *modes of being* or as *modalities* it is clear that whereas a contradiction is always intra-modal in nature, an antinomy is always *inter-modal*. Moreover, recognizing an antinomy presupposes an insight into unique (and irreducible) *modal aspects* – without denying their *mutual coherence*. However, these considerations transcend the scope of the first three logical principles for they make an appeal to the *ontological* principle of the *excluded antinomy*.

By introducing this principle we have already moved towards one instance of the nature of *factual criticism*.

Factual criticism

It frequently appears that a position is assumed on the basis of allegedly sound 'facts' but that closer scrutiny reveals the opposite.

Example 1: 'Soul' and 'body'

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15 Immanuel Kant mentions the illogical concept of a "square circle" (Kant, 1783:341; § 52b). Contraries like logical – illogical, polite – impolite, legal – illegal, etc. are all founded on the logical principle of non-contradiction.

16 Diels-Kranz 1959-I, B Fragmenet 3. An extensive discussion of the distinction between contradiction and antinomy is found in Strauss 2007.

Since Plato advanced his 'proofs' for the immortality of the soul in his dialogue *Phaido* medieval scholasticism continued the idea that the human "rational soul" can operate in independence from the human "material body."[17] Thomas Aquinas writes: "Therefore, if the intellectual principle contained within itself the nature of any body, it would be unable to know all bodies" (see Pegis 1945-I:685). However, in terms of *factual critique*, it should be pointed out that in all thought activities of humans physical-chemical processes take place in the fore-brain. Although the total mass of an adult brain is a mere 2% of its total mass, 25% of the total metabolism occurring within the human body is found in the brain (cf. Plamenac 1970:444).

Example 2: Suspending physical laws

We noted above that the neovitalism of Driesch believed that the "immaterial vital force" (*entelechie*) can 'suspend' physical laws, such as the law of non-decreasing entropy (because apparently a living entity builds up more and more order, thus seemingly "side-stepping" the increase in disorder prescribed by this law – see Driesch 1921:434 ff.).

By providing his generalization of the second main law of thermodynamics, Von Bertalanffy abandoned this notion of the "suspension" of physical laws by an assumed immaterial *entelechie*. The implicit assumption in Driesch's argument was that one can view a living entity as a physically *closed system*. Through his generalization Von Bertalanffy accounted for *open systems* – such as a glacier, fire or living entities viewed from their physical aspect – which means that a living entity does build up more and more order "at the cost" of extracting it from its environment (Schrödinger calls it *negentropy* – see Schrödinger 1955). The current *factual state of affairs* therefore uprooted the neovitalist idea of suspending physical laws.[18]

Example 3: Marx's view of the sub- and superstructure of society

Karl Marx advanced the view that the historical-economical substructure of society provides the basis for (in the sense of one-sidedly determining) the ideological superstructure of law, morality and religion. However, *factually* is turned out that within societies with practically the same historical-economic substructure large differences in law, morality and religion are present, thus making the causal connection suggested by Marx invalid.

Transcendental critique

The preceding discussion highlighted the importance of immanent criticism and factual criticism for meaningful and constructive scholarly communication. But it remained enclosed within the realm of theoretical views of reality, such as that of (neo-)vitalism or historicism. The positive outcome of what has been discussed is that the undeniable

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[17] Plato believed that when the soul investigates without the mediation of the body, it is directed at the world of the pure and eternal, immortal and unchanging, constant and equally natured things (*Phaido* 79 d). The soul exhibits the greatest similarity to the divine, immortal, conceivable, simple indissoluble, constant and 'self-identical', while the body bears the greatest similarity to the human, mortal, multifarious, non-conceivable, dissoluble and never-constant (*Phaido* 80 b 1-6).

[18] After Von Bertalanffy generalized the second law for *open systems* (see Von Bertalanffy 1973) the followers of Driesch accepted it but continued their altered Neovitalism (see Sinnott 1963 and 1972, Haas 1968, Heitler 1976 and Overhage 1977).

presence of alternative and sometimes even conflicting standpoints in various academic disciplines invalidates the idea of an "objective and neutral reason" mentioned in the beginning of our discussion.

Competent scholars in the domain of philosophy of science acknowledge that the traditional appreciation of human thought and of the power of reason are rooted in deeper convictions. The prevailing implicit trust in reason did not realize that such a *trust* or *faith* in reason is not itself rational! The well-known philosopher of science, Sir Karl Popper, radically attacks an uncritical or comprehensive rationalism which is based upon "the principle that any assumption which cannot be supported either by argument or by experience is to be discarded" (Popper 1966-II:230). He argues that this kind of rationalism is demonstrably inconsistent, i.e. in terms of its own criteria: since "all arguments must proceed from assumptions, it is plainly impossible to demand that all assumptions should be based on argument" (Popper 1966-II:230). Popper is aware of the fact that behind the idea of an "assumptionless" approach a huge assumption hides itself – something eventually also criticized by the prominent hermeneutical philosopher, Hans-Georg Gadamer, in his mocking of the prejudice of Enlightenment against prejudices (cf. Gadamer 1989:276).

Popper's own position unequivocally demonstrates his insight into the self-insufficiency of "rationality." He knows that the rationalistic trust in reason is not rational itself and he explicitly speaks of "an irrational faith in reason" – which means that according to him "rationalism is necessarily far from comprehensive or self-contained" (Popper 1966-II:231).

Stegmüller, an equally formidable philosopher of science from the second half of the 20th century, holds a similar conviction. He says that there is no single domain in which a *self-guarantee* of human thinking exists – one already has to believe in something in order to justify something else (Stegmüller 1969:314).[19]

From an anthropological perspective this imply that one has to understand that it is not 'thinking' that thinks, but the concrete human being who is more than thinking. Scholarly thinking is made possible by a supra-theoretical commitment that gives *direction* to scientific thought. The word *transcendental* is employed in this sense – it intends to capture those conditions (both theoretical and supra-theoretical) that make theoretical thinking possible. When transcendental critique is exercised an account is required of the theoretical view of reality of a thinker and of the deepest, direction-giving commitment lying at the root a particular theoretical view of reality.

Theoretical orientations such as (neo-)vitalism, historicism, dialectical Marxism, arithmeticism, and so on are all instances of theoretical views of reality in which a specific account is given of the unity and diversity found in reality. Applying the principle of the *excluded antinomy* opens up the possibility to show that such ismic orientations are untenable because they harbour insoluble *antinomies*.

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[19] This position is reminiscent of a remark made by Max Planck, the famous physicist who discovered the quantum of energy h (6.62×10^{-34} joule sec), in his rectoral oration of 1913: "One should not believe that it is possible, even in the most exact of all the natural sciences, to make progress totally without a world view, that is to say, completely without improvable hypotheses. Also for physics the statement is true that one cannot attain salvation without faith, at least faith in a certain reality outside ourselves" (Planck 1913:78).

Yet there is more to scientific paradigms (theoretical views of reality) since the (supra-theoretic) root-commitment of a scholar ultimately reveals the deepest basic motive (ground-motive) operative in such paradigms. We will give merely a brief indication of what this entails – by looking at some of the issues discussed above in terms of *transcendental criticism*.

Although Greek thought by and large was characterized by a realistic orientation it did know nominalist thinkers as well – such as Callicles and the *Sophist* Protagoras. Both philosophers thought within the context of the deepest motivation of Greek thought and culture, expressed in the concern for *immutability* within a world of *change*. Aristotle eventually captured this tension by using the terms *form* and *matter*. The view of the human person found in the thought of Callicles and Protagoras is in the grip of the matter motive, for human subjectivity is seen as constantly changing and it cannot be grasped in any fixed form or measure. Only the *polis*, the Greek *city state*, as bearer of the Greek form motive, is capable of supplying the human being with a cultural garb through education and obedience to positive laws – thus demonstrating the primacy of the form motive in the thought of Protagoras. This explains why he holds that human beings, coming from a condition in nature where the state is absent, have those properties that are necessary for the formation of a state – but not on the basis of (the modern idea of) a "social contract" (see Menzel 1929 and 1936).

Modern nominalism, since the Renaissance, emerged within a different context. It was inspired by the urge to be liberated from the medieval unified ecclesiastical culture – humankind wanted to establish its own freedom and autonomy and it found in the rising successes of the new natural sciences the required control instrument. This implied that the ideal of a free and autonomous personality gave birth to the Renaissance natural science ideal, aimed that the reduction of all of reality to the determinism of mathematical-physical categories. Yet, as soon as all of reality is reduced to such a determined mathematical-physical condition, the assumed free and autonomous human personality falls prey to its own creation, the natural science-ideal, that now reveals its Frankenstein-effect: in a world fully determined by the law of causality there is no room left for the freedom of the human person. *Nature* and *freedom* turned out to be a different basic motive (ground-motive), not only giving direction to modern nominalism but to modern post-Renaissance thought in general.[20]

The view of Kant mentioned above, regarding human understanding as the *a priori* (formal) law-giver of nature, represents his restriction of the natural science ideal to the world of phenomena (sense impressions), for behind appearances the freedom of the human soul is concealed (as a "thing-in-itself" – see Kant, 1787-B:XXVII-XXVIII). Kant indeed simply used the age-old distinction between "essences" and "appearance" in order to safe-guard a supra-sensory domain of moral freedom where the human being could be appreciated as an ethical aim-in-itself (Selbstzweck).[21] Kant explains: "*For if appearances are things in themselves*, *freedom cannot be upheld*" (Kant, 1787-B,564).[22]

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[20] Dooyeweerd's analysis of the dialectical development of modern philosophy, alternating between giving primacy either to the nature pole (Descartes, Hobbes, Leibniz, Locke, Berkeley and Hume) or to the freedom pole (Rousseau as transitional figure, Kant and post-Kantian freedom idealism: Schelling, Fichte and Hegel) provides an unparalleled understanding of modern philosophy (see Dooyeweerd 1997-I:216-495).

[21] The following words of Kant explicitly reveal his awareness of nature and freedom as the deepest motivating power of the critique of pure reason: "My purpose has only been to point out that since

The understanding of causality in the biology of Driesch actually attempted to apply he classical science-ideal to biotic phenomena as well. But his *negative* view of *entelechie*, circumscribed as non-spatial, non-mechanical, indivisible and non-energetic provided a starting-point for Arnold Gehlen – with an appeal to the idealism of Schelling and Hegel – to explore *freedom*. In order to achieve this Gehlen had once more to restrict causality to *mechanical* causality. "Because causality is only thinkable as mechanic causality, *entelechie* is *free* in a negative sense, that is it is spontaneous and primary in a sense that is incapable of closer determination" (Gehlen 1965:60). This dialectical relation between *nature* and *freedom* is further elaborated in Max Scheler's work on the place of the human being within the cosmos (see Scheler 1962:38, 40) and the freedom motive is also embodied in the idea of *Weltoffenheit*, developed in the thought of Gehlen, Portmann (a biologist) and Pannenberg (a theologian). In his PhD on the thought of Portmann this legacy is summarized by R. Kugler: "The innermost essence of the human being is freedom, …" (Kugler 1965:81).

Finally, Karl Jaspers, who is well-known within the circles of the discipline of communication, expressed his own indebtedness to the motive of nature and freedom as follows: "Because freedom is merely through and in opposition to nature, it must fail as freedom. – Freedom is only when nature is" (Jaspers 1948:871).

Concluding remark

This brings us to the end of an ever expanding perspective on the nature of scholarly communication – starting with immanent criticism, proceeding to factual criticism and finally discerning a tradition of thought encompassing many centuries and giving expression to an ultimate commitment or basic motive. Although we have merely briefly mentioned the Greek motive of form and matter and the modern (post-)Renaissance motive of nature and freedom, Western civilization is also co-constituted by the biblical basic motive of creation, fall and redemption and by the medieval ground-motive of nature and grace.[23]

On the basis of showing the required critical solidarity scholarly communication ought to proceed along the line of immanent criticism, factual criticism and ultimately transcendental criticism – guided not only by the application of logical principles but also by applying the ontological[24] principle of the excluded antinomy.

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the thoroughgoing connection of all appearances, in a context of nature, is an inexorable law, the inevitable consequence of obstinately insisting on the reality of appearances is to destroy all freedom. Those who thus follow the common view have never been able to reconcile *nature and freedom*" (my italics – DFMS, Kant, 1781-A,537, 1787-B,565).

22 "Denn, sind Erscheinungen Dinge an sich selbst, so ist Freiheit nicht zu retten."

23 An analysis of the historical unfolding of these four ground-motives is found in Dooyeweerd 2003.

24 Strictly speaking is should be designated as the *ontic* principle of the excluded antinomy. Similar mistakes are frequent in English, for example when biological is used where *biotic* is meant, when sociological is employed instead of *social*, and so on.

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