



# Europäische Akademie

zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen  
Bad Neuenahr-Ahrweiler GmbH

Direktor:  
Professor Dr. Dr.h.c. Carl Friedrich Gethmann

# Newsletter

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## Editorial

Die Europäische Akademie ist in besonderer Weise der Stadt und der Region, in der sie seit nunmehr acht Jahren tätig ist, verbunden, was auch in der Namensgebung zum Ausdruck kommt. Verstärkt wird die regionale Einbindung der Akademie zum einen durch den Arbeitskreis „Medizinethik“, der nach Anregungen aus der Ärzteschaft der Region 1998 von der Europäischen Akademie gegründet wurde. Mitte 2003 wurde der Arbeitskreis Medizinethik in die Trägerschaft des Vereins der „Förderer der Europäischen Akademie e. V.“ überführt. Zum anderen wurde bereits 1997 in Kooperation mit der Kreissparkasse Ahrweiler die Veranstaltungsreihe „Kreissparkassenvorträge“ ins Leben gerufen.

Diese Veranstaltungsreihe ist geprägt von Vorträgen zu interessanten und aktuellen Fragestellungen. Die Referenten sind international renommierte Fachleute aus Politik, Wissenschaft und Wirtschaft. So konnten in letzter Zeit Professor Dr. Klaus-Dirk Henke (Technische Universität Berlin) zum Thema „Ist unser Gesundheitssystem noch bezahlbar?“, Professor Dr. Julian Nida-Rümelin (Universität Göttingen) zum Thema „Das Ethos der Wahrhaftigkeit – im Alltagsleben und in der Politik“ und Professor Dr. Reinhard Merkel (Universität Hamburg) zum Thema „Gerechter Krieg? Ethische und juristische Überlegungen zum Begriff der humanitären Intervention“ als Referenten gewonnen werden. Am 31. März 2004 hält Professor Dr. Jürgen Mittelstraß (Universität Konstanz) einen Vortrag zum Thema „Vom Nutzen der Philosophie“.

Über die Kreissparkassenvorträge wird regelmäßig im Newsletter berichtet.

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## Focus

### Methodological Problems of Integrative Research

Carl Friedrich Gethmann

Conceptions of integrative research which include, for example, global change research, syndrome research, earth system research and the management of complex systems, give rise to an expression of dissatisfaction with traditional scientific methodology. The latter appears insufficient, above all, even to provide an adequate problem analysis in view of the global environment problems and their accompanying social problems – let alone to contribute to the discovery of commensurate strategies for their solution. In this context, the reason for this insufficiency is frequently seen to exist in a purported reductionism of scientific methodologies which – it is claimed – can be overcome by “holism”.

The German version of this article is available at [www.europaeische-akademie-aw.de](http://www.europaeische-akademie-aw.de). Die deutsche Fassung dieses Textes kann auf der Homepage der Europäischen Akademie abgerufen werden unter: [www.europaeische-akademie-aw.de](http://www.europaeische-akademie-aw.de).

#### 1. Pragmatic Holism in Research

Holism is a theoretical, scientific programme which was developed in the philosophy of science of the 20th century, following on from Duhem and Quine. In this, a distinction is frequently made between semantic holism (involving the theory of meaning) and epistemic holism (involving the theory of truth).

According to the theory of *semantic holism*, the meaning of a sub-sentential expression (a word, for example) cannot be (fully) determined without taking into account the semantic function of this expression in the sentence (the statement, the assertion, the utterance, ...) in which the expression occurs. In turn, the meaning of a sentence cannot be determined without taking into account the semantic function of the sentence in the text as a whole (in the theory as a whole, in the language [of science] as a whole, ...). Pursuing this line of thought, it must be concluded that meaning is actually only conveyed by the entirety of the language (of science).

Analogous to this, *epistemic holism* claims that one can only determine the truth/falsity of a sentence by (also) taking into account its epistemic contribution to the entire context. In the non-figurative sense, therefore, only entire contexts (entire theories, entire languages [of science], ...) can be true/false.

The criticism levelled at semantic and epistemic holism ultimately concludes that holism leads to a value loss in the critical potential of science and thus to semantic and/or epistemic arbitrariness. This means that, in view of the undefined openness of contexts, theories, languages, if holistic arguments were sound as far as the semantic aspect of language is concerned, explanations of meaning would not be possible. Language is endowed with potential semantic function in spite of the fact that the “network of meaning” can always lead to further semantic junction points of one kind or another. Indeed, semantic potentials for the purpose of the explanation of meaning do function because in concrete communicative situations, it is nearly always sufficient to „sharpen some

edges", i.e. because, as a rule, speaker and listener can rely on large fields of a semantically unproblematic nature. Thus, the response to the holistic challenge can be expressed as follows: If we presuppose that communicative understanding and reasoning are possible, then we must presuppose that partial understanding and rationale have already been accomplished. Both from the semantic as well as the epistemic perspective, this ultimately means that sciences are only possible because they can recur on the basis of life-world, pre-scientific understanding and the establishment of ends, which are in themselves, therefore, the basis of scientific knowledge. The answers to the justified objections against semantic and epistemic atomism are founded not in corresponding holisms, but rather relate to semantic and/or epistemic "molecularism", according to which communicative understanding and reasoning, albeit that they always function in relation to sectors of successful cognitive endeavours, are not arbitrary.

These considerations shall serve as a background against which to now discuss a third form of holism which is frequently resorted to in order to justify the demand for integrative research. Namely, the reasoning behind the demand for integrative research is primarily not founded on insufficiencies in the forms of scientific systemisation (such as concepts, statements and theories), nor is it based on the question of their control (by definition, argumentation or proof), but rather in their pragmatic application for extra-scientific purposes. For this reason the term "*pragmatic holism* (in research)" shall be discussed here. It does not have to do with the meaning of language segments nor with the truth of such segments but rather with the question whether the segments are possible answers to questions ensuing from situations of human interaction. Every question elicits answers and every answer poses new questions. Therefore – and this is the pragmatic argumentation – we would have to have the entire network of questions and answers at our disposal, if we wanted to evaluate correctly and pragmatically the pertinence of a question and the soundness of an answer. For this, the entire system of questions and answers would have to be researched. However, the modern understanding of causality which forms the basis for the natural sciences, does not accommodate system research of this nature.

The objection against this holistic argumentation follows analogously the objection against semantic and epistemic holism. Scepticism towards the examination of micro-causalities cannot lead to presupposing the non-relevance of all

questions and the unsoundness of all answers. Since, precisely in that case, research would no longer be possible. Just as semantic holism renders understanding impossible, epistemic holism precludes reasoning, pragmatic holism makes the purposeful application of knowledge unfeasible.

Also with regard to pragmatic holism one could consider the counter-concept of a pragmatic molecularism. This means that also understanding through the purposes of applying knowledge presupposes that there are already pre-scientific, life-world aims that have been successfully set. Science functions only then and only as long as certain semantic, epistemic and pragmatic presuppositions are in force that cannot, at the same time, be subject to semantic, epistemic and pragmatic debate.

## 2. Mankind – A Part of Nature?

The rationale supporting the programme of integrative research frequently cites the topos that the human being is a part of nature and that because of this it would always lead to reductionalistic foreshortening if science were to examine only segments of nature. In answer to this "meta-physical" holism it should be pointed out that the category of wholeness is an interpretive category set up by man himself vis-à-vis reality. "Man is a part of nature", is said by man himself (and not by nature). Also the interpretation of being part of the whole is man's own instrument for interpreting the world and himself and as such is not, in origin, more natural, more objective, etc. than any other instrument. Thus, being categorised as part of the whole does not relieve man from shaping an understanding of the world and himself. This means, however, that "the whole" can only be grasped by breaking it down (analysis) and re-composing it under controlled conditions (synthesis). Man is not able to describe his relationship to the natural world around him from a kind of neutral, bird's-eye perspective. Rather he must establish, by interpreting and shaping, his relation with nature (e.g. as a part of it). The cognitive and operative unsubsidiability of man which, moreover, cannot only be embedded in nature but which also has to defend itself against it, is mainly conducive to the fact that man cannot be spared from confronting the question of finding the right measure in his dealings with nature

Accordingly, integrative research also has no choice but to proceed "analytically". It must dissect its object in such a manner that enables it to be handled methodically and that composes the various perspectives ensuing therefrom to form a picture of the whole. Even though integrative

research may start from a different analytical approach from that of traditional, modern science (against which nothing could be said in principle), this alternative analysis would have to be justified and would have to prove itself through cognitive success.

(a) Integrative research claims to regard "the whole" as its *material object*. Compared with this it must be pointed out that integrative research cannot but proceed by selecting parts of the whole as the object of research, thus deferring other parts. "The whole" can play the role of a regulative idea but cannot be the object. Since the whole cannot be grasped, it requires certain "substitute entities" which somehow stand for the whole. The fact that these exist at all is evidenced by the fact that apportioning the object into separate areas is unavoidable. In the discussion about integrative research, such "quasi-objects" are, for example, the syndromes and the trans-sects. These are a matter of dummy constructions which pose the corresponding problems of arbitrariness.

(b) Integrative research is unable to avoid selecting *perspectives* in *regarding the object* thus deferring others. The object of scientific work is always a segment of reality determined by the scientific process itself. This initially poses simple questions regarding method, i.e. questions concerning the adequate access to the object. Above all, however, the question of quality assurance in regard to integrative research becomes unignorable. The question of quality assurance is closely connected with resolving the questions of method and therefore with the validation of research results. Validation principles, such as the principles of reproducibility and provability must not be abandoned.

(c) Also integrative research cannot avoid selecting *knowledge interests* thereby deferring others. This selection equally demands justification, just as the selections regarding the material object and the knowledge perspectives. In this, cognitive arbitrariness must be excluded, above all because this incites operative arbitrariness and thus the ideological harnessing of the sciences for extra-scientific purposes.

All in all, pragmatic holism in research is in danger of robbing its own research activities, performed on that basis, of those rational instruments of assessment that in their turn must not be arbitrarily dispensable. For this reason, many integrative research programmes will have to be criticized for their latent anti-enlightening nature.

## 3. Integrative Research and Politics

In the enlightenment programme of modern science, a series of distinctions are

contained that have to be defended in the interest of clarification. These include the differentiations between physics and metaphysics, empirical and theoretical truths, explanation and understanding, analytical and synthetic statements. They also include the differentiation between *descriptive and prescriptive validity claims*. If these differentiations are abandoned, science becomes in danger, more or less unnoticed, of slipping from a research strategy into a political conception. Therefore, the relationship between integrative research and politics is to a high degree in need of clarification.

At the outset, there appears to be wide agreement that the aim of the enterprise "Integrative Research" is not merely an improvement of the cognitive situation but rather that it is subject to an operative orientation. Accordingly, integrative research shall not simply produce research findings, but these findings shall support a particular political practice, if not even create it. The transition from knowledge oriented to action oriented research is regarded across the board as the decisive progress of integrative research compared with traditional research. With regard to the relationship between scientific knowledge and political action, however, critical questions must be posed.

(a) With regard to the adequate interpretation of the relationship between knowledge and action, now, as ever, the concept of practical syllogism is helpful. From this may be drawn that a request may be the correct conclusion from a descriptive and a prescriptive premise. In this sense it may be said that a descriptive premise "supports" a prescriptive conclusion. It must be noted, however, that a descriptive premise alone can never take the place of a prescriptive premise. A conclusion of this nature would always lead to an under-determination of premises; this is referred to in philosophy as a "naturalistic fallacy". Integrative research, even if it should succeed in spite of the aforementioned methodological problems, is principally descriptive in nature. The "integration" of "social sciences" does not change the situation from the methodological point of view. Without investing prescriptive premises which, for example, may derive from ethics or from politics, prescriptive conclusions are unthinkable.

(b) Thus the question as to whether there can be an unequivocal relationship between scientific knowledge and political action must be answered in the negative. The frequently, more or less explicitly, asserted presupposition that only a particular (environment) policy would be in har-

mony with the findings of integrative research carries with it the danger of "ideologising" science, but also the danger of making an inadequate science out of politics. This observation is in no way intended to imply that the prescriptive element would necessarily have to be interpreted as decisionistic or irrational or even merely as unscientific. The justification of prescriptions, however, is subject to other standards of rationality as descriptions and explanations.

(c) From the equivocality of the relationship between knowledge and political action it also follows that by no means only that political action can be legitimate for which there is a scientific "support". The basis for political action not only extends beyond this or that scientific description and explanation, it extends fundamentally beyond the scope of description and explanation.

*In summary* it must be stated that the term "Integration" shall represent a pragmatic research concept that draws its justification neither from a holistic background philosophy nor from any other kind of concept of sciences composed of comprehensive wholes. Instead, it should be much more a matter of eradicating unjustified reductionism and transforming it into superordinated questioning. The notion, however, that by integrative processes of this kind, it could ultimately become possible to view "the whole" must be abandoned for fundamental, methodological reasons. The concept of "the whole" is merely a "regulative idea" (in the sense of Kant), by which are repeatedly reminded of man's limitations in his quest for knowledge, but which does not constitute something like a supreme object. Neither should integrative research present itself with the claim of being able to provide society with the basis for politically correct action. Instead, it should understand itself as an ensemble of self-organising scientific disciplines through the formation of which it is attempted to support, in the sense described, the setting of political aims. The turn of phrase "support political action by scientific knowledge" also implies that scientific knowledge cannot take the place of political action. It is not up to the sciences to pursue a political path, but to contribute in making this possible.

Professor Dr. Dr. h.c. Carl Friedrich Gethmann is Director of the Europäische Akademie and professor of philosophy with main focus on applied philosophy at the University Duisburg-Essen.

## Working Groups

### Nanomaterialien, Nanodevices, Nanocomputing. Standortbestimmung und Perspektiven

The project group „Nanomaterialien, Nanodevices, Nanocomputing. Standortbestimmung und Perspektiven“ held a meeting in Bad Neuenahr-Ahrweiler from 30<sup>th</sup>–31<sup>st</sup> January. Beyond the treatment of other topics, the group had invited three toxicologists to participate in this session: Dr. Monika Maier (Degussa AG, Produktsicherheit Aerosile und Silane), Dr. Harald Krug (Forschungszentrum Karlsruhe, Institut für Toxikologie und Genetik) and Dr. Wolfgang Kreyling (GSF – Forschungszentrum für Umwelt und Gesundheit, Institut für Inhalationsbiologie) reported on their fields of research and on their interconnections to Nanotechnology. According to their opinion, there is evidence that decreased particle size within fine and ultra-fine dusts gives rise to stronger interaction with biological organisms. This might have positive as well as negative implications. They also stated that nowadays the majority of such particles originates in conventional processes like traffic or large scale fires. Nanotechnology's contribution is still negligible which allows for assessing its specific risks in advance.

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### Environmental Noise

In the early weeks of the new year the consolidation of the project group was concluded: Professor Dr. Michael Klopfer (Humboldt-Universität Berlin, Institut für Öffentliches Recht und Völkerrecht) agreed to chair the working group. Additionally, two new members joined the group, thus complementing its scientific competence. The experts are Professor Gernot Klepper, Ph.D. (Institut für Weltwirtschaft, Kiel) and Professor Dr.-Ing. Gerhard Steinebach (Technische Universität Kaiserslautern, Lehrstuhl „Stadtplanung“). The personal constitution of the project group allows now to enter its main working phase.

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## Conferences

### Frühjahrstagung 2004: Die interdisziplinäre Funktion der Philosophie

Die diesjährige Frühjahrstagung der Europäischen Akademie zum Thema „Die interdisziplinäre Funktion der Philosophie“ findet statt vom 31. März bis 2. April im SETA Hotel Bad Neuenahr. Das Tagungs-

programm kann auf der homepage der Europäischen Akademie unter [www.europaeische-akademie-aw.de](http://www.europaeische-akademie-aw.de) abgerufen werden.

### 31. März: Öffentlicher Abendvortrag im Rahmen der Kreissparkassen-Vorträge

ab 19.30: „Vom Nutzen der Philosophie“  
Professor Dr. Jürgen Mittelstraß  
(Universität Konstanz)

Moderation: Professor Dr. Carl Friedrich Gethmann

### 1. April: Sektionen 1 und 2

Sektion 1: Die interdisziplinäre Funktion der Ethik (Leitung: Dr. Felix Thiele)

- „Die Philosophie als Stichwortgeber für die Kulturwissenschaften“  
Professor Dr. Oswald Schwemmer  
(Humboldt-Universität zu Berlin)
- „Die Bedeutung der Medizinethik für die medizinischen Wissenschaften – am Beispiel der Stammzellforschung“  
Professor Dr. Dieter Birnbacher  
(Universität Düsseldorf)
- „Willensfreiheit und strafrechtliche Schuld“  
Professor Dr. Reinhard Merkel  
(Universität Hamburg)

Sektion 2: Die interdisziplinäre Funktion der Wissenschaftstheorie (Leitung: Dr. Gerd Hanekamp)

- „Philosophische Naturalismuskritik und das Selbstverständnis der Naturwissenschaften“  
Professor Dr. Peter Janich  
(Universität Marburg)
- „Die Funktion der Wissenschaftstheorie in der Technikfolgenabschätzung als Forschung und Beratung“  
Professor Dr. Armin Grunwald  
(Forschungszentrum Karlsruhe)
- „Konsensfindung bei begrenztem Vertrauen“  
Professor Dr. Rainer Hegselmann  
(Universität Bayreuth)

### 2. April: Sektion 3

Sektion 3: Philosophie und Politikberatung (Leitung: Dr. Stephan Lingner)

- „Braucht das politische System den Rat der Philosophie?“  
Professor Dr. Julian Nida-Rümelin  
(Universität Göttingen)

- „Ethik in Kommissionen – eine contradictio in adiecto?“  
Professor Dr. Volker Gerhardt  
(Humboldt-Universität zu Berlin)
- „Die Bedeutung der Philosophie im politischen Tagesgeschäft“  
Dr. Christoph Böhr (MdL Mainz)

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## News

### Kreissparkassenvortrag

Im Rahmen der Kreissparkassenvorträge, die die Europäische Akademie in Zusammenarbeit mit der Kreissparkasse Ahrweiler veranstaltet, hält Professor Dr. Jürgen Mittelstraß am 31. März um 19.30 Uhr im SETA Hotel einen Vortrag zum Thema „Vom Nutzen der Philosophie“. Der Referent hat den Lehrstuhl für Philosophie und Wissenschaftstheorie, unter besonderer Berücksichtigung der Wissenschaftstheorie der Geisteswissenschaften, an der Universität Konstanz inne. Zudem ist er Direktor des Zentrums Philosophie und Wissenschaftstheorie.

Mit dem Vortrag von Professor Mittelstraß wird gleichzeitig die diesjährige Frühjahrstagung der Europäischen Akademie zum Thema „Die interdisziplinäre Funktion der Philosophie“ eröffnet.

## Lectures

Carl Friedrich Gethmann

22.1.2004 „Ethische Implikationen der Stammzellforschung“: Ringvorlesung „Dimensionen der Gentechnologie“ an der Universität Kassel

9.2.2004 „Der moralische Status des Embryo“: Institut für Philosophie der Universität Bayreuth

12.2.2004 „Oskar Beckers *Grundprobleme existenzialen Denkens*“: Kolloquium zu Umfeld und Wirkung der Philosophie Oskar Beckers, FernUniversität Hagen

Gerd Hanekamp

2.2.2004 „Handelt der homo oeconomicus?“ Philosophisches Kolloquium, Universität Marburg

## Personalities



Maciej Żukowski studied economics at the University of Economics in Poznań, Poland, where he is currently professor for economic sciences in the Department of Labour and Social Policy. Since 1996, he also works as a professor at the Poznań School of Banking (WSB) in Poznań.

Professor Żukowski's main research area is the analysis of social security systems, with a special focus on old-age security systems, labour market, labour migration, social policy in the EU and in the transition countries. His doctoral thesis in 1991 was on "The Relationships between Pension- and Labour-Income and their Determinants – in Poland, the Federal Republic of Germany and Great Britain". His translation into Polish of Nicholas Barr's textbook "The Economics of the Welfare State" was published in 1993.

In addition to several other research appointments abroad (among others at the Vienna University of Economics and at the London School of Economics), from 1994 to 1996 he was engaged at the Centre for Social Policy Research (ZeS) at the University of Bremen, where, as a scholarship holder from the Alexander-von-Humboldt-Foundation, he worked on his postdoctoral thesis on the subject of "Multi-Tier Old-Age Pension Systems in the European Union and Poland. Between State and Market." In 1997 he qualified as a university lecturer in economic sciences and was awarded a year later a first grade individual research prize from the Polish Minister of Education for his book.

Professor Żukowski is a member of the project group "European Social Policy" of the Europäische Akademie.

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