

FEYERABEND 2012

Conference Program



Institut für Philosophie
Humboldt-Universität zu Berlin



26-29 September 2012

Dorotheenstr. 26 – Rooms 207, 208

<http://www2.hu-berlin.de/feyerabend2012/>

DFG Deutsche
Forschungsgemeinschaft

Organizing Committee

Dr. Eric Oberheim

Dr. Matteo Collodel

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List of Participants

Invited Speakers

Joseph Agassi
Grazia Borrini-Feyerabend
Matthew Brown
Matteo Collodel
Carla Fehr
Stefano Gattei
Ronald Giere
Paul Hoyningen-Huene
Ian J. Kidd
Martin Kusch
Gonzalo Munévar
Eric Oberheim
John Preston
Howard Sankey
Vera Tripodi
Jeu-Jenq Yuann

Contributing Speakers

Fabrice Bothereau
Luděk Brouček
Esteban Céspedes
Shapour Etemad
Christian Feldbacher
Lisa Heller
Bschir Karim
Daniel Kuby
Eric Martin
Max Mergenthaler Canseco
Steve Meyer

Hossein Sheykh Reazee

M. Carleton Simpson
Helene Sorgner
Maria Titeica
Luca Tombolo

Registered Participants

Augustin Baas
Hadi Jalili
Kristoffer Klement
David Q. Lee
Dejan Makovec
Meisam Mohammadamini
Corrado Morrozzo
Nahal Naficy
Ilona Schweitzer
Dunja Seselja
Daniel Sirtes
Antonio Sparzani
Johannes Wittrock

Conference Program

Day 1

Wednesday, 26 September 2012

General Schedule

8:30 - 9:00 *Registration*
9:00 - 9:15 *Opening Statements*

ROOM 207 **PLENARY SESSION**
Chair: Prof. Joseph Agassi

9:15 - 10:05 *Paul Feyerabend: A Personal Re-Appraisal*
Prof. Ronald Giere
Minnesota Center for Philosophy of Science, University of Minnesota (USA)

10:05 - 10:30 *Discussion*

10:30 - 10:50 COFFEE BREAK (20')

ROOM 207 **PLENARY SESSION**
Chair: Prof. Gonzalo Munévar

10:50 - 11:40 *Feyerabend, Truth and Relativisms: The Italian Debate*
Dr. Stefano Gattei
IMT Institute for Advanced Studies (Italy)

11:40 - 12:05 *Discussion*

12:05 - 13:30 LUNCH BREAK (85')

PARALLEL SESSIONS

13:30 - 17:10 *CONTRIBUTED PAPERS* → p. 7

17:10 - 17:30 COFFEE BREAK (20')

ROOM 207 **PLENARY SESSION**
Chair: Prof. Carla Fehr

17:30 - 18:20 *Feyerabend on Relativism*
Prof. Dr. Martin Kusch
University of Vienna (Austria)

18:20 - 18:45 *Discussion*

Day 1

Wednesday, 26 September 2012

Parallel Sessions

Contributed Papers

| | ROOM 207 | ROOM 208 |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <i>Chair:</i> Dr. Eric Oberheim | <i>Chair:</i> Prof. Hoyningen-Huene |
| 13:30 - 14:20 | <i>Feyerabend on Ad-hoc Modifications</i> Christian Feldbacher University of Innsbruck (Austria) → p. 14 | <i>Causal Overdetermination, Incommensurability and Pluralism</i> Esteban Céspedes J. W. Goethe-Universität Frankfurt am Main (Germany) → p. 20 |
| 14:20 - 15:10 | <i>Feyerabend's Argument for Theory Pluralism Revisited: Hidden Facts & Alternative Theories</i> Max Mergenthaler Canseco Freie Universität Berlin (Germany) → p. 15 | <i>Feyerabend contribution to modern computational microphysics</i> Dr. Steve Meyer Tachyon Design Automation (USA) → p. 22 |

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| 15:10 - 15:30 | COFFEE BREAK (20') |
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| | ROOM 207 | ROOM 208 |
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| | <i>Chair:</i> Prof. Howard Sankey | <i>Chair:</i> Dr. Vera Tripodi |
| 15:30 - 16:20 | <i>Feyerabend and Popper on Theory Proliferation and Anomaly Import: A Mediation Attempt</i> Dr. Bschr Karim ETH Zürich (Switzerland) / Leibniz Universität Hannover (Germany) → p. 16 | <i>What Can We Learn from Feyerabend about Teaching Sciences in School</i> Dr. Maria Titeica UNESCO Chair, Horia Hulubei Foundation (Romania) → p. 25 |
| 16:20 - 17:10 | <i>Separability and Pliability: Two Feyerabendian Issues for the Agenda of Sophisticated Scientific Realists</i> Luca Tombolo University of Trieste (Italy) → p. 18 | <i>Feyerabend on Ethics of Science and Technology</i> Dr. Hossein Sheykh Reazee Iranian Institute of Philosophy (Iran) → p. 27 |

Day 2

Thursday, 27 September 2012

General Schedule

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|---------------|----------------------------------------------------------------------------------------------------------------------------|
| ROOM 207 | PLENARY SESSION <i>Chair.</i> Prof. Hoyningen-Huene |
| 9:15 - 10:05 | <i>Einstein's Influence on Feyerabend and Kuhn</i> Dr. Eric Oberheim Humboldt-Universität zu Berlin (Germany) |
| 10:05 - 10:30 | <i>Discussion</i> |

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| 10:30 - 10:50 | COFFEE BREAK (20') |
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| ROOM 207 | PLENARY SESSION <i>Chair.</i> Dr. Matthew Brown |
| 10:50 - 11:40 | <i>Feyerabend, Popper and the Popperian School – Methodological Issues in the History of the Philosophy of Science</i> Dr. Matteo Collodel Humboldt-Universität zu Berlin (Germany) |
| 11:40 - 12:05 | <i>Discussion</i> |

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| 12:05 - 13:30 | LUNCH BREAK (85') |
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| PARALLEL SESSIONS | |
| 13:30 - 17:10 | <i>CONTRIBUTED PAPERS</i> → p. 9 |

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| 17:10 - 17:30 | COFFEE BREAK (20') |
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| ROOM 207 | PLENARY SESSION <i>Chair.</i> Prof. Jeu-Jenq Yuann |
| 17:30 - 18:20 | <i>The Rise of Western Rationalism – Feyerabend's Story</i> Prof. John Preston University of Reading (UK) |
| 18:20 - 18:45 | <i>Discussion</i> |

Day 2

Thursday, 27 September 2012

Parallel Sessions

Contributed Papers

| ROOM 207 | | ROOM 208 | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <i>Chair:</i> Prof. Jeu-Jenq Yuann | | <i>Chair:</i> Dr. Ian J. Kidd | |
| 13:30 - 14:20 | <i>Paul Feyerabend, Logical Empiricist: A Reappraisal of the Continuity between Logical Empiricism and "Post-positivist" Philosophy of Science</i> Daniel Kuby University of Vienna (Austria) → p. 29 | <i>Of Sheep and Men: Lay Participation and the Problem of Legitimacy in Public Decision-Making</i> Helene Sorgner University of Vienna (Austria) → p. 34 | |
| 14:20 - 15:10 | <i>Historical World and Historicity of Knowledge in Nishida's and Feyerabend's Philosophy</i> Luděk Brouček Charles University, Prague (Czech Republic) → p. 31 | <i>Just So Stories: Feyerabend, Science, and Democratic Relativism</i> Dr. M. Carleton Simpson University of Ghana (Ghana) → p. 36 | |

15:10 - 15:30 COFFEE BREAK (20')

| ROOM 207 | | ROOM 208 | |
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| <i>Chair:</i> Dr. Stefano Gattei | | <i>Chair:</i> Dr. Matteo Collodel | |
| 15:30 - 16:20 | <i>Perspectives on Feyerabend's Late Relativism</i> Lisa Heller Humboldt-Universität zu Berlin (Germany) → p. 32 | <i>Against Method, For All Traditions: Some Unintended Consequences</i> Dr. Shapour Etemad Iranian Institute of Philosophy (Iran) → p. 38 | |
| 16:20 - 17:10 | <i>Religion and Mysticism in Feyerabend's Late Works</i> Dr. Eric Martin London School of Economics (UK) → p. 33 | <i>Against Feyerabend</i> Dr. Fabrice Bothereau Private Scholar (France) → p. 40 | |

Day 3

Friday, 28 September 2012

General Schedule

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|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| ROOM 207 | PLENARY SESSION <i>Chair:</i> Prof. Ronald Giere |
| 9:15 - 10:05 | <i>Feyerabend's Antecedents: Aristotle, Plato and Machiavelli</i> Prof. Gonzalo Munévar Lawrence Technological University (USA) |
| 10:05 - 10:30 | <i>Discussion</i> |

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| 10:30 - 10:50 | COFFEE BREAK (20') |
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| ROOM 207 | PLENARY SESSION <i>Chair:</i> Prof. John Preston |
| 10:50 - 11:40 | <i>Science, Choice, and Hegemony: Making Sense of Feyerabend's Political Philosophy of Science</i> Dr. Ian James Kidd Durham University (UK) |
| 11:40 - 12:05 | <i>Discussion</i> |

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| 12:05 - 13:30 | LUNCH BREAK (85') |
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| ROOM 207 | PLENARY SESSION <i>Chair:</i> Prof. Howard Sankey |
| 13:30 - 14:20 | <i>Science and Democracy in a Precarious World</i> Dr. Matthew Brown The University of Texas at Dallas (USA) |
| 14:20 - 14:45 | <i>Discussion</i> |

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| 14:45 - 15:05 | COFFEE BREAK (20') |
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| ROOM 207 | SPECIAL PLENARY SESSION |
| 15:05 - 17:45 | <i>Gender Bias as a Threat to Pluralism</i> → p. 11 |

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| 19:00 | CONFERENCE DINNER |
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Day 3

Friday, 28 September 2012

SPECIAL PLENARY SESSION

ROOM 207

Gender Bias as a Threat to Pluralism

Chair: Prof. Martin Kusch

15:05 - 15:55 *Intuition, Gender and the Under-representation of Women in Philosophy*

Dr. Vera Tripodi

University of Barcelona (Spain)

15:55 - 16:20 *Discussion*

16:20 - 16:30 SHORT COFFEE BREAK (10')

16:30 - 17:20 *The Limitations of Goodwill: Diversity, Pluralism and Excellent Research*

Prof. Carla Fehr

University of Waterloo (Canada)

17:20 - 17:45 *Discussion*

Gendered Conference Campaign

<http://feministphilosophers.wordpress.com/genderedconference-campaign/>



Day 4

Saturday, 29 September 2012

General Schedule

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| ROOM 207 | PLENARY SESSION <i>Chair.</i> Dr. Stefano Gattei |
| 9:15 - 10:05 | <i>Paul Feyerabend and Rational Pluralism</i> Prof. Joseph Agassi Tel Aviv University (Israel) and York University (Canada) |

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| 10:05 - 10:15 | SHORT COFFEE BREAK (10') |
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| ROOM 207 | PLENARY SESSION <i>Chair.</i> Dr. Eric Oberheim |
| 10:15 - 12:15 | <i>Roundtable Discussion</i> Dr. Grazia Borrini-Feyerabend (The ICCA Consortium) Prof. Joseph Agassi (Tel Aviv University and York University) Prof. Ronald Giere (MCPS, University of Minnesota) Prof. Paul Hoyningen-Huene (Leibniz Universität Hannover, Germany) Prof. Martin Kusch (Wien Universität) Prof. Gonzalo Munévar (Lawrence Technological University) Prof. John Preston (University of Reading) Prof. Howard Sankey (University of Melbourne, Australia) Prof. Jen-Jeuq Yuann (National Taiwan University, ROC) <i>Discussion</i> |

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| 12:15 - 12:30 | <i>Closing Statements</i> |
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Abstracts

Contributed Papers

Feyerabend on Ad-Hoc-Modifications

Mag. Christian J. Feldbacher

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In this contribution we are going to explicate Paul Feyerabend's views on ad-hoc-modifications. In a first step we will provide some definitions of auxiliary terms and the term 'ad-hoc-modification' itself. We will show that Feyerabend's usage of this term coincides with Karl Popper's general characterization of ad-hoc-modifications, namely as modifications of a theory that decrease in some way or another the empirical content of the theory. In a second step we'll reformulate a problem of such a characterization which was already posed by Adolf Grünbaum in 1976: for it can be shown that according to such a characterization no "repairing" modification T_2 of a falsified theory T_1 (that is: T_2 is a modification of T_1 and for some fact e : T_1 is falsified by e , but T_2 is not falsified by e) is an ad-hoc-modification. Since very often theories are modified for falsificational or disconfirmational reasons, this is a very unwelcome result. But we will indicate that by a simple and plausible reformulation of the empirical content of a theory this problem of Feyerabend's (and Popper's) characterization can be solved. In a third step we'll consider Feyerabend's discussion of examples of ad-hoc-modifications of the history of science, in especially Galileo Galilei's physical theories. We'll show that according to Feyerabend adhoc-modifications are sometimes necessary for the progress of a "successful" research programme. But we will also show that this – in his view opposing position – is the traditional and common position within philosophy of science.

Feyerabend's Argument for Theory Pluralism Revisited
Hidden Facts & Alternative Theories

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Paul Feyerabend is known for representing the claim that theoretical pluralism is to be preferred over theoretical monism in science. For, he claims, there are potentially refuting facts that become only available with the invention of alternative theories. I will argue that Feyerabend's argument is wrong. (I) I will begin by briefly exposing Feyerabend's argument for his claim that alternative theories increase the empirical content of existing theories and should therefore be desired. Then I will argue that this argument has serious flaws. My criticism of Feyerabend will consist of four parts. First (II), I will show that Feyerabend conception of scientific refutation bears some problems, which can be solved, however, with an alternative formulation that will be presented. Secondly (III), I will evaluate his view of the Brownian Particle as potential refuter of classical thermodynamics, and show (IV) that Feyerabend is wrong in thinking that it supports his theory. Thirdly (V), I will attempt to show that if we distinguish the refuting character of facts and the actual refutation, Feyerabend theory might hold well. Fourthly (VI), I will evaluate Couvalis' attempt to rescue Feyerabend's thesis from Laymon's attack on the hidden fact thesis and conclude that it fails Laymon's point since both views are compatible. Finally (VII), I will present Worrall's logical attack on Laymon's and Couvalis's conclusion that states that a successful alternative was needed to refute thermodynamics. The paper ends by stressing between the tension between an historical and logical account of scientific practice.

Feyerabend and Popper on Theory Proliferation and Anomaly Import: A Mediation Attempt

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Paul Feyerabend is well known for his positive assessment of theory proliferation. In short, the Principle of Theory Proliferation (PTP), as Feyerabend himself calls it, holds that scientific progress is catalyzed by the simultaneous presence of a sufficiently large number of competing theories. Feyerabend developed PTP against the background of a sweeping critique of Thomas Kuhn's concept of "normal science" that he got acquainted with during the years 1960 and 1961 when Feyerabend and Kuhn were both at the University of California in Berkeley where they intensively discussed a draft of Kuhn's forthcoming *Structure of Scientific Revolutions*. Feyerabend expresses his critique in written form in two letters he had sent to Kuhn supposedly between winter 1960 and spring 1961 and in a book chapter from 1970. In those writings, Feyerabend not only repeatedly claims that theory proliferation is needed and necessary for scientific progress, but he also delivers a reason why he believes this to be the case, i.e. he not only claims that proliferation is a good thing to have, but he also presents a mechanism explaining how the simultaneous presence of contrasting theories leads to scientific revolutions and ipso facto brings about progress. In short, Feyerabend argues that the availability of theoretical alternatives has a magnifying effect on anomalies within well-established theories. This claim goes beyond PTP. Accordingly, Paul Hoyningen-Huene, in his discussion of Feyerabend's critique on Kuhn, has given it a separate name. He calls it the Anomaly Import Thesis (AIT): Anomalies in are imported, as it were, into well-established theories from competing alternatives. Obviously, PTP and AIT stand in close relationship to one another.

This paper pursues two major objectives:

- 1) To work out the systematic details of PTP, AIT and their relationship as it is presented in Feyerabend's early publications and his *Against Method*.
- 2) To compare Feyerabend's ideas on theory proliferation and anomaly import with corresponding features in Popper's falsificationist theory of science.

With respect to the relationship between PTP and AIT, we will conclude that PTP and AIT are not inferentially related in the sense that one implies the other. Rather, Feyerabend uses AIT as an argumentative tool: AIT justifies PTP. We will also argue that Feyerabend's views on theory proliferation and anomaly import must be seen as a variation of certain ideas that Popper had already formulated in his Logic of Scientific Discovery. Aside from minor differences, neither PTP nor AIT run against Popper's falsificationism. In spite of Feyerabend's explicit anti-popperian rhetoric, and although Feyerabend significantly attenuated his critique on Kuhn in later years, our considerations suggest that the line of opposition with respect to questions regarding theory proliferation and anomaly import runs between Kuhn on the one side and Feyerabend-Popper on the other side, rather than between Popper and Feyerabend-Kuhn. This stands in sharp contrast to those mainstream descriptions which depict Feyerabend and Kuhn as allies in the opposition against Popper. Quite on the contrary, even the later Feyerabend was much more of a Popperian than he was ready to admit.

Separability and Pliability: Two Feyerabendian Issues for the Agenda of Sophisticated Scientific Realists

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Many of Feyerabend's views changed significantly, sometimes dramatically, over time, and this holds also for his attitude toward realism (on which interpreters strongly disagree: cf. Preston 1997, Ch. 4; Farrell 2003, Ch. 4; Oberheim 2006, Ch. 6). In any case, in his late writings Feyerabend mounted a sustained attack against realism. In this paper I argue that, in spite of Feyerabend's strongly anti-realist leanings, his work brings to the fore two issues that should figure prominently on the agenda of sophisticated scientific realists.

One of the main targets of Feyerabend's criticism of realism is what he calls "the separability assumption" (see, e.g., 1989: 133-139). According to this assumption – which Feyerabend treats as a basic ingredient of realism – one can separate the results produced by inquiry from the methods that produce such results: although what in a certain time is considered as knowledge is the outcome of contingent historical developments, the discovered entities or processes exist independently of the circumstances of their discovery. Feyerabend forcefully argues that the separability assumption runs into serious difficulties. For instance, he complains, it leads to neglect that scientists are "sculptors of reality" (1989: 144): like artists who shape their material guided by their worldviews, scientists act on the world with experiments guided by their theories, in such a way that their story on how the world works – deceptively – seems to be the only possible one.

As I argue, however, there is no need for the realist to embrace the separability assumption. Contrary to what Feyerabend seemed to believe, one may well be a realist and welcome his suggestion that the world "*is more pliable than is commonly assumed*" (1989: 145), in the sense that it can be described by more than one conceptual system. In-deed, there are in principle infinitely many conceptual systems to describe the world. This point is explicitly endorsed, for instance, by such authors as Niiniluoto (1987; 1999) and Kuipers (2000), who defend a realist view of science within which verisimilitude, or approximation to the truth, is assumed to be the main goal of research – although with the caveat that verisimilitude is defined within a certain

conceptual system (cf. Cevolani and Tambolo, forthcoming). That none of the possible conceptual systems to describe the world enjoys a privileged status is an issue discussed at length by Feyerabend, who illustrated it with numerous telling examples. Such issue, I argue, should figure prominently on the agenda of sophisticated realists, who need to eschew metaphysical realism, according to which there exists only one, correct, conceptual system to describe the world.

On the other hand, even in his most anti-realist moments Feyerabend explicitly acknowledged that the world offers resistance to some attempts to approach it: not all worldviews are equally good, he insisted, because some of them simply don't manage to make contact with reality (1989: 145). The limited pliability of the world, I argue, is the second Feyerabendian issue that sophisticated realists should have on their agenda, especially in view of their debates with anti-realists.

References

Cevolani, Gustavo, and Tambolo, Luca (forthcoming): "Progress as Approximation to the Truth: A Defence of the Verisimilitudinarian Approach", *Erkenntnis*, DOI: 10.1007/s10670-012-9362-y.

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Causal Overdetermination, Incommensurability and Pluralism

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On a basis that considers theories as an agent's (or community's) epistemic states, there are particular situations of causal explanation that can result in theoretical incommensurability. These cases arise when the explanandum is causally overdetermined. An agent, e.g., perceives and comes to believe E, that describes event *e*, and wants to explain it according to her epistemic state K which has the belief C, describing the cause of *e*, as one of its elements. But the occurrence of a potential cause of *e* is also believed by him (C'), such that if she would correct her belief in C, she would not have to remove E from her set of believes, as one would expect considering that *c* is the cause of *e* (see Gärdenfors 1988, p. 192). Another agent (or community) might consider it appropriate to give up E after disbelieving C, in spite of her (their) belief in C'. Thus both epistemic states can be taken as mutually incommensurable, i.e. incompatible on behalf of the meaning of the causal relation.

Feyerabend's critical discussion (1960) on Bohm's notion of causal laws (1957) is briefly presented in order to introduce his general conception of causality. On this basis it will be asked how overdetermination scenarios, seen by Bohm as a kind of *many-to-one relation* (1957, p. 16), take place according to such notion of causality and to the idea of incommensurability. It should be clarified what kind of incommensurability arises from such scenarios. There are at least two ways to understand incommensurability with regard to its relata: either it exists between two (or more) epistemic states taken as any kind of theory or it exists between epistemic states taken as universal, non-instantial theories. The latter is the way proposed by Feyerabend. He takes such theories to be descriptions of *everything there is* in nature, which excludes mere universally quantified propositions or sets thereof (1965 [1981a], n. 5).

As a solution to the problems that arise with causal overdetermination cases and the attempts to give a good clarification of overdetermined explananda, causal pluralism is considered and described. Under this point of view causation is described by a multiplicity of theories that

postulate different, sometimes incompatible causal relations, none of which being more favoured than the other (Godfrey-Smith 2009, p. 326). If the theories involved in causal pluralism are taken to be somehow universal and if causal pluralism is a good answer to overdetermination, then it can be understood as a special case of Feyerabend's theoretical pluralism. This latter sort of pluralism supports the fundamental idea that some phenomena that need to be explained in the light of a particular theory are often considered in contrast with other alternative theories (1963, p. 22) and that the construction of those alternatives is not only a fact but also desirable (1981b, p. 139). Obviously, I assume, the sort of causal pluralism derived from theoretical pluralism does not have to be the last word in the debate on causal overdetermination.

Bibliography

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Day 1, 26 September – Room 208, 14:20

Feyerabend's Contribution to Modern Computational Microphysics

Steven Meyer

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This paper argues Paul Feyerabend was an important contributor to mid 20th century physics, and that his criticism of Von Neumann's formalism anticipated import problems in modern computational microphysics. In summer and fall 1967, Feyerabend was invited to present courses on modern physics at Stanford and UC Berkeley (Lakatos archive Feyerabend correspondence June-July 1967, folders 13/272a 114, 118, 120). In September 1967, Feyerabend wrote a letter to Imre Lakatos opposing mathematical formalism in quantum physics (QP) and attached notes for a paper "On the Solidity of Facts" that discussed formal mathematics in physics (6 Sep 1967, 13/272a unnumbered would be about 127 and 127a). The material is both notes for Feyerabend's course and suggestions to Lakatos on his quasi-empirical theory of mathematics (*Proofs and Refutations*. Lakatos, I., 1976).

Feyerabend's 1960s study of microphysics is discussed. As Feyerabend described in his last interview "I was still a methodology freak ... it made sense to argue for certain procedures in science" in *The Worst Enemy of Science*. Preston J. et. al. (eds), 2000, p. 162. Feyerabend's physics discussed here differs from the later Feyerabend portrayed by Kurt Szovils in "Feyerabend and Physics", *ein philosoph aus wien*. Stadler, F. & Fischer, K. (eds). 75-97.

Formalist computational microphysics is widely accepted especially Von Neumann's axiomatization of QM. For example, computer scientist Aaronson in "NPcomplete Problems and Physical Reality" argues that "NP-complete mathematical problems .. eventually [will] be seen as a principle of physics" (arXiv:quantph/0502072v2, p. 17).

On 6 Sep 1967, Feyerabend wrote to Lakatos:

I shall have to say a few very critical things about Von Neumann, NOT about his subjectivism, but about the disservice he did to physics by trying to make the theory precise.

It is important because all modern computational physics assumes Von Neumann's axiomatization as proven knowledge. In the Solidity notes, Feyerabend wrote "simple and straight forward arguments are preferable to complex derivations," and "increase of **mathematical rigour** is not always desirable." In an earlier 27 Dec. 1964 letter to Lakatos (13/272a 14), Feyerabend wrote: "the search for certainty is indeed **literally** a Kinderkrankheit." This paper discusses the Lakatos correspondence and Solidity draft in the context of Feyerabend's defense of Bohr and in the context of skepticism toward Bell's inequality and toward entanglement in general. Intellectual threads from the work of the founders of modern physics that Feyerabend continued in an anti-formalist manner are discussed.

1. Thread 1: methodology as important microphysics problem

In the Berkeley physics course volume 4 section 1.19 on QP methodology, it is asked: "Let us now think critically about the above speculations [electron is primitive]: do they really make any sense? In asking our questions we have clearly made many assumptions which reflect our prejudices." The thread discusses various methodological books by microphysicists including David Bohm's *Causality and Chance in Modern Physics*. 1957. and Werner Heisenberg's *Physics and Philosophy*. 1958. Feyerabend was a colleague of Bohm at Bristol in the mid 1950s. Feyerabend wrote an important review of Bohm's book which Bohm answered. Thread is modern because of attempts to explain the recent CERN Linear Hadron Collider discovery of a (Higgs?) Boson at about 125 BEV that involves finding only a few collisions per year using computer logic.

2. Thread 2: Lakatos (and Polya) quasi-empirical logic

Feyerabend was strongly influenced by Imre Lakatos and wrote detailed letters with suggestions on improving Lakatos' papers. Feyerabend wrote: "Russell's [logic] program ought to have overcome Hilbert's even without Godel" (Feyerabend to Lakatos 27 Dec. 1964, 13/272a 19).

Moving to the modern era, Julia Floyd explicitly rejects Feyerabend's anti formalist view when she writes Feyerabend [also Popper] "missed the multifariousness of the ways in which modern formal logic would serve as a new lens for philosophy, illuminating and distorting its questions in new kinds of ways" ("Feyerabend on Wittgenstein" in *ein phisoph aus Wien*, p. 111). Feyerabend strongly opposed this methodological view in the 1960s.

3. Disconnected modern thread: Finslerian anti-formalism

Paul Finsler's work in formal logic was seemingly unknown to Feyerabend and the founders of modern physics in spite of Finsler being well known contributor to the geometry of general relativity in spite of Finsler teaching at ETH. In the 1990s, Finsler's work was revived in *Finsler set theory: platonism and circularity*. Booth, D & Ziegler, R. (ed.), 1996. The history is tied back to Feyerabend

because of the book *Revolutions in Mathematics*. Gillies, D. (ed.), 1992. The second book connects back to Feyerabend through Kuhn's influential *The Structure of Scientific Revolutions*.

In the mid 20th century, formalism was not taken so seriously so Feyerabend's QP course was not unusual. But after one half century of the dominance of computer methods (see my arXiv:1208.3739v1 [cs.OH]), Feyerabend's anti-formalist microphysics disproves much of current dogma in computational microphysics including showing that macro world quantum computer experimental observations may be actually mathematical illusions.

Day 1, 26 September – Room 208, 15:30

What We Can Learn from Feyerabend about Teaching Sciences in School

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Recently, teaching sciences and mathematics in school has become in Europe an important issue. This is due to the fact that “in recent years, many studies have highlighted an alarming decline in young people’s interest for key science studies and mathematics”, as the European Commission’s Report about science education puts it (in the so-called Rocard Report from 2006). Studies show that among many causes, the most important seems to be the way mathematics and especially sciences are taught in school. Despite the fact that Paul Feyerabend never especially addressed the theme of education or, more specifically, the way to teach mathematics and natural sciences in school, several of his most important ideas refer to the subject. Some comments on science education are to be found in Feyerabend’s best known book “Against Method” (1975), and even more in the 1975 paper “How to Defend Society Against Science”. It is not without irony – and surely Feyerabend would have appreciated it - that some of the ideas and recommendation made by the European Commission’s Report are very similar to ideas Feyerabend wrote about some 40 years ago. So are the idea of developing critical thinking in young people, the idea of offering them in school alternative approaches, and the idea so dear to Feyerabend of getting society involved in taking decisions about science education.

What Feyerabend defended above all was freedom in general and freedom in respect to ideas in particular. He rejected every form of ideology or dogma as transforming man in slaves. For everyone who teaches natural sciences in school or reads schoolbooks of, say, physics, addressed to pupils, it is rather evident that the subject matters are presented quite dogmatically. Ideas are presented as definitive and being without alternative. From all the battles of ideas in the history of science there is nothing to be found in schoolbooks nor is to be found the provisional character of scientific theories. Feyerabend’s permanent criticism against dogma is to be taken seriously, if one wants to prepare young children to become open-minded, question asking, critical thinking adults.

What can also be learned from Feyerabend is intellectual courage as well as intellectual honesty. These he taught us through his personal example and the development of his own thoughts.

Another idea precious to Feyerabend is that of tolerance and acceptance of diversity. This can be taught in schools too, even in lessons of mathematics and sciences, when the same problem or question gets different answers from different perspectives.

Last but not least, we can learn from Feyerabend that even difficult subjects as mathematics and sciences can be accounted for with humor and a little bit of irony.

All this ideas Feyerabend wrote and spoke about can surely improve the way mathematics and natural sciences are thought in schools.

Feyerabend on Ethics of Science and Technology

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The aim of this paper is to discuss and analyze Feyerabend's views on ethics of science and technology. The aim of normative ethics of science is to develop an ethical theory to determine which scientific activities should be regarded as ethically questionable. Apart from general moral and legal considerations, to this end 'aim of science' should be taken into account. Our justification to judge many scientific conducts as unethical is not their conflict with general moral or legal obligations, but their conflict with this or that proposed aim of science. Normativity of scientific objectivity, for example, unlike scientific honesty, cannot be justified on the basis of general moral or legal obligations. To reach a set of proposed aims of science, objectivity might be necessary and therefore should be taken as normative. Relative to another set of proposed aims of science, however, normative character of objectivity might be lost or relaxed. In addition, there is an interconnection between aim of science and scientific methodology. A particular set of proposed aims of science cannot be reached by any arbitrary scientific methodology and coherence between them is needed. Therefore, general moral and legal obligations plus a coherent set of aims of science and scientific methodology are foundations of a normative ethics of science. In the first part of this paper, it will be argued that by taking Feyerabend's '*everything goes*' slogan as the guiding principle of methodology, defining ethics of science, in the mentioned sense, is impossible. Feyerabend's explicit and clear quotes show that he gives full independence and autonomy within scientific traditions to experts and scientists to determine directions of their moves and to choose whatever means of progress that they see fit to their opportunistic manner. There is no room for ethical constraints in such an anarchic sphere.

In the second part of the paper, however, it will be argued that there is a subtler connection between ethics and science according to Feyerabend. This is a persisted claim in Feyerabend's works, from 'Knowledge without Foundations' (1961) to 'Ethics as a Measure of Scientific Truth' (1992), that preferring any philosophical standpoint or any form of life, including a scientific one, is a kind of *choice* and therefore should be done according to general moral considerations. In the last part, Feyerabend's proposal for public control on science and technology, as a debate within the field of ethics of science and technology, is the main concern. Although Feyerabend

does not accept any intervention, including ethical, from outside of scientific traditions, he saves the right for laypeople to choose between rival and incommensurable traditions. According to his model, when scientists finish their works within a scientific tradition and reach some achievements, including scientific theories and technological innovations, public can and should monitor and assess these achievements and decide whether they want to use or to integrate them into public educational programs or not. Feyerabend is one of the pioneer thinkers who emphasised the important role of laypeople to control science and technology. However, there are some points which should be elaborated in this regard. Firstly, Feyerabend does not allow public participation 'within' scientific traditions. As it mentioned, he gives scientists full autonomy to advance science without any intervention from outside. Secondly, when he talks about laypeople who have to judge between rival traditions, he does not mean laypeople 'as such'. He requires laypeople to do some 'hard work' to acquire such ability. Feyerabend does not recognize the notion of 'lay knowledge', a kind of knowledge that laypeople have spontaneously with no need for further training, as a supplement to expert knowledge. Finally, and as a result, Feyerabend's model is similar to 'the public debate model', in which laypeople discuss finished achievements of science. He does not consider the possibility of 'the coproduction of knowledge model', according to which concerned groups of laypeople participate in producing, orienting and assessing scientific knowledge right from scratch.

Paul Feyerabend, Logical Empiricist

A Reappraisal of the Continuity between Logical Empiricism and “Post-positivist” Philosophy of Science

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In my talk I will defend a highly “counter-inductive” claim that clashes with most received wisdom about Feyerabend’s philosophy. My claim is that Feyerabend’s development of his “post-positivist” theses employs specific logical-empiricist proposals that he took over during his post-war formative years in Vienna (1946-1955). Feyerabend’s “post-positivist” theses should, therefore, be interpreted as a critical contribution to the heritage of logical empiricism, not as an external attack to it.

First, I will present some examples that support this claim. Following Collodel (2007, 2008), Radler (2006) and Stadler (2006), my aim is to show the fruitfulness (even the necessity) of placing Feyerabend within an HOPOS perspective.

Secondly, I will argue that my claim calls into question the standard interpretation, as aptly codified and argued by Preston (1997), according to which Feyerabend’s philosophy can be divided into a “first Feyerabend” up to *Against Method* (1975) and a “second Feyerabend” following *AM*. Instead, with Oberheim (2006), I will stress the continuity in Feyerabend’s work. In opposition to Oberheim, however, I will question whether this continuity lies in the “pluralistic, opportunistic nature of Feyerabend’s philosophy” (2006, 88). Also, according to Oberheim, “Feyerabend did not have a single, coherent philosophical position from which he addressed the speculative epistemological issues that he treated” (2006, 206). To the contrary, I will argue that Feyerabend not only was committed to many of his philosophical views, but that a singular philosophical vantage point does indeed underlie Feyerabend’s whole philosophical work. This vantage point is a strong epistemic and ethical voluntarism, which Feyerabend always took for granted, but – strangely enough – almost never explicitly presented or bothered to defend. A reconstruction of this position I will present under the label Decision-Based Epistemology (DBE). Apart from its intrinsic philosophical value, such an interpretation has the advantage that even a seemingly radical change such as Feyerabend’s demise of a strongly normative (i.e. prescriptive)

task for philosophy of science around 1965 can be explained in terms of a rationally compelled change of mind.

Conclusively, and perhaps most interestingly, I will argue that an historical reconstruction of Feyerabend's DBE enables us to identify various voluntarist conceptions that virtually all logical empiricists and other exponents of scientific philosophy - such as the (by now forgotten) philosopher Hugo Dingler - maintained. In this way, not only can Feyerabend be interpreted by studying this voluntarist tradition within scientific philosophy, but also Feyerabend himself can be placed within this very tradition.

Day 2, 27 September – Room 207, 14:20

***Historical World and Historicity of Knowledge
in Nishida's and Feyerabend's Philosophy***

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This paper explores remarkable parallel between modern Japanese philosophy of Nishida Kitarō and philosophy of science of Paul Feyerabend. Nishida Kitarō perceives the world as a social and historical creative process. Human cognition and knowledge have the same features in such a world. The first part compares Nishida's and Feyerabend's thoughts in the field of ontology and epistemology. The second part deals with their stance on the philosophy of science. The article reflects three main stages of Nishida's intellectual development and the radical turn in Feyerabend's philosophy focusing on his later thoughts. Their basic assumption that our world and our knowledge is a historical and creative process underlies philosophical position of both thinkers: namely the incommensurability thesis and cultural, epistemological, and ontological pluralism. Except of the contribution in the field of comparative philosophy and philosophy of science the article also demonstrates Nishida's and Feyerabend's impact in the contemporary philosophy of technology and philosophy of biology.

Day 1, 26 September – Room 207, 15:30

Perspectives on Feyerabend's Late Relativism

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Although the status of relativism is ambivalent, this concept is crucial in Feyerabend's late publications. Focusing on more than one passage, his position appears to be neither clear nor coherent. The range of statements reaches from explicit definitions in *Farewell to Reason* to the well known, but still problematic thesis "potentially every culture is all cultures" in *Conquest of Abundance*. Feyerabend's position towards Relativism seems to have changed during the last decade of his work.

My talk questions this thesis of discontinuity with the aim to trace a line between Feyerabend's former (*Farewell to Reason*) and later (*Conquest of Abundance*) concepts of relativism.

In order to do that, two kinds of relativistic approaches have to be examined: On the one hand the epistemic relativism, on the other hand the cultural relativism.

This paper argues, that both kinds of relativism are restricted ones: First, the cultural relativism rather builds the core of Feyerabend's theory, whereas the epistemic relativism is an important, but subordinate element. Second, the cultural relativism as well underlies a restriction: Feyerabend specifies this type of relativism as „democratic relativism“. This restriction is used prominently in *Farewell to Reason*, and is reinforced and systematically extended in *Conquest of Abundance*.

Hence, it can be argued, that Feyerabend represents a weak form of relativism in his late work. From my perspective, Feyerabend's later work rather emphasizes pluralism than a strong form of relativism.

Day 1, 26 September – Room 207, 16:20

Religion and Mysticism in Feyerabend's Late Works

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Feyerabend's interest in religion and mysticism grew through his career. In his later writings, Feyerabend's numerous critiques of scientific materialism are often accompanied by purported advantages of religious orientations and temperaments. These commendations do not simply follow from his tolerant theoretical pluralism; they are more positive attempts to articulate distinctive aspects of human life satisfied by religion, but not by scientific materialism. Elevating the human need for mystery, reverence, and especially love, he contrasts these goods with the deliverances of monistic conceptions of science and reason. I bring attention to some of the common themes in these remarks and argue that, to the extent that they bear criticism, they are constructive rejoinders to contemporary exhortations to science-based secularism from some philosophers of science.

Of Sheep and Men: Lay Participation and the Problem of Legitimacy in Public Decision-Making

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As a consequence of post-Kuhnian developments in the Philosophy and Sociology of Science, the authority of scientist and scientific expertise in public decision-making processes met a severe challenge: 'If it is no longer clear that scientists and technologists have special access to the truth, why should their advice be specially valued?' (Collins/Evans 2002). This Problem of Legitimacy of decisions concerning a wider public was addressed quite fervently by Feyerabend in *Science in a Free Society* (1978). Feyerabends conclusion regarding the alleged fallibility as well as arrogance of so-called experts was to reduce the role of science to a mere advisory one and scientific expertise to one tradition of problem-solving amongst many others. The decisions itself should not be made by experts but by committees whose members are elected democratically from the people concerned with the issue at stake. A fairly different approach was presented by Harry Collins and Robert Evans, who in their 2002 paper *The Third Wave of Science Studies* argue that the Problem of Legitimacy had turned into a Problem of Extension, i.e. the question to what extent public participation is necessary to justify a technical decision of public interest. In order to settle the issue whom to include in such processes, they suggest a new overall direction in the social studies of science, focusing on a normative theory of expertise so as to identify both certified and uncertified experts fit to contribute in a specific debate. The boundary, once separating the scientific community and the rest, should then be found between different kinds of specialists, some of them experience-based, some of them certified, and the rest (i.e. the lay people, including scientists with other specializations). Within their expertise-focused approach, Brian Wynne's famous case study of Cumbrian sheep farmers' difficulties to follow governmental instructions after the Chernobyl fallout does not show the shortcomings of an ignorant attitude towards the specific expertise of laymen but rather a failed interaction between two groups of different kinds of experts. Consequently, the new aim of Science Studies would be to identify such uncertified experts and provide means of translation and representation of their concerns to the officially certified experts. However, as Brian Wynne points out in his critique of the Collins/Evans proposal,

it is dubious whether their account really meets the complex nature of public decision-making processes, as they seem to reduce such questions to mere Yes/No alternatives, and whether they are not themselves falling prey to a somewhat scientism-like bias. Moreover, the Problem of Legitimacy often does not just present itself in the case of a single decision, but for a whole debate and its implicit convictions and definitions. Returning to Feyerabend's initial claims, I will therefore try to stress the political impact of lay participation as being an issue rather of concern than of expertise, and discuss whether yet another scientific approach as presented by Collins/Evans can be a satisfying solution where the scientific tradition as a whole is put into question.

***Just So Stories: Feyerabend, Science,
and Democratic Relativism***

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In numerous books and articles Paul Feyerabend suggested that we ought to separate science from the state just as in the past the church was so separated. This underscores his political theorizing: in the interests of what rationally can be justified, and hence what is fair, society ought to embrace relativism (as he defines it) which in turn, he believes, encourages tolerance. He has argued that this, though unnerving, is desirable. His critics rally around the two-word ‘principle’ anything goes. But this is not a position that Feyerabend ever endorsed. Rather, his careful examination of kinds of relativism, notably in *Farewell to Reason*, make Feyerabend, paradoxically (I argue) not only one of the most articulate and thoughtful defenders of relativism but hardly a relativist at all.

His view of science led Feyerabend to the above position of a separation of science and state. But his political relativism, what he calls democratic relativism, takes a very limited form. In claiming that “democratic relativism denies the right of traditions to impose their forms of life on others, and it therefore recommends the protection of traditions from interference from outside” many have thought Feyerabend runs afoul of the age old problem of relativism: it is self-defeating. In fact, I argue, Feyerabend champions a form of multiculturalism with a pan-traditional (though not objective) set of standards to which all traditions must comply. But for Feyerabend, this is not prescriptive; the relativist can and must provide compelling reasons for joining under the umbrella of democratic relativism (this is just what Feyerabend is doing in his political writings). With this more modest political program in mind, I reconsider the twin charges that Feyerabend’s relativism is undesirable and self-defeating.

Perhaps the most controversial claim of Feyerabend’s is that non-experts should adjudicate the pronouncements of science and epistemology, politics and morals. Modern science is as much a cultural traditional as any set of guidelines, myths, and practices. Finally, considering Feyerabend’s limited definition of cultural traditions, as stable and homogenous, I argue the real challenge of his political program is the identification of non-experts. On his analysis, since science

(and epistemology, politics and morals) is only one of many ways of understanding the world, its importance and the role it plays in our lives should be debated by non-scientists; we decide whether to live our lives by the dictates of science or choose not to. But traditions are fluid and we are all experts in some domain(s). Indeed, scientists, philosophers, politicians, doctors are all expert in only narrow segments of their own domains. To rely on non-experts is no more than to open up the discussion to the broader community.

***Against Method, For All Traditions:
Some Unintended Consequences***

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The purpose of AM was partly to undermine all claims to knowledge based on the (ascendancy or) truth of science guaranteed by the application of this or that method or methodologies. Feyerabend's discussion of all these methods and methodologies was always accompanied by comparisons against actual scientific practice as a major source and resource for contrary evidence. The upshot was, in case after case, lifting and relaxing any constraint on theory-formation (construction, manufacture, etc.), on ideas, with a liberating note, as the result, on the emergence of a "market of ideas" (Mill), on an anarchy of ideas – or rather an-archy of ideas. No ruling idea, no master idea (or Master's idea), no Good idea – only a pool of ideas, a market with no hand, be it visible or invisible. Within this epistemological anarchism, naturally, the question arose, how on earth do ideas get changed or, more appropriately, get exchanged. In short, leaving out the force of a clenched hand, how is one supposed, in the light of the absence of any invisible hand, to fix the price of ideas in the course of their transformation and transactions – be it a change or an exchange. OR, no invisible hand, hence no change, no exchange. According to Feyerabend, ideas are indeed both changed as well as exchanged. They change within a Tradition (a Paradigm, a Research Program, etc.), and are exchanged by TRADITIONS or between TRADITIONS (Art, Myths, Religion, Journalism, Law, Science...). So Exchange? Yes. but at what cost? At any cost? No, not at any cost, but at the cost of some idea(s): the idea that science enjoys no privilege. Scientific ideas are on an equal par with any traditional idea – any idea coming from any tradition, science included. Science itself is one TRADITION, one among many. The original epistemological anarchism now gives birth to an egalitarian epistemology: Myths, Religions, Sciences, one followed the other in the course of history: Perhaps. But this is all past – we should change time into space and juxtapose all next to each other. They are all contemporary. To deal with them all at once you need a Work of Art: a philosopher-dramatist such as late Professor Feyerabend: All evidence have the same force. To get them integrated into a single anarchic whole, an actual world, "the global world-market", "the best possible world", you

needed such an empowering figure. But did it work? Yes. But does it work? To answer this question, I would draw your attention to institutional aspects of science: The rise of college-universities in 11th&12th century and the rise of Bildung-universities in 19th century. Both re-emerged, or re-created, or were transplanted in the course of past century in Persia (Iran) in the course of a very dense and rapid flow of historical time. To anticipate the answer: Yes, it does work, but a great cost. Are we inclined to pay this immeasurable cost? The cost is losing a whole tradition: The tradition of science – in my view, and I think in Feyerabend's view, a great loss. This is all happening in Persia – a local matter? What if it is global? Drift of the world? "A Dark Age Ahead"? A Feyerabend backfired?

Against Feyerabend

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I've chosen the theme 'science and society' to approach the work of Feyerabend. I see three problems with his treatment. The two first problems concern the very understanding of society shown by Feyerabend, respectively from the historical point of view and the individual one. My third point concerns the elitism in Feyerabend's work. I will show that there is a tension between the expectations in Feyerabend's demand of science toward people, and the proper high-ranking standard with which he treats about science. The theme of science/society is quite trivial. Less trivial is the approach we favour. Feyerabend is very angry with science, much as he is with society. On one hand, Feyerabend will have demonstrated a very impressive knowledge of what is science. On the other hand, does he prove to be so knowledgeable about society? This is the first question I'd like to raise in my paper. Another shortcoming in Feyerabend is that society is not an external entity totally outside anyone: man is a social person. So the question might not exclusively be 'how society should be?' but also 'how man is social?', namely, how does this or that man actualize his social character?, what does he expect from this character, if he expect anything? This is the second question I will pose. The third problem concerns the way Feyerabend writes about science; it is not at all accessible to the layman. On the account of someone who is so demanding on the heuristic value of science we would have expected a very strong commitment to vulgarization; for if after all people are so prone to be victims of the collateral damage of science in society, they have also the rights to be informed in a simple way, without necessarily passing through the gates of quantum equations, for example. And the elitism in Feyerabend will make my final point.