
CLAUS BEISBART

CURRICULUM VITAE

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1. Personal Details

Date of Birth
Place of Birth

2. Degrees

- 2012 Habilitation in Philosophy (TU Dortmund)
 Title of the Habilitation Thesis: “A Transformation of Normal Science.
 Computer Simulations from a Philosophical Perspective”
- 2004 Ph.D. Philosophy (Ludwig Maximilian University of Munich = LMU Mu-
 nich, summa cum laude)
 Supervisor: Prof. Dr. W. Vossenkuhl
 Title of the Dissertation: “Handlungen begründen. Zur metaethischen
 Realismus-Problematik” (“Reasons for Action”, in German)
- 2001 Ph.D. Physics (LMU Munich, magna cum laude)
 Supervisor: Dr. T. Buchert
 Title of the Dissertation: “Measuring Cosmic Structure. Minkowski Valu-
 ations and Mark Correlations for Cosmological Morphometry”
- 1997 Diploma Physics (Minors: Mathematics, LMU Munich, with honors)
- 1990 High School Diploma („Abitur“), Gymnasium Christian Ernestinum,
 Bayreuth (1.0 meaning “very good”)

3. Areas of Specialization/Areas of Competence

- AOS: Philosophy of Science, Philosophy of Physics, Kant, Public/Social Choice
 Theory, Metaethics
- AOC: Logic, Ethics

4. Education

LMU Munich: Philosophy, Physics, Mathematics
University of Tübingen: Philosophy, Physics
Gymnasium Christian Ernestinum, Bayreuth

5. Appointments

2012 – Professor for Philosophy of Science (Extraordinarius) at the Institute for Philosophy, University of Bern
2011 – 2012 replacing a full Professor at the Institute for Philosophy and Political Science, Technische Universität Dortmund
2008 – 2009 Visiting Fellow at the Center for Philosophy of Science, University of Pittsburgh
2005 – 2012 Postdoc (“wissenschaftlicher Mitarbeiter”, for a Habilitation thesis), Institute for Philosophy and Political Science, Technische Universität Dortmund (formerly: University of Dortmund)
2004 – 2005 Postdoctoral Fellow in the Philosophy, Probability and Modeling Research Group, University of Konstanz
2002 – 2004 Research Associate, Department of Physics, LMU Munich
2001 Physics postdoc at Oxford University, Astrophysics Division/Nuclear and Astrophysics Laboratory
1997 – 2001 Research Associate in the Research Union “Astro-particle physics”, LMU Munich

6. Publications (in English, if not stated differently)

I. Publications in Philosophy

(a) Book

“Handeln begründen. Motivation, Rationalität, Normativität” (“Reasons for Action. Motivation, Rationality, Normativity”), Lit, Berlin 2007 (in German)

My dissertation offers a new take on the debate as to whether normative practical reasons depend on desires, as Humeans suggest. I argue that the notion of a normative practical reason is ambiguous to begin with. Whereas, on a first reading, reasons must depend on desires, they can not do so on a second reading. I show why we need both notions of a reason and why reasons in the second sense are more important. Moreover, I argue, the existence of desire-independent reasons in the second sense is compatible with those parts of the Humean theory of motivation that are tenable.

The book has been reviewed by P. Esterhazy in: *Philosophisches Jahrbuch* 115/II (2008), pp. 476–479 (in German).

(b) Habilitation Thesis

“A Transformation of Normal Science. Computer Simulations from a Philosophical Perspective”, TU Dortmund 2011 (book publication in preparation)

The aim of this work is to provide a philosophical understanding of how computer

simulations contribute to the workings of present-day science. I argue that computer simulations have a key function, viz. to obtain new knowledge about a target system, which may be merely imagined. To explain how this task is completed, I investigate whether computer simulations can be subsumed under a method already well-known in the sciences. I show that computer simulations are not experiments, but that they can be understood as arguments and as models. This leads to formal accounts of computer simulations, one syntactic, the other semantic. Computer simulations can only provide knowledge though if they are properly validated. I discuss different approaches to validation and argue that a mixture of related methods can make a strong case for computer simulations providing knowledge. The results of this work suggest that computer simulations do not constitute a completely new method of science. I conclude with describing how computer simulations contribute to the workings of normal science.

(c) Edited Book

“Probabilities in Physics”, Oxford University Press, Oxford 2011 (edited with S. Hartmann; CB first editor)

Many theories and models from physics are probabilistic. But what are probabilities in physics? Do they reflect objective chances, which exist independently of the human mind? Or do they only express subjective credences and thus capture our own uncertainty about the world? Finally, which metaphysical lessons, if at all, can one draw from the largely probabilistic character of physics? The essays collected in this volume address these questions and provide a detailed philosophical appraisal of the status of probabilities in many parts of physics. Particular emphasis is laid upon statistical physics and quantum mechanics. Many essays reflect a desire to understand probabilities from physics as objective chances. These chances are characterized, e.g., as time-averages, as probabilities from a best system in the terms of David Lewis, or using the Boltzmannian typicality approach. Other essays are sympathetic to a Bayesian view of probabilities in physics. The essays about quantum mechanics elucidate the peculiar characteristics of quantum correlations and discuss strategies to justify the Born Rule. Finally, the essays of this volume demonstrate how closely interpretive issues about probabilities are entangled with other foundational problems of physics such as the Reversibility Paradox, the ontology of the quantum world and the question whether the world is deterministic.

The contributors are C. Beisbart, J. Bub, C. Callender, M. Dickson, J. Earman and L. Ruetsche, R. Frigg and C. Werndl, C. Hofer, D. Lavis, T. Maudlin, M. Strevens, C. Timpson, J. Uffink and C. Wüthrich.

(d) Refereed Papers in Journals

- i. Voting Power and Probability, forthcoming in *Social Choice and Welfare* (special issue honouring D. Felsenthal and M. Machover, ed. by R. Fara, D. Leech and M. Salles)

I clarify the meaning of the probabilities that are used to quantify voting power. Latter-day objectivist views turn out to be fitting if voting power is used descriptively, while the classical interpretation is more appropriate for normative uses of voting power.

- ii. Why Monte Carlo Simulations are Inferences and not Experiments, forthcoming in *International Studies in the Philosophy of Science* 2012 (with J. D. Norton)

Monte Carlo simulations use random numbers to arrive at their results. We argue nevertheless that knowledge gained by such simulations is inferential. We reconstruct the inference in two examples and show why the simulations do not form experiments.

- iii. “Minimizing the Threat of a Positive Majority Deficit in Two-tier Voting Systems with Equipopulous Units”, forthcoming in *Public Choice* 2012 (with L. Bovens, CB first author)

Two-tier voting systems as known from the US presidential elections can produce a positive majority deficit, i.e., the outcome of a binary vote does not coincide with the majority of the votes. It is thus desirable that the mean majority deficit is small. We assume that we have a free hand in splitting up the population into units that are roughly equipopulous and investigate how many units should be there to avoid a large majority deficit.

- iv. How Can Computer Simulations Produce New Knowledge? Revised version submitted to *European Journal for Philosophy of Science*

I argue that scientists can gain new knowledge by doing computer simulations because the latter are ultimately arguments. This view parallels J. Norton’s so-called argument view concerning thought experiments. I reconstruct computer simulations as arguments and argue that such arguments accurately reflect the epistemic power of computer simulations. Assuming the extended mind thesis one can even show that running a computer simulation is in a way to reason through an argument. I conclude with a brief comparison between computer simulations and thought experiments.

- v. “Measuring Voting Power for Dependent Voters through Causal Models”, *Synthese* (part: Knowledge, Rationality and Action) **179** (2011), pp. 35–56 (with L. Bovens)

We propose a new measure of voting power that is based upon causal information. We model the votes with a probabilistic causal network; the extent to which a vote can make a difference is then quantified using Balke and Pearl’s proposal to calculate probabilities for counterfactual queries. Our measure equals the average treatment effect and will typically assign more voting power to opinion leaders than to somebody who copies the votes of an opinion leader.

- vi. “Welfarist Evaluations of Decision Rules under Interstate Utility Dependencies”, *Social Choice and Welfare* **34** (2010), pp. 315–344 (with S. Hartmann; CB first author)

We consider federations in which the interests of people from different states are stochastically dependent. In order to identify the decision rule that does best in terms of welfarist desiderata, we consider an analytical result and run computer simulations.

- vii. “Groups Can Make a Difference: Voting Power Measures Extended”, *Theory and Decision* **69** (2010), pp. 469–488; an earlier version was published in the Discussion Paper Series of the CPNSS at the LSE (refereed working paper series)

I extend the Banzhaf measure of voting power to a hierarchy of measures in order to quantify a posteriori voting power. The higher-rank measures quantify the extent to which a voter can be part of group that makes a difference to the outcome of a collective decision.

- viii. “Can we Justifiably Assume the Cosmological Principle in order to Break Model Underdetermination in Cosmology?”, *Journal for General Philosophy of Science* **40** (2009), pp. 175–205

I consider an underdetermination problem that contemporary physical cosmology faces: Alternative space-time models are compatible with the available evidence. The underdetermination may be avoided, if we can justifiably assume the Cosmological Principle. I assess various strategies to justify the adoption of the Cosmological Principle and conclude that they are all problematic.

- ix. “How to Fix Directions or Are Assignments of Vector Characteristics Attributions of Intrinsic Properties?”, *Dialectica* **63** (2009), pp. 503–524

I argue that we do not attribute an intrinsic property to an object, when we assign it a vector characteristics such as velocity. The background for my discussion is Lewis’s claim of Humean Supervenience, which I criticize.

- x. “Kant’s Characterization of Natural Ends”, *Kant Yearbook* **1** (2009), pp. 1–30

I provide a reconstruction of Kant’s argument in §§64–65 of his third Critique in order to argue that he puts forward a consistent and informative account of what it is to judge something a natural end. On my reconstruction, to judge something a natural end means to make certain factual assertions and to commit oneself to approach an object top-down or in a holistic way.

- xi. “A Power Measure Analysis of Amendment 36 in Colorado”, *Public Choice* **124** (2008), pp. 231–46 (with L. Bovens; CB first author)

We analyze a recent proposal to change the way Colorado is represented in the Electoral College and use measures of a priori and a posteriori voting power. We discuss the normative significance of both kinds of measures.

- xii. “Welfarist Evaluations of Decision Rules for Boards of Representatives”, *Social Choice and Welfare* **29** (2007), pp. 581–608 (with L. Bovens; CB first author)

We specify the optimal decision rule for a decision board, in which representatives of constituencies vote on proposals. Optimality is defined in terms of egalitarian and utilitarian concerns. We consider two types of constituencies, in which the interests of the people are stochastically dependent/independent.

- xiii. “Factions in Rousseau’s ‘Du Contrat Social’ and Federal Representation”, *Analysis* **67** (2007), pp. 12–20 (with L. Bovens)

We interpret Rousseau’s view on faction formation and argue for degressively proportional representation in a federal assembly on this basis.

- xiv. “Privileged, Typical, or not even that? – Our Place in the World according to the Copernican and the Cosmological Principles”, *Journal for General Philosophy of Science* **37** (2006), pp. 225–256 (with T. Jung; CB first author)

We analyze two foundational principles used in physical cosmology and elucidate their meanings. We argue that the principles are to be distinguished clearly.

- xv. “A Utilitarian Assessment of Alternative Decision Rules in the Council of Ministers”, *European Union Politics* **6** (2005), pp. 395–418 (with L. Bovens and S. Hartmann; CB first author)

We develop a probabilistic model for policy making in the European Union and compare a number of decision rules regarding the expected utility they effect.

- xvi. “The Messy Mass? On the Concept of Mass in Special Relativity”, *Philosophia Naturalis* **41** (2004), pp. 1–52 (with T. Jung; CB first author)

We carry out a case study on conceptual shifts. We argue that there is only one concept of mass in special relativity and that this concept and the concept of mass in Newtonian physics are *not* incommensurable.

(e) Contributions to Books or Special Issues

- i. Varieties of Goodness at Work: The Relationship between Business and Morality, *Inquiry* 55 (2012, special issue „Good Economy“, ed. by R. Raatzsch and R. Geuss), pp. 405–430

I use von Wright’s distinction between several varieties of goodness to answer the question of what we mean to say when we call some person a good business manager. I argue that business managers can be good in an instrumental or technical sense that does not have significant moral implications.

- ii. Können wir wissen, wie das Universum beschaffen ist? Echte und vermeintliche Erkenntnisprobleme der Kosmologie (“Can we know what the Universe is like? Real and alleged epistemological difficulties of physical cosmology”), in: M. Esfeld (ed.), *Philosophie der Physik*, Suhrkamp, Berlin 2012, pp. 179–193 (in German)

Serious doubts have been voiced as to whether we can obtain knowledge about the Universe. I critically examine such doubts in the view of modern cosmology and start from Kant’s arguments concerning the first antinomy of reason. I conclude that many doubts express quite general skeptical worries and are not specific to cosmology. The most important problem of cosmology cannot be identified a priori, but rather follows from the General Theory of Relativity: Many space-time models are compatible with the available evidence.

- iii. Bayesian Decision Theory, in: S. Roeser, R. Hillerbrand, M. Peterson und P. Sandin (eds.), *Handbook of Risk Theory*, Springer, Heidelberg 2011, pp. 375–404

According to Bayesian decision theory, rational agents choose an option that maximizes expected utility, where the expected utility reflects the pro-attitudes and the beliefs of the agent. I motivate the idea to introduce utilities using the St. Petersburg paradox, provide a precise formulation of Bayesian decision theory, put it into perspective from a philosophical viewpoint and outline the approaches by Ramsey, Savage and Jeffrey. I conclude by explaining the implications for risk and by outlining philosophical debates about Bayesian decision theory.

- iv. “Optimismus” (“Optimism”), in: S. Sellmaier and E. Mayr (eds.), *Normativität, Geltung und Verpflichtung. Festschrift for W. Vossenkuhl*, Kohlhammer, München 2011, pp. 174–200 (in German)

I clarify our everyday concept of optimism, compare optimism to hope and argue that habitual optimism is defensible within certain limits. I show that there are situations in which an optimistic assessment does not violate any requirement of epistemic rationality, although there are in some sense not sufficient epistemic reasons for that assessment. Drawing on psychological research about optimism, I argue that there are often practical reasons to be optimistic.

- v. “Are Computer Calculations Arguments?”, in: K. Mainzer (ed.): *Proceedings of ecap10: 8th European Conference on Philosophy and Computing*, Dr. Hut, München 2010

I argue that calculations done on a computer are arguments. To precisify my claim, I draw on J. Norton’s work about thought experiments. I show that calculations on computers can be reconstructed as arguments and that an argument is executed, when such a calculation is done. The extended mind thesis is important for the latter part of my argument.

- vi. “Probabilistic Modeling in Physics”, in: C. Beisbart and S. Hartmann (eds.), *Probabilities in Physics*, Oxford University Press, Oxford 2011, pp. 143–167

I explain how probabilistic models from physics can represent a target and how the probabilities from such models may be understood. Random models of Brownian motion and of the galaxy distribution are used as examples. I argue that probabilistic models represent because we may learn from them by setting our degrees of belief following the model. This is not incompatible with an objectivist view of probabilities, but stock objectivist interpretations have problems to provide an objectivist methodology for statistical inference from data.

- vii. “Introduction”, in: C. Beisbart and S. Hartmann (eds.), *Probabilities in Physics*, Oxford University Press, Oxford 2011, pp. 1–21 (with S. Hartmann)

We outline the aims of the book “Probabilities in Physics”, discuss the most important interpretations of probabilities, assess their advantages and problems in the realm of physics, and summarize the chapters of the book.

- viii. “Kants mathematische Antinomie (I): Anfang und räumliche Grenzen der Welt” (“Kant’s Mathematical Antinomy (I): The Beginning and the Spatial Limits of the World”), to appear as a book chapter in: N. Fischer (ed.), *Kants Grundlegung einer kritischen Metaphysik*, Meiner, Hamburg 2010 (in German)

I interpret and discuss Kant’s argument in the chapter on the mathematical antinomies of pure reason. Special emphasis is laid upon his indirect proof of transcendental idealism.

- ix. “Computersimulationen in der Angewandten Politischen Philosophie – Ein Beispiel” (“Computer simulations in Applied Political Philosophy – An Example”), to appear in: C. F. Gethmann (ed.), *Lebenswelt und Wissenschaft*, Meiner, Hamburg 2009 (in German; with S. Hartmann; CB first author)

We run computer simulations in order to find decision rules that are optimal for the EU Council of Ministers according to welfarist desiderata.

- x. “Praktische Gründe und moralische Prinzipien” (“Practical Reasons and Moral Principles”), in: H. Bohse and S. Walter (eds.), *Selected Papers Contributed to the Sections of GAP.6*, Mentis, Paderborn 2008, pp. 859–876 (in German)

I investigate Dancy’s argument for moral particularism in his “Ethics without Principles” and argue that the context-sensitivity of reasons is compatible with certain kind of principles.

- xi. “How Should the Weights be Set in a Federal Assembly? A Welfarist Argument from Cartel Formation”, in: H. Bohse and S. Walter (eds.), *Selected Papers Contributed to the Sections of GAP.6*, Mentis, Paderborn 2008, pp. 711–723 (with L. Bovens; CB first author)

We consider cartel formation in order to argue for a model of degressive proportionality to represent states in a federal assembly.

- xii. “Jonathan Dancy”, in: J. Nida-Rümelin and E. Özmen (eds.), *Philosophie der Gegenwart in Einzeldarstellungen. Von Adorno bis v. Wright*, 3rd edition, Kröner, Stuttgart 2007, pp. 98–103 (in German)

I give an introduction to J. Dancy’s work.

- xiii. “Welfarism and the Assessment of Social Decision Rules”, *Proceedings of the “1st International Workshop on Computational Social Choice”*, Amsterdam, 6–8 December 2006, pp. 35–48 (peer reviewed paper; with S. Hartmann; CB first author)

We rank alternative decision rules for a federation of states in which the interests

of people from different states are stochastically dependent. The dependencies are modeled using a multivariate normal probability density.

- xiv. “Wie man Handlungsoptionen finden kann. Oder: praktische Kreativität” (“How to find Options for Acting or Practical Creativity”), in: G. Abel (ed.), *Kreativität. Contributed Papers from the XXth Congress for Philosophy of the “Deutsche Gesellschaft für Philosophie”* (German Philosophical Association), TU Verlag, Berlin 2005, pp. 405–414 (in German)

I analyze how we find options for acting in situations where choice seems over- or underdetermined.

- xv. “Lebenskunst – eine Herausforderung für die moderne Moralphilosophie?” (“Is the Rediscovery of the *ars vivendi* a Challenge to Modern Moral Philosophy?”), in: C. Sommerfeld-Lethen (ed.), *Lebenskunst und Moral. Gegensätze und konvergierende Ziele*, Berliner Wissenschafts-Verlag, Berlin 2004, pp. 101–130 (in German)

I argue that modern moral philosophy can meet the challenge posed by the recent interest in an *ars vivendi*.

- xvi. “Von der Mikrowelt zum Makrokosmos: Coarse-graining und statistische Physik” (“From Microphysics to the Macro-world: Coarse-Graining and Statistical Physics”), in: A. Bergs and S. Curdts (eds.), *Holismus und Individualismus in den Wissenschaften*, Peter Lang, Frankfurt am Main 2003, pp. 87–106 (in German)

I discuss whether statistical physics is holistic in the sense defined by Esfeld.

(f) Book Reviews

- i. G. Gramelsberger, *Computerexperimente. Zum Wandel der Wissenschaft im Zeitalter des Computers* (Computer experiments. On the change of science in the age of computers), *Journal for General Philosophy of Science* **42** (2011), pp. 185–188
- ii. P. Schaber (ed.), *Normativity and Naturalism*, *European Journal of Philosophy* **16** (2008), pp. 325–329
- iii. M. Wille, *Die Mathematik und das synthetische Apriori. Erkenntnistheoretische Untersuchungen über den Geltungsstatus mathematischer Axiome* (Mathematics and the Synthetic A Priori. Epistemological Investigations into the Status of Mathematical Axioms), *Philosophia Mathematica* **16** (2008), pp. 130–132
- iv. M. Adam, *Theoriebeladenheit und Objektivität. Zur Rolle von Beobachtungen in den Naturwissenschaften* (Theory-ladenness and objectivity: On the role of observation in science), *Journal for General Philosophy of Science* **38** (2007), pp. 193–200 (in German)
- v. J. Dancy, *Ethics without Principles*, *Philosophisches Jahrbuch* **113** (2006), pp. 482–485 (in German)
- vi. R. Johns, *A Theory of Physical Probability*, *Philosophy in Review* **24/1** (2004), pp. 40–42

vii. U. Wessels, Die gute Samariterin (On the supererogatory in ethics), *Philosophischer Literaturanzeiger* **56**, 2003, pp. 240–245 (in German)

(g) Other Publications

- i. Erläuterungen zu den Indifferenzkurven in Rawls’ “Eine Theorie der Gerechtigkeit” (“Rawls’s Difference Principle and Indifference Curves – A Tutorial” , with J. Schroth, in German)

II. Selected Publications in Physics

(a) Dissertation

Measuring Cosmic Structure. Minkowski Valuations and Mark Correlations for Cosmological Morphometry. Electronic publication at the Library (LMU Munich) 2001

(b) Refereed Journal Papers

- i. “Tensorial Minkowski Functionals and Anisotropy Measures for Planar Patterns”, *Journal of Microscopy* **238** (2009), pp. 57–74 (with G. E. Schröder-Turk, S. Kapfer, B. Breidenbach and K. Mecke)
- ii. “Extended Morphometric Analysis of Neuronal Cells with Minkowski Valuations”, *The European Physical Journal B* **52** (2006), pp. 531–546 (with M. S. Barbosa, H. Wagner and L. da F. Costa; CB first author)
- iii. “Morphological Fluctuations of Large-scale Structure: the PSCz Survey”, *Astronomy & Astrophysics* **373** (2001), pp. 1–11 (with M. Kerscher, K. Mecke, J. Schmalzing, T. Buchert and H. Wagner)
- iv. “The Morphological and Dynamical Evolution of Simulated Galaxy Clusters”, *Astronomy & Astrophysics* **379** (2001), pp. 412–425 (with R. Valdarnini and T. Buchert; CB first author)
- v. “Morphometry of Spatial Patterns”, *Physica A* **293/3-4** (2001), pp. 592–604 (with T. Buchert and H. Wagner; CB first author)
- vi. “Luminosity- and Morphology-dependent Clustering of Galaxies”, *The Astrophysical Journal* **545** (2000), pp. 6–25 (with M. Kerscher; CB first author)

(c) Contributions to Books

- i. “Mark correlations: Relating physical Properties to Spatial Distributions”, in: K. Mecke and D. Stoyan (eds.), *Morphology of Condensed Matter. Physics and Geometry of Spatial Complex Systems (LNP 600)*, J. Springer, Berlin 2002, pp. 358–390 (with M. Kerscher and K. Mecke; CB first author)
- ii. “Vector- and Tensor-valued Descriptors for Spatial Patterns”, in: K. Mecke and D. Stoyan (eds.), *Morphology of Condensed Matter. Physics and Geometry of Spatial Complex Systems (LNP 600)*, J. Springer, Berlin 2002, pp. 238–260 (with R. Dahlke, K. Mecke and H. Wagner; CB first author)

7. Papers under review and working papers (available upon request)

i. Invitation to resubmit

- (a) “The Several Faces of the Cosmological Principle”, under revision for *Studies in the History and Philosophy of Modern Physics*, 2009

I argue that the Cosmological Principle is nowadays used in different versions and assuming different ontologies. I discuss the significance of the principle in Newtonian and relativistic physics and address the task of rendering more precise in which sense the principle holds approximately.

ii. Working papers close to submission

- (a) How Important is the Distinction between Moral Permissibility and Meaning? Critical notice of T. M. Scanlon’s “Moral Dimensions”, draft manuscript

I critically assess Scanlon’s argument for the view that a distinction between the two moral dimensions permissibility and meaning has theoretical benefits. I argue that Scanlon’s notion of meaning is too broad and that it does not help much to understand some characteristics of moral blame. I also point out a gap in Scanlon’s explanation why the doctrine of double effect is appealing.

- (b) “One Political Agent, Several Separate Votes”

I consider voting systems under which some political agents have several votes that may be split between different options. I define a notion of pivotality and show how to calculate voting power.

- (c) “How to Make a Difference – Measures of Voting Power Revamped” (with L. Bovens)

A new conceptualization of voting power is proposed. For each voter, we put a probability on the counterfactual query “Would the outcome have been different, if the voter had cast a different vote?”. We use the Balke-Pearl proposal to assess the probability of a counterfactual. The measure that results coincides with the Banzhaf measure under special conditions.

8. Teaching (in German, if not stated differently)

I. Philosophy Teaching

Many courses are documented online under

<http://www.claus-beisbart.de/teaching>

Direct links to the courses are provided in the list below.

- (1) Classic Works in the History of Science, Lecture with Exercises, University of Bern 2012. Seminar homepage under preparation.
- (2) Thomas S. Kuhn, *The Structure of Scientific Revolutions*, Proseminar, University of Bern 2012. Seminar homepage under preparation.

- (3) Philosophy of Social Science, Seminar, University of Bern 2012. Seminar homepage under preparation.
- (4) Colloquium in Philosophy of Science, University of Bern 2012. Seminar homepage under preparation.
- (5) Introduction to Practical Philosophy II. Mandatory lecture for first-year students, TU Dortmund 2012. Seminar homepage available.
- (6) J. Rawls, A Theory of Justice. Seminar for undergraduates and graduates, TU Dortmund 2012. Seminar homepage available.
- (7) Political Contractualism (Hobbes, Locke, Rousseau). Seminar for undergraduates and graduates, TU Dortmund 2012. Seminar homepage available.
- (8) Philosophical Writing. Seminar for first-year students, TU Dortmund 2012. Seminar homepage available.
- (9) Research Seminar. Seminar for graduates and Ph.D. students, TU Dortmund 2012 (with M. Herrmann; focus on A. Honneth, Das Recht der Freiheit 2011). No seminar homepage available.
- (10) Introduction to Practical Philosophy I. Mandatory lecture for first-year students, TU Dortmund 2011/12. Seminar homepage available.
- (11) Karl R. Popper. Seminar for undergraduates and graduates, TU Dortmund 2011. Seminar homepage available.
- (12) Interpreting Basic Texts from Theoretical Philosophy: Human Knowledge. Seminar for first-year students, TU Dortmund 2011/12. Seminar homepage available.
- (13) Philosophical Writing (focus: Ethics and economy). Seminar for first-year students, TU Dortmund 2011/12. Seminar homepage available.
- (14) Research Seminar. Seminar for graduates and Ph.D. students, TU Dortmund 2011/12 (with M. Herrmann). No seminar homepage available.
- (15) Introduction to Practical Philosophy. Mandatory lecture for first-year students, TU Dortmund 2011. Seminar homepage available.
- (16) Aristotle's Nicomachean Ethics. Seminar for undergraduates, TU Dortmund 2011. Seminar homepage available.
- (17) Fichte, Wissenschaftslehre. Seminar for undergraduates, TU Dortmund 2011. Seminar homepage available.
- (18) Research Seminar for graduates and Ph.D. students, TU Dortmund 2011 (with M. Herrmann). No seminar homepage available.
- (19) Plato, Early Dialogues. Seminar for undergraduates, TU Dortmund 2010/2011. Seminar homepage available.
- (20) Aristotle's Metaphysics and Present-day Metaphysics. Seminar for advanced undergraduates (4 hours per week), TU Dortmund 2010. Seminar homepage available
- (21) Logic. Lecture for first-year students, TU Dortmund 2010. Currently no seminar homepage available.

- (22) Topics from the Philosophy of Science. Seminar for advanced undergraduates, TU Dortmund 2010. Currently no seminar homepage available.
- (23) Welfare and Standard of Living as Guides to Action. Seminar for third-year undergraduates and graduates, TU Dortmund 2009 (with M. Herrmann). Currently no seminar homepage available.
- (24) From Metaethics to Moral Philosophy: R. M. Hare. Seminar for first/second-year students, TU Dortmund 2009. Currently no seminar homepage available.
- (25) Introduction to Practical Philosophy. Mandatory lecture for first-year students, TU Dortmund 2009. Currently no seminar homepage available.
- (26) Explanation and Causation. Seminar for advanced undergraduate students and master students, TU Dortmund 2009. Currently no seminar homepage available.
- (27) Philosophy of Science. Seminar for first- and second-year students, TU Dortmund 2008. Currently no seminar homepage available.
- (28) Kant, Critique of Pure Reason. Seminar for first- and second-year students, TU Dortmund 2008. Currently no seminar homepage available.
- (29) Interpreting Basic Texts from Theoretical Philosophy. Seminar for first-year students, TU Dortmund 2007/08. Seminar homepage available.
- (30) Collective Rationality, Collective Agency, Collective Responsibility. Seminar for advanced undergraduate students, TU Dortmund 2007/08 (with M. Herrmann). Seminar homepage available.
- (31) Kant, Critique of the Power of Judgment. Seminar for master students and advanced undergraduate students, University of Iceland, Reykjavík, Iceland 2007, in English. Seminar homepage available.
- (32) Philosophy of Science. Seminar for first- and second-year students, University of Dortmund 2007 (now: TU Dortmund). Seminar homepage available.
- (33) Kant, Critique of the Power of Judgment. Seminar for advanced undergraduate students, University of Dortmund 2007. Seminar homepage available.
- (34) Interpreting Basic Texts from Theoretical Philosophy. Seminar for first-year students, University of Dortmund 2006/07. Seminar homepage available.
- (35) Utilitarianism and its Critics. Seminar for advanced undergraduate students, University of Dortmund 2006/07. Seminar homepage available.
- (36) From Descartes to Kant: Metaphysics, Epistemology and Ethics in 17th and 18th Century Philosophy. Seminar for first- and second-year students, University of Dortmund 2006. Seminar homepage available.
- (37) Scientific Realism. Seminar for advanced undergraduate students, University of Dortmund 2006. Seminar homepage available.
- (38) Introduction to Epistemology. Seminar for first-year students, University of Dortmund, 2005/06. Seminar homepage available.
- (39) John Locke, An Essay Concerning Human Understanding. Seminar for first-year students, University of Dortmund 2005/06. Seminar homepage available.

- (40) Introduction to Ancient Ethics. Seminar for first-year students, University of Konstanz 2005.
- (41) Introduction to Kant's Ethics. Seminar for first-year students, University of Konstanz 2004/05.
- (42) Introduction to Methods in Philosophy. Seminar for first-year students, LMU Munich 2000/01 (with V. Weber). Currently no seminar homepage available.

II. Physics Teaching (Overview)

- (1) Tutorials in Mechanics, Electrodynamics, Quantum Mechanics, Quantum Information Theory, LMU Munich, 1997–2004
- (2) Mathematical Methods for Physicists, Tutorials for Brasenose College, Oxford, Michaelmas 2001, in English

9. Funds, Grants, Rewards, Scholarships

- 2009 Associate Member of the Global Young Faculty (project funded by the Mercator Foundation; organized by the Kulturwissenschaftliches Institut Essen)
- 2008 Postdoctoral Fellowship from the DAAD (German Academic Exchange Service) for a stay at the “Center for Philosophy of Science” at the University of Pittsburgh
- 2008 Fellowship at the “Center for Philosophy of Science” at the University of Pittsburgh for the academic year 2008–09
- 2005 Funds for the summer school “Philosophy, Probability and Physics” and the conference “Being Bayesian in a Quantum World” from the VolkswagenStiftung (67,000 Euros, with S. Hartmann, V. Palge and C. Fuchs)
- 2005 Funds for a research project “Paternalismus als Grundlagenproblem der Moralphilosophie und des Rechts am Beispiel medizinethischer Fragestellungen” (“Paternalism in Medical Ethics and Law”) from the DFG (German Research Foundation; money for two postdoc positions for two years, each; with U. Schroth, W. Vossenkuhl and B. Fateh-Moghadam)
- 2005 Invitation to the 2nd German-American Frontiers of Humanities Symposium (Alexander-von-Humboldt Foundation), Hamburg
- 2004–05 Postdoctoral Fellowship from the Alexander-von-Humboldt Foundation in the Philosophy, Probability and Modeling Research Group, University of Konstanz
- 2002 Grants for a Ph.D. in philosophy from LMU Munich
- 1991–97 Scholarship from the German Scholarship Foundation
- 1991–97 Bavarian State Scholarship
- 1990 First prize “Ancient Languages” from the Elisabeth J. Saal Foundation
- 1990 Third prize “Bundeswettbewerb Mathematik” (National award in mathematics for high school students)

11. Professional Activities

- 2012– Q-coach (responsible for quality management), Institute for Philosophy, University of Bern
- 2012 Member of the program committee for “Models and Decisions”, Munich-Sidney-Tilburg Workshop 2013
- 2008–12 Responsible for the management of examinations (“Prüfungsmanager”), Institute for Philosophy and Political Science, TU Dortmund
- 2008–12 Elected member of the central decision board of Faculty 14 at TU Dortmund (“Fakultätsrat”), re-elected 2010
- 2007–12 Authorized Representative for Teaching Capacities (“Kapazitätsbeauftragter”), Institute for Philosophy and Political Science, TU Dortmund
- 2007 Participation at a course about teaching students writing essays etc. (“Schreibwerkstatt für Lehrende: ’Wenn Studierende schreiben ...’”, Centre for Higher Education and Research in Faculty Development, University of Dortmund)
- 2006–12 Editorial Manager for “Physics and Philosophy” (open access journal)
- 2006–11 Speaker of the sub-professor-level research and teaching appointees (“Mittelbausprecher”), Faculty 14, TU Dortmund
- 2005 Organizer of the summer school “Philosophy, Probability and Physics”, University of Konstanz, 7 – 13 August 2005 (with S. Hartmann)
- 2004– Refereeing for *Social Choice and Welfare*, *British Journal for Philosophy of Science*, *Public Choice*, *Erkenntnis*, *The Philosophical Quarterly*, *Synthese*, *Economics and Philosophy*, *Homo Oeconomicus*, *European Union Politics*, *Politics*, *Philosophy and Economics*, *Physics and Philosophy*, *Monthly Notes of the Royal Astronomical Society* and the NWO (Netherlands Organisation for Scientific Research)
- 2004–05 Webmaster of the PPM Group
- 2004– Member of a Selection committee (“Auswahlkommission”) for the German Scholarship Foundation (2004, 2010, 2011, 2012)
- 1997–99 Editor of the abstract collection from the Research Union “Astro-particle physics”

12. Talks (now – December 2004)

- “A Lewisian Guide to the ’Spielraumtheorie’. On the Relationship between David Lewis’s Humean Chances and Probabilities according to the ’Spielraumtheorie’”, Workshop “Johannes von Kries’ Conception of Probability, its Roots and Impact”, University of Bonn, 14/9/2012 (*invited*)
- “Science without Principles? Über Wohl und Wehe eines wissenschaftsphilosophischen Partikularismus” (“Science without Principles? On Prospects and Problems

- of a Scientific Particularism”), Philosophy and History of Science Colloquium at the Ruhr University Bochum, 28/6/2012 (*invited*)
- “No Risk no Fun in the Virtual World: How Can We Learn from Monte Carlo Simulations?” TiLPS Colloquium, Tilburg Center for Logic and Philosophy of Science, 6/6/2012 (*invited*)
 - “Reich’ mir die Hand ... Händigkeit und Relationalismus” (“Give Me Your Hand ... Chirality and Relationalism”), 1. Griffenberger Gespräch, University of Wuppertal, 16/5/2012 (*invited*)
 - “No Risk no Fun in the Virtual World: How Can We Learn from Monte Carlo Simulations?” Oberseminar “Effizienz dezentraler Strukturen”, University of Bayreuth, 7/5/2012 (*invited*)
 - Big or Bug? A Skeptical Guide to Humean Chances, Workshop „Laws and Chances“ der DFG-Forschergruppe „Causation, Laws, Dispositions, Explanation“, Universität zu Köln, 5/3/2012 (*invited*)
 - “Big or Bug? A Skeptical Guide to Humean Chances”, Workshop „Laws and Chances“ of the DFG-Research Group „Causation, Laws, Dispositions, Explanation“, University of Cologne, 5/3/2012 (*invited*)
 - “No Risk no Fun in the Virtual World. How Monte Carlo Simulations Represent”, Workshop „The Plurality of Numerical Methods in Computer Simulations and their Philosophical Analysis“, ISHPST, Paris, 3/11/2011
 - “Objektive Wahrscheinlichkeiten in den Wissenschaften” (“Objective probabilities in the sciences”), XXII. German Congress for Philosophy, Ludwig Maximilian University of Munich, 15/9/2011
 - “Wie repräsentieren probabilistische Modelle aus der Physik?” (“How do probabilistic models represent?”), Annual Conference of the German Physical Society (“Philosophy of Physics group”), TU Munich, 10/9/2011
 - “Objektive Wahrscheinlichkeiten” (“Objective probabilities”), Philosophical Colloquium, University of Cologne, 30/6/2011 (*invited*)
 - “Spiegeln wissenschaftliche Wahrscheinlichkeitsfeststellungen objektive Tatsachen?” Philosophical Colloquium („Philosophisches Mittelbaukolloquium“), University of Duisburg-Essen, 9/6/2011 (*invited*)
 - “Are Computer Calculations Arguments?”, ECAP10 (European conference on Computing and Philosophy), TU Munich, 5/10/2010
 - “Space-time Theories at Sea: The Case of Cosmology”, Workshop “Towards a Theory of Spacetime Theories”, University of Wuppertal, Interdisziplinäres Zentrum für Wissenschafts- und Technikforschung, 21/7/2010
 - “Welchen Beitrag liefern Computersimulationen zum naturwissenschaftlichen Erkenntnisgewinn?” (“What is the Contribution that Computer Simulations Make to the Working of Science?”), University of Wuppertal, Interdisziplinäres Zentrum für Wissenschafts- und Technikforschung, 16/6/2010

- “The Several Faces of the Cosmological Principle”, Annual Conference of the German Physical Society (“Philosophy of Physics group”), Bonn, 15/3/2010
- “Computer Simulations Are Thought Experiments Are Arguments?”, workshop “Thought Experiments and Computer Simulations”, Paris, 11/3/2010
- “Was heißt es, einen Gegenstand als Naturzweck zu beurteilen? Überlegungen zu Kants ‘Analytik der teleologischen Urteilskraft’ ” (“What does it Mean to Judge something a Natural End? Thoughts about Kant’s ‘Analytic of the Teleological Power of Judgment’ ”), Conference “Teleology and Biology in the Context of Kant’s ‘Critique of the Power of Judgment’ ”, University of Luxemburg, 11/12/2009 (*invited*)
- “Optimizing Two-tier Voting Systems with Equipopulous Units”, VPP Governance Summer workshop, Warwick, 16/7/2009 (with L. Bovens)
- “How to Make a Difference – Measures of Voting Power Revamped”, VPP Governance Summer workshop, Warwick, 15/7/2009 (with L. Bovens)
- “Making a Difference. Measures of Voting Power Revamped”, Research Seminar in Philosophy and Economics, Tilburg Center for Logic and Philosophy of Science, 14/5/2009 (*invited*)
- “How to Argue Concerning Theoretic Principles. Lessons from the History of Cosmology”, second conference on Integrated History and Philosophy of Science, University of Notre Dame, 13/3/2009
- “How Simulations Sample Models of Theories. A Formal Investigation into the Relation between Simulations and Theories”, “Models and Simulations 3” conference, University of Virginia, 7/3/2009
- “History Matters! But Why? And How?”, Lunchtime Colloquium, Center for Philosophy of Science, University of Pittsburgh, 24/2/2009
- “Making a Difference. Measures of Voting Power Revamped”, Philosophy Department, Carnegie Mellon University, Pittsburgh, 2/2/2009
- “Science of the Universe? Physical Cosmology and our Limited Horizon”, Lunchtime Colloquium, Center for Philosophy of Science, University of Pittsburgh, 23/9/2008
- “Kants mathematische Antinomie” (“Kant’s Mathematical Antinomy”), Kant Summer School at Weltenburg, 26/8/2008
- “Does the Pessimistic Meta-induction Support van Fraassen?”, Annual Conference of the British Society for the Philosophy of Science 2008, University of St. Andrew’s, 11/7/2008 (with L. Fahrback)
- “Measuring Influence for Dependent Voters: A Generalisation of the Banzhaf Measure”, 8th Conference on Logic and the Foundations of Game and Decision Theory, Amsterdam 3/7/2008 (with L. Bovens)

- “Joint Action can Make a Difference: Measures of Voting Power Generalized”, 8th Conference on Logic and the Foundations of Game and Decision Theory, Amsterdam 4/7/2008
- “Über Wesen und Funktion wissenschaftlicher Computersimulationen. Eine wissenschaftsphilosophische Betrachtung” (“On the Nature and Role of Scientific Computer Simulations. A Philosophy of Science Account”), Philosophy and History of Science Colloquium at the Ruhr University Bochum, 26/6/2008 (*invited*)
- “Does the Pessimistic Meta-induction Support van Fraassen?”, Research Colloquium Theoretical Philosophy, University of Düsseldorf, 3/6/2008 (with L. Fahrbach)
- “How to Decide on Decision Rules. An Economic Approach to a Political Issue”, Dortmund Colloquium in Theoretical Economy, TU Dortmund, 19/5/2008 (*invited*)
- “How to Decide on Decision Rules. A Welfarist Approach with Dependent Utilities”, Dutch Social Choice Colloquium, Tilburg University, 29/2/2008 (*invited*)
- “Zwei Konzeptionen normativer Handlungsgründe” (“Two Conceptions of Normative Practical Reasons”), Colloquium of the ZEWW, Leibniz University Hannover, 30/10/2007 (*invited*)
- “Reasons for Action and Moral Principles. A Fresh Look at Dancy’s Particularism”, University of Iceland, 9/10/2007 (*invited*)
- “Measuring Influence under Probability Models with Dependent Votes”, Workshop “The Problems of Measuring A Posteriori or Actual Voting Power”, organized by the VPP group at the LSE London, Warwick University, 31/8/2007
- “Measuring Influence for Dependent Voters: A Generalisation of the Banzhaf Measure”, Workshop “The Problems of Measuring A Posteriori or Actual Voting Power”, organized by the VPP group at the LSE London, Warwick University, 31/8/2007 (with L. Bovens)
- “Two Kinds of Simulations”, Annual Conference of the German Physical Society (“Philosophy of Physics group”), Heidelberg, 8/3/2007
- “How to Decide on Decision Rules”, Research Colloquium Theoretical Philosophy, University of Düsseldorf, 9/1/2007 (*invited*)
- “Praktische Gründe und moralische Prinzipien” (“Practical Reasons and Moral Principles”), GAP.6 (German Association of Analytic Philosophy), Berlin, 13/9/2006
- “How Should the Weights be Set in a Federal Assembly? A Welfarist Argument from Cartel Formation”, GAP.6 (German Association of Analytic Philosophy), Berlin, 12/9/2006 (with L. Bovens)
- “Do Computer Simulations Change the Way Physics Works?”, conference “Models and Simulations” (organized by the IHPST at the University of Paris I, and the CPNSS at the LSE), Paris, 13/6/2006
- “Eine Machtindex-Analyse von Amendment 36 in Colorado” (“A Power Measure Analysis of Colorado’s Amendment 36”), Annual Workshop of the “AK Handlungs-

- und Entscheidungstheorie” (“Subgroup decision theory and theory of action”) of the German Society for Political Science, Bad Bevensen, 10/6/2006 (with L. Bovens)
- “The Bayesian Approach to Quantum Mechanics. What’s New and what’s Good?”, Annual Conference of the German Physical Society (“Philosophy of Physics group”), Dortmund, 29/3/2006
 - “Nach welcher Regel sollten wir entscheiden? Philosophische und entscheidungstheoretische Perspektiven auf die EU-Verfassung” (“According to which Rule Shall we Decide? Philosophical and Decision Theoretic Perspectives at the EU Constitution”), Dortmund Philosophy Colloquium Series, 13/12/2005 (*invited*)
 - “Degressive Proportionality in a Federal Assembly: An Argument from Cartel Formation”, Choice Group Seminar at the LSE, London, 7/12/2005 (with L. Bovens, *invited*)
 - “Wie man Handlungsoptionen finden kann. Oder: praktische Kreativität” (“How to find Options for Acting or Practical Creativity”), XXth Congress for Philosophy of the “Deutsche Gesellschaft für Philosophie” (German Philosophical Association), Berlin, 29/9/2005
 - “Why Degressive Proportionality? An Argument from Cartel Formation”, Workshop “Philosophy, Economics and Public Policy” at the Fifth European Congress for Analytic Philosophy, Lissabon, 28/8/2005 (with L. Bovens)
 - “True Concepts?”, Fifth European Congress for Analytic Philosophy, Lissabon, 27/8/2005
 - “Zweck-Mittel-Rationalität und praktische Kohärenz” (“Means Ends Rationality and Practical Coherence”), Workshop on coherence and reflective equilibrium in ethics, University of Hamburg, 2/7/2005 (*invited*)
 - “Entscheiden, wie man entscheidet – Eine entscheidungstheoretische Analyse zur EU-Verfassung” (“Deciding how to Decide. A Decision-theoretic Analysis of some Aspects of the EU Constitution”), Annual Workshop of the “AK Handlungs- und Entscheidungstheorie” (“Subgroup decision theory and theory of action”) of the German Society for Political Science, University of Mannheim, 25/6/2005
 - “Practical Coherence and its Role for Moral Philosophy: A Comment on Michael Smith”, workshop “Good and Right, Free and Reasonable. Discussions with Michael Smith” at the University of Konstanz, 24/6/2005 (with A. Kusser)
 - “A Utilitarian Assessment of Alternative Decision Rules in the Council of Ministers”, Conference on Philosophical Aspects of Social Choice Theory and Welfare Economics, Caen, 21/6/2005 (with L. Bovens and S. Hartmann)
 - “What is the Best Decision Rule for the EU Council of Ministers? Confronting a Political Question with Economic Techniques”, Adam Smith Seminar at the University of Hamburg, 5/4/2005 (with L. Bovens, *invited*)
 - “Knowledge beyond the Horizon? - An Epistemological Problem for Physical Cosmology”, Annual Conference of the German Physical Society (“Philosophy of Physics

group”), Berlin, 8/3/2005

- “What is the Best Decision Rule for the European Council of Ministers?”, Choice Group Seminar at the LSE, London, 23/2/2005 (*invited*)
- “Entscheiden, wie man entscheidet. Ein philosophischer Blick auf die EU-Verfassung” (“Deciding how to Decide. A Philosophical Perspective at the EU Constitution”), Konstanz Philosophy Colloquium Series, 13/1/2005 (*invited*)
- “Cosmology Beyond our Horizon? On the Prospects of Physical Knowledge about the Universe”, workshop in Paris, organized by the “Philosophy, Probability and Physics” seminar series, 15/12/2004