

Hannes Leitgeb, April 23rd 2013

The *Munich Center for Mathematical Philosophy* (MCMP) enjoyed another lovely and exciting year 2012. From October 2012, Stephan Hartmann and the members of his team started to arrive and joined the center so that now we can actually give *two* summaries of MCMP activities for 2012: one that is based on Hannes Leitgeb's Alexander von Humboldt Professorship, the other one being based on Stephan Hartmann's Alexander von Humboldt Professorship. This report only concerns the former.

Here is a list of the corresponding most important such activities in 2012 – the full details are to be found on our (in the meantime once again revised and further developed) website at <http://www.mcmp.philosophie.uni-muenchen.de/index.html>:

(I) We were using different media in order to reach out to the public:

- MCMP @ iTunes U: The MCMP regularly records lectures and talks, which one can watch on iTunes U. So far we have recorded 262 research presentations in total which are all available freely and online.
- MCMP @ Facebook: New video recordings are announced there, which are available for direct download, especially for Linux-Users who cannot use iTunes.
- M-Phi Blog: A blog dedicated to mathematical philosophy.
- What's Hot in Mathematical Philosophy?: Members of our center publish within the "What's Hot in Mathematical Philosophy?" series which appears regularly in *The Reasoner* (an electronic journal on reasoning that is based at Kent, UK).
- We have also developed new media formats, such as virtual (filmed) abstracts of talks or virtual interactive poster presentations by which we present our research in the worldwide web; see the bottom of <http://www.mcmp.philosophie.uni-muenchen.de/media/index.html> for details.

(II) We organized a great variety of academic events that included speakers from all over the world:

Colloquium in Mathematical Philosophy (Thursdays):

Date	Time	Person
12.01.2012	16:15 - 18:00 18:15 - 20:00	Matthias Unterhuber (<i>Düsseldorf</i>) Gerhard Schurz (<i>Düsseldorf</i>)
19.01.2012	18:15 - 20:00	Andreas Bartels (<i>Köln</i>)
26.01.2012	18:15 - 20:00	Matthias Schirn (<i>München</i>)
02.02.2012	18:15 - 20:00	Stephen Read (<i>St. Andrews</i>)
09.02.2012	16:15 - 18:00 18:15 - 20:00	Valentin Costreie (<i>Bucharest</i>) Christopher Gauker (<i>Cincinnati</i>)
12.04.2012	18:15 - 20:00	Greg Restall (<i>Melbourne</i>)
19.04.2012	16:15 - 18:00	Jaroslav Peregrin (<i>Prague</i>)

	18:15 - 20:00	Martin Kusch (<i>Wien</i>)
26.04.2012	16:15 - 18:00 18:15 - 20:00	Cameron Buckner (<i>Michigan</i>) Kristina Liefke (<i>Tilburg</i>)
03.05.2012	16:15 - 18:00 18:15 - 20:00	Lavinia Picollo (<i>Buenos Aires</i>) Karl-Georg Niebergall (<i>Berlin</i>)
10.05.2012	18:15 - 20:00	Jeff Barrett (<i>UC Irvine</i>)
24.05.2012	18:15 - 20:00	Roberto Ciuni (<i>Bochum</i>)
14.06.2012	16:15 - 18:00 18:15 - 20:00	Natalie Gold (<i>London</i>) Ralf Busse (<i>Mainz</i>)
21.06.2012	16:15 - 18:00 18:15 - 20:00	David Miller (<i>Warwick</i>) Paul Oppenheimer (<i>Stanford</i>)
28.06.2012	18:15 - 20:00	Marko Malink (<i>Chicago</i>)
05.07.2012	18:15 - 20:00	Robert Sugden (<i>East Anglia</i>)
12.07.2012	18:15 - 20:00	Kevin Scharp (<i>Ohio State</i>)
19.07.2012	16:15 - 18:00 18:15 - 20:00	Ondrej Majer (<i>Prague</i>) Merlijn Sevenster (<i>Amsterdam</i>)
26.07.2012	18:15 - 20:00	Ralph Wedgwood (<i>USC</i>)
18.10.2012	16:15 - 18:00	Erich Reck (<i>California</i>)
25.10.2012	18:15 - 20:00	Brendan Balcerak (<i>Köln</i>)
15.11.2012	16:15 - 18:00 18:15 - 20:00	Fabrice Correia (<i>Neuchâtel</i>) Benjamin Schnieder (<i>Hamburg</i>)
22.11.2012	18:15 - 20:00	Mikael Cozic (<i>Paris</i>)
29.11.2012	16:15 - 18:00	Peter Adamson (<i>LMU</i>)
13.12.2012	18:15 - 20:00	Stathis Psillos (<i>Athen</i>)

Colloquium in Logic, Philosophy of Science, and Philosophy (Wednesdays):

Date	Time	Person
18.01.2012	18:15 - 20:00	Matthias Schirn (<i>München</i>)
25.01.2012	18:15 - 20:00	T.A.F. Kuipers (<i>Groningen</i>)
01.02.2012	18:15 - 20:00	Barry Loewer (<i>Rutgers</i>)
08.02.2012	18:15 - 20:00	Peter Verdee (<i>Ghent</i>)
21.03.2012	16:15 - 18:00 18:15 - 20:00	J.T.Roberts (<i>North Carolina</i>) Wilfrid Hodges (<i>Queen Mary</i>)
18.04.2012	16:15 - 18:00 18:15 - 20:00	Greg Restall (<i>Melbourne</i>) Martin Kusch (<i>Wien</i>)
25.04.2012	16:15 - 18:00	Wlodek Rabinowicz (<i>Uppsala</i>)
02.05.2012	16:15 - 18:00	Eduardo Barrio (<i>Buenos Aires</i>)
16.05.2012	18:15 - 20:00	Thomas Forster (<i>Cambridge</i>)
23.05.2012	18:15 - 20:00	Hans van Ditmarsch (<i>Otago</i>)
06.06.2012	16:15 - 18:00 18:15 - 20:00	Peter van Inwagen (<i>Notre Dame</i>) Philipp Koralus (<i>Notre Dame</i>)
13.06.2012	16:15 - 18:00 18:15 - 20:00	Paul Schweizer (<i>Edinburgh</i>) Steve Awodey (<i>Carnegie Mellon</i>)
20.06.2012	18:15 - 20:00	Charles B. Cross (<i>Georgia</i>)
27.06.2012	18:15 - 20:00	Richard Bradley (<i>LSE</i>)
04.07.2012	16:15 - 18:00 18:15 - 20:00	Conrad Heilmann (<i>Rotterdam</i>) Robert Sugden (<i>East Anglia</i>)
11.07.2012	18:15 - 20:00	Joe Halpern (<i>New York</i>)
18.07.2012	16:15 - 18:00	Igal Kvart (<i>Jerusalem</i>)

	18:15 - 20:00	Gabriel Sandu (<i>Helsinki</i>)
15.10.2012 (Monday)	18:15 - 20:00	Sean Gryb (<i>Utrecht</i>)
22.10.2012 (Monday)	16:15 - 18:00	Szabó Gábor (<i>Budapest</i>)
23.10.2012 (Tuesday)	14:15 - 16:00	Szabó Gábor (<i>Budapest</i>)
24.10.2012	18:15 - 20:00	Elliott Sober (<i>Madison</i>)
30.10.2012 (Tuesday)	18:15 - 20:00	Harvey Friedman (<i>Ohio</i>)
31.10.2012	18:15 - 20:00	Harvey Friedman (<i>Ohio</i>)
14.11.2012	16:15 - 18:00 18:15 - 20:00	Francesco Paoli (<i>Cagliari</i>) Michael De (<i>Utrecht</i>)
21.11.2012	18:15 - 20:00	Thomas Müller (<i>Utrecht</i>)
28.11.2012	18:15 - 20:00	Johannes Czermak (<i>Salzburg</i>)

Work-in-Progress Seminars (Thursdays at Noon):

Date	Person
12.01.2012	Chris Gifford (<i>Bristol</i>)
19.01.2012	Silvia de Toffoli (<i>Berlin</i>)
26.01.2012	Marta Sznajder (<i>MCMP</i>)
01.02.2012	Chris Menzel (<i>MCMP</i>)
09.02.2012	Johannes Stern (<i>MCMP</i>)
16.02.2012	Martin Fischer (<i>MCMP</i>)
23.02.2012	David Kashtan (<i>Jerusalem</i>)
01.03.2012	Vincenzo Crupi (<i>MCMP</i>)
22.03.2012	Paul Dicken (<i>MCMP</i>)
29.03.2012	Andreas Kapsner (<i>MCMP</i>)
19.04.2012	Gil Sagi (<i>Jerusalem</i>)
03.05.2012	Ole Hjortland (<i>MCMP</i>)
10.05.2012	Florian Steinberger (<i>MCMP</i>)
24.05.2012	Conor Mayo-Wilson (<i>Carnegie Mellon</i>)
04.06.2012 (Monday)	Chiara Lisciandra (<i>Tilburg</i>)
14.06.2012	Thomas Meier (<i>MCMP</i>)
21.06.2012	Wolfgang Pietsch (<i>Munich</i>)
05.07.2012	Jönne Speck (<i>London</i>)
12.07.2012	Mario Hubert (<i>LMU</i>)
19.07.2012	F.M. Sirvent (<i>Basque Country</i>)
04.10.2012	Martin Fischer (<i>MCMP</i>)
15.11.2012	Alexander Oldemeier (<i>Leeds</i>)
22.11.2012	Pascal Ströing (<i>Munich</i>)
29.11.2012	Johannes Korbmacher (<i>MCMP</i>)
06.12.2012	Johannes Stern and Martin Fischer (<i>MCMP</i>)

MCMP Workshops and Conferences:

26.01.12 – 28.01.12

R&D (Rationality & Decision)

16.02.12 – 18.02.12

Perspectives on Structuralism

14.03.12 – 16.03.12	Axiomatic vs. Semantic Truth
30.03.2012 10:00 - 17:30	MCMP meets Linguistics
05.04.2012 09:30 - 19:00	Theories of Syntax and Diagonalization
29.05.12 – 02.06.12	Formal Epistemology
27.06.12 12:15 - 18:00	2nd Munich Modal Logic Workshop
28.06.12 – 30.06.12	Decisions, Games and Logic
23.07.12 – 25.07.12	Paradox and Logical Revision
17.08.12	Rationality Frameworks for Conditionals
11.10. - 13.10.2012	Formal Ethics
26.10.12 – 27.10.12	Groundedness in Semantics and Beyond
05.11.12 – 11.11.12	Formal Practical Philosophy

(For instance: the *Formal Epistemology Workshop* in May/June 2012 included 34 presentations - lectures or commentaries - over 5 days.)

Additional Activities:

03.02.12 14:00 - 17:30 **Round Table on Acceptance**, Kevin Kelly (Carnegie Mellon) / Hannes Leitgeb (MCMP) / Hanti Lin (Carnegie Mellon), Ludwigstr. 31, Room 225

07.02.12, 08.02.12, 10.02.12 10:15 - 11:45 **Tutorial Ockham's Razor with Kevin Kelly (Carnegie Mellon)/Open Workshop on Simplicity in Belief**, Ludwigstr. 31, Room 225

30.04.12 18:15 - 20:00 **Talk with Max und Adriane Cresswell** (Wellington), Ludwigstr. 31, Room 225

Start: 04.06.12 **Axiomatic Metaphysics** Seminar, Ed Zalta (Stanford), Ludwigstr. 31, Room 225, 12 lectures in total

04.06., 11.06., 25.06.12 16:15 - 17:45 **Homotopy Type Theory** Seminar, Steve Awodey (Carnegie Mellon) and Peter Aczel (Manchester), Ludwigstr. 31, Room 225

15.06.12 18:15 - 20:00 **Embedded Counterfactuals and Possible Worlds Semantics**, Charles B. Cross (Georgia), Ludwigstr. 31, Room 225

09. - 11.07.12 10:15 - 11:45 **Lectures on Plural Terms and Plural Logic**, Alex Oliver (Cambridge), Ludwigstr. 31, Room 225

12.07.12 18:30 - 20:30 **Formal Informal: Inductive Logic and Probabilities**, MCMP and Statistics Department, Alte Bibliothek room 245

20.07.12 14:00 - 18:30 **Round Table on Coherence**, Branden Fitelson (Rutgers) / Richard Pettigrew (Bristol)

23.08.12 - 28.08.12 **Groningen/Munich Summer School: Formal Methods in Philosophy**, University of Groningen

(III) We hosted LMU faculty, doctoral fellows, postdoctoral fellows, junior visiting fellows, and senior visiting fellows.

This is the list of non-faculty members, that is, the doctoral, postdoctoral, junior and senior visiting fellows that were members of the MCMP during some period in 2012:

Name	Date
Vincenzo Crupi (<i>Turin</i>)	January-March 2012
Martin Rechenauer (<i>Munich</i>)	– 31.03.2012
Christopher Menzel (<i>Texas A&M</i>)	– 30.06.2012
Andreas Kapsner (<i>Munich</i>)	– 06.12.2012
Valentin Sorin Costreie (<i>Bucharest</i>)	18.01.2012 – 18.02.2012
David Kashtan (<i>Jerusalem</i>)	February 2012
Julien Murzi (<i>Kent</i>)	01.03. 2012 – 31.03.2012
Frederik Stefan Herzberg (<i>Bielefeld</i>)	01.04.2012 – 31.03.2013
Gil Sagi (<i>Jerusalem</i>)	01.04. – 30.04.2012
Andrea Sereni (<i>Mailand</i>)	08.04. – 10.05.2012
Steve Awodey (<i>Carnegie Mellon</i>)	01.05. – 31.07.2012
Branden Fitelson (<i>Rutgers</i>)	01.05. – 01.07.2012
Conor Mayo-Wilson (<i>Carnegie Mellon</i>)	08.05. – 15.07.2012
Ed Zalta (<i>Stanford</i>)	01.06. – 30.06.2012
Philipp Koralus (<i>Notre Dame</i>)	01.06. – 31.07.2012
Charles B. Cross (<i>Georgia</i>)	09.06. – 30.06.2012
S. J. Methven (<i>Oxford</i>)	14.06. – 31.07.2012
Gabriel Tarziu (<i>Bucharest</i>)	11.06. – 11.08.2012
André Carus	02.07. – 15.8.2012
Jönne Speck (<i>Birkbeck</i>)	09.07. – 29.07.2012
Julian Pacho (<i>San Sebastian</i>)	12.07. – 26.07.2012, 27.08. – 09.09.2012
F.M.Sirvent (<i>Basque Country</i>)	13.07. – 24.09.2012
Francesco Nappo	18.07. – 25.07.2012
Erich Reck (<i>UC Riverside</i>)	01.09.2012 –
Will Nalls (<i>Gonzaga University, Spokane, USA</i>)	01.09.2012 –
Sam Sanders (<i>Gent</i>)	01.09.2012 –
Luca Moretti (<i>Aberdeen</i>)	15.09. – 15.12.2012
Vincenzo Crupi (<i>Turin</i>)	October-December 2012
Diego Tajer (<i>Buenos Aires</i>)	11.10. – 11.12.2012
Anna-Maria Eder (<i>Konstanz</i>)	01.11.2012 -

Steve Awodey, Vincenzo Crupi, Branden Fitelson, Julien Murzi, Ed Zalta are external members of the MCMP and visit the center on a regular basis.

(IV) Some of our MCMP members received special awards:

- Our doctoral fellow (now post-doctoral fellow) Johannes Stern received the *Paul Bernays Award* of the Swiss Society for Logic and Philosophy of Science for his doctoral dissertation *Toward Predicate Approaches to Modality*, which he had written at the University of Geneva.
- Our visiting fellow Andreas Kapsner received the E.W. Beth Dissertation of the Association for Logic, Language and Information for his doctoral

dissertation on *Logics and Falsifications*, which he had written at the University of Barcelona.

(V) Some of the members of the MCMP (with non-permanent positions) secured permanent positions elsewhere:

- Jeff Ketland became a Lecturer at the Faculty of Philosophy of the University of Oxford and Tutorial Fellow at Pembroke College in 2012.

He remains a fellow of our Center and will spend part of each year at the MCMP in the future.

(VI) We installed a new international MA program in *Logic and Philosophy of Science* about which more information can be found at <http://www.mcmp.philosophie.uni-muenchen.de/students/ma/index.html>.

(VII) For reasons of space, when we now turn to a detailed description of the academic activities of the academic members of the MCMP in 2012, we will not mention: their teaching activities; which conferences or reading groups they attended; which talks they gave in our internal MCMP Work-in-progress seminar; at which MCMP hiring committees they served; and which students they supervised.

Albert Anglberger

1. Type of Affiliation with the MCMP

Albert Anglberger spent the whole year 2012 at the MCMP as an LMU Research Fellow (and hence he is funded by LMU Munich).

2. Research Projects

Dynamic deontic logic and the Principle of Nonmaleficence (Paper (ii) below):

Dynamic deontic logic is, with its usual reduction of the forbiddance operator, consequentialistic in nature. In this paper Albert Anglberger used this property of a dynamic deontic logic to formalize one very famous consequentialistic principle of applied ethics, i.e. Beauchamp's and Childress' *principle of nonmaleficence*. This help us in identifying certain (maybe problematic) assumptions and leads to some necessary clarifications.

Deontic Logic: Obligation as Weakest Permission (Paper (iii) below):

This paper studies the following interpretation of obligations: A person i ought to do A in a situation S just in case everything else i may (and can) do in S is consistent with A . In such a case A can be called the weakest permission that i has in S . Albert Anglberger and his co-authors show that, under this interpretation, obligation and permission are not dual notions, and that this gives rise to an interesting interplay between deontic and alethic notions. They also discuss the logics adequacy w.r.t. the paradoxes of (classic) deontic logic and provide a sound and complete axiomatization for it. Finally, they show that practical, rational recommendations in games provide a natural, concrete application of such an understanding of obligations and permissions.

Best Actions and Deontic Logic (Paper (iv) below):

This paper re-visits Johan van Benthem's proposal to study the logic of "best actions"

in games. After introducing the main ideas behind this proposal, it is argued that the logic of best action has a natural deontic rider. Only best actions are permitted, and players ought to choose one of them. This understanding of obligation and permissions gives rise to an interesting non-normal deontic logic, where obligations become weakest permissions. Some salient properties of this logic are pointed out, and the paper concludes by exploring extensions to obligations and permission stemming from specific solution concepts in games.

3. Academic Output

- (i) “Lord Eddard Stark, Queen Cersei Lannister: Moral Judgements from Different Perspectives” (with Alexander Hieke), in: H. Jacoby (ed.), *Game of Thrones and Philosophy: Logic Cuts Deeper Than Swords*, John Wiley & Sons 2012.
- (ii) “Das Prinzip der Schadensvermeidung & die Logik konsequentialistischer Prinzipien“, in: H. Ganthaler, C. R. Menzel and E. Morscher (eds.), *Aktuelle Probleme und Grundlagenfragen der Medizinischen Ethik*, Academia 2013.
- (iii) “The Logic of Obligation as Weakest Permission (Short Version)” (with O. Roy and N. Gratzl), in: J. Broersen, T. Agotnes and D. Elgensem (eds.), *Deontic Logic in Computer Science, DEON 2012 - Lecture Notes in Computer Science*, Springer, 2012.
- (iv) “The Logic of Best Actions from a Deontic Perspective” (with O. Roy and N. Gratzl), in: S. Smets, A. Baltag (eds.) *Johan F. A. K. van Benthem on Logical and Informational Dynamics*, volume to appear.

In preparation:

- “You ought to do something!” (with O. Roy and N. Gratzl).
- “Cognitivism and the logic of imperatives”.
- “The Logic of Privacy” (with A. Kapsner).
- Review of E. Morscher: *Normenlogik: Grundlagen – Systeme - Anwendungen* (Mentis 2012) (with N. Gratzl).
- Book: *Definitionstheorie* (working title, with C. Feldbacher).
- Interview with J. Horty for THE REASONER, <<http://www.thereasoner.org>>.

Talks:

- “The logic of obligation as weakest permission” (September 2012, GAP 08, Konstanz, Germany) (with N. Gratzl).
- “The logic of obligation as weakest permission” (July 2012, DEON 2012, Bergen, Norway) (with O. Roy and N. Gratzl).
- “You ought to do something! ” (June 2012, Trends in Logic XI, Bochum, Germany) (with O. Roy and N. Gratzl).

Further activities:

Conferences organized:

- *Formal Ethics 2012* (5000 euros out of my research project), Munich.
- *SOPHIA 2012 - Salzburg Conference for Young Analytic Philosophy 2012* (4500 euros, completely funded by third-party-funds).
- Member of the *Formal Ethics Workshop* Steering Committee, 2012, Munich.
- Program committee member of
 - *SOPhiA 2012*
 - *Logic and Rational Interaction 4 Conference 2013* (Hangzhou, China)
 - *SEP 2013 - 41st Annual Meeting of the Society for Exact Philosophy*

(Montreal, Canada)

Conferences attended:

- *Perspectives on Structuralism* (Munich).
- *Axiomatic vs Semantic Truth* (Munich).
- *Formal Epistemology* (Munich).
- *Decisions, Games and Logic* (Munich).

Editorial Board Member:

- *THE REASONER* (since 2012), <<http://www.thereasoner.org>>.
- *KRITERION* (since 2011 editor in chief).

Steve Awodey

1. Type of Affiliation with the MCMP

Steve Awodey (Carnegie Mellon) spent the two months June and July 2012 at the MCMP as a senior visiting fellow. This was his second regular visit, and it was funded by MCMP funds and a research Grant from the US National Endowment for the Humanities.

2. Research Projects and 3. Academic Output

Presentations:

- Steve Awodey gave a talk on "Higher-Order Modal Logic", which is also the topic of joint research that he is conducting with MCMP doctoral student Hans-Christoph Kotsch. From this talk and joint research a joint paper has resulted, which will be presented at a conference (*Topology, Algebra, Categories, and Logic*) this summer in the US.
- During the period of his stay, he also visited other German and European locations for lectures and conferences, including Ljubljana, Slovenia; Cambridge, England; and Bath, England.

Further Activities:

- As in the previous year, Steve Awodey co-organized and participated in the *Munich Modal Logic Workshop*, together with other speakers from MCMP and from outside.
- In addition, he ran a 4-week long research seminar on Homotopy Type Theory, the topic a research program that he is currently co-organizing at the Institute for Advanced Study, Princeton, USA. The seminar was attended by MCMP faculty, students, and guests, including Prof. Peter Aczel, Manchester, England. It served to introduce participants to this cutting-edge development in Foundations of Mathematics. Research conducted jointly with Prof. Aczel and presented in this seminar was incorporated into his further results and will be published in a forthcoming book on Homotopy Type Theory.
- While at the MCMP, he also worked on the Rudolf Carnap Project, in collaboration with MCMP fellow Dr. Georg Schiemer, and MCMP guest Dr. André Carus. The results of this collaboration will appear in the *Collected Works of Rudolf Carnap*.

- He worked closely with Hans-Christoph Kutzsch (MCMP) and others on the modal logic research project mentioned above during this stay.

Catrin Campbell-Moore

1. Type of Affiliation with the MCMP

Catrin Campbell-Moore arrived on 1/10/12. She was a doctoral fellow of the MCMP for the rest of 2012 who is funded by the MCMP.

2. Research Projects and 3. Academic Output

Catrin Campbell-Moore has been looking at higher order probabilities. For instance, she considered a probabilistic liar sentence: a sentence which one could express by saying "The sentence I'm currently uttering has probability <0.5 ". This can lead to inconsistencies with certain principles; she has been studying which principles these are, and how the inconsistencies can be avoided.

Charles B. Cross

1. Type of Affiliation with the MCMP

Charles B. Cross (Georgia) was a senior visiting fellow at the MCMP from 11th June 2012 to 30th June 2012; his research stay was funded by the MCMP.

2. Research Projects

Charles B. Cross worked on two papers during his three week visit to the MCMP. Neither paper was started or finished during the short visit, but while at the MCMP Professor Cross received important feedback on both papers and worked on drafts of both. One of the papers argues for a re-evaluation of an example offered by Stephen Barker in a recent paper in *Nous*. Barker argues that his example shows that no Stalnaker/Lewis style possible worlds semantics for the counterfactual can be right. Charles B. Cross argues that the example shows instead that David Lewis's "Time's Arrow" requirements on the semantics of counterfactuals must be rejected.

The second paper argues that modal fictionalism should undergo a Copernican revolution in which the if-and-only-if operator in the possible worlds analysis of necessity occurs inside the fiction operator instead of outside. This new version of modal fictionalism is formalized in hybrid logic, and it is shown to avoid all of the commonly raised objections to other versions of fictionalism.

3. Academic Output

Publications:

- "Embedded counterfactuals and possible worlds semantics" (paper now in late stages of preparation; to be submitted to a journal in 2013).
- "A Copernican revolution for modal fictionalism" (paper now in late stages of preparation; to be submitted to a journal in 2013).

Presentations:

- “Embedded counterfactuals and possible worlds semantics”, talk presented on 15th June 2012 at the MCMP.
- “A Copernican revolution for modal fictionalism”, talk presented on 20th June 2012 at MCMP.

Vincenzo Crupi

1. Type of Affiliation with the MCMP

Vincenzo Crupi (Turin) is an external member of the MCMP. He was at the MCMP (with MCMP funds) as a visiting research fellow in January-March and then again in October-December 2012.

2. Research Projects

His work in this period further develops the axiomatics of probabilistic theories of evidential support (or confirmation) and explanatory power (Crupi, Chater, and Tentori, 2013; Crupi and Tentori, 2012, 2013a; Crupi, 2012), and also includes invited survey contributions on the logical and empirical study of inductive reasoning in a broader perspective (Crupi, forthcoming; Crupi and Tentori, forthcoming; Crupi and Tentori 2013b). Ongoing collaborative investigations on the so-called “conjunction fallacy” yielded reports of original experimental data and novel theoretical analyses (Tentori, Crupi, and Russo, 2013; Tentori and Crupi, 2012a,b; Cevolani, Crupi, and Festa, 2012). Additional work published in this period addressed the psychology of belief updating (Zhao, Crupi, Tentori, Fitelson, and Osherson, 2012) and inconsistent patterns of context-dependent choices in healthcare (Dumas, Gonzalez, Giroto, Pascal, Botton, and Crupi, 2012).

3. Academic Output

Publications (selection):

- “Confirmation”, forthcoming in E. Zalta (ed.), *Stanford Encyclopedia of Philosophy*.
- “Confirmation theory” (with K. Tentori), forthcoming in: A. Hájek and C. Hitchcock (eds.), *Oxford Handbook of Philosophy and Probability*, Oxford University Press.
- “Confirmation as partial entailment: A representation theorem in inductive logic” (with K. Tentori), forthcoming in *Journal of Applied Logic*.
- “On the determinants of the conjunction fallacy: Probability vs. inductive confirmation” (with K. Tentori and S. Russo), *Journal of Experimental Psychology: General* 142 (2013), 235-255.
- “New axioms for probability and likelihood ratio measures” (with N. Chater, and K. Tentori), *British Journal for the Philosophy of Science* 64, 189-204.
- “Updating: Learning vs. supposing” (with J. Zhao, K. Tentori, B. Fitelson, and D. Osherson), *Cognition* 124 (2012), 373-378.

- “A second look at the logic of explanatory power (with two novel representation theorems)” (with K. Tentori), *Philosophy of Science* 79 (2012), 365-385.
- “How the conjunction fallacy is tied to probabilistic confirmation: Some remarks on Schupbach (2009)” (with K. Tentori), *Synthese* 184, 3-12.

Presentations (selection):

- “Probability, confirmation, and the conjunction fallacy: Theoretical and experimental advances”, Theoretical Philosophy Colloquium, Heinrich Heine University Düsseldorf, 11 December 2012.
- “Formal epistemological explication: News for the Bayesian agenda”, Formal Epistemology Group, University of Konstanz, 19 March, 2012.
- “Probability vs. confirmation judgments: A comparison in accuracy and test-retest reliability” (with K. Tentori and N. Chater), *Seventh International Conference on Thinking*, Birkbeck College and UCL London, 4 July, 2012.

Paul Dicken

1. Type of Affiliation with the MCMP

Paul Dicken spent the whole year 2012 at the MCMP. As a Humboldt postdoctoral research fellow he had his own source of funding from the Alexander von Humboldt Foundation.

2. Research Projects

Paul Dicken’s research has been focused upon the scientific realism debate, and in particular, on whether or not such a debate is philosophically substantive. He published material on instrumentalist and empiricist oppositions to scientific realism, and on the similarities between Carnap’s (predominantly metaphysical) dissolution of the scientific realism debate and van Fraassen’s more recent (predominantly epistemological) dissolution of the debate. More recent work has been concerned with the role of naturalism within the scientific realism debate, and on how the debate should respond to the increasingly widespread conviction that the traditional arguments for and against scientific realism are guilty of a base-rate fallacy. He is also concerned with the structure of a scientific theory, and various ways of developing the Ramsey-Sentence approach against charges of triviality.

3. Academic Output

Publications:

- "Three Degrees of Naturalism in the Philosophy of Science", in C. Daly (ed.) *The Palgrave Handbook of Philosophical Method* (Basingstoke: Palgrave Macmillan, forthcoming).
- "Instrumentalism of Scientific Theories and Constructive Empiricism", in B. Kaldis (ed.) *Encyclopedia of Philosophy and Social Science* (London: Sage, forthcoming).
- "Tolerance and Voluntarism", *Philosophical Papers* 42 (2013), pp. 25-48.

- "Constructive Empiricism", in D. Pritchard (ed.) *Oxford Bibliographies Online: Philosophy* (New York, Oxford University Press, 2012).
- "Logical Empiricism, Constructive Empiricism, and the Ramsey-Sentence" (under review).
- "Normativity and the Base-Rate Fallacy" (under review).
- "The Two Attitudes Approach to Empiricism and Modality" (under review).
- "Some Notes on the Modal Ramsey-Sentence, in preparation" (in preparation).
- "Whose Structure is it Anyway? Ramseyfication and the Pessimistic Meta-Induction" (in preparation).

Presentations:

- "The Two Attitudes Approach to Empiricism and Modality", Fakultät für Philosophie, Universität Wien (18 October 2012).
- "Testimonial Norms and the Experimenter's Regress: Reply to Mayo-Wilson", 6th *Workshop in Decisions, Games and Logic*, Munich Center for Mathematical Philosophy, Ludwig-Maximilians-Universität (28-30 June 2012).
- "From Logical Empiricism to Constructive Empiricism – and Back Again", Fachbereich Philosophie, Universität Konstanz (19 March 2012).

Further Activities:

- Invited participant to an international conference on higher education policy, *Higher Education Policy: A Comparison of Germany and the UK*, Wildbad Kreuth, organised by the Hanns Seidel Stiftung, the British Council and the Centre for British Studies at the University of Bamberg (3-4 May 2012).
- Paul Dicken submitted (along with Thomas Meier and Norbert Gratzl) a DFG Conference Grant for a conference on *The Analysis of Theoretical Terms*. (The proposal was successful and led to a grant of 7000 Euro.)

Christian Feldbacher

1. Type of Affiliation with the MCMP

Christian Feldbacher was a visiting fellow at the MCMP from October 1st 2012 to December 31st 2012. His stay was funded by Marietta Blau-Scholarship of the Austrian Federal Ministry of Science and Research.

2. Research Projects

- Research within his PhD project (thesis title: *Analogies in Scientific Explanations*): Analogies are frequently used in scientific explanations and descriptions. A prototypic analogy that is discussed often in philosophy of science is the one that was established between the concepts of fluid physics and the concepts of electromagnetism: So, e.g., one can describe potential difference partly by the help of pressure difference in a pipe filled with liquid. In his research Christian Feldbacher tried to show that many kinds of such analogies bear some important features of contextual definitions and by this

allow one to expand the classical definitional and reductionistic framework also to a framework of concept formation and reduction by analogies.

- Research on meta-induction (i.e. inductive reasoning about methods rather than events): In their paper on the influence of meta-induction to the wisdom of a crowd (i.e. the phenomenon that a group's performance is under specific circumstances far better than that of the group's individuals on average), Paul Thorn and Gerhard Schurz argue that adding meta-inductive methods to a group influences the group positively, whereas replacing independent methods of a group with meta-inductive ones may have a negative impact. The first fact is due to an improvement of average ability of a group whereas the second fact is due to an impairment of average diversity within a group by meta-induction. In this part of his research Christian Feldbacher tried to provide some simulations that point out some more positive and negative effects of meta-inductivistic group expansion and replacement. In particular Christian Feldbacher argued again with the help of examples that both ability and diversity are of equal importance to a group's performance.
- Research on mereology (i.e. the theory of parts and wholes): Mereology is often taken to be an adequate framework for semantical theories and theories of metaphysics. Many ontologists think that this framework is in some cases more favorable than, e.g., set theory insofar it seems to be in one way or another ontologically innocent (cf. Lewis 1991). Recent discussions of the thesis of ontological innocence (e.g. by Yi 1999 and Cameron 2007) undermine that thesis. Christian Feldbacher argued that the question whether this thesis holds relies crucially on the underlying theory of reference. It is shown that the thesis of ontological innocence of mereology does not hold in theories of single reference and also not in (first-order) theories of plural predication, but it holds in the framework of plural reference.

3. Academic Output

Publications:

- "Knowledge by Narratives: On the Methodology of Stump's Defence", *European Journal for Philosophy of Religion* 4.3 (2012), 155–165.
- "Meta-Induction and the Wisdom of Crowds. Comment on Paul D. Thorn and Gerhard Schurz", *Analyse und Kritik* 34.2 (2012), 367–382. (Also accepted for presentation at the *Annual Conference of the British Society for the Philosophy of Science* at the University of Exeter, UK, in July 2013.)

Presentations:

- "Is Mereology Ontologically Innocent? Well, it Depends...", presentation at the *SILFS Mid-Term Conference 2012* at the University of Milan-Bicocca, Italy, 2012/11/20 – 2012/11/21. (Attendance was supported by a travel grant of the Italy Center of the University of Innsbruck.)

Further Activities:

- Editor of *Kriterion – Journal of Philosophy*, Salzburg.

Martin Fischer

1. Type of Affiliation with the MCMP

Martin Fischer was a postdoctoral fellow at the MCMP for the whole of 2012, funded by a DFG Project (with Johannes Stern and Hannes Leitgeb) on *Syntactical Treatments of Interacting Modalities*.

2. Research Projects

In the first months of 2012 Martin Fischer investigated theories of truth concerning the so-called "speed-up" phenomenon. He found some positive as well as negative examples of conservative theories of truth, and speed-up results were used to connect the philosophical positions of deflationism and instrumentalism.

In the following months he studied extensions of theories of truth incorporating notions such as groundedness. For this he looked at models for such theories. Based on a possible worlds model he constructed models in which the worlds are identified with fixed points of the Kripke fixed point construction. These models are models of theories of a truth and a groundedness predicate.

3. Academic Output

Publications:

- "Deflationism and Instrumentalism", to appear in *Unifying the Philosophy of Truth*, Springer *Logic, Epistemology, and the Unity of Science* series.
- Review of Leon Horsten's *The Tarskian Turn*, *Bulletin of Symbolic Logic*, 18 (2012), 403.
- "Wahrheit" (with Volker Halbach), in: Thomas Bonk (ed.), *Lexikon der Erkenntnistheorie*, 2013.
- "The Expressive Power of Truth" (with Leon Horsten, under review).
- "Truth and Speed-Up" (in preparation).
- "Axiomatizing Semantic Theories of Truth" (with Volker Halbach, Johannes Stern, Jönne Speck, in preparation).
- "Paradoxes of Interaction?" (with Johannes Stern, in preparation).

Presentations:

- "Deflationism, Instrumentalism and Reflection", 10.02.2012, Birkbeck College, London.
- "Truth and Groundedness", 21.11.2012, *Conference: Numbers and Truth*, Gothenburg.

Further Activities:

- Co-organizer of *Axiomatic versus Semantic Truth*, conference, 14.03.-16.03.2012. Carl-Friedrich von Siemens Stiftung, co-organized together with Julien Murzi (Kent, MCMP).
- Co-organizer of *Theories of Syntax and Diagonalization*, workshop, 06.04.2012, co-organized together with Johannes Stern (MCMP).

Branden Fitelson

1. Type of Affiliation with the MCMP

Branden Fitelson (Rutgers) is an external member of the MCMP, who stayed at the MCMP as a senior visiting fellow for the month of July. His funding source was a combination of the Institute of Advances Studies at the LMU and the MCMP.

2. Research Projects and 3. Academic Output

Branden Fitelson taught a seminar on formal epistemic coherence requirements at the MCMP. Specifically, in that seminar, he explained (in outline form) how to construct a general framework for grounding formal epistemic coherence requirements. That work has continued, and will become a book next year (when Branden Fitelson will be on sabbatical to write the book). The feedback he got in that seminar was crucial for the development of the project. And, many of the main results for the book were discovered during the seminar (especially, for the part of the book on comparative confidence). During the period at the MCMP, he also gave lectures in Amsterdam, Seville, and Munich on related topics.

Mathias Frisch

1. Type of Affiliation with the MCMP

Mathias Frisch (Maryland) visited the MCMP in the period of 01.01.2012 - 31.07.2012 on the basis of a Humboldt fellowship for Experienced Researchers and during 1.08.2012 – 31.12.2012 based on a senior visiting fellowship at the MCMP.

2. Research Projects

The main focus of his research in this period was on the role of causal reasoning in physics. He also did research on the use of integrated assessment models in predicting the economic effects of climate change.

3. Academic Output

Publications:

- Book under contract and currently in preparation (with May 2013 completion date): *Causal Reasoning in Physics* (under contract with Cambridge University Press).
- “Time and Causation,” forthcoming in: Heather Dykes and Adrian Bardon (eds.), *A Companion to the Philosophy of Time*, Oxford: Wiley-Blackwell.
- “Physical Fundamentalism in a Lewisian Best System,” forthcoming in: Alastair Wilson (ed.), *Asymmetries of Chance and Time*, Oxford: Oxford University Press.
- “Uncertainty and Values in climate policy optimization models”, forthcoming in: E. Winsberg and E. Lloyd (eds.), *Conceptual Foundations of Climate Modeling*, The University of Chicago Press.
- “Who is Afraid of Inconsistency?”, *Synthese* (in press).
- “Laws in Physics”, *European Review* (forthcoming).

- “Modelling Climate Policies: A Critical Look at Integrated Assessment Models”, *Philosophy and Technology* (forthcoming).
- “Users, Structures, and Representations” *British Journal for the Philosophy of Science* (forthcoming).
- “Physics and the Human Face of Causation,” *Topoi. An International Review of Philosophy* (guest editors Federica Russo and Phylis Ilari) (forthcoming).
- "No Place for Causes? Causal Skepticism in Physics." *European Journal for Philosophy of Science* 2:3 (October 2012), 313-336.
- “Climate Change Justice,” *Philosophy and Public Affairs* (Summer 2012). 225-253.

Presentations (selection):

- “Climate (In-)Justice and Integrated Assessment models,” London School of Economics, February 2012.
- “Prospects for a Structuralist Account of Causation,” workshop on *Structuralism*, Munich February 2012.
- “Causal Reasoning in Physics,” Bristol University, February 2012.
- “Causal Reasoning and the Second Law,” Oxford University, February 2012.
- “Causal Reasoning in Physics,” Cambridge University, February 2012.
- “Kausalität in der Physik,” Universität Bern, February 2012.
- “The Human Face of Causation,” Düsseldorf, April 2012.
- “The Past Hypothesis, Lewisian Best Systems, and the Special Sciences,” Utrecht April 2012.
- “Climate (In-) Justice” LMU München, June 2012.
- “Epistemische und Kausalasymmetrie”, workshop on *Causation in Science*. TU München, August 2012.
- “Modeling Climate Policies”, *28th Boulder Conference on the History and Philosophy of Science*, September 2012.
- “A Critical Look at Integrated Assessment Models”, *Philosophy of Science Association Meeting*, Dan Diego, November 2012.

Further Activities:

- Workshop organized: Laws of Nature, MCMP, 17.12.2012.

Norbert Gratzl

1. Type of Affiliation with the MCMP

Norbert Gratzl worked as a postdoctoral fellow at the MCMP for the whole year of 2012.

2. Research Projects

Norbert Gratzl continued his research on the theory of definite descriptions as developed by Bertrand Russell in the *Principia Mathematica*. There is a nice Hilbert-style deductive system for this new theory of definite descriptions. However, in view of proof-theoretic interests, Norbert Gratzl developed a sequent calculus formulation of this theory that allows for cut-elimination. Russell also proposed an account of

indefinite (or ambiguous) descriptions. It is not hard to prove this theory inconsistent. Both a paper on definite descriptions and a paper on indefinite descriptions have been submitted which deal with these topics.

Secondly, Norbert Gratzl (in collaboration with Olivier Roy and Albert Anglberger, also MCMP) worked on a variant of deontic logic in which obligation is viewed as weakest permission. In order to express this in a modal language they make use of multiple (not interdefinable) modalities. It is well known that within a Hilbert-style system, such modal interaction axioms are quite easy to formulate. However, this situation changes quite dramatically if one studies such interaction principles in a sequent style calculus. Olivier Roy and Norbert Gratzl began to work on such calculi recently. First results will appear in their paper on obligation as weakest permission and in some other papers that they are currently working on. They also try to develop a method that allows one to express such interaction principles in sequent calculi more generally; they call this method 'teleportation'.

Thirdly: Sociology is a scientific discipline that has a bewildering amount of paradigms and theories. Together with M. Gabriel, Norbert Gratzl was working on some classification of the paradigms in this field.

Finally: Jeff Ketland (Oxford, MCMP) recently published a paper on validity logic. His paper is the starting point of their joint research project on further logical investigations on this theme. They are working on a paper in which they focus, firstly, on a logic (on the first-order level) with an additional validity predicate. They already established some nice proof-theoretic results on this. The next step consists in adding Peano and Robinson arithmetic to their so-called V-logic. They think that V-logic does not conservatively extend Robinson arithmetic, and they are currently working on a proof of this claim.

3. Academic Output

Publications:

- "You ought to do something! The Logic of Obligation as Weakest Permission" (with O. Roy and A. Anglberger), in: *DEON 2012*, Lecture Notes in Artificial Intelligence, Springer 2012.
- "The Logic of Best Actions from a Deontic Perspective" (with O. Roy), in: S. Smets and A. Baltag (eds.), *Johan F. A. K. van Benthem on Logical and Informational Dynamics*, volume in preparation.
- "A Note on Hypersequent First Order S5" (under review).
- "Ambiguous Descriptions" (under review).
- "Incomplete Symbols - Definite Descriptions Revisited" (under review).
- "Paradigmenpluralismus in der Soziologie: Klassifikation, Koexistenz und paradigmatische Dependenz" (with M. Gabriel), in: G. Schurz and S. Kornmesser (eds.), *Die multiparadigmatische Struktur der Wissenschaften*, Springer.

Presentations:

- "You ought to do something! Obligations as weakest permission", *Trends in Logic XI*, June 3, 2012 (with O. Roy & A. Anglberger).
- "Obligation as weakest permission: from deontic logic to rational recommendations in games", accepted for (but not held): *LOFT 2012*, University of Sevilla (O. Roy & A. Anglberger).

- "You ought to do something! Obligations as weakest permission", *GAP.8*, Universität Konstanz, September 19, 2012 (with A. Anglberger).

Further Activities:

- Co-organized the workshop *Formal Ethics*, MCMP, October 11-13, 2013.
- Co-organization of the conference *The Analysis of Theoretical Terms* (April 3-5, 2013), MCMP, for which he co-applied successfully for a DFG grant of EUR 7.000.

Frederik Herzberg

1. Type of Affiliation with the MCMP

Frederik Herzberg was a visiting fellow at the MCMP (on MCMP funds) from 1st April 2012 to 31st December 2012.

2. Research Projects

Several fundamental questions in the theory of knowledge are particularly amenable to the application of formal methods, including the formal structure of reasons (epistemic justification), the relation of partial belief and probability, and the aggregation of heterogeneous belief sets into a single (group) belief set. At the heart of Frederik Herzberg's research agenda is the use of a combination of formal concepts and techniques from diverse fields of pure and applied mathematics - such as probability theory, universal algebra, model theory (in the sense of mathematical logic), graph theory and decision theory - to address old epistemological questions.

While based at the MCMP, his research has been chiefly on the development of a novel generalised Bayesian framework for formal epistemology (a framework that is fundamentally different from existing frameworks by allowing belief systems to be compatible with multiple probability measures) and its utilisation for addressing crucial questions regarding epistemic justification as well as decision making under uncertainty. Concerning the nature of epistemic justification and the role of coherence requirements in it, he proposed a formal multidimensional coherence notion within the said Bayesian framework, formalising an influential coherence concept from traditional epistemology due to Bonjour (1985); in addition, he has been working towards an axiomatic analysis of the relations between various versions of coherentism, infinitism and foundationalism.

Fundamental to our formalisation of belief systems is a mild form of Bayesianism, the thesis that (synchronic) partial belief assignments have the same formal properties as probability assignments, and that the diachronic norm for belief revision is some form of conditionalisation. In addition, Frederik Herzberg's formal analysis of coherence (outlined above) involves the notion of support/relevance (confirmation) from Bayesian confirmation theory. For this reason, the exploration of responses to the recent criticisms of Bayesianism and Bayesian confirmation theory was a further area of his research during his stay at the MCMP. Related to this endeavour has been his work on an alternative "radically elementary" (Nelson 1987) foundation for probability theory and stochastic analysis. Modeling an individual's belief system by a set of probability measures raises an important decision-theoretic problem, as the classical von Neumann-Morgenstern expected utility theory (which presupposes a single subjective probability measures) is no longer applicable. Instead, the individual

now faces second-order uncertainty - that is, uncertainty which not only results from the presence of random events affecting preferences among outcomes but from the decision maker's ignorance even about the probability distribution of those events (ambiguity). While the economic literature has been mostly confined to the axiomatisation of decision rules, as for instance maxmin expected utility (Gilboa and Schmeidler 1989), in such ambiguous settings, there are good reasons to study an alternative scenario: As R. Bradley, echoing the "society of mind" (Minsky 1986) theory from psychology, suggests, it is conceivable that an individual whose belief system is compatible with several probability measures will aggregate them immediately prior to her decision, so that her decision is based on a single probability measure. Frederik Herzberg explored the problem of aggregating probability measures systematically, arguing for an adoption of the framework of McConway's (1981) probabilistic opinion pooling and proving a generalisation of his representation theorem. In relation to that, he also proposed an aggregation theory for ambiguous preferences in the spirit of Arrow (1963) and elaborated a unified approach to general aggregation theory (in the sense of aggregating propositional attitudes, as in Dietrich and List 2011) based on universal algebra.

3. Academic Output

Publications:

- [*Stochastic calculus with infinitesimals*, *Lecture Notes in Mathematics*, vol. 2067, Springer, Heidelberg, 2013.](#) (Prepared during 2012.)
- "The dialectics of infinitism and coherentism: Inferential justification vs. holism and coherence" (under review).
- "Universal algebra and general aggregation: Many-valued propositional-attitude aggregators as MV-homomorphisms" (under review).
- "The (im)possibility of collective risk measurement: Arrovian aggregation of variational preferences" (under review).
- " q or r ? A reply to David Miller" (in preparation).
- "In defense of regular Bayesianism" (in preparation).
- "Arrovian aggregation of MBA preferences: An impossibility result" (in preparation).
- "Aggregation prior to preference formation: How to rationally aggregate probabilities" (in preparation).
- "A note on 'The No Alternatives Argument' by Richard Dawid, Stephan Hartmann and Jan Sprenger" (in preparation).

Presentations:

- "An algebraic resolution to a puzzle in general aggregation theory: Towards a natural aggregation theory for Bayesian priors", *Workshop on Formal Practical Philosophy*, Venice, November 2012.
- "Decision, Rationality, Logic", Faculty of Economics and Business Administration, Bielefeld University, July 2012.
- "Bayesian confirmation theory exemplified: The 'No Alternatives Argument'", *Formal-Informal / MCMP meets Statistics*, Ludwig Maximilian University of Munich, July 2012.

- "On 'The No Alternatives Argument' by R. Dawid, S. Hartmann and J. Sprenger" (IComments), *9th Annual Formal Epistemology Workshop*, Munich, May/June 2012.

Ole Thomassen Hjortland

1. Type of Affiliation with the MCMP

Ole Hjortland was an MCMP postdoctoral research fellow throughout 2012 (he became an Assistant Professor at the MCMP afterwards).

2. Research Projects

Ole Hjortland's main work is in the philosophy of logic, semantic paradoxes, and proof theory. He is also involved in projects in formal epistemology and dynamic epistemic logic. He was writing papers on the meaning of logical connectives, substructural approaches to semantic paradoxes, modal interpretations of relevant logics, verbal disputes in logic, and proof theoretic semantics, he was also editing a volume on formal epistemology for *Erkenntnis*, and he was preparing a collection of articles on the foundation of logical consequence with Oxford University Press.

3. Academic Output

Publications:

- "Speech acts, categoricity, and the meanings of logical connectives", forthcoming in the *Notre Dame Journal of Formal Logic*.
- "Logical Pluralism, Meaning Variance, and Verbal Disputes", forthcoming in the *Australasian Journal of Philosophy*.
- *The Foundations of Logical Consequence* (ed. with C. Caret), forthcoming with Oxford University Press. Collection of papers on the philosophy of logical consequence.
- "Logical Consequence: Its nature, structure, and application' (with C. Caret), in: C. Caret and O. Hjortland (eds.), *The Foundations of Logical Consequence*, forthcoming with Oxford University Press.
- "Harmony and the Context of Deducibility", in: C. Dutilh Novaes and Ole Thomassen Hjortland (eds.), *Insolubles and Consequences: Essays in Honour of Stephen Read*, College Publications, 2012,.
- *Insolubles and Consequences: Essays in Honour of Stephen Read* (ed. with C. Dutilh Novaes), College Publications, 2012.
- "Proof Theoretic Semantics in the Substructural Era" (under review).
- "Against Minimalism for Logical Constants", invited contribution to special issue on logical consequence in *Logique et Analyse* (under review).
- "Categoricity and Conservativeness" (with J. Murzi), invited contribution to volume on *Logical Inferentialism*, edited by N. Tennant and F. Steinberger.
- "Normalization and Harmony: To Lie Like A Bullet", under review.
- Hjortland, O. (ed. with B. Fitelson, V. Crupi, F. Steinberger), special issue on formal epistemology for *Erkenntnis* (in preparation).
- "Truth, Paracompleteness, and Substructural Logic" (in preparation).

- “Dynamic Consequence for Soft Information” (with Olivier Roy, in preparation).

Presentations:

- November 2012, “Primitivism about Validity”, *Miniworkshop in the honour of Prof. Stephen Read*, University of St Andrews.
- November 2012, “Primitivism about Validity”, Czech Academy of Sciences, Prague.
- June 2012, Prague, “Dynamic Consequence for Soft Information”, *Workshop on Non-classical epistemic logic*, Prague.
- June 2012, St Andrews, “Probabilism for validity”. *2nd Foundations of Logical Consequence Conference*, Arche, University of St Andrews.
- April 2012, Konstanz, “Truth, Paracompleteness, and Substructural Logic”, University of Konstanz.
- September 2012, Konstanz, “Truth, Paracompleteness, and Substructural Logic”, *GAP.8*, University of Konstanz.
- August 2012, Roskilde, “Dynamic Consequence for Soft Information”, *8th Scandinavian Logic Symposium*, Roskilde, Denmark.
- June 2012, Bochum, “Truth, Paracompleteness, and Substructural Logic”, *Trends in Logic Conference*, Ruhr-University Bochum.
- June 2012, Hejnice, “Truth, Paracompleteness, and Substructural Logic”, *LOGICA'12*, Hejnice, Czech Republic.

Further Activities:

- Co-organizer of MCMP Conference on *Paradox and Truth*, May 2013.
- Co-organizer of MCMP Conference on *Paradox and Revision of Logic*, June 2012.
- Local co-organizer of *9th Formal Epistemology Workshop (FEW'9)*, May 2012.
- Successful application to DFG for €12 000 in support of the MCMP conference on *Paradox and Logical Revision*.
- Member of editorial panel for the Northern Institute of Philosophy journal *Thought*.
- Administration of MCMP blog, MCMP facebook page, MCMP email lists.

Krystian Jobczyk

1. Type of Affiliation with the MCMP

Krystian Jobczyk was a postdoctoral research fellow at the MCMP supported by the Polish KAAD (until June 2012) and the Thyssen Foundation (from October 2012).

2. Research Projects

Krystian Jobczyk’s research focused on the following three areas: Mathematical Philosophy/Epistemology of Mathematics, Non-classical Logic, and Modal Logic and Fuzzy Logic in interaction. The first one plays a role of the primary area of his

activity in MCMP (formally supported by KAAD and Thyssen Foundation). The second one was realized in a cooperation with Olivier Roy (MCMP).

The achieved results are as follows:

- The possibility of both formal and philosophical improvements of Putnam's model-theoretic argument against metaphysical realism was considered. It was shown that Putnam's argument could be reconstructed in extensions of elementary logic like infinitary logic and abstract logic with generalized linear quantifiers. On the other hand, the reconstruction of the formal core of the model-theoretic argument could be achieved in specific extensions of first-order set theory like the canonic axiomatic system of Suszko or in Neumann-Bernays-Gödel class theory. Moreover, such extensions allow one to omit few formal difficulties and additional formal tools (like Shoenfield's absoluteness theorem) referred to in Putnam's original argumentation. Unfortunately, the philosophical significance and sense of such reconstructions is much smaller than it is the case for the original model-theoretic arguments.
- Krystian Jobczyk studied the logic of "best action". Semantically this is a logic that could be described by "moving" over an infinite tree of choices and which is similar to the product logic $K \times S5 \times S5$. It is decidable, although it does not have the finite model property.
- Krystian Jobczyk focused on the construction of a modal and a fuzzy-modal logic in the vicinity of Gödel's incompleteness theorems and on the meta-logical properties of these logical systems and their temporal extensions. The constructed system L is decidable and has the finite model property. The fuzzy modal version of L remains decidable one, too. However, the extensions of L in both modal and fuzzy-modal variants in the form of the product $L \times \text{Log}(\omega)$ are not decidable.

3. Academic Output

Publications (selection):

- *Elements of Philosophy of Meta-Logics*, book (in preparation).
- "The Skolem-Löwenheim theorem and constructivism", *Zagadnienia Filozoficzne w Nauce* (forthcoming).
- Review of R. Murawski and T. Bedürftig, *Philosophy of Mathematics* (submitted to *Philosophy of Science*).
- "The Skolem-Löwenheim theorem and the semantic concept of theory" (submitted to *Zagadnienia Naukoznawstwa*).
- "The expedition against Skolem's – still needed?" (in preparation).
- "Is the Model-Theoretic Argument really model-theoretic?" (in preparation).
- "The logic of best action is decidable" (with O. Roy, MCMP).

Philipp Koralus

1. Type of Affiliation with the MCMP

Philipp Koralus stayed at the MCMP as a postdoctoral research fellow in June and July 2012, based on MCMP funds.

2. Research Projects and 3. Academic Output

During his stay in Munich, he finished a long manuscript presenting a new mathematical theory of human reasoning and submitted it to a peer-reviewed journal.

Johannes Korbmacher

1. Type of Affiliation with the MCMP

Johannes Korbmacher was a doctoral fellow at the MCMP for all of the indicated period of 2012. He was fully funded by an MCMP PhD fellowship.

2. Research Projects

He worked mainly on his doctoral research project, in particular on the further development of formally adequate accounts of essential properties as properties had in virtue of ones identity. Roughly, the project is to give an analysis of essential properties in the relevant sense in terms of invariants under criteria of identity. This work has generated a joint project with Georg Schiemer (MCMP) focused on structural properties. (of mathematical objects). In this project they aim to elaborate an explication due to Rudolf Carnap of structural properties as invariants under isomorphism. Here we consciously aim to exploit the structural similarities between structural properties (in this Carnapian sense), intrinsic properties, and essential properties (in the above sense).

3. Academic Output

Presentations:

- As part of his doctoral project Johannes Korbmacher gave a talk at the *GAP.8* conference in Constance (September 17th-20th 2012) entitled “Essence and Identity. A Note on Essential Properties and Criteria of Identity”. This paper was nominated for the conference's Best Paper Award.

Hans-Christoph Kotsch

1. Type of Affiliation with the MCMP

Hans-Christoph Kotsch was a doctoral fellow at the MCMP during 2012. He was fully funded by an MCMP PhD fellowship.

2. Research Projects

He was working mainly on his doctoral thesis on topos semantics for higher-order modal logic. He developed a semantical framework that allows one to build models of higher-order modal logic in an arbitrary topos. Intuitively, this follows some ideas from algebraic semantics but essentially uses the structure of a topos. Part of the research was to study exactly which formal system is sound and complete w.r.t. the semantical framework. It turns out that common extensionality principles from higher-order logic (function and propositional extensionality) have to be replaced by certain modalized versions. The resulting system is at least sound w.r.t. to

topos semantics. Completeness is still an open question but is being worked out at the moment.

If completeness holds in the way we conjecture, it is moreover possible to restrict the result to a narrower class of models associated with surjective geometric morphisms, for general topos-theoretic considerations yield a representation theorem for the structures used in the semantical framework.

3. Academic Output

Presentations:

- “Modal Logic from a Categorical Point of View”, *2nd Munich Workshop on Modal Logic*, June 27, 2012.
- “Note on Categorical Foundations of Mathematics”, *Salzburg Conference for Young Analytic Philosophy*, September 13-15, 2012.
- “Topos Semantics for Higher-Order Modal Logic”, *Reasoning Club PhD Conference*, Brussels, September 17-19, 2012.

Hannes Leitgeb

1. Type of Affiliation with the MCMP

Hannes Leitgeb has been the Chair in Logic and Philosophy of Language at LMU Munich, as well as head of the MCMP, since October 2010.

2. Research Projects

First of all, Hannes Leitgeb prepares a monograph provisionally titled *The Logic of Belief and the Stability of Reasoning* in which he develops a new joint theory of all-or-nothing belief and degrees of belief (subjective probabilities). In the meantime, the book project has been submitted as a proposal to Oxford University Press. Two articles on the book project are forthcoming (“A Lottery Paradox for Counterfactuals Without Agglomeration” in *Philosophy and Phenomenological Research* and “The Review Paradox. A Note on the Diachronic Costs of Not Closing Rational Belief Under Conjunction” in *Nous*), and three further articles are under review. Four of these five articles were written in 2012.

Secondly, Hannes Leitgeb has written and finished some new papers in 2012, including “Scientific Philosophy, Mathematical Philosophy, and All That”, which is to appear in *Metaphilosophy*; “Revision Revisited” (with L. Horsten, G. Leigh, P. Welch), which is to appear in the *Review of Symbolic Logic*; and “Belief as Qualitative Probability”, to appear in: A. Garcia de la Sienra Guajardo, C. Crangle, H. Longino (eds.), volume on the occasion of Patrick Suppes' 90th birthday.

Thirdly, he kept extending and revising a textbook on logic for philosophers in German (with A. Hieke): *Logik für Philosophen: Eine Einführung in die klassische Aussagen- und Prädikatenlogik*, which is already in a very substantive draft version (267pp, at present).

Fourthly, Hannes Leitgeb has been working on some further papers, including “A Defense of Logicism” (with E. Zalta from Stanford), “A Theory of Propositions and Truth” (with P. Welch from Bristol), and “A Simple Argument for the Horseshoe Analysis of Indicative Conditionals”.

3. Academic Output

Publications:

- “Reducing Belief Simpliciter to Degrees of Belief” (under review).
- “The Stability Theory of Belief” (under review).
- “On the Best Approximation of Probability by Belief” (under review).
- *The Logic of Belief and the Stability of Reasoning*, book manuscript (in preparation).
- *Logik für Philosophen: Eine Einführung in die klassische Aussagen- und Prädikatenlogik* (with A. Hieke), book manuscript (in preparation).
- “A Lottery Paradox for Counterfactuals Without Agglomeration”, to appear in *Philosophy and Phenomenological Research*.
- “The Review Paradox. A Note on the Diachronic Costs of Not Closing Rational Belief Under Conjunction”, to appear in *Nous*.
- “Scientific Philosophy, Mathematical Philosophy, and All That”, to appear in *Metaphilosophy*.
- “Revision Revisited” (with L. Horsten, G. Leigh, P. Welch), to appear in the *Review of Symbolic Logic*.
- “Criteria of Identity, Strong and Wrong”, to appear in the *British Journal for the Philosophy of Science*.
- “Belief as Qualitative Probability”, to appear in: A. Garcia de la Sienna Guajardo, C. Crangle, H. Longino (eds.), volume on the occasion of Patrick Suppes' 90th birthday.
- “Neural Network Models of Conditionals”, to appear in the *Formal Philosophy Handbook*, co-edited by V. Hendricks.
- “Abstraction Grounded. A Note on Abstraction and Truth”, to appear in: P. Ebert and M. Rossberg (eds.), *Abstractionism in Mathematics*.
- “A Probabilistic Semantics for Counterfactuals. Part B”, *Review of Symbolic Logic* 5 (2012), 85-121.
- “A Probabilistic Semantics for Counterfactuals. Part A”, *Review of Symbolic Logic* 5 (2012), 16-84.
- “How Serious is the Paradox of Serious Possibility?” (with S. Duca), *Mind* 121/481 (2012), 1-36.
- “Metacognition and Indicative Conditionals: A Precis”, in: M.J. Beran, J. Brandl, J. Perner, and J. Proust (eds.), *Metacognition*, Oxford: Oxford University Press, 2012, 252-266.
- “From Type-Free Truth to Type-Free Probability”, in: G. Restall and G. Russell (eds.), *New Waves in Philosophical Logic*, New York: Palgrave Macmillan, 2012, 84-93.

Presentations:

- “Rational Belief: Four Approaches, One Theory”, *LogiCIC Kick-off Workshop*, Amsterdam (15/12/12).
- “Mathematical Philosophy. New Bridges Between Mathematics and Philosophy”, *Philosophy and the Sciences - Old Visions, New Directions*, Cambridge (01/12/12).
- “Belief vs. Degrees of Belief. A Joint Theory”, Department of Philosophy, Leipzig (10/10/12).
- “A Theory of Propositions and Truth”, *PhilMath Workshop*, College de France and Ecole Normale Supérieure, Paris (03/10/12).

- “A New Lottery Paradox for Counterfactuals”, *Philosophical Issues in Belief Revision, Conditional Logic and Possible World Semantics*, workshop at GAP.8, Konstanz (20/09/12).
- “A New Lottery Paradox for Counterfactuals”, *Workshop on Counterfactuals*, Bristol (14/08/12).
- “Set-Theory as a Foundation for Semantics”, *What Are Foundations and What Are They For? Conference*, Cambridge (11/07/12).
- “Belief vs. Degrees of Belief. A Joint Theory”, *Annual Conference of the British Society for the Philosophy of Science*, Stirling (06/07/12).
- “Logic and Probability: A Normative Clash?”, *Conference on Dimensions of Normativity*, Frankfurt (21/06/12).
- “Rationaler Glaube vs. Glaubensgrade”, Plenary lecture, *Graduate Symposium of the Austrian Society for Philosophy*, Salzburg (17/05/12).
- “Rationaler Glaube vs. Glaubensgrade”, Department of Philosophy, Humboldt University Berlin (16/05/12).
- “A Theory of Propositions and Truth”, Department of Philosophy, University of Buenos Aires (13/04/12).
- “Reducing Belief Simpliciter to Degrees of Belief”, Department of Philosophy, University of Buenos Aires (12/04/12).
- “Standards of Rationality and Bridges Between Them”, *First Workshop of the Priority Program New Frameworks of Rationality* (SPP 1516), Tutzing (21/03/12).
- “A Theory of Propositions and Truth”, *Workshop on Axiomatic vs. Semantic Truth*, München (15/03/12).
- “Belief as Qualitative Probability”, *Celebration Meeting on the Occasion of Patrick Suppes' 90th Birthday*, Stanford (10/03/12).
- “Theoretical Terms and the Relativized A Priori”, *Conference on Perspectives on Structuralism*, München (17/02/12).
- “Reducing Belief Simpliciter to Degrees of Belief”, Emmy Noether Research Group on Understanding and the A Priori, University of Cologne (27/01/12).
- “Warum mathematische Philosophie?”, Hamburg, *Ringvorlesung Elfenbein und Lehnstuhl*, (11/01/12).

Further activities:

- Editor-in-Chief of *Erkenntnis*.
- Editor of *Review of Symbolic Logic*.
- Member of the Editorial Board of the *European Journal for the Philosophy of Science*.
- Member of the Editorial Board of the *Grazer Philosophical Studies*.
- Consulting Editor of *Journal of Philosophical Logic*.
- Consulting Editor of *Theoria*.
- Associate Editor of *Studia Logica* (from 01/12/11).
- Subject Editor of the *Stanford Encyclopedia of Philosophy* for Philosophy of Mathematics.
- Member of the Editorial Board of *PHIBOOK: The Yearbook of Philosophical Logic*, Automatic Press.
- Member of the Editorial Board of *The Collected Works of Rudolf Carnap* (Open Court).
- Member of Scientific Board of *Munich Graduate School of Systemic Neurosciences* (GSN) (since October 2011).

- Member of Steering Committee of *Munich Center for Neurosciences* (MCN).
- Member of *Center for Advanced Studies*, Ludwig-Maximilians-University Munich.
- Forschungsdekan (Dean of Research) of the Faculty of Philosophy, Philosophy of Science and Study of Religion, LMU Munich.
- Member of the ESF Project *The Philosophy of Science in a European Perspective*, team A.
- Member of the ESF Network *INFTY* on Set Theory.
- Member of the DFG International Network *Philosophy of Mathematics: Sociological Aspects and Mathematical Practice*.
- External Assessor for Professorial Appointments or Promotions at: Rutgers University, University of Stirling, Indiana University at Bloomington (all 2012).
- Member of Panels and Advisory Boards for: *European Science Foundation Eurocores Review Panel*. Chair of Program Committee of the *15th Congress of Logic, Methodology and Philosophy of Science*, Helsinki, 2015. *ESSLLI Workshop on Strategies for Learning, Belief Revision and Preference Change*, Opole (Poland), 2012. *Association for Symbolic Logic, Committee for Prizes and Awards*. *11th Trends in Logic Conference*, Bochum, 2012. *GAP 8*, Conference of the German Society for Analytic Philosophy, Konstanz 2012, Section on *Logic and Philosophy of Science*.
- PI of the DFG Project *Syntactic Approaches to Interacting Modalities* (since 2011, EUR 414,450 for three years).
- Joint application for a DAAD programme with Buenos Aires. (The project was granted by the DAAD in 2013.)

Thomas Meier

1. Type of Affiliation with the MCMP

Thomas Meier worked at the MCMP as a doctoral fellow during 2012 based on an MCMP fellowship.

2. Research Projects

Thomas Meier was writing parts of his future doctoral thesis at the Munich Center for Mathematical Philosophy under the supervision of Hannes Leitgeb and Ulises Moulines. In the first part of his doctoral research, he studied how to apply a formal structuralist framework in order to get a better understanding of structural realism in the philosophy of science. Secondly, he is working on specific case studies in linguistics concerning the topics of theory change and scientific realism.

3. Academic Output

Publications:

- "A Framework for Structural Realism". *Proceedings of the VII Conference of the Spanish Society for Logic, Methodology and Philosophy of Science*, Santiago de Compostela, 2012, 465-472.
- "Una Propuesta para el Realismo Estructural" (A Proposal for Structural Realism), *Stoa*, vol. 3, no. 6, 2012, 101-117.

- "Logica y el Maya Yucateco" (Logic and Yucatec Mayan), forthcoming, Universidad del Caribe, Mexico.
- "La estructura de las teorías empíricas y el reduccionismo" (The Structure of Empirical Theories and Reductionism), forthcoming, Universidad Autónoma de Zacatecas, Mexico.

Presentations:

- February 16th, 2012: International Conference: *Perspectives on Structuralism* at the Center for Advanced Studies, MCMP, Munich. Title of the talk: "Structural Realism as an Epistemology for Structuralism".
- March 30th, 2012: Workshop: *MCMP meets Linguistics* at the LMU Munich. Title of the talk: "A Logical Reconstruction of Bloomfield's Linguistics and Structural Realism in Linguistics".
- June 21st, 2012: HOPOS 2012 at Halifax, Canada. Title of the talk: "From Carnap via Kuhn to Stegmüller - The Development of Structuralist Philosophy of Science".
- July 20th, 2012: 7th Congress of the Spanish Society for Logic, Methodology and Philosophy of Science at Santiago de Compostela, Galicia, Spain. Title of the talk: "Un marco conceptual para el realismo estructural".
- September 15th, 2012: SOPhiA 2012, Salzburg Conference for Young Analytic Philosophy at Salzburg, Austria. Title of the talk: "From Carnap to Stegmüller - Structuralism in Epistemology and in the Philosophy of Science".
- October 9th, 2012: Title of the talk: "Tracing Analogies: From Carnap and Kuhn to Stegmüller", at the Institut Wiener Kreis, Vienna, Austria.

Further Activities:

- Organization of *MCMP meets Linguistics*, at the LMU Munich, March 30th, 2012.
- Co-organization of *Decisions, Games and Logic* (DGL 12), at the LMU Munich, June 28th - 30th, 2012.
- Co-organization of the Workshop *The Analysis of Theoretical Term*, which took place at the MCMP on April 3-5, 2013.
- He gave German classes for those center fellows who are not native German speakers.

Christopher Menzel

1. Type of Affiliation with the MCMP

Christopher Menzel (Texas A&M) spent the period from 1 January 2012 to 20 June 2012 as a visiting fellow at the MCMP. His chief source of funding was his university (he was on a development leave at ½ salary) but he also received support by the MCMP.

2. Research Projects

During his stay at the MCMP Christopher Menzel completed several projects and began several others. His research focused chiefly on two areas — the philosophy of

mathematics and the logic and metaphysics of modality. In regard to the former, his efforts focused on a revision of the most widely used applied theory of sets known as ZFCU. The revision was prompted by the observation that, under plausible scenarios about how many things there are, the assumption that certain intuitively natural sets exist is incompatible with ZFCU. The revised theory, ZFCU', permits these sets to exist without undermining the intuitive foundations most philosophers and mathematicians take to motivate ZFCU.

His work on logical and metaphysical issues in modality at the MCMP was focused primarily on the notion of a possible world. An idea dating back to at least to Leibniz is that a proposition is *necessary* if it is true in *all* possible worlds and *possible* if it is true in at least *some* possible worlds. The idea is intuitive and appealing, but leaves the question of the *nature* of possible worlds open. The focus of Christopher Menzel's research consisted for the most part in (i) an extensive examination of a variety of answers to the question of what possible worlds are (primarily in connection with the encyclopedia entry noted below) and (ii) an attempt to defend one particular answer to the question and to show that that answer enables one actually to *prove* Leibniz's intuitive principles connecting necessity and possibility to truth in possible worlds while avoiding certain paradoxes that can arise for alternative notions of possible world.

3. Academic Output

Publications:

- "Wide Sets, ZFCU, and the Iterative Conception," forthcoming in the *Journal of Philosophy*.
- "The Fundamental Theorem of World Theory" (with E. Zalta), forthcoming in the *Journal of Philosophical Logic*.
- "Possible Worlds," forthcoming in E. Zalta (ed.), *The Stanford Encyclopedia of Philosophy, Spring 2013 Edition*. (Approximately 30,000 words.)
- "Worlds and Propositions Set Free" (with E. Zalta and O. Bueno, under revision; to be resubmitted).

Presentations:

- "Common Logic and the Semantic Web," keynote speaker, *PhiloWeb 2012*, Workshop at the *21st World Wide Web Conference*, Lyon, France, April 2012.
- "Common Logic: Evolution and Metatheory," invited lecture, Université Paris-Sorbonne, Seminar on Philosophy of the Web, Paris, France, April 2012.
- "Wide Sets, ZFCU, and the Iterative Conception," Munich Center for Mathematical Philosophy, Ludwig-Maximilian-Universität Munich, February 2012.

Luca Moretti

1. Type of Affiliation with the MCMP

Luca Moretti (Aberdeen) stay at the MCMP as a visiting fellow from 1 October to 31 December 2012. He was supported by an MCMP fellowship.

2. Research Projects

Firstly, Luca Moretti completed his article "Global scepticism, underdetermination and metaphysical possibility". In the paper he focuses on a key argument for global external world scepticism resting on the underdetermination thesis: the argument according to which we cannot know any proposition about our physical environment because sense evidence for it equally justifies some sceptical alternative. He contends that the underdetermination argument can go through only if the controversial thesis that conceivability is per se a source of evidence for metaphysical possibility is true. He also suggests a reason to doubt that conceivability is per se a source of evidence for metaphysical possibility, and thus to doubt the underdetermination argument.

Secondly, he wrote a revised version of his paper "In defence of dogmatism". This is the content of the paper: according to Jim Pryor's dogmatism, when you have an experience with content p, you have prima facie justification to believe p that does not rest on your independent justification or evidence to believe any proposition. Although dogmatism is intuitive and seems to have an antisceptical punch, it has been targeted by different objections. In this paper Luca Moretti answers the objections by Roger White according to which dogmatism is incoherent with the Bayesian account of how evidence affects rational credences. (If this were true, the rational acceptability of dogmatism would be seriously questionable). He responds that these objections do not get off the ground because they assume that experiences and reports of experience have the same evidential force, whereas the dogmatist is uncommitted to this assumption. He also elucidates what gives dogmatism its antisceptical punch by drawing from recent papers by Brian Weatherson, Peter Kung and Pryor himself in which alternative responses to White's challenge are delineated. Luca Moretti argues that his rejoinder is more complete and simpler than these responses, for the latter permit White's objections to go through in many cases, whereas his response does not. Furthermore according to these responses, dogmatism is tenable only if Bayesianism is replaced with alternative formal frameworks, which is not a requirement of my rejoinder.

Thirdly, during his time at the MCMP he wrote from scratch and completed the entry for the *Stanford Encyclopaedia of Philosophy* on "Transmission of warrant and justification". The entry is co-authored with Dr Tommaso Piazza (University of Oporto). In the entry they present and criticise the explanations of transmission and failure of transmission of justification across entailment proposed, among others, by Crispin Wright and Martin Davies. They also discuss some applications of these explanations – in particular to McKinsey paradox, Moore's proof of an external world and the debate on dogmatism in philosophy of perception. Finally, they present some Bayesian formalizations of the explanations of transmission failure.

3. Academic Output

Publications:

- "Global scepticism, underdetermination and metaphysical possibility" (under review).
- "In defence of dogmatism" (under review).
- The entry for the *Stanford Encyclopaedia* has been accepted for publication. It might go online in July 2013.

Julien Murzi

1. Type of Affiliation with the MCMP

Julien Murzi (Kent) is an external member of the MCMP who was a Visiting Scholar at the MCMP between May 15 and August 15, 2012, supported by a MCMP visiting fellowship.

2. Research Projects

Julien Murzi's research in 2012 mainly focused on two, closely related, areas: semantic paradoxes and logical consequence, and the epistemology of logic.

His work on semantic paradoxes and logical consequence in 2012 further explores the contraction-free substructural approach to the paradoxes of validity discussed in his co-authored paper "Two Flavours of Curry's Paradox" (with Jc Beall), forthcoming in *The Journal of Philosophy*.

In his co-authored paper "Validity and Truth-Preservation" (with Lionel Shapiro), forthcoming in a Springer volume on Truth, he focuses on a somewhat uncomfortable corollary of the revisionary approach to semantic paradox, viz. that it doesn't allow us to consistently assert that valid arguments preserve truth. Murzi and Shapiro argue that the standard arguments for this conclusion all break down once (i) the structural rule of contraction is restricted and (ii) how the premises can be aggregated—so that they can be said to jointly entail a given conclusion—is appropriately understood.

In his "On Heck's New Liar", forthcoming in *Thought* (Wiley-Blackwell), Murzi argues that contraction-free approaches to semantic paradox have the resources to consistently block, *pace* Richard Heck, a new form of the Liar Paradox recently discussed by Heck. Murzi also argues that contraction-free theorists have independent reasons to reject the structural rule of contraction.

Julien Murzi is also editing, with Massimiliano Carrara (Padua), two special issues of journals: one on Logical Consequence and one on Paradox and Logical Revision (see Academic Output below).

Julien Murzi's work on the epistemology of logic has mainly focused on two projects: a co-authored paper (with Florian Steinberger, MCMP) on the question whether logical knowledge can be accounted for in dispositional terms ("Is Logical Knowledge Dispositional?", forthcoming in *Philosophical Studies*), and a co-authored piece (with Massimiliano Carrara) on rejection, dialetheism and disagreement ("Dialetheism and Disagreement"). The piece with Florian Steinberger is part of a larger project on Logic and Inference (see Further Activities below). The piece on disagreement argues, *contra* Priest, that dialetheists lack the resources to express disagreement.

3. Academic Output

Publications:

- "Is Knowledge of Logic Dispositional?" (with Florian Steinberger), forthcoming in *Philosophical Studies*.
- "On Heck's new Liar", forthcoming in *Thought*.
- "Validity and Truth-Preservation" (with L. Shapiro), forthcoming in: D. Achourioti, K. Fujimoto, H. Galinon, and J. Martinez (eds.), *Unifying the Philosophy of Truth*, Springer.
- "Two Flavours of Curry's Paradox" (with Jc Beall), forthcoming in *The Journal of Philosophy*.

- “Coming True: A Note on Truth and Actuality” (with Richard Dietz), 2013, *Philosophical Studies* 163(2), 403-427.
- Editor of a special issue of *Logique et Analyse* on Logical Consequence.
- Editor of a special issue of *Topoi* on Paradox and Logical Revision.
- Inference and Logic (with Florian Steinberger, in preparation).
- Dialetheism and Disagreement (with Massimiliano Carrara, in preparation).
- The Inexpressibility of Validity (in preparation).
- Validity Curry (in preparation).
- Harmony and Separability in Classical Logic (in preparation).

Presentations:

- May 2012 , Padova: “The Paradox of Deniability”, *Workshop on the Philosophy of Logic*, Cogito, Research Centre for Philosophy and University of Padua.
- January 2012 , Canterbury: “Harmony and Separability in Classical Logic”, Work in Progress Seminar, University of Kent.

Further Activities:

- In 2012, Julien organized three conferences (two of which were held at the MCMP). Furthermore, he successfully applied, with Florian Steinberger (also MCMP), for a British Academy Small Grant (£10. 000) on *Logic and Inference*.

Niki Pfeifer

1. Type of Affiliation with the MCMP

Niki Pfeifer worked as a MCMP postdoctoral fellow (funded by the MCMP) during the whole year 2012. Moreover, he was research associate at the *Tilburg Center for Logic and Philosophy of Science* (The Netherlands), *the Formal Epistemology Project* (The Netherlands), and became external member of the *Düsseldorf Center for Logic and Philosophy of Science* (Germany).

Niki Pfeifer did not use any MCMP funds for his research stays or his workshop participations in 2012. Such activities were funded by his DFG Project PF 740/2-1 (which is part of the DFG Priority Programme SPP 1516 "New Frameworks of Rationality") and by his Austrian Science Fund project P20209 (completed in 2012).

2. Research Projects

Niki Pfeifer worked formally and empirically on conditionals and quantification under uncertainty. Specifically, he was working on Aristotle's theses, negating conditionals, extending the probabilistic truth table paradigm by investigating incomplete probabilistic knowledge, various philosophical questions which arise in the context of the new paradigm psychology of reasoning, philosophical applications of coherence based probability logic and he was working on a new probabilistic semantics of categorical syllogisms. Moreover, he investigated the topic of natural disasters in a multidisciplinary context.

3. Academic Output

Publications:

- *Forces of nature and cultural responses* (with K. Pfeifer, eds.) Dordrecht: Springer, 2013.
- “Coherence based probability logic: Philosophical and psychological applications” (in preparation).
- “Probability semantics for categorical syllogisms” (with G. Sanfilippo, A. Gilio, in preparation).
- “Formal epistemology and the new paradigm psychology of reasoning” (with I. Douven, under review).
- “Reasoning about uncertain conditionals” (under review).
- “The new psychology of reasoning: A mental probability logical perspective” (under revision).
- “On argument strength”. In: F. Zenker (ed.), *Bayesian argumentation. The practical side of probability* (pp. 185-193). Dordrecht: [Synthese Library](#) Vol. 362, Springer, 2013.
- “Forces of nature and cultural responses: An introduction” (with K. Pfeifer). In: K. Pfeifer & N. Pfeifer (eds.), *Forces of nature and cultural responses*, Dordrecht: [Springer](#), 2013, 1-4.
- “Experiments on Aristotle's Thesis: Towards an experimental philosophy of conditionals”, *The Monist* 95/2 (2012), 223-240. · Pfeifer, N. (2012).
- “Rationality frameworks for conditionals”, *The Reasoner* 6(10), 158-159.

Presentations:

- “Formal and cognitive foundations of probabilistic justification”, *Judgment and Justification* (conference), University of Tampere (Finland), 24.-26.09.2012.
- “Modeling uncertain inference: Formal and cognitive foundations”, [Department Methodology & Statistics](#). Maastricht University (The Netherlands), 13.09.2012.
- “Introduction to rationality frameworks for conditionals”, *Rationality frameworks for conditionals* (workshop). Munich Center for Mathematical Philosophy (Germany), 17.08.2012.
- “Measuring argument strength”, *5th eColloq on Argumentation, The World Wide Web*, 19.07.2012.
- “The mental probability logical perspective on the new psychology of reasoning”, *7th International Conference on Thinking*, Birkbeck College and University College London (UK), 04.-06.07.2012.
- “Probabilistic justification”, *Justification II: From Reasons to Reasoning* (workshop), Collège de France (hosted by the [Institut Jean Nicod](#); invited talk) Paris (France), 03.05.2012.
- “Rational reasoning with conditionals and probabilities. Logical foundations and empirical evaluation”, *SPP 1516 "New frameworks of rationality" kickoff workshop*, Tutzing (Germany), 20.-23.03.2012.

Further Activities:

Niki Pfeifer organized the workshop *Rationality frameworks for conditionals* at the MCMP. Six projects of the DFG SPP 1516 (S. Hartmann/J. Sprenger, G. Kern-

Isberner/N. Pfeifer, C. Klauer/S. Beller, G. Schurz, W. Spohn, M. Waldmann) and one external speaker (I. Douven) participated at the workshop. This workshop was financed by the MCMP and the DFG SPP 1516 coordination project (30% of hotel and travel costs). A workshop summary is published in *The Reasoner*, 6(10), 158-159. Moreover, in 2012, Niki Pfeifer started to organize *The Sixth Workshop on Combining Probability and Logic. Focus: Combining probability and logic to solve philosophical problems*, which will take place in September 2013. Niki Pfeifer made arrangements with *The Journal of Applied Logic* to publish the workshop proceedings.

Other scientific activities include a short-term research stay at the University of Maastricht (hosted by Martijn Berger), where Niki Pfeifer delivered a talk and worked with Igor Douven on a joint paper. Moreover, Niki Pfeifer submitted an application for the highly competitive APART research stipend at the Austrian Academy of Sciences and the final report for his Austrian Science Fund project P20209.

Roland Poellinger

1. Type of Affiliation with the MCMP

Roland Poellinger's work at the MCMP was funded by different MCMP sources in different periods of 2012:

1 January – 29 February: Funded as visiting doctoral research fellow by the MCMP.

1 March – 30 June: Funded as visiting postdoctoral research fellow by the MCMP.

1 July – 31 December: Funded as postdoctoral research fellow with additional research focus in academic management (communication and organization) at the MCMP.

2. Research Projects

A. "Learning Causal Structure – Cognition, Computation, Communication"

Background. In Roland Poellinger's doctoral dissertation "Concrete Causation", Pearl's definition of a causal model is augmented by the addition of epistemic contours transferring knowledge deterministically, non-directionally, and instantaneously. Causal knowledge patterns thus conceived allow for the integration of intensional markers – the nodes of a respective graph not necessarily represent extensionally distinct entities anymore, countering the standard reading of events placed in Bayes nets by the causal modeler. Roland Poellinger's thesis presents the difficulties arising from this augmentation and how causal knowledge patterns can be used for efficient computation in partial nets, once the Markov assumption is relativized suitably: In light of the communicative aspect of causal knowledge patterns (theme "Communication") it can be explained how causal knowledge can be inferred qua intensional bridges and informational links uniquely and consistently (theme "Computation").

Against the backdrop of the methodology and results described in his PhD thesis, Roland Poellinger considers in his research project on "Learning Causal Structure" the cognitive foundations of models of belief propagation. The core of the project consists of three closely related questions that emerge from the above-mentioned research field and exceed it in emphasizing foundational aspects of causal modeling:

How do we learn causal relations in our environment if we do not know the relations, yet? That means, how do we acquire the variables that represent the events in our surroundings? Or also: How are sense data blobs sorted in existing knowledge? How

do we treat a model whose set of variables (so to say, its domain of discourse) is changing? (E. g., when we learn new circumstances or when the lab situation changes.) And how are two causal models with separate sets of variables unified? (E. g., in everyday discourse or in the context of scientific research.)

B. Additional Focus: “Communicating Mathematical Philosophy – Evaluating Challenges, Formulating Interfaces, Building Channels”

This special focus of this part of his research focuses on the communication side of Mathematical Philosophy and describes the challenges and opportunities of media use in modern academia and our discipline in particular. Among the topics are the following points:

Talking research-2-research (building bridges within the community, e.g. with iTunes U and the development of event formats as the MCMP Round Tables)

Making complex contents accessible (utilizing [social] media for teaching and turning research results into research-based teaching [with videos etc.]

Being aware of public awareness (evaluating how foundations, press, and other public institutions perceive the MCMP and which funding opportunities arise from this perspective)

Internal communication (evaluating tools for collaboration [virtual conferencing etc.] within the team)

Development of new formats and interactive media (video abstracts, online video search, etc.)

3. Academic Output

Publications:

- Phd Thesis on *Concrete Causation. About the Structures of Causal Knowledge* (February 2012).

Presentations:

- “What is Causal Knowledge?”, CIS Research Seminar, Centrum für Informations- und Sprachverarbeitung, LMU Munich, January 2012.
- “Newcomb’s Paradox – Arranging and Exploiting Knowledge in Hybrid Networks” (»Newcomb’s Paradox – Wissen ordnen und erschließen in hybriden Netzen«), Research Seminar on Foundations of Statistics, Institut für Statistik, LMU Munich, May 2012.
- “The Markov Assumption – readings, range, relativization”, *Formal Informal @ MCMP* and the Research Seminar on Foundations of Statistics (open round discussion on The Markov Assumption – with Conor Mayo-Wilson, CMU Pittsburgh/Philosophy, and Marco Cattaneo, LMU Munich/Statistics), Institut für Statistik, LMU Munich, June 2012.
- Comment on “Erik Mohlin: »Optimal Categorization«”, *Sixth Workshop in Decisions, Games & Logic 2012*, MCMP, LMU Munich, June 2012.
- “Superimposing Imprecise Evidence onto Stable Causal Knowledge: Analyzing ‘Prediction’ in the Newcomb Case”, *5th Workshop on Principles and Methods of Statistical Inference with Interval Probability (WPMSIIP’5)*, Institut für Statistik, LMU Munich, September 2012.
- “Making Possibilities Possible – Deterministic Systems and Interventions” (»Möglichkeiten möglich machen – Deterministische Systeme und

- Interventionen«), Philosophy Colloquium (Philosophy of Science and Logic), Johannes Gutenberg-Universität Mainz, October 2012.
- “The Scope of Action in Deterministic Causal Nets”, *Workshop on Formal Practical Philosophy*, Venice International University, November 2012.
 - “Causa latet, vis est notissima – The Reconstruction of Causality” (»Die Rekonstruktion der Ursächlichkeit«), Interdisziplinäres Kolloquium Philosophie und Lebenswissenschaften (co-organized by the departments of Philosophy and Bioinformatics with LMU’s Clinical Center), LMU Munich, November 2012.

Further Activities:

- Video documentation of the PhD project on “Concrete Causation” (including the 2010 workshop with the same title) on iTunes U: <http://itunes.apple.com/de/itunes-u/id382041859>.
- Organization of the *Round Table on Acceptance* with Hannes Leitgeb (MCMP), Kevin T. Kelly (Center for Formal Epistemology, CMU Pittsburgh), Hanti Lin (CMU Pittsburgh) – LMU Munich, February 2012 [incl. creation of the Round Table Media Package/video documentation on iTunes U].
- Organization of the mini lecture series *Ockham’s Razor* including the *Open Workshop on Simplicity in Belief Revision* with Prof. Kevin T. Kelly (Center for Formal Epistemology, CMU Pittsburgh), LMU Munich, February 2012.
- Organization of the producers’ talk event *Piece of Cake! – Didactics, Media, Marketing* (addressing classroom didactics, science communication, and research marketing), LMU Munich, March 2012 (in cooperation with Virtuelle Hochschule LMU).
- Local support of the *Ninth Annual Formal Epistemology Workshop* (FEW 2012) at the Munich Center for Mathematical Philosophy (with H. Leitgeb, F. Steinberger, V. Crupi, O. Hjortland), LMU Munich, May 2012 [video documentation on iTunes U].
- Organization of the *Round Table on Coherence* with Branden Fitelson (Rutgers) and Richard Pettigrew (Bristol) – LMU Munich, July 2012 [incl. creation of the Round Table Media Package/video documentation for iTunes U].
- Organization of the seminar series Formal Informal on statistical methodology and philosophical inquiry (joint event of the MCMP and the Research Colloquium on Foundations of Statistics), LMU Munich.
- Organization of the LMU-internal admin meeting “Meet & Greet” between MCMP and accounting, press, library, IT group, web team, and other cooperation partners within LMU, November 2012.
- Maintenance of the MCMP Facebook page, consulting for the official MCMP website (on lmu.de), contributions to the MCMP M-Phi blog at <http://m-phi.blogspot.com>.
- Technical planning, team coordination and training as well as media production for the video portal *MCMP on iTunes U* in collaboration with LMU’s Virtuelle Hochschule, 2010–2012; preview: <http://itunes.apple.com/de/itunes-u/id439913748>
- Evaluation and development of new formats:
 - Virtual interactive poster presentation for Decision, Games and Logic ’12: <http://www.mcmp.philosophie.uni-muenchen.de/events/archive/2012/workshops/dgl12.html>.

- MCMP Round Table Series plus media packages with edition one on acceptance and edition two on coherence: Media Package on Acceptance: http://www.mcmp.philosophie.uni-muenchen.de/events/archive/2012/add_act/r_t_accept/index.html.
- Media Package on Coherence: http://www.mcmp.philosophie.uni-muenchen.de/events/archive/2012/add_act/r_t_coherence/index.html.
- Technical preparation of the “First Sight” video abstract server and of the LMUcast online video search function (in collaboration with Virtuelle Hochschule LMU).

Martin Rechenauer

1. Type of Affiliation with the MCMP

Martin Rechenauer stayed at the MCMP for the whole year 2012. For the first three months (January up to March 2012) he was supported by a grant from the MCMP. Since then, he was a research associate to the MCMP, being as Privatdozent a member of the faculty of philosophy at Ludwig-Maximilians-Universität München.

2. Research Projects

Martin Rechenauer’s research, first of all, concerns theories of justice and the use of techniques of Social Choice Theory to be made therein, connected with ideas from the theory of fair allocations. A second strand of research, done jointly with Dr. Olivier Roy (MCMP), gives a formal reconstruction of procedural justificatory schemes in ethics and theories of justice in terms of modal logics. Specifically, they work on providing a formal rendering of Scanlon’s justification procedure with the help of modal fixed-point logics. Another line of this research is concerned with Habermas’s discourse ethics and its reconstruction with support of epistemic game theory. Thirdly, Martin Rechenauer worked on some ideas on the interpretation of probability, dealing with Humphrey’s paradox and some way out of it.

3. Academic Output

Publications:

- "Soziale Marktwirtschaft und Gerechtigkeit – eine Perspektive aus der Philosophie”, in: V. Vanberg (ed.), *Marktwirtschaft und Gerechtigkeit*, Mohr, Tübingen 2012.
- “Philosophical and Technical Welfarism. Some Important Distinction” (in preparation).
- “The Possibility of Aggregation : Some Things Philosophers Should Know” (in preparation).

Presentations:

- “Probabilities, Subjective, Objective and Causal: Some Problems“, workshop *Rationality and Decision*, Groningen August 2012.
- “Deontic Logic for Procedural Ethics: Scanlon’s Contractualism”, *GAP.8*, Konstanz September 2012.

Further Activities:

- Co-Organizer of the workshop *Decisions, Games and Logic*, June 2012 at the MCMP, together with Olivier Roy, Thomas Meier and Conrad Heilmann.
- Organizer of the LMU seminar and workshop *Formal Practical Philosophy* at Venice International University, November 2012, together with Stephan Hartmann.
- Assistant editor for the *Theory and Decision* Library Series A at Springer publishers.

Olivier Roy

1. Type of Affiliation with the MCMP

Olivier Roy is an Assistant Professor at the Chair of Logic and Philosophy of Language at LMU and a member of the MCMP.

2. Research Projects

Olivier Roy's research in 2012 centered on the question of norms of rationality in strategic interaction. The goal of this research is to lay the ground for the development of a general, mathematically precise theory of practical rationality in social interaction, also called interactive rationality. By social interaction, one means situations in which the result of one's decision depends also on what other decision makers do. This includes a whole array of social phenomena. Canonical examples of social interaction, such as communication, conversations, friendship or teamwork, fall into this category. But it also includes more "abstract" forms of interaction, like social norms and what game theorists call "games" or situations of strategic interaction. There is a relatively wide consensus that practical rationality imposes certain requirements on decision makers, that it issues certain recommendations about what rational agents "should" do or believe in order to be seen as rational. These requirements, furthermore, take the form of norms that prescribe or rule out certain content of attitudes, combinations of attitudes, or of attitudes and actions. My research considers requirement of rationality in social interaction – that is, prescriptions about which actions to take given some sets of attitudes, and coherence constraints concerning what one believes about the beliefs of others.

3. Academic Output

Publications:

- "[Substantive Assumptions in Interaction: A Logical Perspective](#)" (with Eric Pacuit), *Synthese* 190/5, 891-908, March 2013.
- "[Agreement Theorems in Dynamic-Epistemic Logic](#)" (with Cédric Dégrémont), *Journal of Philosophical Logic* 41/4 (2012), 735-764.
- "[The Logic of Obligation as weakest permission](#)" (with Albert J.J. Anglberger and Norbert Gatzl), in: Broersen, Agotnes and Elgensem (eds.), *Proceedings of DEON 2012*, Lecture Notes in Computer Sciences, 2012.
- "[Les Conventions sans la Connaissance Commune?](#)" (with Paul Égré), *Klesis* 24, December 2012.

- "Dynamic Consequences for Soft Information" (with Ole Hortjland, in preparation).
- "Deontic Logic for Procedural Ethics" (with Martin Rechenauer, in preparation).
- [Epistemic Foundations of Game Theory](#) (with Eric Pacuit), forthcoming entry in the *Stanford Encyclopedia of Philosophy*.
- "The Logic of Best Action from a Deontic Perspective" (with Norbert Gratzl and Albert Anglberger), forthcoming invited contribution to a *Trends in Logic* volume in honor of Johan van Benthem.
- "Proof theory for multi-modal logic with interaction" (with Norbert Gratzl).
- "A sequent calculus for Standard Deontic Logic with "Ought implies Can"" (with Norbert Gratzl).
- "Why go higher-order?" (with Eric Pacuit).

Presentations (selection):

- December 12, 2012: "Deontic logic and game theory", Weekly colloquium, Max Plank Institute for Economics, Jena, Germany.
- November 6, 2012: "Deontic Logic for Procedural Ethics", *Venice Seminar on Formal Practical Philosophy*, Venice, Italy.
- August 23-24, 2012: "Epistemic Foundation of Game Theory", Course at *Summer School on Formal Methods in Philosophy*, Groningen, The Netherlands.
- June 15, 2012: "Dynamic Consequences for Soft Information", *Prague Workshop on Non-Standard Epistemic Logic*, Prague, Czech Republic.
- March 29, 2012: "What should I do? What should I Expect?", Logic Colloquium, Stanford University, United States.
- March 22, 2012: "Epistemic Foundations of Game Theory", Weekly Colloquium, University of Maryland, College Park, United States.
- March 16, 2012: "What should I do? What should I Expect?", Logic Colloquium, Concordia University, Montreal, Canada.
- March 9, 2012: "Trois Variations sur le Theme de l'Epistemologie Interactive", *PhiLEAS conference series*, Geneva, Switzerland.
- January 23, 2012: "Why go higher-order? A delayed reply to the skeptic", *International Workshop on Strategies*, Lorenz Center, Leiden, The Netherlands.
- January 17, 2013: "What should I do? What should I Expect?", *Logic Day*, Copenhagen, Denmark.

Further Activities:

- Co-organization of *Formal Ethics Workshop*, Munich, October 10-13.
- Co-organization of *Fifth and Final Meeting of the Rationality and Decision Research Network*, Groningen August 29-31.
- Co-organization of *Decisions, Games and Logic 2012*, Munich, June 28-30.
- Co-organization of *Fourth Meeting of the Rationality and Decision Research Network*, Munich, February 1st, 2012.
- [Erkenntnis](#) (Associate Editor).
- [Topoi](#) (Associate Editor).
- [Theory and Decision Library Series A](#) (Associate Editor).

- [Stanford Encyclopedia of Philosophy](#), Section Editor for the "Logic, Computation and Agency" Section.
- Application for Emmy Noether Grant.
- Application for ERC Starting Grant.

Gil Sagi

1. Type of Affiliation with the MCMP

Gil Sagi (Hebrew University Jerusalem) was a visiting student at the MCMP during the month of April, 2012. Her source of funding was a student stipend from the MCMP.

2. Research Projects

She devoted most of the time of her visit to developing technical aspects of the framework of "semantic constraints" which is the center subject of her PhD thesis. This is a framework for formal semantics that allows restrictions on terms of various sorts, called "semantic constraints". Specifically, she worked on notions such as *dependency* between terms, *category* of terms, *family* of terms etc.

3. Academic Output

During the visit Gil Sagi revised a paper (forthcoming in *Logique et Analyse*), she gave a talk at the MCMP Work in Progress Seminar, and she wrote parts of her PhD thesis. She also applied for a postdoc position at the MCMP (which she will take up in the coming months).

Georg Schiemer

1. Type of Affiliation with the MCMP

Georg Schiemer was working at the MCMP as a postdoctoral fellow from January 2012 until December 2012. His work was funded by an Erwin-Schrödinger Fellowship of the Austrian Research Fund (FWF).

2. Research Projects

Georg Schiemer's research in 2012 was primarily devoted to three topics: (i) Mathematical structuralism and structure abstraction principles. The main work here was dedicated to the formulation of a novel account of mathematical structures based on the role of invariants in mathematical practice. (ii) Carnap's early mathematical structuralism. Research on this topic included the study of different proposals made in Carnap's work to explicate the notion of mathematical structures. A main objective was to investigate how this notion was implemented in his early metatheoretic results. (iii) The epsilon-reconstruction of scientific theories. Research on this topic concerned the logic and choice semantics of epsilon terms and their use in the logical reconstruction of theories. In joint work with Norbert Gatzl (MCMP), one objective

was to analyze whether Carnap's suggested epsilon definition of theoretical terms is compatible with scientific structuralism.

3. Academic Output

Publications:

- "Invariants and mathematical structuralism" (under review).
- "Logic in the 1930s: type theory and model theory" (with Erich Reck), *The Bulletin of Symbolic Logic* (conditionally accepted).
- "Carnap's early semantics", forthcoming in *Erkenntnis*.
- "Carnap on extremal axioms, "completeness of the models," and categoricity", *The Review of Symbolic Logic* 5/04 (2012), 613-641 .
- "Carnap's Untersuchungen: logicism, formal axiomatics, and metatheory", in: R. Creath (ed.), *Rudolf Carnap and the Legacy of Logical Empiricism*, Springer, 2012, 13-36.

Presentations:

- "Carnap's mathematical structuralism," *SILFS 2012*, Milano, 21/11/2012.
- "Invariants and mathematical structuralism," Colloquium "Logik Café", Vienna, 15/10/2012.
- "Carnap's structuralism reconsidered," *GAP.8*, Konstanz, 19/09/2012.
- "Carnap's mathematical structuralism," *HOPOS 2012*, Halifax, 23/06/2012.

Further Activities:

- Organizer of the MCMP Workshop *Carnap on Logic* (July 2013).
- Co-organizer of the MCMP Workshop *Putnam's Model-Theoretic Arguments* (May 2013).
- Successful application to the DFG for €12 000 in support of the MCMP Workshop *Carnap on Logic* (to be held in 2013).
- Member of the editorial board of *The Reasoner*.

Thomas Schindler

1. Type of Affiliation with the MCMP

In the period of January 1, 2012 to May 31, 2012, Thomas Schindler was a visiting student at the MCMP (without funding); between June 1, 2012 and December 31, 2012 he was a doctoral fellow of the MCMP (funded by an MCMP doctoral fellowship).

2. Research Projects

Thomas Schindler's research focuses on the paradoxes of truth and how they can be dealt with without abandoning classical logic. He investigated the fine-structure of Leitgeb's (2005) theory of semantical dependence. He presented his results at two conferences, and a paper on this material is planned for late 2013 (with T. Beringer). In summer 2012 he worked out an axiomatization of Leitgeb's theory of truth and

wrote a paper on it that has been accepted for publication in the RSL in February 2013. In November 2012 he started investigating the relationship between truth theories and definability in second order arithmetic. As a side project (with his co-supervisor J. Ketland, Oxford and MCMP), he investigated the proof-theoretic strength of mereological fusion axioms over a base theory. This has led to a paper that was submitted later in March 2013.

3. Academic Output

Publications:

- “Axioms for Grounded Truth“ (forthcoming in the *Review of Symbolic Logic*).
- “Arithmetic with Fusions“ (with J. Ketland, under review).
- “Semantical Dependence“ (with T. Beringer, in preparation).

Presentations:

- “Truth, Grounding, and Paradox“, *WfAP conference “Nothing but the Truth“*, Vienna, Austria, March 2012 (contributed).
- “Truth, Dependence, and Paradox“, *East Asian School of Logic, Language and Computation*, Chongqing, China, August 2012 (contributed).
- “Paradoxes of Truth“, *SOPhIA conference*, Salzburg, Austria, September 2012 (contributed, cancelled due to illness).
- “Axioms for Grounded Truth“, *Reasoning Club conference*, Brussels, Belgium, September 2012 (invited, cancelled due to illness).

Further Activities:

- Co-organized the *PhDs in Logic V* conference, held in Munich, April 8-10, 2013.

Florian Steinberger

1. Type of Affiliation with the MCMP

Florian Steinberger is an Assistant Professor at the Chair of Logic and Philosophy of Language at LMU and a member of the MCMP.

2. Research Projects

In 2012, Florian Steinberger pursued two principal lines of research. The first project is concerned with the question of the normative status of logic: in what sense, if any, can logic be said to have normative authority over our thinking? During the last year he explored this question from a number of angles, both historical (Kant, Frege, Carnap) and systematic, examining various responses and their consequences for our conception of intentional states, logicity and the status of the doctrine of logicism in the philosophy of mathematics, and for the interaction between traditional and formal epistemology. The second project examines a view in the philosophy of language and logic known as (logical) inferentialism. Here he was primarily concerned with the clarification of various foundational conceptual issues, with the correct formulation of the central notion of *harmony* as well as with the ramifications of the view so

understood for our our knowledge of logic and for our understanding of the logical constants. Finally, he pursued two side projects, which he hopes to develop further in future work: first, the role of intuition in mathematics. This work gave rise to his “*Ringvorlesung*” at the University of Münster in April 2012. Second, he investigated the role of formal methods (modal logic, Bayesian methods, inductive logic) in the philosophy of religion, in particular in debates surrounding the problem of evil, which gave rise to his talk at the Munich-Groningen Summer School in August 2012.

3. Academic Output

Publications:

- “On the Equivalence Conjecture for Proof-Theoretic Harmony”, *Notre Dame Journal for Formal Logic*, Vol. 54/1 (2013).
- “Is Logical Knowledge Dispositional?” (with Julien Murzi), forthcoming in *Philosophical Studies*.
- *Inference and Logic*, book project (with Julien Murzi, in preparation).
- *Logical Inferentialism* (with Neil Tennant), book (under review at *Routledge*).
- *Erkenntnis Special Issue on Formal Epistemology* (with Vincenzo Crupi and Ole Hjortland, in preparation).
- *Cambridge Dictionary of Philosophy*, R. Audi (Ed.), commissioned entries for: adverbs, logic of; bootstrapping; dialetheism; explosion; harmony, proof-theoretic; Lockean thesis; logical pluralism; normalization theorem; preface paradox; proof; principal principle; probabilism; radical interpretation; regulative-constitutive distinction; substructural logics.
- “Separability: the Fundamental Problem in Logical Inferentialism”, to appear in F. Steinberger and N. Tennant (eds.), *Logical Inferentialism*.
- “Explosion and the Normativity of Logic” (under review).
- “The Normative Status of Logic,” (under review).
- “Carnap and the Limits of Tolerance” (in preparation).
- “On the Constitutive Normativity of Logic” (in preparation).
- “Supposing this and that” (in preparation).
- “Logicity, Logicism and the Normativity of Logic” (in preparation).

Presentations:

- August 2012, “Philosophy of Religion, MCMP-style”, University of Groningen.
- June 2012, “Logic, Normativity and Paraconsistency”, *FLC-Conference*, University of St. Andrews.
- April 2012, “On the Constitutive Normativity of Logic”, Logic Seminar, Department of Philosophy, Stanford University.
- April 2012, “Die Rolle des Intuitionsbegriffs zu Zeiten der Grundlagenkrise in der Mathematik” (“The Role of the Concept of Intuition during the Crisis in the Foundations of Mathematics”), Zentrum für Wissenschaftstheorie, Universität Münster.

Further Activities:

- Visiting scholar, Department of Philosophy/Patrick Suppes Center for the History and Philosophy of Science, Stanford University, March/April 2012.
- Course Coordinator MCMP
- Successful application for a British Academy/Leverhulme Trust Small Research Grant (£10.000), with Julien Murzi.
- Application for Universitätsgesellschaft funding (€2.500) for a Workshop on “Putnam’s Model-Theoretic Arguments” (pending).
- Co-organizer of workshop on Putnam’s Model Theoretic Argument (May 2013).
- Co-organizer of the 9th Annual Formal Epistemology Workshop (May 2012).

Johannes Stern

1. Type of Affiliation with the MCMP

Throughout 2012 Johannes Stern was a fellow of the MCMP funded by the DFG research project „Syntactical Treatments of Interacting Modalities“. Until 31.10.12 he was a doctoral fellow, from 01.11.12 onwards he was a postdoctoral fellow.

2. Research Projects

In spring 2012 Johannes Stern focused on writing up his doctoral thesis „Toward Predicate Approaches to Modality“ which he submitted end of July 2012 and which he successfully defended in November 2012. As the title suggests, the thesis deals with predicate approaches to modality, that is, the view that modal notions are best conceived as predicates of sentences or propositions. In autumn 2012 he focused on turning parts of his thesis into publications, and he also undertook research with Martin Fischer, Volker Halbach and Jönne Speck discussing the question how the claim that an axiomatic theory of truth axiomatizes a semantic theory of truth can or could be understood.

3. Academic Output

Publications:

- “Two Axiomatic Theories of Truth and Modality” (under review).
- “Montague’s Theorem and Modal Logic” (under review).
- “Necessities and Necessary Truths: A Proof-Theoretic Addendum” (in preparation).
- “Paradoxes of Interaction?” (with M. Fischer, MCMP, in preparation).
- “Axiomatizing Semantic Theories of Truth” (with M. Fischer, V. Halbach and J. Speck, in preparation).
- “A Paradox of Common Knowledge” (in preparation).
- *Toward Predicate Approaches to Modality*, monograph (in preparation).

Presentations:

- 5. April 2012, “Modality and Axiomatic Theories of Truth: Friedman-Sheard”. *Workshop on Theories of Syntax and Diagonalization*, MCMP, Munich.
- 6. May 2012, “Paradoxes of Interacting Modal Predicates”, *SOPHA 2012*, Paris.
- 19. September 2012, “Modality and Axiomatic Theories of Truth”, *GAP.8*, Konstanz.

Further Activities:

- Co-organized (with Martin Fischer) the workshop on *Theories of Syntax and Diagonalization* in April 2012 at the MCMP.

Marta Sznajder

1. Type of Affiliation with the MCMP

Marta Sznajder was a doctoral fellow at the MCMP in 2012 (funded by an MCMP doctoral fellowship).

2. Research Projects

For the most part of 2012 she was working on formal semantics of intensional transitive verbs. She developed an update semantics for “look for”, spelled in terms of Barwise and Cooper’s logic for generalized quantifiers. In the remaining part of the year she worked on normativity of logic for belief, logical pluralism and conceptual spaces. She was also working on a side project on formal semantics of indefinites with researchers from University of Amsterdam.

3. Academic Output

Publications:

- “Building a Corpus of Indefinite Uses Annotated with Fine-grained Semantic Functions”, with M. Aloni, A. van Cranenburgh, R. Fernandez, in: *Proceedings of the Eight International Conference on Language Resources and Evaluation (LREC’12)*, 23-25 May 2012, Istanbul, Turkey.
- “Update Semantics for Intensional Transitive Verbs – a Case Study“ (under review).

Presentations:

- “Intensional verbs – a dynamic approach”, *MCMP Meets Linguistics Workshop*, 2012.
- “Intensional verbs – a dynamic approach”, *PhDs in Logic IV graduate conference*, Ghent University, 2012.
- “Building a Corpus of Indefinite Uses Annotated with Fine-grained Semantic Functions”, with M. Aloni, A. van Cranenburgh, R. Fernandez, poster presentation, *LREC 2012*, Istanbul, 2012.
- Comment on: J. Jacot, E. Genot, “Semantic Games for Algorithmic Players”, *Decisions, Games & Logic ’12*, MCMP, 2012.

Edward N. Zalta

1. Type of Affiliation with the MCMP

Ed Zalta (Stanford) is an external member of the MCMP. He stayed at the center in the period of June 1, 2012 - June 30, 2012 based on an MCMP senior visiting fellowship.

2. Research Projects

During his stay at the MCMP, Ed Zalta engaged in the following research:

- He worked on a research paper with Hannes Leitgeb, titled "A Defense of Logicism". In this paper, they argue that, and show how, mathematics is reducible to logic. The terms and predicates of mathematical theories are assigned denotations and the theorems of mathematical theories are assigned truth conditions in terms of those denotations. They then show that the denotations and truth conditions used to interpret mathematical language can all be precisely described in a background theory. The sentences of the background theory that give the truth conditions are logical claims and true, and that establishes a reduction of mathematics to logic.
- Ed Zalta wrote a research paper with Christopher Menzel (who was also at the MCMP at the time), titled "The Fundamental Theorem of World Theory". In this paper they show that the fundamental principle of the theory of possible worlds (namely, that a proposition p is possible if and only if p is true in some possible world), can be derived from a background theory that has an extremely small ontological commitment. One does not need to have a large ontology to endorse the fundamental principle.
- He worked on a research paper with Uri Nodelman, titled, "Foundations for Mathematical Structuralism". In this research, they develop a precise theory that captures the basic insights of the structuralist philosophy of mathematics. They show that the resulting theory explains many of the claims made by the structuralist philosophers of mathematics.
- He was writing a research paper with Otavio Bueno and Christopher Menzel, titled "Propositions and Worlds Set Free". In this research project, they develop a theory of propositions and possible worlds that does not appeal to a mathematical theory of sets. No set theory is needed to assert the existence and identity conditions for propositions and worlds. They show that some classic paradoxes for the set-theoretic approach to such entities do not arise when propositions and worlds are directly axiomatized, rather than modeled as sets.

3. Academic Output

Publications:

- "Foundations for Mathematical Structuralism", forthcoming in *Mind*.
- "The Fundamental Theorem of World Theory", forthcoming in the *Journal of Philosophical Logic*.
- Drafts of the other papers mentioned above.

Presentations:

- Keynote Lecture, 7th International Conference on Formal Ontology in Information Systems (FOIS 2012), Graz, July 2012.
- Keynote Lecture, Symposium on Computational Philosophy, AISB/IACAP World Congress 2012, Birmingham, U.K., July 2012.
- Talks at the MCMP (as mentioned before).

Further Activities:

- Ed Zalta taught a graduate seminar at LMU/Munich Center for Mathematical Philosophy 3 lectures/week for 4 weeks (= 12 lectures) during the month of June 2012. Seminar title: Axiomatic Metaphysics.

We hope that this gives a vivid and accurate picture of what was going on at the MCMP in the course of the period from 01/01/2012 to 31/12/2012.

Hannes Leitgeb, April 23rd, 2013
MCMP, LMU Munich