### Markus I. Eronen

**Assistant Professor** 

Department of Theoretical Philosophy

Faculty of Behavioral and Social Sciences

University of Groningen

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#### Research focus

My main research areas are philosophy of psychology, philosophy of biology, and philosophy of neuroscience. Within these areas, I also work on topics that are relevant for general philosophy of science, such as causation, reduction and levels of organization. My research in philosophy of psychology also extends to theoretical psychology and psychological methodology.

#### **Academic Career**

2020–	Assistant professor (tenured), Faculty of Philosophy, University of Groningen
2017–2020	Assistant professor (fixed-term), Department of Psychology, University of Groningen
2013–2017	FWO Postdoctoral fellow, Institute of Philosophy, KU Leuven, Belgium
03-06/2015	Research Associate, Department of Philosophy, UC Davis, USA
2011-2013	Postdoctoral researcher, Institute of Philosophy II, Ruhr University Bochum, Germany
02-03/2013	Visiting scholar, Department of Philosophy, University of Cincinnati, USA
2010–2011	Junior fellow, HWK Institute for Advanced Study Delmenhorst, Germany
2006–2010	PhD (Cognitive Science), University of Osnabrück (Summa Cum Laude)
	Supervisors: Achim Stephan, Robert C. Richardson
2004–2006	Research assistant, Department of Psychology, University of Helsinki
1999–2004	MA (Theoretical Philosophy, Minor: Cognitive Science), University of Helsinki

### **Publications**

Journal articles

- **Eronen, M. I.** & Ramsey, G. (accepted). What are the 'levels' in levels of selection? *British Journal for the Philosophy of Science*.
- Gebharter, A. & **Eronen, M. I.** (accepted). Quantifying proportionality and the limits of higher-level causation and explanation. *British Journal for the Philosophy of Science*.
- Bringmann, L. F., Albers, C., Bockting, C., Borsboom, D., Ceulemans, E., ... **Eronen, M. I.**, ... & Wichers, M. (2022). Psychopathological networks: Theory, methods and practice. *Behaviour research and therapy*, *149*, 104011.
- **Eronen, M. I.** (2021). The levels problem in psychopathology. *Psychological Medicine* 51(6), 927-933. https://doi.org/10.1017/S0033291719002514
  - [Reply: Riese, H. & Wichers, M. (accepted): Comment on: Eronen MI (2019). The levels problem in psychopathology. *Psychological Medicine*. https://doi.org/10.1017/S0033291719003623]
- **Eronen, M. I.** (2020a). Causal discovery and the problem of psychological interventions. *New Ideas in Psychology* 59, 100785.
- **Eronen, M. I.** (2020b). Interventionism for the intentional stance: True believers and their brains. *Topoi 39(1), 45-55*.
- **Eronen, M. I.** (2019a). Psychopathology and truth: A defense of realism. *Journal of Medicine and Philosophy* 44(4), 507-520.
- Eronen, M. I. (2019b). Robust realism for the life sciences. Synthese 196(6): 2341-2354.
- Eronen, M. I. (2019c). Spiegelneuronen: het DNA van de psychologie? Neuropraxis 23(6), 159-162.
- **Eronen, M. I.** & Bringmann, L. F. (2019). Networks, intentionality and multiple realizability: Not enough to block reductionism [peer commentary]. *Behavioral and Brain Sciences* 42, e8. https://doi.org/10.1017/S0140525X18001012
- Brooks, D. & **Eronen, M. I.** (2018). The Significance of Levels of Organization for Scientific Research: A Heuristic Approach. *Studies in the History and Philosophy of Biological and Biomedical Sciences*, 68-69, 34-41.
- Bringmann, L. F. & **Eronen, M. I.** (2018). Don't blame the model: Reconsidering the network approach to psychopathology. *Psychological Review* 125(4), 606-615.
- **Eronen, M. I.** (2016). Robustness is the kind of coherence that matters a comment on Kendler (2015). *Psychological Medicine* 46(7), 1563-1564.
  - [Reply: Kendler, K. (2016): Robustness is the kind of coherence that matters: a comment on Kendler (2015) a reply. *Psychological Medicine* 46(7), 1565-1566].
- Bringmann, L. & **Eronen, M. I.** (2016). Heating up the measurement debate: What psychologists can learn from the history of physics. *Theory & Psychology* 26(1), 27-43.
- **Eronen, M. I.** (2015a). Levels of Organization: A Deflationary Account. *Biology & Philosophy* 30(1), 39-58.
- Eronen, M. I. (2015b). Robustness and Reality. Synthese 192(12), 3961-3977.
- **Eronen, M. I.** & Brooks, D. (2014). Interventionism and Supervenience: A New Problem and Provisional Solution. *International Studies in the Philosophy of Science* 28(2), 185-202.
- **Eronen, M. I.** & van Riel, R. (2015). Understanding Through Modeling: The Explanatory Power of Inadequate Representation [editors' introduction]. *Synthese* 192(12), 3777-3780.
- **Eronen, M. I.** (2014). Hypothetical Identities: Explanatory Problems for the Explanatory Argument. *Philosophical Psychology* 27(4), 571-582.

- **Eronen, M. I.** (2013). No Levels, No Problems: Downward Causation in Neuroscience. *Philosophy of Science* 80(5), 1042-1052.
- Raerinne, J. & **Eronen, M. I.** (2012) Multiple Realizability and Biological Laws. *History and Philosophy of the Life Sciences* 34(4), 521-538.
- **Eronen, M. I.** (2012). Pluralistic Physicalism and the Causal Exclusion Argument. *European Journal for Philosophy of Science* 2(2), 219-232.
- **Eronen, M. I.** (2011). Replacing Functional Reduction with Mechanistic Explanation. *Philosophia Naturalis* 47-48, 125-153.
- **Eronen, M. I.** (2009). Reductionist Challenges to Explanatory Pluralism: Comment on McCauley. *Philosophical Psychology* 22, 637-646.

#### **Book chapters**

- Bringmann, L. F., Helmich, M. A., **Eronen, M. I.**, Voelkle, M. C. (in press) Complex systems approaches to psychopathology. In Krueger, R. F. & Blaney, P. H., (Eds.) *Oxford Textbook of Psychopathology*. Oxford University Press.
- **Eronen, M. I.** (2021). Levels, Nests and Branches: Compositional Organization and Downward Causation in Biology. In D. Brooks, J. DiFrisco and W. Wimsatt (eds.) *Hierarchy and Levels of Organization in the Biological Sciences*. MIT Press.
- **Eronen, M. I.** (2020). Levels of Organization in Evo-devo. In L. Nuño de la Rosa & G. Müller (eds.) *The Evolutionary Developmental Biology Reference Guide*. Springer.
- Eronen, M. I. & Brooks, D. (2018). Levels of Organization in Biology. In Zalta, EN (ed.) *The Stanford Encyclopedia of Philosophy* (Spring 2018 Edition). https://plato.stanford.edu/archives/spr2018/entries/levels-org-biology/
- **Eronen, M. I.** (2013). Realization and Robustness: Naturalizing Non-Reductive Physicalism. In K. Talmont-Kaminski & M. Milkowski (eds.) *Regarding the Mind, Naturally: Naturalist Approaches to the Sciences of the Mental* (pp. 119-137). Newcastle: Cambridge Scholars Publishing.
- Walter, S. & **Eronen, M. I.** (2011) Reductionism, Multiple Realizability, and Levels of Reality. In S. French & J. Saatsi (eds.) *Continuum Companion to the Philosophy of Science* (pp. 138-156). London: Continuum.
- **Eronen, M. I.** (2008). Explaining the Brain: Ruthless Reductionism or Multilevel Mechanisms? *Papers of the 31st International Wittgenstein Symposium, Vol. XVI*, 86-88.
- Ilomäki, L., **Eronen, M.**, & Lakkala, M. (2008). Verkko-oppimateriaalien arviointi [Evaluation of online learning materials]. In L. Ilomäki (ed..), *Sähköä opetukseen! Digitaaliset oppimateriaalit osana oppimisympäristöä* (pp. 24–30). Helsinki: Opetushallitus.

#### Books and edited volumes

- **Eronen, M. I.** & van Riel, R. (Eds.) (2015). *Understanding Through Modeling: The Explanatory Power of Inadequate Representation.* Special issue of *Synthese*.
- **Eronen, M. I.** (2011). *Reduction in Philosophy of Mind: A Pluralistic Account*. Frankfurt am Main: Ontos (De Gruyter).

#### Miscellaneous

Eronen, M. I. (accepted). Emergence. #Nodes (online volume, eds. G. A. Schwartz & V. Bermudez).

- **Eronen, M. I.** (2018). Mirror Neurons: The DNA of Psychology? *Mindwise* [blog platform of the Department of Psychology of the University of Groningen], February 22, 2018. http://mindwise-groningen.nl/mirror-neurons-the-dna-of-psychology/
- **Eronen, M. I.** (2015). Are There Levels Out There? *Scientia Salon* [blog platform edited by Massimo Pigliucci], August 3, 2015. https://scientiasalon.wordpress.com/2015/08/03/are-there-levels-out-there/
- **Eronen, M. I.** (2012). Review: J. Hohwy and J. Kallestrup (eds.) Being Reduced. *British Journal for the Philosophy of Science* 63, 227-231.
- **Eronen, M. I.** & Hoffmann-Kolss, V. (2011). Levels and Causation in Neuroscience [conference report]. *The Reasoner* 5(9), 152-153.
- **Eronen, M. I.** (2004). *Emergence in the Philosophy of Mind*. Master's thesis, University of Helsinki. http://ethesis.helsinki.fi/julkaisut/hum/filos/pg/eronen/

### **Grants and Awards**

2021	Internal PhD grant for Freek Oude Maatman
2016–2018	ERA-NET NEURON project: The integration of cross-disciplinary research in neuroscience and social science – a methodological case study on economic policies and the neuroscience of agency (co-applicant; 44 840 €)
2013–2017	Postdoctoral fellowship of the Research Council Flanders – FWO (ca. 200 000 €)
2015	FWO Travel grant for a research stay at UC Davis, CA (ca. 6000 €)
2011	Grant for organizing workshop "Levels and Causation in Neuroscience" (with Vera Hoffmann-Kolss), Pro*Niedersachsen (7640 €)
2010–2011	Junior Fellow, HWK Institute for Advanced Study (2000 € / month)
2010	Award: Best Presentation (with Daniel Brooks), European Graduate School on Philosophy of Mind, Lausanne, Switzerland
2009–2010	Scholarship for PhD research, Finnish Cultural Foundation (21 000 €)
2007– 2009	Scholarship for PhD research, DAAD Germany (1000 € / month)
2007–2008	Member of the Northern German Network of Excellence of the HWK Institute for Advanced Study
2006–2007	Scholarship, Helsingin Sanomain 100-vuotissäätiö (19 000 €)
2003-2004	Erasmus scholarship for study abroad at Bremen University

#### Service to the profession

- 2019 Associate editor of *Theory & Psychology*
- 2018 Head of a working group for improving writing skills teaching at the Department of Psychology (University of Groningen)

Editorial board member, Handbook of Theoretical Psychology (Sage)
 Coordinator, master program Reflecting on Psychology (University of Groningen)
 Guest editor for a special issue of Synthese
 Program committee member, conference "Models and Mechanisms – Special Focus on Cognitive Science", Tilburg University

### Reviewer (journals)

Acta Analytica, Acta Biotheoretica, Behaviour Research and Therapy, Biological Theory, British Journal for the Philosophy of Science, Dialectica, Erkenntnis (x 6), European Journal for Philosophy of Science, Frontiers in Psychology, Frontiers in Psychiatry, International Studies in the Philosophy of Science, Journal for General Philosophy of Science, Journal of Philosophy, Logique et Analyse, Minds & Machines, Perspectives on Science, Philosophia Naturalis, Philosophical Papers, Philosophical Psychology (x 3), Philosophy and Phenomenological Research, Philosophy of Science, Philosophy & Theory in Biology, Review of General Psychology, Southern Journal of Philosophy, Studia Philosophica Estonica, Synthese (x 5), Theoria – A Swedish Journal of Philosophy (x 2), Theoria: An International Journal for Theory History and Foundations of Science, Theory & Psychology (x 3), Topics in Cognitive Science, Topoi

#### Reviewer (other)

MIT Press (book proposal x 2)

Springer (book proposal)

NWO (Veni proposal)

Research Council of the Université Catholique de Louvain (Postdoc proposal)

#### **Outreach**

Nov 2019	Studium Generale Groningen debate " <u>Are Mental Disorders Brain Disorders?</u> " (with André Aleman as opponent).
2019	Spiegelneuronen: het DNA van de psychologie? Dutch article in <i>Neuropraxis</i> (volume 23, issue 6)
2018	Mirror Neurons: The DNA of Psychology? Blog post on Mindwise, the blog platform of the Department of Psychology (University of Groningen).
2017	From Mind to Brain. Mindwise Podcast episode.
2015	Are There Levels Out There? Blog post on <i>Scientia Salon,</i> blog platform edited by Massimo Pigliucci.
2015	Are There Levels Out There? A Skeptical Look. Studium Generale lecture at Umea University.

### **International meetings organized**

May 2017	"Workshop: Causality in Psychological Modeling" (Organized with Jan-Willem Romeijn), University of Groningen, Keynote speaker Denny Borsboom
Oct 2015	"Pathologizing Body and Mind: Leuven Philosophy of Medicine Conference 2015" (Organized with Jonathan Sholl and Andreas de Block), KU Leuven, Keynote speakers Denny Borsboom and Carl Craver
Nov 2014	"Workshop: Mental Causation – Old Problems, New Solutions?" (Organized with Stefaan Cuypers), KU Leuven, Keynote speakers Tom Polger and Larry Shapiro
Apr 2013	"Workshop: Explanatory Power II: Understanding Through Modeling" (Organized with Raphael van Riel), Ruhr University Bochum, Keynote speaker Paul Teller
May 2012	"Workshop: Explanatory Power" (Organized with Raphael van Riel), Ruhr University Bochum
July 2011	"Workshop: Levels and Causation in Neuroscience" (Organized with Vera Hoffmann-Kolss) Keynote speakers William Bechtel and James Woodward, HWK Institute for Advanced Study

# **Invited talks**

4/2022	"Causal Discovery in Psychology: Problems, Challenges and Ways Forward" at Jacobs / CIFAR workshop on <u>Causal Inference From Longitudinal Data</u> (online)
11/2021	"The theory crisis in psychology: How to move forward?" at ICPE, University of Groningen (online)
4/2021	"Mielenterveyden häiriöiden selittäminen: Biologiasta psykologiaan ja verkostoihin" (Explaining mental disorders: From biology to psychology and networks), at Suomen Filosofinen Yhdistys (Finnish Philosophical Society), Finland (online)
3/2020	"Interventionism for the Intentional Stance: True Believers and Their Brains" at Open University of the Netherlands, Heerlen
3/2020	"Finding causes in psychology and cognitive neuroscience: Obstacles and ways forward" at Radboud University Nijmegen, The Netherlands
11/2019	"Reduction and Complexity: Reconsidering the Network Approach to Psychopathology". At expert meeting What is Translation? Exploring the Missing Link Between Neuroscience and Psychiatry, Lorentz Center, Leiden University, The Netherlands
12/2018	"Causal and constitutive discovery in psychology: Obstacles and challenges" at University of Bergen, Norway
7/2018	"Levels and Downward Causation in Cognitive Neuroscience" at VU Amsterdam, Netherlands
4/2018	"Interventionism for the Intentional Stance: True Believers and Their Brains" at University of Liège, Belgium

3/2018	"The Nature of Hierarchical Organization in Biology". At expert meeting <i>Hierarchy</i> and Levels of Organization in the Biological Sciences, Konrad Lorentz Institute, Austria
5/2017	"Heating up the measurement debate: What psychologists can learn from the history of physics" (with Laura Bringmann) at Radboud University Nijmegen, The Netherlands
3/2017	"The Nature of Hierarchical Organization in Biology" at Konrad Lorentz Institute, Austria
9/2016	"A Philosophical Introduction to Causation in Psychology" at KU Leuven (Department of Health Psychology), Belgium
12/2015	"Real Patterns Without Levels" at Humboldt University of Berlin, Germany
10/2015	"Interventionism for the Intentional Stance" at Umea University, Sweden
7/2015	"Are There Levels Out There? A Skeptical Look" at University of Cologne, Germany
5/2014	"Levels and Downward Causation in Neuroscience" at HHU Düsseldorf, Germany
7/2012	"On the Reality of Higher-Level Properties" at Humboldt University of Berlin, Germany
3/2012	"No Levels, No Problems: Downward Causation in Neuroscience" at University of Helsinki, Finland
2/2011	"Reduction and Levels in Retina Research", Fellow Lecture at HWK Institute for Advanced Study, Delmenhorst, Germany
12/2010	"Reduction in Philosophy of Mind: A Pluralistic Account" at Forschungskolleg Humanwissenschaften, Bad Homburg, Germany
6/2009	"There Is No Functional Reduction – A Defense of Explanatory Pluralism" at Ruhr University Bochum, Germany
12/2008	"Reconciling Reductionist Intuitions with Explanatory Pluralism" at University of Lausanne, Switzerland

# Conference and workshop talks (peer-reviewed)

11/2021	"What are the 'levels' in levels of selection?" PSA 2021 [Philosophy of Science Association], Baltimore, USA
9/2021	"The theory crisis in psychology: How to move forward?" EPSA 2021 [European Philosophy of Science Association], Turin, Italy (online)
11/2018	"Interventionism and the Challenge of Psychological Causation", PSA 2018 [Philosophy of Science Association], Seattle, USA
9/2019	"Causation in Psychological Networks", EPSA 2019 [European Philosophy of Science Association], Genève, Switzerland

5/2019	"The Replication Crisis and Causal Theories in Psychology", BAPS 2019 [Belgian Association for Psychological Sciences], Liège, Belgium
11/2018	"Interventionism and the Challenge of Psychological Causation", PSA 2018 [Philosophy of Science Association], Seattle, USA
9/2018	"Networks and intentionality: Not enough to block reductionism", ESPP 2018 [European Society for Philosophy and Psychology], Rijeka, Croatia
1/2018	"Interventionism for the Intentional Stance: True Believers and Their Brains", Workshop with Daniel Dennett, Antwerp University, Belgium
8/2017	"Robust Realism for the Life Sciences" Quo Vadis Selective Scientific Realism? Durham, UK
7/2017	"Interventionism and the Challenge of Psychological Causation" Theories of causation: mental causation, negative causation, and other challenges, Düsseldorf, Germany
12/2016	"Robust Realism for the Life Sciences" OZSW 2016, Groningen, The Netherlands
11/2016	"Robust Realism for the Life Sciences" PSA 2016 [Philosophy of Science Association], Atlanta, GA, USA
5/2016	"Robust Realism for the Life Sciences" Philosophy of Science in a Forest, Utrecht, The Netherlands
9/2015	"Defending the Interventionist Solution to Causal Exclusion" GAP9 [German Society for Analytic Philosophy], Osnabrück, Germany
8/2015	"Robustness and Reality: How Science Justifies Ontological Commitments" CLMPS [Congress on Logic, Methodology and Philosophy of Science], Helsinki, Finland
2/2015	"Defending the Interventionist Approach to Mental Causation" Rudolf Carnap Lectures 2015, Bochum, Germany
1/2014	"Robustness, Models, and Reality" VAF [Dutch-Flemish Association for Analytic Philosophy], Groningen, The Netherlands
9/2013	"Defending the Interventionist Solution to the Exclusion Problem" CLPS13 [Conference on Logic and Philosophy of Science], Ghent, Belgium
3/2013	"Defending the Interventionist Solution to the Exclusion Problem" GWP.2013 [German Society for Philosophy of Science], Hanover, Germany
11/2012	"No Levels, No Problems: Downward Causation in Neuroscience" PSA 2012 [Philosophy of Science Association], San Diego, CA, USA
9/2012	"Levels of Mechanisms in Neuroscience: A Deflationary Account" GAP8 [German Society for Analytic Philosophy], Constance, Germany
10/2011	"Pluralistic Physicalism and the Causal Exclusion Argument" EPSA11 [European Philosophy of Science Association], Athens, Greece
9/2011	"Hypothetical Identities: Why the Explanatory Argument for Type Physicalism Fails" ECAP7 [European Congress of Analytic Philosophy], Milan, Italy

10/2010	"Philosophy or Neuroscience: A Non-exclusive Disjunction" (with Daniel Brooks) European Graduate School: Philosophy of mind, reduction, neuroscience, Lausanne, Switzerland
4/2010	"The Future of Psychoneural Reduction: A Defense of Pluralism" FPS2010 [Sydney-Tilburg Conference on the Future of Philosophy of Science], Tilburg, Netherlands
9/2009	"There Is No Functional Reduction - A Defense of Explanatory Pluralism" Workshop Reductionism, Explanation and Metaphors in the Philosophy of Mind, Bremen, Germany
9/2009	"A New Look at Reductive Explanation and the Explanatory Gap" GAP7 [German Society for Analytic Philosophy], Bremen, Germany
9/2008	"How to Explain the Brain? Ruthless Reductionism vs. Multilevel Mechanisms" DGPhil [German Society for Philosophy], Essen, Germany
8/2008	"A New Look at Reduction in Philosophy of Mind" ECAP6 [European Congress of Analytic Philosophy], Krakow, Poland
8/2008	"Explaining the Brain: Ruthless Reductionism or Multilevel Mechanisms?" 31st International Wittgenstein Symposium, Kirchberg am Wechsel, Austria
4/2008	"Reductionism, Explanatory Pluralism and Invariance" RSS2008 [Sydney-Tilburg Conference on Reduction and the Special Sciences], Tilburg, Netherlands.
11/2007	"Reductionism and Explanatory Pluralism" EPSA07 [European Philosophy of Science Association], Madrid, Spain

# **Supervision**

### PhD students

2021-	Freek Oude Maatman (University of Groningen; daily supervisor)
2021-	Rinske Vermeij (University of Groningen; co-supervisor)
2018-2020	Chiara Guidi (University of Rome Tor Vergata; co-supervisor)

# PhD Committees

2022	Mahdi Kalidi (VU Amsterdam; external examiner and committee member)
2019	Frank van Caspel (Open University of the Netherlands; external examiner and committee member)

## Master students

2017 -	Main supervisor for 3 MSc theses, University of Groningen
2013 – 2017	Main supervisor for 9 MA theses, KU Leuven

# **Teaching**

I hold the University Teaching Qualification (UTQ/BKO) and a corresponding Belgian qualification ("Opleiding Lesgeven aan de KU Leuven").

Year	Title	University	Form
2021-	Philosophy and Mental Disorders	RUG	MA, English
2021-	Philosophy of AI and Cognition	RUG	BA, English
2021-	Philosophy of Science	RUG	BA, English/Dutch
2019/2020	Brain, Consciousness and Society	RUG	MSc, English
2018, 2019	Wetenschapstheorie	RUG	BSc, Dutch
2018, 2019	Research Practicum	RUG	BSc, English
2018, 2019	Reflecting on Science (2 lectures)	RUG	MSc, English
2017, 2018, 2019	Capita Selecta Reflections on Psychology	RUG	MSc, English
2017, 2018, 2019	Conceptual Issues in Psychology	RUG	MSc, English
2017, 2018, 2019	Controversies in Psychology (1 lecture)	RUG	BSc, English
2017, 2018, 2019	Geschiedenis van de Psychologie (1 lecture)	RUG	BSc, Dutch
2016	Philosophy of Science	KU Leuven	BA, English
2013, 2014	Contemporary Philosophical Texts: Analytical Philosophy	KU Leuven	MA, English
2014	Philosophy of Psychology and Neuroscience	KU Leuven	MA, English/Dutch
2014	Philosophy of Mind (2 lectures)	KU Leuven	BA, Dutch
2014	Philosophical Anthropology (4 lectures)	KU Leuven	BA, English
2013	Philosophy of Psychology	Ruhr University Bochum	BA/MA, English
2012/2013	Theories of Knowledge and Representation	Ruhr University Bochum	MA, English
2012	Einführung in die Erkenntnis- und Wissenschaftstheorie	Ruhr University Bochum	BA/MA, German
2010	Topics in the Philosophy of Science: Laws and Causation	University of Osnabrück	MA, English

2009	Introduction to the Philosophy of Science	University of Osnabrück	MA, English
2006/2007	The Free Will Debate in Philosophy  – Past and Present	University of Osnabrück	BA/MA, English