

# What are Coincidences?

A Philosophical Guide Between  
Science and Common Sense

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# Preface

Coincidences have been the focus of our collaborative side-project for quite some time. To be more precise, this book is the outcome of our shared research work on the nature of coincidences in the last ten years. During our collaboration, we have been presenting our ideas on coincidences in many international conferences, especially during the years 2013-2016. We presented parts of our work on coincidences in the following venues: at the SIFA (Italian Society for Analytic Philosophy) Graduate Conference 2013, University of Cagliari (Italy); at the SIFA 2014 Conference, University of L'Aquila (Italy); at the PSSA (Philosophical Society of South Africa) 2015 Conference, Nelson Mandela Metropolitan University (Port Elizabeth, South Africa); at the GAP9 conference of the German Society for Analytic Philosophy in 2015, University of Osnabrück (Germany); and at the SIFA 2016 Conference, University of Florence (Pistoia Uniser Campus, Italy). We are thankful to all the audiences who attended our presentations for all the comments and suggestions that we succeeded to collect on those occasions and that greatly helped us improve our work.

Although we have been doing research on coincidences for years and have been so far mainly focused on publishing some articles in peer reviewed journals, we thought about putting our published papers together with new materials in order to provide readers with a thorough and more accessible presentation of our views.<sup>1</sup> On top of that, this book mainly represents an expansion of our work in new directions and with a special focus on recent literature on coincidences. We especially expanded our previous work in three different directions: first of all, by highlighting the contribution of the main historical antecedents of this research, focusing especially on the work of Antoine Augustine Cournot and Jacques Monod; second, by addressing the current rival approach in the philosophical understanding of coincidences, which has recently become the so-called “common cause” view, defended by Tamar Lando; and finally, by exploring new materials coming from cognitive psychology—especially the work of cognitive scientists Mark K. Johansen and Magda Osman—that can be in principle understood

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<sup>1</sup> Our articles are the following: Alessandra Melas, “Cournot’s Notion of Hasard: an Objective Conception of Chance”, *Axiomathes* 27, no. 6 (2017):685, <https://doi.org/10.1007/s10516-017-9333-7>; Alessandra Melas and Pietro Salis, “On the Nature of Coincidental Events”, *Axiomathes* 32, no. 1 (2022):143, <https://doi.org/10.1007/s10516-020-09517-4>

as a brand new benchmark to evaluate virtues and flaws of the main views on coincidences under scrutiny.

The article “Cournot’s Notion of Hasard: An Objective Conception of Chance” has been widened here to be part of Chapter 2. The article “On the Nature of Coincidental Events” has been divided in two parts: the introductory section has been inserted in the introduction as we found particularly useful the general presentation of the philosophical problem of coincidences that it contained, so that we could expand it to the whole book; the other sections of that article compose Chapter 4 of this book. Chapter 3 and Chapter 5 contain new and previously unpublished materials. Finally, in Chapter 2, the parts concerning Monod’s views are new and previously unpublished. Though the book is the outcome of a common, shared effort, Alessandra Melas is mainly responsible for Chapter 2 and Chapter 5, while Pietro Salis is mainly responsible for Chapter 3. In Chapter 1, Alessandra Melas is mainly responsible for the section “An intersection of independent causal lines”, while Pietro Salis is mainly responsible for the sections “Going beyond the tradition”, “Open problems” and “Plan of the book”. In Chapter 4, Alessandra Melas is mainly responsible for the sections “Beyond intersectionism”, “The ontic dimension: Are there intersections between truly independent causal sequences? Some degrees of causal independence”, “Probability”, and “Control”, while Pietro Salis is mainly responsible for the sections “The epistemic dimension: are coincidences mind-dependent?”, “The role of epistemic access”, “The degree of epistemic access”, “Collateral aspects of the epistemic dimension”, “Attitudes and beliefs”, and “Conclusion”.

Alessandra Melas would like to thank her master, Professor Alberto Mario Mura, for having introduced her to the challenging and intriguing world of coincidences, as well as Dr. Bernard D. Beitman and his Coincidence Research Group for the helpful discussions. She would also like to thank all her friends, especially Alina, Anna, Daniela, Gesy, Giovanna, Irene, Roberta, Nina, Albino, Luca and Mario, and her family for their precious support.

Pietro Salis would like to thank his partner Gianfranca and his family for their priceless support. He would also like to thank all his colleagues at the Department of Education, Psychology and Philosophy of the University of Cagliari, for providing an especially stimulating and collaborative environment.

Alghero and Cagliari, December 20<sup>th</sup> 2022



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# References

- Armstrong, David M. *A World of States of Affairs*. Cambridge: Cambridge University Press, 1997.
- Beebe, Helen. "Causing and Nothingness". In *Causation and Counterfactuals*, edited by John Collins, Ned Hall, and Laurie A. Paul, 291-308. Cambridge, MA: MIT Press, 2004.
- Chisholm, Roderick. "Freedom and Action". In *Freedom and Determinism*, edited by Keith Lehrer, 11-44. New York: Random House, 1966. (Reprinted in *The Nature of Human Action*, edited by Myles N. Brand, 283-292. Glenview: Scott Foresman and Company, 1970).
- Collingwood, Robin George. *An Essay in Metaphysics*. Oxford: Oxford University Press, 1940.
- Collins, John, Ned Hall, and Laurie A. Paul, eds. *Causation and Counterfactuals*. Cambridge, MA: MIT Press, 2004.
- Cournot, Antoine Augustine. *Exposition de la Théorie des Chances et des Probabilités*. Paris: Hachette, 1843.
- Cournot, Antoine Augustine. *Essai sur les Fondements de nos Connaissances et sur les Caractères de la Critique Philosophique*. Paris: Hachette, 1851.
- Cournot, Antoine Augustine. *Traité de l'Enchaînement des Idées Fondamentales dans les Sciences et dans l'Histoire*. Paris: Hachette, 1861.
- Dennett, Daniel C. *The Intentional Stance*. Cambridge MA: The MIT Press, 1987.
- Engel, Mylan. "Epistemic Luck". *Internet Encyclopedia of Philosophy*, 2011. <http://www.iep.utm.edu/epi-luck/>
- Gallow, J. Dmitri. "The Metaphysics of Causation". *The Stanford Encyclopedia of Philosophy*, 2022. <https://plato.stanford.edu/entries/causation-metaphysics/>
- Garfinkel, Alan. *Forms of Explanation. Rethinking the Questions in Social Theories*. New Haven, CT: Yale University Press 1981.
- Gasking, Douglas. "Causation and Recipes". *Mind* 64, no. 256 (1955): 479-87.
- Hájek, Alan "The Interpretations of Probability". *The Stanford Encyclopedia of Philosophy*, 2019. <https://plato.stanford.edu/entries/probability-interpret/#Mailnt>
- Hand, David J. *The Improbability Principle: Why Coincidences, Miracles, and Rare Events Happen Every Day*. New York: Scientific American/Farrar, Straus and Giroux, 2014.
- Hart, Herbert Lionel Adolphus and Anthony Honoré. *Causation in the Law*. Oxford: Clarendon Press, 1959.
- Hume, David. *An Inquiry Concerning Human Understanding*. New York: The Bobbs-Merrill Co., 1955[1740].
- Hume, David. *Treatise of Human Nature*. Oxford: Clarendon Press, 1888 [1739-40].
- Hutto, Daniel and Erik Myin. *Radicalizing Enactivism. Basic Minds without Content*. Cambridge MA: The MIT Press, 2013.

- Jacob, Pierre. "Intentionality". *The Stanford Encyclopedia of Philosophy*, 2019. <https://plato.stanford.edu/entries/intentionality/>
- Johansen, Mark K. and Magda Osman. "Coincidences: A Fundamental Consequence of Rational Cognition". *New Ideas in Psychology* 39, 2015. <https://doi.org/10.1016/j.newideapsych.2015.07.001>
- Johansen, Mark K. and Osman, Magda. "Coincidental Judgement in Causal Reasoning: How Coincidental is This?" *Cognitive Psychology* 120, 2020. <https://doi.org/10.1016/j.cogpsych.2020.101290>
- Junkersfeld, M. Julienne. *The Aristotelian-Thomistic Concept of Chance*. Notre Dame: University of Notre Dame, 1945.
- Kitcher, Philip and Salmon, Wesley. "Van Fraassen on Explanation". *Journal of Philosophy* 84, no. 6 (1987): 315-30.
- Lando, Tamar. "Coincidence and Common Cause". *Noûs* 51, no. 1 (2017): 132-51. doi: 10.1111/nous.12166
- Lange, Marc. *Laws and Lawmakers. Science, Metaphysics, and the Laws of Nature*. Oxford: Oxford University Press, 2009.
- Laplace, Pierre Simon. *Essai Philosophique des Probabilités*. Paris: Bachelier, 1814.
- La Placette, Jean. *Traité des Jeux de Hasard, Défendus Contre les Objections de M. de Joncourt et de Quelques Autres*. La Haye: Chez Henry Scheurleer, Marchand Libraire près de la Cour, à l'Enfeigne d'Erafme, 1714.
- Lewis, David K. *Philosophical Papers. Vol. II*. Oxford: Oxford University Press, 1987.
- Martin, Thierry. *Probabilités et Critique Philosophique selon Cournot*. Paris: Vrin, 1996.
- Melas, Alessandra. "An Ontic conception of chance in Monod's Non-Teleological Evolutionary Biological Theory". In *An Anthology of Philosophical Studies Volume 9*, edited by Patricia Hanna, 71-86. Athens: Athens Institute of Education and Research, 2015.
- Melas, Alessandra. "Cournot's Notion of Hasard: an Objective Conception of Chance". *Axiomathes* 27, no. 6 (2017): 685-697. <https://doi.org/10.1007/s10516-017-9333-7>
- Melas, Alessandra and Salis, Pietro. "On the Nature of Coincidental Events". *Axiomathes* 32, no. 1 (2022):143-168. <https://doi.org/10.1007/s10516-020-09517-4>
- Menzies, Peter and Price, Huw. "Causation as a Secondary Quality". *British Journal for the Philosophy of Science* 44, no. 2 (1993): 187-203.
- Menzies, Peter. "Causation in Context". In *Causation, Physics, and the Constitution of Reality*, edited by Huw Price and Richard Corry, 191-223. Oxford: Oxford University Press, 2007.
- Monod, Jacques. *Le Hasard et la Nécessité: Essai sur la Philosophie Naturelle de la Biologie Moderne*. Paris: Éditions du Seuil, 1970.
- Monod, Jacques. *Chance and Necessity: Essay on the Natural Philosophy of Modern Biology*. New York: Vintage, 1971.
- Moore, Michael S. *Causation and Responsibility: An Essay in Law, Morals, and Metaphysics*. Oxford: Oxford University Press, 2009. doi:10.1093/acprof:oso/9780199256860.001.0001
- Noordhof, Paul. "Probabilistic Causation, Preemption, and Counterfactuals". *Mind* 108, no. 429 (1999): 95-125.

- Owens, David. *Causes and Coincidences*. Cambridge: Cambridge University Press, 1992.
- Pearl, Judea. *Causality*. New York: Cambridge University Press, 2000.
- Poincaré, Henri. *Calcul des Probabilités*. Paris: Gauthier-Villars, Imprimeur-Libraire, 1912.
- Price, Huw. "Causation, Intervention, and Agency: Woodward on Menzies and Price". In *Making a Difference: Essays on the Philosophy of Causation*, edited by Helen Beebe, Christopher Hitchcock, and Huw Price. Oxford: Oxford University Press, 2017.
- Price, Huw and Richard Corry, eds. *Causation, Physics, and the Constitution of Reality*. Oxford: Oxford University Press, 2007.
- Pritchard, Duncan. *Epistemic Luck*. Oxford: Oxford University Press, 2005.
- Putnam, Hilary. *Reason, Truth, History*. Cambridge: Cambridge University Press, 1981.
- Quine, Willard Van Orman. *Word and Object*. Cambridge MA: The MIT Press, 1960.
- Reichenbach, Hans. *The Direction of Time*. Dover: University of California Press, 1956.
- Rorty, Richard. *Truth and Progress. Philosophical Papers Vol III*. Cambridge: Cambridge University Press, 1998.
- Salmon, Wesley. *Scientific Explanation and the Causal Structure of the World*. Princeton: Princeton University Press, 1984.
- Sellars, Wilfrid. *Empiricism and the Philosophy of Mind*. Cambridge MA: Harvard University Press, 1997 [1956].
- Suppes, Patrick. *A Probabilistic Theory of Causality*. Amsterdam: North-Holland Publishing, 1970.
- Thomson, Judith Jarvis. "Causation: Omissions". *Philosophy and Phenomenological Research* 66, no. 1 (2003): 81-103. doi:10.1111/j.1933-1592.2003.tb00244.x
- Van Fraassen, Bastiaan Cornelis. *The Scientific Image*. Oxford: University Press, 1980.
- Varzi, Achille. *Ontologia*. Roma-Bari: Laterza, 2005.
- Vidunas, Raimundas. "Delegated Causality of Complex Systems". *Axiomathes* 29, no. 1 (2019): 81-97. <https://doi.org/10.1007/s10516-018-9377-3>
- Von Wright, George. *Causality and Determinism*. New York: Columbia University Press, 1975.
- Woodward, James. *Making Things Happen: A Theory of Causal Explanation*. Oxford: Oxford University Press, 2003.
- Woodward, James. "Causation and Manipulability". *The Stanford Encyclopedia of Philosophy*, 2016. <https://plato.stanford.edu/entries/causation-mani/>



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