

PUBLICATIONS

Tarja Knuuttila

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A REFEREED SCIENTIFIC ARTICLES

A1 ORIGINAL JOURNAL ARTICLES (refereed)

1. Knuuttila, Tarja and Vivette Garcia Deister (2017). “Modelling Gene Regulation: (De)compositional and Template-based Strategies”. *Studies in History and Philosophy of Science*. doi: 10.1016/j.shpsa.2017.11.002
2. Knuuttila, Tarja (2017). “Imagination Extended and Embedded: Artifactual and Fictional Accounts of Models”. *Synthese*. doi: 10.1007/s11229-017-1545-2
3. Knuuttila, Tarja and Andrea Loettgers (2017). “What are Definitions of Life Good For? Transdisciplinary and Other Definitions in Astrobiology”. *Biology and Philosophy* 32(6): 1185-1203.
4. Knuuttila, Tarja and Andrea Loettgers (2016). “Model Templates Within and Between Disciplines; From Magnets to Gases—and Socio-economic Systems. *European Journal for Philosophy of Science* 6(3): 377-400.
5. Knuuttila, Tarja and Andrea Loettgers (2016). “Modelling as Indirect Representation? The Lotka-Volterra Model Revisited.” *The British Journal for the Philosophy of Science* 68(4): 1007-1036.
6. Knuuttila, Tarja and Andrea Loettgers (2014). “Varieties of Noise: Analogical Reasoning in Synthetic Biology.” *Studies in History and Philosophy of Science* 48:76-88.
7. Knuuttila, Tarja and Andrea Loettgers (2014). “Magnets, Spins, and Neurons: The Dissemination of Model Templates across Disciplines.” *The Monist* 97: 280–300.
8. Knuuttila, Tarja and Andrea Loettgers (2013). “Synthetic Modeling and the Mechanistic Account: Material Recombination and Beyond.” *Philosophy of Science* 80: 874–885.
9. Knuuttila, Tarja and Andrea Loettgers (2013). “Basic Science through Engineering: Synthetic Modeling and the Idea of Biology-inspired Engineering.” *Studies in History and Philosophy of Biological and Biomedical Sciences* 44: 158–169.
10. Evans, M.R., Grimm, V. Johst, K., Knuuttila, T., de Langhe, R., Lessels, K., Merz, M., O’Malley, M.A., Orzack, S., Weisberg, M., Wilkinson, D., Wolkenhauer, O., and Benton, T.G. (2013). “Do Simple Models Lead to Generality in Ecology.” *Trends in Ecology & Evolution* 28: 578–583.
11. Knuuttila, Tarja (2013). “Science in a New Mode: Good Old (Theoretical) Science vs. Brave New (Commodified) Science? *Science & Education* 22: 2443–2461.
12. Knuuttila, Tarja (2012). “Contradictions of Commercialization: Revealing the Norms of Science?” *Philosophy of Science* 79: 833–844.

13. Knuuttila, Tarja and Mieke Boon (2011). "How Do Models Give Us Knowledge? The Case of Carnot's Ideal Heat Engine." *European Journal for Philosophy of Science* 1(3): 309–334.
14. Knuuttila, Tarja and Andrea Loettgers (2011). "Causal Isolation Robustness Analysis: The Combinatorial Strategy in Synthetic Biology." *Biology and Philosophy* 26(5): 773–791.
15. Knuuttila, Tarja (2011). "Modeling and Representing: An Artefactual Approach." *Studies in History and Philosophy of Science* 42: 262–271.
16. Knuuttila, Tarja (2009). "Isolating Representations vs. Credible Constructions? Economic Modelling in Theory and Practice." *Erkenntnis* 70: 59–80.
17. Tuunainen, Juha and Tarja Knuuttila (2009). "Intermingling Academic and Business Activities – A New Direction for Science and Universities?" *Science, Technology & Human Values* 34: 684–704.
18. Knuuttila, Tarja (2008). "Vain perimmäisillä rakenteilla on merkitystä? Tieteelliset mallit representaatioina ja tiedollisina artefakteina" [Only underlying structures matter? Scientific models as representations and epistemic artefacts] *Ajatus* 65: 201–225.
19. Knuuttila, Tarja (2006). "From Representation to Production: Parsers and Parsing in Language Technology." *Sociology of the Sciences* 25: 41–55.
20. Knuuttila, Tarja, Martina Merz and Erika Mattila (2006). "Computer Models and Simulations in Scientific Practice." *Science and Technology Studies* 19: 3–11.
21. Tuunainen, Juha and Tarja Knuuttila (2006). "Akateeminen työ ja tutkimustulosten kaupallistaminen – mahdoton yhtälö?" [Academic Work and Commercialization of Research Results – An Impossible Equation?] *Tiedepolitiikka* 2006(3): 27–36.
22. Knuuttila, Tarja (2005). "Models, Representation, and Mediation." *Philosophy of Science* 72: 1260–1271.
23. Knuuttila, Tarja and Atro Voutilainen (2003). "A Parser as an Epistemic Artefact: A Material View on Models." *Philosophy of Science* 70: 1484–1495. *
24. Knuuttila, Tarja (2003). "Is Representation Really in Crisis?" *Semiotica* 143: 95–111.
25. Knuuttila, Tarja (2002). "Signing for Reflexivity: Constructionist Rhetorics and Its Reflexive Critique in Science and Technology Studies" [52 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research* 3(3).

A2 REVIEW ARTICLES (commissioned)

26. Knuuttila, Tarja (2017). Review on Axel Gelfert: 'How to Do Science with Models: A Philosophical Primer'. *The British Journal for the Philosophy of Science* (online)
27. Knuuttila, Tarja (2010). "Scientific Models in Philosophy of Science." *International Studies in the Philosophy of Science* 24: 437–440.

28. Tarja Knuuttila (2007). “Review on Roger E. Backhouse and Bradley W. Bateman (eds.) *The Cambridge Companion to Keynes*” *Notre Dame Philosophical Reviews*. <http://ndpr.nd.edu/review.cfm?id=9224>

A3 BOOK SECTIONS (refereed)

29. Knuuttila, Tarja and Andrea Loettgers (in press, 2017). “Models as Experimental Objects: Mathematical and Synthetic Modeling in the Study of Genetic Circuits”, in Bas van Fraassen, and Isabelle Peschard (eds.) *The Experimental Side of Modeling*. University of Minnesota Press.
30. Knuuttila, Tarja and Andrea Loettgers (in press, 2017). “Mathematization in Synthetic Biology: Analogies, Templates and Fictions”, in Martin Carrier, and Johannes Lenhard (eds.) *Mathematics as a Tool*. Boston Studies in the Philosophy of Science, Springer.
31. Knuuttila, Tarja and Andrea Loettgers (2016). “Contrasting Cases: The Lotka-Volterra Model Three Times”, in Tilman Sauer and Raphael Scholl (eds.) *The Philosophy of Historical Case Studies*. Boston Studies in the Philosophy of Science, Springer, 151-178.
32. Boon, Mieke and Knuuttila Tarja (2014). “Bruch mit dem Epochenbruch. Der Fall der Ingenieurwissenschaften”, in Alfred Nordmann, Hans Radder, and Gregor Schieman (eds.) *Strukturwandel der Wissenschaft. Positionen zum Epochenbruch*. Velbrueck Wissenschaft, 82-96.
33. Knuuttila, Tarja (2014). “Reflexivity, Representation, and the Possibility of Constructivist Realism”, in Maria Carla Galavotti, Stephan Hartmann, Marcel Weber, Wenceslao Gonzalez, Dennis Dieks, and Thomas Uebel (eds.) *New Directions in the Philosophy of Science*. Dordrecht: Springer, 297-312.
34. Knuuttila, Tarja and Andrea Loettgers (2013). “Synthetic Biology as an Engineering Science? Analogical Reasoning, Synthetic Modeling, and Integration”, in Hanne Andersen, Dennis Dieks, Wenceslao J. Gonzalez, Thomas Uebel, and Gregory Wheeler (eds.) *New Challenges to Philosophy of Science*. The Philosophy of Science in a European Perspective, Vol 4. Dordrecht: Springer, 163–177.
35. Knuuttila, Tarja (2013). “Metamorphoses of Meaning: The Concept of the Ideal from a Semiotic Perspective”, in Alex Levant and Vesa Oittinen (eds.) *Dialectics of the Ideal: Evald Ilyenkov and Creative Soviet Marxism*. Leiden: Brill, 145–164.
36. Knuuttila, Tarja (2013). “Kaupallistuneen tieteen normit” [The norms of commodified science], in Ilkka Niiniluoto, Jaakko Kuorikoski and Risto Vilkkio (eds.) *Talous*. Helsinki: Gaudemus, 168–185.
37. Knuuttila, Tarja and Andrea Loettgers (2012). “The Productive Tension: Mechanisms vs. Templates in Modeling the Phenomena”, in Paul Humphreys and Cyrille Imbert (eds.), *Representations, Models, and Simulations*. New York: Routledge, 3–24.
38. Morgan, Mary S. and Tarja Knuuttila (2012). “Models and Modelling in Economics”, in Uskali Mäki (ed.) *Philosophy of Economics*, Handbook of the Philosophy of

- Science (general editors Dov M. Gabbay, Paul Thagard, and John Woods) Elsevier Science, 49–87.
39. Knuuttila, Tarja (2011). “In the Grey Area: University Research and Commercial Activity – The Case of Language Technology”, in James Dzisah and Henry Etzkowitz (eds.), *The Age of Knowledge: The Dynamics of Universities, Knowledge and Society*. Studies in Critical Social Sciences. Brill, 289–310.
 40. Knuuttila, Tarja and Jaakko Kuorikoski (2011). “Idealized Representations, Inferential Devices and Cross-Disciplinary Tools: Theoretical Models in Social Sciences”, in Ian Jarvie and Jesus Zamora Bonilla (eds.) *The Sage Handbook of the Philosophy of Social Science*. Bodmin: Sage, 530–550.
 41. Boon, Mieke and Tarja Knuuttila (2011). “Breaking up with Epochal Break: The Case of Engineering Sciences”, in Alfred Nordmann, Hans Radder and Gregor Schiemann (eds.): *Science Transformed: Debating Claims of an Epochal Break*. Pittsburgh: University of Pittsburgh Press, 66–79.
 42. Knuuttila, Tarja and Aki Lehtinen (2010). ”Johdanto: Representaatio – Tiedon kivijalasta tieteiden työkaluksi” [Introduction], in Tarja Knuuttila and Aki Lehtinen (eds.), *Representaatio: Tiedon kivijalasta tieteiden työkaluksi*. Helsinki: Gaudeamus, 7–34.
 43. Knuuttila, Tarja (2010). ”Totuudenmukaisia esityksiä vai monikäyttöisiä välineitä? Mallit tieteellisinä representaatioina” [Truthful representations or versatile tools? Models as scientific representations], in Tarja Knuuttila and Aki Lehtinen (eds.), *Representaatio: Tiedon kivijalasta tieteiden työkaluksi*. Helsinki: Gaudeamus, 331–350.
 44. Knuuttila, Tarja (2009). “Representation, Idealization, and Fiction in Economics: From the Assumptions Issue to the Epistemology of Modelling”, in Mauricio Suárez (ed.), *Fictions in Science: Philosophical Essays on Modeling and Idealization*. New York & London: Routledge, 205–231.
 45. Boon, Mieke and Tarja Knuuttila (2009). “Models as Epistemic Tools in Engineering Sciences: A Pragmatic Approach”, in Anthonie Meijers (ed.) *Philosophy of Technology and Engineering Sciences*, Handbook of the Philosophy of Science (general eds. Dov M. Gabbay, Paul Thagard, and John Woods). Amsterdam: Elsevier Science, 693–726. *
 46. Knuuttila, Tarja and Martina Merz (2009). “Understanding by Modeling: An Objectual Approach”, in Henk de Regt, Sabina Leonelli and Karl Eigner (eds.) *Scientific Understanding: Philosophical Perspectives*. Pittsburgh: University of Pittsburgh Press, 146–168.
 47. Knuuttila, Tarja (2008). ”Models and modeling ”, in Darity, William A., Jr. (ed.) *International Encyclopedia of the Social Sciences*, 2nd edition. 9 vols. Detroit: Macmillan Reference, 224–226.
 48. Tuunainen, Juha and Tarja Knuuttila (2008). “Determining the Norms of Science: From Epistemological Criteria to Local Struggle on Organizational Rules?”, in Jussi Välimaa and Oili-Helena Ylijoki (eds.) *Cultural Dimensions on Higher Education*, Springer Verlag, 138–153.

49. Knuuttila, Tarja (2007). "Language Technological Models as Epistemic Artefacts: The Case of Constraint Grammar Parser", in Gordana Dodig Crnkovic and Susan Stuart (eds.), *Computation, Information, Cognition: The Nexus and the Liminal*. Newcastle: Cambridge Scholar's Publishing, 280–289.
50. Knuuttila, Tarja and Honkela, Timo (2006). "Questioning External and Internal Representation: The Case of Scientific Models", in Lorenzo Magnani and Riccardo Dossena (eds.), *Computing, Philosophy, and Cognition*. Texts in Philosophy vol. 4. London: King's College Publishing, 209–226.
51. Veivo, Harri, and Tarja Knuuttila (2005). "Modelling, Theorizing and Interpretation in Cognitive Literary Studies", in Harri Veivo, Bo Pettersson and Merja Polvinen (eds.), *Cognition and Literary Interpretation in Practice*. Helsinki: Helsinki University Press, 283–306.
52. Tarja Knuuttila (2005). "Is Representation Really in Crisis?", in Michael Gane and Nicholas Gane (eds.), *Umberto Eco*. London: SAGE (Masters in Modern Social Thought Series), 113–129.

A4 CONFERENCE PROCEEDINGS (refereed)

53. Knuuttila, Tarja (2010). "Some Consequences of the Pragmatic Approach to Representation", in Mauricio Suárez, Mauro Dorato, and Miklós Rédei (eds.) *EPSA Epistemology and Methodology of Science: Launch of the European Philosophy of Science Association, Vol I: Epistemology and Methodology of Science*. Dordrecht: Springer, 139–149.
54. Knuuttila, Tarja (2010). "Not Just Underlying Structures: Towards a Semiotic Approach to Scientific Representation", in Mats Bergman, Sami Paavola, Ahti-Veikko Pietarinen and Henrik Rydenfelt (eds.), *Ideas in Action: Proceedings of the Applying Peirce Conference*. Nordic Pragmatism Network. Helsinki, 190–199.
55. Knuuttila, Tarja, Anna-Mari Rusanen and Timo Honkela (2007). "Self-Organizing Maps as Travelling Computational Templates". *Proceedings of IJCNN 2007, International Joint Conference on Neural Networks*, Orlando, Florida, Aug. 12–17, 1231–1236.
56. Honkela, Timo, Tarja Knuuttila and Kevin Hynna (2003). "Framework for Modelling Partial Conceptual Autonomy of Adaptive and Communicative Agents", in Richard Alterman and Davide Kirsch *Proceedings of the 25th Annual Meeting of the Cognitive Science Society 2003*. Boston, MA, 569–574.

B UNREFEREED SCIENTIFIC WRITINGS

B1 JOURNAL ARTICLES

57. Knuuttila, Tarja (2003). "Transsendenssi. Nyt: Naturalisoitua ja historiallistettua transsendentaalifilosofiaa". *Synteesi* 4/2003: 77–80.

58. Knuuttila, Tarja (2002). "Vesinokkaeläimen transsendenssi." *Synteesi* 1/2002: 103–105.
59. Knuuttila, Tarja and Max Ryyänen (2002). "Ecoistin elämää" [Life of an Ecoist]. *Synteesi* 1/2002: 80.
60. Knuuttila, Tarja (2002). "Ideologian loput ja alut: Ideologian mahdollisuus/mahdottomuus postmodernissa teoriassa" [The ends and beginnings of ideology: The possibility of ideology in postmodern theory]. *Synteesi* 2/2002: 3–11.

B2 BOOK SECTIONS

61. Koskinen, Rami and Tarja Knuuttila (2017). "Elämä ja mahdollinen elämä – filosofisia näkökulmia" [Life and possible life – philosophical perspectives], in Kari Enqvist, Ilari Hetemäki and Teija Tiilikainen (eds.) *Kaikki vapaudesta*. Helsinki: Gaudeamus, 247-263.
62. Knuuttila, Tarja and Hanna Johansson (2013). "Homage à Holmberg/ Pédofil of Boa Vista: Representation, Laboratory and Field Studies", in Laura Beloff, Erich Berger and Terike Haapoja (eds.) *Field Notes – From Landscape to Laboratory*. Finnish Bioart Society, 18–33.
63. Johansson, Hanna and Tarja Knuuttila (2008). "Mitä vitriinissä oikein tapahtuu? *Homage à Holmberg* tieteellisen ja taiteellisen representaation jäljillä" [Whatever happens in a showcase: *Homage à Holmberg* on the trail of scientific and artistic representation], in Hanna Johansson: *Homage à Lauri Anttila*. Helsinki: Kuvataideakatemia/ Finnish Academy of Fine Arts, 40–76.
64. Tarja Knuuttila (2007). "Rahan tarjonta ja inflation kausaatio: Kausaalinen prioriteetti taloustieteellisessä esimerkkitapauksessa" [The supply of money and causation of inflation: A case study on causal priority], in Heta Gylling, Ilkka Niiniluoto ja Risto Vilkkö (eds.), *Syy*. Helsinki: Gaudeamus, 175–188.
65. Knuuttila, Tarja (2006). "Realismi ja representaatio kansantaloustieteessä: Oletusten realistisuudesta mallinnuksen epistemologiaan" [Realism and representation in economics: From the realism of assumptions issue to the epistemology of modelling], in Kakkuri-Knuuttila, Marja-Liisa, Kristiina Rolin & Elina Henttonen (eds.): *Soveltava yhteiskuntatiede ja filosofia*. Helsinki: Gaudeamus, 241–267.
66. Hynnä, Kevin I., Mathias Creutz, Tarja Knuuttila and Timo Honkela (2005). "On Representation of Action within Real-World Situations", in Timo Honkela, Kevin I. Hynnä, Kevin, Krista Lagus and Jaakko Särelä (eds.) *Adaptive and Statistical Approaches in Conceptual Modelling*. Helsinki University of Technology. Department of Computer Science and Engineering, Laboratory of Computer and Information Science. Report A75, 56–70.
67. Knuuttila, Tarja (2005). "Kulttuurin koodista semiosiksen sarastukseen: Umberto Eco semiootikkona", in Tarja Knuuttila and Max Ryyänen (eds.): *Umberto Eco: Teräsmies, James Joyce ja vesinokkaeläin*. Helsinki: Yliopistopaino, 19–54.

68. Knuuttila Tarja (2005). ”Subjekti, halu ja Edellisen päivän saari”, in Tarja Knuuttila and Max Rynnänen (eds.): *Umberto Eco: Teräsmies, James Joyce ja vesinokkaeläin*. Helsinki: Yliopistopaino, 201–229.
69. Knuuttila, Tarja and Rynnänen, Max (2005). ”Ainakin neljä Ecoa”, in Knuuttila, Tarja and Rynnänen, Max (eds.): *Umberto Eco: Teräsmies, James Joyce ja vesinokkaeläin*. Helsinki: Yliopistopaino, 7–18.
70. Knuuttila, Tarja (2003). ”The Encyclopedia and Semiosis: An Artifactual Perspective”, in Eero Tarasti (ed.): *Understanding/Misunderstanding. Contributions to the Study of the Hermeneutics of Signs*. Imatra: International Semiotics Institute (Acta Semiotica Fennica XVI), 92–102.
71. Knuuttila, Tarja (2000). “Semiosis and the Concept of the Ideal”, in Vesa Oittinen (ed.), *Evald Ilyenkov’s Philosophy Revisited*, Helsinki: Kikimora Publications, 189–204.
72. Knuuttila, Tarja (2000). “Alter Eco – Toisen teema Umberto Econ romaanissa ‘Edellisen päivän saari’” [Alter eco – The theme of Other in Umberto Eco’s novel ‘The island of the day before’] in Eero Tarasti (ed.) *Ymmärtämisen merkit. Samuuden ja toiseuden ikoneja suomalaisessa kulttuurissa*, Helsinki: Acta Semiotica Fennica VIII. ISI, 210–226.

B3 CONFERENCE PROCEEDINGS

73. Knuuttila, Tarja (2009). “The Absent Encyclopedia: Meaning-Making According to Umberto Eco”, *Proceedings of the 9th Congress of the International Association of Semiotic Studies*, Helsinki/Imatra June 11–17, 2007.
74. Knuuttila, Tarja (2004). “What is a Model a Model of?” In Tarasti, Eero (ed.) *From Nature to Psyche. Proceedings from the Imatra International Congresses on Semiotics in 2001 and 2002*. Helsinki: Acta Semiotica Fennica, 182–191.

C SCIENTIFIC MONOGRAPHS, EDITED VOLUMES

75. Gramelsberger, Gabriele, Tarja Knuuttila and Axel Gelfert (eds.) (2013). Special issue: ”Philosophical Perspectives on Synthetic Biology”, *Studies in History and Philosophy of Biological and Biomedical Sciences* 44(2): 119–246.
76. Knuuttila, Tarja and Lehtinen, Aki (eds.) (2010). *Representaatio: Tiedon kivijalasta tieteiden työkaluksi* [Representation: from foundation of knowledge to a tool of science]. Helsinki: Gaudeamus.
77. Knuuttila, Tarja, Martina Merz and Erika Mattila (2006). Special issue: “Computer Models and Simulations in Scientific Practice.” *Science and Technology Studies* 19(1).
78. Miettinen, Reijo, Juha Tuunainen, Tarja Knuuttila and Mattila, Erika (2006). *Tieteestä tuotteeksi? Yliopistotutkimus muutosten ristipaineessa*. [From science to commodity: University research in transition]. Helsinki: Yliopistopaino.

79. Knuuttila, Tarja and Ryynänen, Max (eds.) (2005). *Umberto Eco: Teräsmies, James Joyce ja vesinokkaeläin*. Helsinki: Yliopistopaino.
80. Knuuttila, Tarja and Max Ryynänen (2002). Special issue on Umberto Eco: "Monta Ecoa", *Synteesi* 1/2002.

D PUBLICATIONS INTENDED FOR PROFESSIONAL COMMUNITIES

81. Seppälä, Päivi and Tarja Knuuttila (2012). "Report on Models and Simulations 5, 14–16 June". *The Reasoner* 6(8): August 2012. <http://www.thereasoner.org/>
82. Knuuttila, Tarja (2010). "Monta tietä, sama polku: matkani taloustieteestä semiotiikan kautta tieteenfilosofiksi", in Markku Roinila (ed.), *Miten meistä tuli filosofian tohtoreita*, Helsinki: SFY, 485–491

E PUBLICATIONS INTENDED FOR GENERAL PUBLIC, WITH CONNECTION TO THE RESEARCHER'S WORK

83. Ijäs, Tero and Tarja Knuuttila (2014). "Tarvitseeko biologia muitakin kuin biologeja? Synteettisen ja systeemibiologian näkökulmia tieteidenvälisyyteen." *Tieteessä tapahtuu* 32(4): 37–41.

G ACADEMIC DISSERTATIONS

84. Knuuttila, Tarja (2005). *Models as Epistemic Artefacts: Toward a Non-Representationalist Account of Scientific Representation*. Ph.D. Dissertation. Philosophical Studies from the University of Helsinki.