



Routledge Studies in Contemporary Philosophy

NORMATIVE SPECIES

**HOW NATURALIZED INFERENCEALISM
EXPLAINS US**

Jaroslav Peregrin



Normative Species

This book is about rules, and especially about human capability to create, maintain and follow rules, as a root of what makes us humans different from other animals. The leading idea is that scrutinizing this capability is able to tell us who we humans are and what kinds of lives we live. It elaborates Wilfrid Sellars' visionary observation that "to say that man is a rational animal, is to say that man is a creature not of habits, but of rules"; and it builds on the ideas of Sellars' and Brandom's inferentialism, in a novel naturalistic way.

The main tenet of inferentialism is that our language games are essentially rule-governed and that meanings are inferential roles. Jaroslav Peregrin sees the task of reconciliation of inferentialism and naturalism as centered around the problem of naturalization of rules. He argues that the most primitive form of a rule is a cluster of normative attitudes. We humans are specific by our tendency to assume peculiar attitudes to what we do, and to do so in a specific way, which turns the attitudes into "normative" ones. This self-reflective structure characterizes our ability to build systems of interconnected rules, which have come to constitute our natural niche. Furthermore, Peregrin shows how our most important system of rules – that constitutive of our language – helped to lead us to our current position of rule-following, ultra-social, rational, and discursive creatures.

Normative Species will be of interest to scholars and advanced students working in philosophy of language, philosophy of mind, social ontology, cultural evolution and cognitive science.

Jaroslav Peregrin is a professor at the Faculty of Philosophy of the University of Hradec Králové, Czechia, and the research professor at the Department of Logic of the Institute of Philosophy of the Czech Academy of Sciences. He is the author of *Doing Worlds with Words* (1995), *Meaning and Structure* (2001), *Inferentialism* (2014), *Reflective Equilibrium and the Principles of Logical Analysis* (together with V. Svoboda, 2017) and *Philosophy of Logical Systems* (2020). His current research focuses on logical and philosophical aspects of inferentialism and on more general questions of normativity.

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Jaroslav Peregrin

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Preface

The intellectual journey that led me to this book began in the 1980s, when I was engaged with formal semantics. I was excited about the possibilities offered by its abundant apparatus, but at the same time I was embarrassed by what I perceived as its naive philosophical grounding. It seemed to me that most of the formal semanticists took the theories as straightforward depictions of how words are fastened to the entities that are their meanings, the apparatus of possible worlds etc., expressing something hidden behind the facade of the natural world, something that served as some kind of metaphysical structure of the world. (Cresswell's, 1973, book *Logic and Languages* can be seen as an example of this stance being expressed explicitly.)

I felt that formal semantics needed a more solid philosophical background, which led me to write my book, *Doing Worlds with Words* (Peregrin, 1995). One of the crucial questions I kept asking myself during the work on the book, of course, was *What is meaning?* I was unsatisfied with theories which took language as a set of labels stuck to meanings – a picture that Quine dubbed the “museum myth”. I was looking for an alternative and I found the basis for one in the writings of Wittgenstein and Quine. This is what was embodied in my book, but I still was not fully satisfied.

Shortly after its publication, I got hold of Bob Brandom's (1994) book *Making It Explicit*. I was bewitched: this was the theory of meaning that I had always wanted to pursue if I had only been able to put it together like Brandom had! For a time I became a zealous soldier of the inferentialist army. In 2001, I published a book reconciling my ex-love, formal semantics, with my new one, inferentialism (Peregrin, 2001). This period culminated in my book *Inferentialism* (Peregrin, 2014a), where I tried to put together two partly independent strands of inferentialism: the philosophical and the logical.

However, even as I was working on this book, I started to realize that I saw some of the topics differently from Brandom. The crucial issue was

naturalism, to which I tended to subscribe (following in the tracks of my previous philosophical hero, Quine) and which Brandom did not seem to be particularly concerned about. I always took philosophy as being continuous with science, the two enterprises cross-fertilizing their ideas, thereby working toward new insights. I was disappointed to see that Brandom did not care about science very much and saw philosophy instead as being something orthogonal to it.

Already in 2014, I published a paper summarizing some ideas about the evolutionary origin of rules that thereby suggested a naturalistic basis of inferentialism (Peregrin, 2014b). Some of the ideas also found a way into my 2014 book. Since that time, I have taken my mission to be to provide a basis for a naturalized version of inferentialism. During that time I also returned to my work on the philosophy of logic, explaining logic and its laws from a naturalistic perspective; I published two books – Peregrin and Svoboda (2017) and Peregrin (2020b). The present book, then, is the culmination of my naturalistic reconsideration of inferentialism.

There are many people who have helped me, directly or indirectly, to shape the ideas laying the foundation of this book. Let me mention at least a few. First of all, my colleagues from the Department of Philosophy and Social Sciences of the Faculty of Philosophy of the University of Hradec Králové, where we have launched the great project of the naturalization of inferentialism: Ladislav Koreň, Preston Stovall and Matej Dobňák, as well as our oversea collaborators Ulf Hlobil and Mark Risjord. Certainly I must also give thanks to Bob Brandom, the long-term interaction with whom I owe for the development of many of the ideas presented in the book. I am also grateful to my friend and colleague from the Department of Logic of the Institute of Philosophy of the Czech Academy of Sciences, Vladimír Svoboda, who is a tireless and invaluable critic of all my new ideas. I am also grateful to Bartosz Kaluziński for detailed critical comments on the manuscript.

This book presents the results of the research project *Inferentialism Naturalized: Norms, Meanings and Reasons in the Natural World* developed at the Philosophical Faculty of the University of Hradec Králové in Czechia, supported by the research grant No. G20-05180X of the Czech Science Foundation. It has swallowed up parts of my recent papers that addressed some of the topics integrated into this book, usually in a somewhat reworked form. In particular, [Chapter 6](#) is based on the paper “Normative Attitudes” (in L. Townsend, P. Stovall and H. B. Schmid, eds.: *The Social Institution of Discursive Norms*, Routledge, New York, 2021, 121–137). [Chapter 7](#) incorporates a small part of “Normativity between Philosophy and Science” (forthcoming in

Philosophical Psychology), while [Chapter 11](#) contains a small part of “Logic and Human Practices” (M. Blichá and I. Sedlár (ed.): *The Logica Yearbook 2020*, College Publications, London, 2021, 162–182). [Chapter 12](#) is then based on “Inferentialism Naturalized” (*Philosophical Topics* 50, 2022, 33–54), and finally [Chapter 15](#) follows “Human World” (*Analítica* No.1, 2021, 20–34).



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Introduction

This book is about rules, and especially about the human capability to create, maintain and follow rules as a root of what makes us humans different from other animals. Indeed, it is meant as an elaboration of Wilfrid Sellars' visionary observation that "to say that man is a rational animal, is to say that man is a creature not of *habits*, but of *rules*". I am convinced that scrutinizing this capability will let us understand who we humans are and what kinds of lives we lead.

The base camp of the intellectual journey that this book undertakes is inferentialism – the doctrine foreshadowed by Sellars and brought to full fruition by Robert Brandom. The core of the doctrine is the conviction that what we call the meaning of a linguistic expression is not something represented by the expression, but rather its inferential role. This presupposes that our language games (or at least some "central" ones) are essentially rule-governed, and hence that to understand language with its semantics is to understand (certain kinds of) rules and (a certain kind of) rule-governance. And it would seem that in so far as we humans can be characterized as linguistic creatures, we can also (and maybe more aptly) be characterized as a normative species.

Moreover, it seems that it is not only language, but many other specifically human amenities that presuppose rules or are directly decomposable into various complexes of rules. It seems, indeed, that rules have managed to erect spaces within which we humans assumed our "unnatural" forms of life and which differentiate us so much from other animals. From this viewpoint, rules and complexes of rules start to look as something like the true key to our peculiar nature.

The trouble is, alas, that rules and rule-following are a shadowy business. For a long time, philosophy did not pay enough attention to them, and now, when it does, there is a confusion of tongues. Many philosophers (and some scientists) talk about rules and normativity, but how exactly they understand these terms often remains obscure. Therefore, it would

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seem that elucidating rules in their capacity of constituting the space of our peculiarly human form of life appears to me to be a very urgent enterprise.

This book is an attempt to throw some new light on us humans from this peculiar angle. It starts out by giving consideration to two twentieth-century philosophers who took the concept of rules seriously before it became a mainstream of philosophy – Wittgenstein and Sellars (Chapters 1 and 2). Their struggle with rules nicely reveals the complex problems that this concept, and the general concept of normativity, harbors. One important lesson from both these thinkers is that there is necessarily something like “implicit rules” – rules that are not a matter of any sentences or other kinds of symbolic articulation. At least some rules must thus be able to reside directly *in* behavior; though they can be made explicit later (or not). In my view, the conclusion that not every rule can be a linguistic affair is indicated, among others, by the fact that language itself is constituted by rules.

In the introductory chapters, I review the discussions regarding rules as they stand, using the terminology in the – sometimes divergent – ways in which it is to be found. But, as I want to present a coherent theory of normativity, I need to put all of this on a more unified foundation. This brings about the necessity of analyzing the very concept of rule, together with other concepts related to it. This is what I undertake in the next three, “stage-setting”, Chapters 3–5. I argue that if rules are not always supported by a language, and if even human rationality, as Sellars suggested, is supported by rules (rather than the other way around), rules and the ability to follow them may have to do with the very differentiation of our species from the other ones. Therefore, the analysis of rules and rule-following may reveal to us a lot about our nature, i.e. the nature of the individuals of the genus *Homo sapiens*.

It is also necessary to stress that the framework of our investigation is a broadly naturalistic one, which poses several restrictions on the means that we can use toward our purpose of analyzing the concepts of rules and rule-following. We cannot, for example, situate rules into a supernatural realm independent of the natural one. Our task is to find a place for rules in nature (where, however, *nature* is construed broadly enough to encompass humans and human communities).

As rules cannot be generally identified with linguistic items (such as imperative sentences) and must be sought “within” behavior, the crucial question is what kinds of behavioral patterns amount to rule-following. And here I think it is crucial to pay attention to *normative attitudes*, the kinds of pro- and con- attitudes to human behavior, which are sensitive only to the *kind* of behavior (not to who is its source and target) and which we humans ubiquitously assume. I argue (in Chapter 6) that the most rudimentary kind of implicit rules are simply normative attitudes resonating across a society. Then I document (in Chapter 7) that such a

view can be supported by some evidence concerning both human ontogeny and phylogeny.

The concept of normative attitudes is heavily used by Brandom, but in his story, it belongs to the realm of the normative not reducible to the realm of the natural. In contrast to him, however, I argue that the attitudes are at bottom natural phenomena, which thus interconnect the two realms. The attitudes, I maintain, are capable of rendering something as right or wrong – thus grounding normativity – without themselves being right or wrong. In this way, I reach a naturalized version of Brandomian normativism and inferentialism, according to which the realm of the normative is embedded into the realm of the natural.

Chapter 8 presents my conjecture concerning the development of the concept of correctness, especially the way in which correctness might have gained a certain independence from our actual attitudes, so that something may be correct despite it being generally held for incorrect (or vice versa). In my view, though correctness could hardly start otherwise than as the direct result of positive normative attitudes (hence, as what the bulk of the members of the relevant community hold for correct), it must have emancipated itself from this direct dependence. This is likely to have happened by means of a process in which normative attitudes retreated from determining an ultimate correctness to determining the *criterion* of the correctness. The common agreement thus no longer determines what is correct and settles for determining criteria – and thus, we may fail to know what is correct, despite there being a fact of the matter regarding this.

In Chapter 9, I explain that while some of our rules are self-standing, more interesting rules are what I call *integrative* – rules which are operative only in concert with other rules. Such systems of rules, also known as institutions, have the peculiar property, which, I believe, can be best portrayed as creating “inner spaces”. Such “spaces” are remarkable in that they open, for us, the possibilities to carry out brand new kinds of actions. (Once you enter the “space of football”, built of its rules, you can *score goals* and do other things that are not available to you outside of the space.) And it is here where our specific human form of life originates: we have moved from the realm of nature into the complex of such normative spaces that we have built and that let us live our “unnatural” lives.

All of this must be, of course, set into the framework of evolution theory – the ultimate framework of explanation of everything that happens in the animal realm, including the sub-realm of us humans. This is what I do in Chapter 10. A remarkable thing is that rules provide for the swift circulation of “cultural inheritance”: the thing is that, as we have an uncanny knack of not only submitting to the pressure of normative attitudes but taking them as what “ought to be” and thus join others in enforcing them (assuming corresponding normative attitudes), we get the

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rules (and the institutions and practices that the rules founded) handed down from generation to generation, without any direct genetic support.

Once the framework of evolution theory is in place, we can look at the specific human form of life also in terms of the concept of *practice*, which I do in [Chapter 11](#). We humans not only do things but at the same time keep assessing our doings as right or wrong (often along more than one dimension). Thus, our practices have come to consist of (at least) two layers: on the lower layer we simply produce, on the upper one we evaluate; and this upper layer makes the behavior on the lower one into *acting*. The two levels are not really separable, they mingle into a complex whole. And our human predicament is that instead of just coping with the world and with each other, as other animals do, we engage in a labyrinthine collection of practices.

In [Chapter 12](#), I try to also shed some light on the nature of the “space of meaningfulness” in which our linguistic practices evolve and flourish. I argue that it is the structuring of our (proto-)assertions by means of the relationships of inferability and incompatibility that equips our utterances (and consequently their vehicles, sentences and their parts) by their semantics. I try to illustrate how an instinctive ejaculation of sounds could have been turned into rule-governed displays and then further into a system of linguistic utterances interlinked by inferential and other relationships, making their vehicles into meaningful expressions. In this context, I also address, in [Chapter 13](#), the origins of logic. As I see it, the logical particles of natural language result from our tendency to make explicit the inferential rules that are originally only implicitly governing our language games.

Then I turn my attention to several remaining topics that I think should be elucidated in the light of the conclusions reached up to this point. In [Chapter 14](#), I address the concept of cooperation. I subscribe to the view that it was the need of intensified cooperation that has brought us humans on the trajectory that alienated us from other animal species so quickly that we became nature’s oddity. Our language and our reason, I maintain, arose from interpersonal interactions, leaving deep marks on them. Also our moral rules, in many respects the most important rules we have, have emerged out of the primordial soup of cooperation.

The next concept I pay attention to, in [Chapter 15](#), is that of freedom, which is, beyond doubt also something that is characteristic of us. In comparison to other animals, we are free in the sense that in every conceivable situation, we have a much vaster repertoire of behavior to display; but in the end, this is *not* what we call freedom. Freedom, in our human sense, has to do with rules. To be free in this sense, an individual must abide by rules and is free if he or she has a say in which rules to abide by.

The last concept, addressed in [Chapter 16](#), is that of an objective world. The question is how it is that individuals, at first communicating only in

terms of unarticulated hoots, come to live in a shared objective world, talking about it and arguing what is true about it. In my view, the answer to this question can be derived from the process described in detail in [Chapter 8](#) – the process where the concept of correctness (and also that of truth which is a species of correctness) parts ways with the concept of common agreement; to be correct (true) is no longer to be generally held for correct (true), but rather to be justified by methods that are generally held for correct. In this way, something may be the case despite its generally being taken to not be the case. The objective world defies intersubjective agreement.

In the final chapter, [Chapter 17](#), I summarize the fictive journey I have tried to depict in the book: the journey from our age of innocence, when we did not know what is right and what is wrong, to our life as a fully normative species.

References

- Alston, W. P. , ed. 2002. *Realism and Antirealism*. New York: Cornell University Press.
- Andrews, K. 2020. "Naïve Normativity: The Social Foundation of Moral Cognition." *Journal of the American Philosophical Association* 6 (1): 36–56.
- Arbib, M. A. 2006. "The Mirror System Hypothesis on the Linkage of Action and Language." In *Action to Language via the Mirror Neuron System*, edited by M. A. Arbib , 3–47. Cambridge: Cambridge University Press.
- Axelrod, R. 1984. *The Evolution of Cooperation*. New York: Basic Books.
- Baker, G. P. , and P. M. S. Hacker . 1984. *Scepticism, Rules and Language*. Oxford: Blackwell.
- Barnes, E. C. 2002. "The Miraculous Choice Argument for Realism." *Philosophical Studies* 111 (2): 97–120.
- Beisecker, D. 2013. "'From the Grunts and Groans of the Cave....' Presidential Address." *Southwest Philosophy Review* 29 (1): 1–11.
- Beran, O. 2022. "The Moral Luck of Rules." *Philosophical Investigations* 45 (1): 21–39.
- Berniūnas, R. , V. Silius , and V. Dranseika . 2022. "Moralization East and West: Moralizing Different Transgressions among Chinese, Americans, and Lithuanians." *Asian Journal of Social Psychology* 25 (2): 185–197.
- Berwick, R. C. , and N. Chomsky . 2016. *Why Only Us: Language and Evolution*. Cambridge, MA: MIT Press.
- Bicchieri, C. 2005. *The Grammar of Society: The Nature and Dynamics of Social Norms*. Cambridge: Cambridge University Press.
- Binmore, K. 2007. *Game Theory: A Very Short Introduction*. Oxford: Oxford University Press.
- Blackburn, S. 1984. *Spreading the Word*. Oxford: Clarendon Press.
- Blackmore, S. 1999. *The Meme Machine*. Oxford: Oxford University Press.
- Boghossian, P. 2014. "What Is Inference?" *Philosophical Studies* 169 (1): 1–18.
- Boghossian, P. A. 1989. "The Rule-Following Considerations." *Mind* 98 (392): 507–549.
- Bowles, S. 2009. *Microeconomics*. Princeton: Princeton University Press.
- Bowles, S. , and H. Gintis . 2011. *A Cooperative Species: Human Reciprocity and Its Evolution*. Princeton: Princeton University Press.
- Boyd, R. , H. Gintis , S. Bowles , and P. J. Richerson . 2003. "The Evolution of Altruistic Punishment." *PNAS* 100 (6): 3531–3535.
- Boyd, R. P. , J. Richerson , and J. Henrich . 2011. "The Cultural Niche." *PNAS* 108 (Supplement 2): 10918–10925.
- Boyle, M. 2016. "Additive Theories of Rationality: A Critique." *European Journal of Philosophy* 24 (3): 527–555.
- Brandom, R. 1979. "Freedom and Constraint by Norms." *American Philosophical Quarterly* 16 (3): 187–196.
- Brandom, R. 1994. *Making It Explicit: Reasoning, Representing, and Discursive Commitment*. Cambridge, MA: Harvard University Press.
- Brandom, R. 2000. *Articulating Reasons*. Cambridge, MA: Harvard University Press.
- Brandom, R. 2008. *Between Saying and Doing: Towards an Analytic Pragmatism*. Oxford: Oxford University Press.
- Brandom, R. 2009. *Reason in Philosophy: Animating Ideas*. Cambridge, MA: Harvard University Press.
- Brandom, R. 2019. *A Spirit of Trust: A Reading of Hegel's Phenomenology*. Cambridge, MA: Harvard University Press.
- Bratman, M. E. 1992. "Shared Cooperative Activity." *The Philosophical Review* 101 (2): 327–341.
- Bratman, M. E. 2013. *Shared Agency: A Planning Theory of Acting Together*. Oxford: Oxford University Press.
- Brennan, G. , L. Eriksson , R. E. Goodin , and N. Southwood . 2013. *Explaining Norms*. Oxford: Oxford University Press.
- Campbell, J. D. , and P. J. Fairry . 1989. "Informational and Normative Routes to Conformity: The Effect of Faction Size as a Function of Norm Extremity and Attention to the Stimulus."

- Journal of Personality and Social Psychology 57 (3): 457–468.
- Carruthers, P. 2011. *The Opacity of Mind: An Integrative Theory of Self-Knowledge*. Oxford: Oxford University Press.
- Carruthers, P. 2013. "The Distinctively Human Mind: The Many Pillars of Cumulative Culture." In *The Evolution of Mind, Brain, and Culture*, edited by G. Hatfield and H. Pittman, 325–346. Philadelphia: University of Pennsylvania Press.
- Casler, K. , T. Terziyan , and K. Greene . 2009. "Toddlers View Artifact Function Normatively." *Cognitive Development* 24 (3): 240–247.
- Castro, L. , L. Castro-Nogueira , M. A. Castro-Nogueira , and M. A. Toro . 2010. "Cultural Transmission and Social Control of Human Behavior." *Biology & Philosophy* 25 (3): 347–360.
- Ceci, S. J. , and W. M. Williams , eds. 1999. *The Nature-Nurture Debate: The Essential Readings*. Malden: Blackwell.
- Chemero, A. , and M. Turvey . 2007. "Complexity, Hypersets, and the Ecological Perspective on Perception-Action." *Biological Theory* 2 (1): 23–36.
- Chomsky, N. 1955. "Logical Syntax and Semantics: Their Linguistic Relevance." *Language* 31 (1): 36–45.
- Chomsky, N. 1986. *Knowledge of Language*. Westport: Praeger.
- Chomsky, N. 2000. *New Horizons in the Study of Language and Mind*. Cambridge: Cambridge University Press.
- Chong, I. , and R. W. Proctor . 2020. "On the Evolution of a Radical Concept: Affordances According to Gibson and Their Subsequent Use and Development." *Perspectives on Psychological Science* 15 (1): 117–132.
- Christiansen, M. H. , and N. Chater . 2016. *Creating Language: Integrating Evolution, Acquisition, and Processing*. Cambridge, MA: MIT Press.
- Christias, D. 2015. "A Sellarsian Approach to the Normativism-Antinormativism Controversy." *Philosophy of the Social Sciences* 45 (2): 143–175.
- Claidière, N. , and A. Whiten . 2012. "Integrating the Study of Conformity and Culture in Humans and Nonhuman Animals." *Psychological Bulletin* 138 (1): 126–145.
- Clément, F. , S. Bernard , and L Kaufmann . 2011. "Social Cognition Is Not Reducible to Theory of Mind: When Children Use Deontic Rules to Predict the Behaviour of Others." *British Journal of Developmental Psychology* 29 (4): 910–928.
- Cook, R. T. 2010. "Let a Thousand Flowers Bloom: A Tour of Logical Pluralism." *Philosophy Compass* 5 (6): 492–504.
- Cosmides, L. , and J. Tooby . 2005. "Neurocognitive Adaptations Designed for Social Exchange." In *The Handbook of Evolutionary Psychology*, edited by D. M. Buss , 584–627. Hoboken: Wiley.
- Cresswell, M. J. 1973. *Logic and Languages*. London: Methuen.
- Curry, O. S. 2016. "Morality as Cooperation: A Problem-Centred Approach." In *The Evolution of Morality*, edited by T. K. Shackelford and R. D. Hansen , 27–51. Cham: Springer.
- Curry, O. S. , M. Alfano , M. J. Brandt , and C. Pelican . 2022. "Moral Molecules: Morality as a Combinatorial System." *Review of Philosophy and Psychology* 13: 1039–1058.
- Davidson, D. 1970. "Mental Events." In *Experience and Theory*, edited by L. Foster and J. W. Swanson . London: Duckworth; reprinted in Davidson: *Essays on Actions and Events*, 207–43, Oxford: Clarendon Press, 1980.
- Davidson, D. 1974. 'On the Very Idea of a Conceptual Scheme'. *Proceedings and Addresses of the American Philosophical Association* 47; reprinted in Davidson: *Inquiries into Truth and Interpretation*, pp. 183–198. Oxford: Clarendon, 1984.
- Davidson, D. 1994. "The Social Aspect of Language." In *The Philosophy of Michael Dummett*, edited by B. McGuinness and G. Oliveri , 1–16. Dordrecht: Springer.
- Davidson, D. 2001. *Subjective, Intersubjective, Objective*. New York: Oxford University Press.
- Dawkins, R. 1976. *The Selfish Gene*. New York: Oxford University Press.
- Dennett, D. 1996. *Kinds of Minds*. New York: Basic Books.
- Dennett, D. 2013. "The Evolution of Reasons." In *Contemporary Philosophical Naturalism and Its Implications*, edited by B. Bashour and H. D. Muller , 47–62. New York: Routledge.

- Dennett, D. 2018a. "The Phantasy of First-Person Science." In *The Map and the Territory. The Frontiers Collection*, edited by S. Wuppuluri and F. Doria . Cham: Springer.
- Dennett, D. 2018b. "Facing Up to the Hard Question of Consciousness." *Philosophical Transactions of the Royal Society B* 373 (1755): 20170342.
- deVries, W. A. 2005. *Wilfrid Sellars*. Chesham: Acumen.
- Dewey, J. 1925. *Experience and Nature*. New York: Dover.
- Dor, D. , and E. Jablonka . 2014. 'Why We Need to Move from Gene-Culture Co-Evolution to Culturally Driven Co-Evolution'. In *The Social Origins of Language*, edited by D. Dor, C. Knight, and J. Lewis, 15–30. Oxford: Oxford University Press.
- Dor, D. , C. Knight , and J. Lewis . 2014. 'Introduction: A Social Perspective on How Language Began'. In *The Social Origins of Language*, edited by D. Dor, C. Knight, and J. Lewis, 1–12. Oxford: Oxford University Press.
- Drobňák, M. 2022. "Normative Inferentialism on Linguistic Understanding." *Mind & Language* 37 (4): 564–585.
- Dummett, M. 1959. 'Truth'. *Proceedings of the Aristotelian Society (New Series)* 59; reprinted in Dummett: *Truth and Other Enigmas*, 1–24. London: Duckworth, 1978.
- Dutilh Novaes, C. 2020. *The Dialogical Roots of Deduction: Historical, Cognitive, and Philosophical Perspectives on Reasoning*. Cambridge: Cambridge University Press.
- Evans, J. S. B. 2003. "In Two Minds: Dual-Process Accounts of Reasoning." *Trends in Cognitive Sciences* 7 (10): 454–459.
- Evans, J. S. B. , and D. E. Over . 2013. *Rationality and Reasoning*. Hove: Psychology Press.
- Fehr, E. , and S. Gächter . 2002. "Altruistic Punishment in Humans." *Nature* 415 (6868): 137.
- Fernald, A. , and V. A. Marchman . 2006. "Language Learning in Infancy." In *Handbook of Psycholinguistics*, edited by M. J. Traxler and M. A. Gernsbacher , 1027–1071. Amsterdam: Elsevier.
- Fitzpatrick, S. 2020. "Chimpanzee Normativity: Evidence and Objections." *Biology & Philosophy* 35 (4): 1–28.
- Fodor, J. A. 1975. *The Language of Thought*. Cambridge, MA: Harvard University Press.
- Fodor, J. A. 2008. *LOT 2: The Language of Thought Revisited*. Oxford: Oxford University Press.
- Frost-Arnold, G. 2010. "The No-Miracles Argument for Realism: Inference to an Unacceptable Explanation." *Philosophy of Science* 77 (1): 35–58.
- Gauker, C. 2007. "The Circle of Deference Proves the Normativity of Semantics." *Rivista Di Estetica* 34: 181–198.
- Gauker, C. 2011. *Words and Images: An Essay on the Origin of Ideas*. Oxford: Oxford University Press.
- Gergely, G. , and G. Csibra . 2006. "Sylvia's Recipe: The Role of Imitation and Pedagogy in the Transmission of Cultural Knowledge." In *Roots of Human Sociality: Culture, Cognition, and Human Interaction*, edited by S. C. Levinson , 229–255. Oxford: Berg.
- Gibson, J. J. 1979. *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin.
- Ginsborg, H. 2011. "Primitive Normativity and Skepticism about Rules." *The Journal of Philosophy* 108 (5): 227–254.
- Gintis, H. 2011. "Gene-Culture Coevolution and the Nature of Human Sociality." *Philosophical Transactions of the Royal Society B: Biological Sciences* 366 (1566): 878–888.
- Giromini, J. (forthcoming). 'The Logical Structure of Normative Attitudes'. *Philosophia*.
- Glanzberg, M. 2015. "Logical Consequence and Natural Language." In *Foundations of Logical Consequence*, edited by C. R. Caret and O. T. Hjortland , 71–120. Oxford: Oxford University Press.
- Glock, H.-J. 2012. "The Anthropological Difference: What Can Philosophers Do to Identify the Differences between Human and Non-Human Animals?" *Royal Institute of Philosophy Supplements* 70: 105–131.
- Glüer, K. , and Å. Wikforss . 2009. "Against Content Normativity." *Mind* 118 (469): 31–70.
- Goldfarb, W. 1985. "Kripke on Wittgenstein on Rules." *The Journal of Philosophy* 82 (9): 471–488.
- Goldhaber, D. 2012. *The Nature-Nurture Debates: Bridging the Gap*. Cambridge: Cambridge University Press.

- Goodman, N. 1955. *Fact, Fiction, and Forecast*. Cambridge, MA: Harvard University Press.
- Goodman, N. 1960. "The Way the World Is." *The Review of Metaphysics* 14 (1): 48–56.
- Greene, J. 2008. "The Secret Joke of Kant's Soul." *Moral Psychology*, Vol. 3: *The Neuroscience of Morality: Emotion, Disease, and Development*, edited by W. Sinnott-Armstrong. Cambridge, MA: MIT Press.
- Hahn, H., O. Neurath, and R. Carnap. 1929. *Wissenschaftliche Weltauffassung: Der Wiener Kreis*. Wien: Wolf; English translation *The Scientific Conception of the World: The Vienna Circle* in S. Sarkar and R. Nozick, ed., *The Emergence of Logical Empiricism: From 1900 to the Vienna Circle*. London: Routledge, 1996.
- Haidt, J. 2001. "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment." *Psychological Review* 108 (4): 814–834.
- Haidt, J. 2012. *The Righteous Mind: Why Good People Are Divided by Politics and Religion*. New York: Pantheon.
- Hamilton, W. D. 1963. "The Evolution of Altruistic Behavior." *The American Naturalist* 97 (896): 354–356.
- Hanfling, O. 2013. *Philosophy and Ordinary Language: The Bent and Genius of Our Tongue*. London: Routledge.
- Hart, H. L. A. 1961. *The Concept of Law*. Oxford: Oxford University Press.
- Hattiangadi, A. 2003. "Making It Implicit: Brandom on Rule Following." *Philosophy and Phenomenological Research* 66 (2): 419–431.
- Haugeland, J. 1982. "Heidegger on Being a Person." *Nous* 16 (1): 15–26.
- Haugeland, J. 2000. "Truth and Rule-Following." In Haugeland: *Having Thought*, 305–362. Cambridge, MA: Harvard University Press.
- Heft, H. 1989. "Affordances and the Body: An Intentional Analysis of Gibson's Ecological Approach to Visual Perception." *Journal for the Theory of Social Behaviour* 19 (1): 1–30.
- Heidegger, M. 1927. *Sein und Zeit*. Halle: Niemeyer.; English translation *Being and Time*. New York: Harper & Row, 1962.
- Heidegger, R. 1959. *Unterwegs zur Sprache*. Pfullingen: Günther Neske.; English translation *On the Way to Language*. New York: Harper & Row, 1982.
- Henrich, J. 2015. *The Secret of Our Success: How Culture Is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*. Princeton: Princeton University Press.
- Henrich, J., and F. J. Gil-White. 2001. "The Evolution of Prestige: Freely Conferred Deference as a Mechanism for Enhancing the Benefits of Cultural Transmission." *Evolution and Human Behavior* 22 (3): 165–196.
- Hildebrand, D. 2018. "Dewey, Rorty, and Brandom: The Challenges of Linguistic Neopragmatism." In *The Oxford Handbook of Dewey*, edited by S. Fesmire, 99–130. Oxford: Oxford University Press.
- Hjortland, O. T. 2017. "Anti-Exceptionalism about Logic." *Philosophical Studies* 174 (3): 631–658.
- Hlobil, U. 2021. "Limits of Abductivism about Logic." *Philosophy and Phenomenological Research* 103 (2): 320–340.
- Hofstadter, D. 1995. "To Seek Whence Cometh a Sequence." In *Fluid Concepts and Creative Analogies*, 13–86. New York: Basic Books.
- Hudson, W. D., ed. 1969. *The Is/Ought Question. A Collection of Papers on the Central Problem in Moral Philosophy*. London: Macmillan.
- Hurford, J. R. 2007. *The Origin of Meaning*. Oxford: Oxford University Press.
- Hurley, S. 2008. "The Shared Circuits Model (SCM): How Control, Mirroring, and Simulation Can Enable Imitation, Deliberation, and Mindreading." *Behavioral and Brain Sciences* 31: 1–58.
- Husserl, E. 1936. *die Krisis der europäischen Wissenschaften und die transzendente Phänomenologie: Eine Einleitung in die phänomenologische Philosophie*. Belgrad: Philosophie.; English translation *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*. Evanston: Northwestern University Press, 1989.
- Jablonka, E., and M. J. Lamb. 2014. *Evolution in Four Dimensions*. (revised edition). Cambridge, MA: MIT Press.

- Joyce, R. 2006. *The Evolution of Morality*. Cambridge, MA: MIT Press.
- Kahneman, D. 2011. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux.
- Kalish, C. 1998. "Reasons and Causes: Children's Understanding of Conformity to Social Rules and Physical Laws." *Child Development* 69 (3): 706–720.
- Kant, I. 1785. *Grundlegung zur Metaphysik der Sitten*. Riga: Hartknoch.; English translation *Groundwork for the Metaphysics of Morals (Practical Philosophy The Cambridge Edition of the Works of Immanuel Kant)*, edited by M. J. Gregor, trans. P. Guyer and A. W. Wood. Cambridge: Cambridge University Press, 2012.
- Kant, I. 1790. *Kritik der Urteilskraft*. Berlin: Lagarde und Friedrichz; English translation *Critique of the Power of Judgment (The Cambridge Edition of the Works of Immanuel Kant)*.
- Kelly, D. , and T. Davis . 2018. "Social Norms and Human Normative Psychology." *Social Philosophy and Policy* 35 (1): 54–76.
- Kendal, J. R. 2011. "Cultural Niche Construction and Human Learning Environments: Investigating Sociocultural Perspectives." *Biological Theory* 6 (3): 241–250.
- Kenward, B. , M. Karlsson , and J. Persson . 2011. "Over-Imitation Is Better Explained by Norm Learning than by Distorted Causal Learning." *Proceedings of the Royal Society B: Biological Sciences* 278 (1709): 1239–1246.
- Kern, A. , and H. Moll . 2017. "On the Transformative Character of Collective Intentionality and the Uniqueness of the Human." *Philosophical Psychology* 30 (3): 319–337.
- Kitcher, P. 2011. *The Ethical Project*. Cambridge, MA: Harvard University Press.
- Knight, C. 2008. "Language Co-Evolved with the Rule of Law." *Mind and Society* 7 (1): 109–128.
- Koons, J. R. 2021. "Sellars on Rational Agency as Presupposing Collective Attitudes." In *Groups, Norms and Practices*, edited by L. Koreň et al., 189–213. Cham: Springer.
- Koreň, L. 2018. "Propositional Contents and the Logical Space." In *From Rules to Meanings: New Essays on Inferentialism*, edited by O. Beran , V. Kolman , and L. Koreň , 196–218. New York: Routledge.
- Koreň, L. 2021. *Practices of Reason: Fusing the Inferentialist and Scientific Image*. New York: Routledge.
- Koreň, L. , H. B. Schmid , P. Stovall , and L. Townsend , eds. 2021. *Groups, Norms and Practices*. Cham: Springer.
- Krebs, J. R. , and R. Dawkins . 1984. "Animal Signals: Mindreading and Manipulation." In *Behavioural Ecology: An Evolutionary Approach*, edited by J. R. Krebs and N. B. Davies , 380–402. London: Blackwell.
- Krikorian, Y. , ed. 1944. *Naturalism and the Human Spirit*. New York: Columbia University Press.
- Kripke, S. A. 1982. *Wittgenstein on Rules and Private Language: An Elementary Exposition*. Cambridge, MA: Harvard University Press.
- Kumar, V. , and R. Campbell . 2022. *A Better Ape: The Evolution of the Moral Mind*. Oxford: Oxford University Press.
- Kusch, M. 2002. *Knowledge by Agreement: The Programme of Communitarian Epistemology*. Oxford: Clarendon Press.
- Kusch, M. 2006. *A Sceptical Guide to Meaning and Rules: Defending Kripke's Wittgenstein*. Montreal: McGill-Queen's University Press.
- Laland, K. 2017. *Darwin's Unfinished Symphony*. Princeton: Princeton University Press.
- Laland, K. N. , and M. J. O'Brien . 2011. "Cultural Niche Construction: An Introduction." *Biological Theory* 6 (3): 191–202.
- Lance, M. N. 1998. "Some Reflections on the Sport of Language." *Philosophical Perspectives* 12: 219–240.
- Lau, H. , and D. Rosenthal . 2011. "Empirical Support for Higher-Order Theories of Conscious Awareness." *Trends in Cognitive Sciences* 15: 365–373.
- Lewens, T. 2017. "Human Nature, Human Culture: The Case of Cultural Evolution." *Interface Focus* 7 (5): 20170018.
- Lewis, D. 1969. *Convention: A Philosophical Study*. London: Blackwell.
- Lewis, D. 1979. "Scorekeeping in a Language Game." *Journal of Philosophical Logic* 8 (1): 339–359.

- Leyton-Brown, K. , and Y. Shoham . 2008. "Essentials of Game Theory: A Concise Multidisciplinary Introduction." *Synthesis Lectures on Artificial Intelligence and Machine Learning* 2 (1): 1–88.
- Lorenzen, P. 1955. *Einführung in die operative Logik und Mathematik*. Berlin: Springer.
- Lorenzen, P. , and K. Lorenz . 1978. *Dialogische Logik*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Lorenzen, P. , and O. Schwemmer . 1975. *Konstruktive Logik, Ethik und Wissenschaftstheorie*. Mannheim: Bibliographisches Institut.
- Lycan, W. G. 2001. "A Simple Argument for a Higher-Order Representation Theory of Consciousness." *Analysis* 61 (1): 3–4.
- Mandelkern, M. 2020. "How to Do Things with Modals." *Mind & Language* 35 (1): 115–138.
- Mares, E. D. 2004. *Relevant Logic: A Philosophical Interpretation*. Cambridge: Cambridge University Press.
- Martin, B. 2021. "Identifying Logical Evidence." *Synthese* 198 (10): 9069–9095.
- Maryanski, A. , and J. H. Turner . 1992. *The Social Cage: Human Nature and the Evolution of Society*. Stanford: Stanford University Press.
- Maynard Smith, J. 1964. "Group Selection and Kin Selection." *Nature* 201 (4924): 1145–1147.
- Maynard Smith, J. 1976. "Group Selection." *Quarterly Review of Biology* 51 (2): 277–283.
- McDowell, J. 1984. "Wittgenstein on Following a Rule." *Synthese* 58 (3): 325–363.
- McElreath, R. , and R. Boyd . 2008. *Mathematical Models of Social Evolution: A Guide for the Perplexed*. Chicago: University of Chicago Press.
- McGee, V. 1985. "A Counterexample to Modus Ponens." *Journal of Philosophy* 82 (9): 462–471.
- McKenzie Alexander, J. 2007. *The Structural Evolution of Morality*. Cambridge: Cambridge University Press.
- Mead, G. H. 1934. *Mind, Self, & Society from the Standpoint of a Social Behaviorist*. Chicago: University of Chicago Press.
- Mercier, H. , and D. Sperber . 2011. "Why Do Humans Reason? Arguments for an Argumentative Theory." *Behavioral and Brain Sciences* 34 (2): 57–111.
- Mercier, H. , and D. Sperber . 2017. *The Enigma of Reason*. Cambridge, MA: Harvard University Press.
- Millikan, R. G. 2013. "The Tangle of Natural Purposes That Is Us". In *Contemporary Philosophical Naturalism and Its Implications*, edited by B. Bashour and H. D. Muller , 73–84. New York: Routledge.
- Millikan, R. G. 1984. *Language, Thought, and Other Biological Categories*. Cambridge, MA: MIT Press.
- Millikan, R. G. 1989. "In Defense of Proper Functions." *Philosophy of Science* 56 (2): 288–302.
- Millikan, R. G. 1995. "Pushmi-Pullyu Representations." *Philosophical Perspectives* 9: 185–200.
- Millikan, R. G. 2005. "The Father, the Son, and the Daughter: Sellars, Brandom, and Millikan." *Pragmatics & Cognition* 13 (1): 59–71.
- Misak, C. J. 2004. *Truth and the End of Inquiry: A Peircean Account of Truth*. Oxford: Clarendon.
- Myers, R. H. , and C. Verheggen . 2016. *Donald Davidson's Triangulation Argument: A Philosophical Inquiry*. London: Routledge.
- Nichols, S. 2002. "On the Genealogy of Norms: A Case for the Role of Emotion in Cultural Evolution." *Philosophy of Science* 69 (2): 234–255.
- O'Shea, J. 2007. *Wilfrid Sellars*. Cambridge: Polity.
- O'Shea, J. 2012. "Prospects for a Stereoscopic Vision of Our Thinking Nature: On Sellars, Brandom, and Millikan." *Humana Mentis* 5 (21): 149–172.
- Odling-Smee, F. J. , K. N. Laland , and M. W. Feldman . 2003. *Niche Construction*. Princeton: Princeton University Press.
- Okrent, M. 2017. *Nature and Normativity: Biology, Teleology, and Meaning*. New York: Routledge.

- Packer, M. J. , and M Cole . 2019. "Evolution and Ontogenesis: The Deontic Niche of Human Development." *Human Development* 62 (4): 175–211.
- Partee, B. 2018. "Changing Notions of Linguistic Competence in the History of Formal Semantics." In *The Science of Meaning: Essays on the Metatheory of Natural Language Semantics*, edited by D. Ball and B. Rabern , 172–196. Oxford: Oxford University Press.
- Peirce, C. S. 1998. *The Essential Peirce: Selected Philosophical Writings Volume 2 (1893–1913)*. Bloomington: Indiana University Press.
- Peregrin, J. (forthcoming): "Logic as a Science of Patterns?" *The Journal of Philosophy*.
- Peregrin, J. 1995. *Doing Worlds with Words*. Dordrecht: Kluwer.
- Peregrin, J. 2001. *Meaning and Structure*. Aldershot: Ashgate.
- Peregrin, J. 2008a. "Inferentialist Approach to Semantics." *Philosophy Compass* 3 (6): 1208–1223.
- Peregrin, J. 2008b. "What Is *the* Logic of Inference?" *Studia Logica* 88 (2): 263–294.
- Peregrin, J. 2010a. "Language, the World and the Nature of Philosophy." In *The Philosophy of Richard Rorty*, edited by R. E. Auxier and L. E. Hahn , 225–245. Open Court: La Salle (Ill.).
- Peregrin, J. 2010b. "Logic and Natural Selection." *Logica Universalis* 4 (2): 207–223.
- Peregrin, J. 2012. "Semantics without Meaning?" In *Prospects of Meaning*, edited by R. Schantz , 479–502. Berlin: de Gruyter.
- Peregrin, J. 2014a. *Inferentialism: Why Rules Matter*. Basingstoke: Palgrave.
- Peregrin, J. 2014b. "Rules as the Impetus of Cultural Evolution." *Topoi* 33 (2): 51–545.
- Peregrin, J. 2016a. "Should One Be a Left or Right Sellarsian? (And Is There Really Such a Choice?)." *Metaphilosophy* 47 (2): 251–263.
- Peregrin, J. 2016b. "Social Normativism." In *Normativity and Naturalism in the Philosophy of the Social Sciences*, edited by M. Risjord , 68–85. London: Routledge.
- Peregrin, J. 2017. "Is Inferentialism Circular?" *Analysis* 78 (3): 450–454.
- Peregrin, J. 2018. "Davidson and Sellars on 'Two Images.'" *Philosophia* 46 (1): 183–192.
- Peregrin, J. 2019. "Logic as a (Natural) Science." In *The Logica Yearbook 2018*, edited by I. Sedlár and M. Blichá , 177–196. London: College Publications.
- Peregrin, J. 2020a. "Normative Mindshaping and the Normative Niche." In *Groups, Norms and Practices*, edited by L. Koreň et al., pp. 85–98. Cham: Springer.
- Peregrin, J. 2020b. *Philosophy of Logical Systems*. New York: Routledge.
- Peregrin, J. , and V. Svoboda . 2017. *Reflective Equilibrium and the Principles of Logical Analysis: Understanding the Laws of Logic*. New York: Routledge.
- Peregrin, J. , and V. Svoboda . 2021. "Moderate Anti-Exceptionalism and Earthborn Logic." *Synthese* 199 (3–4): 8781–8806.
- Peregrin, J. , and V. Svoboda . 2022. "Logica Dominans vs. Logica Serviens." *Logic and Logical Philosophy* 31 (2): 183–207.
- Phillips, J. , and J. Knobe . 2018. "The Psychological Representation of Modality." *Mind & Language* 33 (1): 65–94.
- Pinkard, T. 1996. *Hegel's Phenomenology: The Sociality of Reason*. Cambridge: Cambridge University Press.
- Pinkard, T. 2007. "Sellars the Post-Kantian?" *Poznan Studies in the Philosophy of the Sciences and the Humanities* 92 (1): 21–52.
- Pinker, S. 1995. *The Language Instinct*. New York: Harper Collins.
- Pinker, S. 2010. "The Cognitive Niche: Coevolution of Intelligence, Sociality, and Language." *PNAS* 107 (Supplement 2): 8993–8999.
- Planer, R. , and K. Sterelny . 2021. *From Signal to Symbol: the Evolution of Language*. Cambridge, MA: MIT Press.
- Popper, K. R. 1972. *Objective Knowledge*. Oxford: Oxford University Press.
- Poundstone, W. 1992. *Prisoner's Dilemma: John von Neumann, Game Theory, and the Puzzle of the Bomb*. New York: Doubleday.
- Premack, D. 1983. "The Codes of Man and Beasts." *Behavioral and Brain Sciences* 6 (1): 125–136.
- Price, H. 2011. *Naturalism without Mirrors*. New York: Oxford University Press.
- Priest, G. 2001. *An Introduction to Non-Classical Logics*. Cambridge: Cambridge University Press.

- Punčochář, V. , and C. Gauker . 2020. "Indicative Conditionals in Objective Contexts." *Theoria* 86 (5): 651–687.
- Putnam, H. 1975. "What Is Mathematical Truth?" *Historia Mathematica* 2 (4): 529–533; reprinted in Putnam: *Mathematics, Matter and Method: Philosophical Papers*, 60–78. Cambridge: Cambridge University Press, 1979.
- Putnam, H. 1991. *Representation and Reality*. Cambridge, MA: MIT Press.
- Quine, W. V. O. 1960. *Word and Object*. Cambridge, MA: MIT Press.
- Quine, W. V. O. 1969. *Ontological Relativity and Other Essays*. New York: Columbia University Press.
- Quine, W. V. O. 1995. *From Stimulus to Science*. Cambridge, MA: Harvard University Press.
- Rahman, S. , and H. Rückert . 2001. *New Perspectives in Dialogical Logic*. Dordrecht: Kluwer.
- Rakoczy, H. , and M. F. Schmidt . 2013. "The Early Ontogeny of Social Norms." *Child Development Perspectives* 7 (1): 17–21.
- Rakoczy, H. , F. Warneken , and M. Tomasello . 2008. "The Sources of Normativity: Young Children's Awareness of the Normative Structure of Games." *Developmental Psychology* 44 (3): 875.
- Ramstead, M. J. , S. P. Veissière , and L. J. Kirmayer . 2016. "Cultural Affordances: Scaffolding Local Worlds through Shared Intentionality and Regimes of Attention." *Frontiers in Psychology* 7: 1090.
- Rawls, J. 1955. "Two Concepts of Rules." *Philosophical Review* 64 (1): 3–32.
- Read, S. 1994. "Formal and Material Consequence." *Journal of Philosophical Logic* 23 (3): 247–265.
- Richerson, P. J. , and R. Boyd . 1998. "The Evolution of Human Ultra-Sociality." In *Indoctrinability, Ideology and Warfare: Evolutionary Perspectives*, edited by I. Eibl-Eibesfeldt and F. K. Salter , 71–95. New York: Berghahn.
- Ridley, M. 1997. *The Origins of Virtue*. London: Penguin.
- Risser, J. 2009. "The Demand of Freedom in Kant's Critique of Judgment." *Comparative and Continental Philosophy* 1 (1): 89–104.
- Rorty, R. , ed. 1967. *The Linguistic Turn*. Chicago: The University of Chicago Press.
- Rorty, R. 1979. *Philosophy and the Mirror of Nature*. Princeton: Princeton University Press.
- Rorty, R. 1989. *Contingency, Irony, and Solidarity*. Cambridge: Cambridge University Press.
- Rorty, R. 1991. *Objectivity, Relativism and Truth (Philosophical Papers vol. I)*. Cambridge: Cambridge University Press.
- Rosenberg, A. 2013. "Disenchanted Naturalism." In *Contemporary Philosophical Naturalism and Its Implications*, edited by B. Bashour and H. D. Muller , 17–36. New York: Routledge.
- Roughley, N. , and K. Bayertz , eds. 2019. *The Normative Animal?: On the Anthropological Significance of Social, Moral, and Linguistic Norms*. Oxford: Oxford University Press.
- Rouse, J. 2007. "Social Practices and Normativity." *Philosophy of the Social Sciences* 37 (1): 46–56.
- Rouse, J. 2015. *Articulating the World*. Chicago: University of Chicago Press.
- Schloss, J. P. 2014. "Darwinian Explanations of Morality: Accounting for the Normal but Not the Normative." In *Understanding Moral Sentiments: Darwinian Perspectives*, edited by H. Putnam , S. Neiman and J. P. Schloss , 81–121. New Brunswick: Transaction.
- Schmidt, M. F. , L. P. Butler , J. Heinz , and M. Tomasello . 2016. "Young Children See a Single Action and Infer a Social Norm: Promiscuous Normativity in 3-Year-Olds." *Psychological Science* 27 (10): 1360–1370.
- Schmidt, M. F. , and H. Rakoczy . 2019. 'On the Uniqueness of Human Normative Attitudes'. In *The Normative Animal?*, edited by N. Roughley and K. Bayertz, pp. 121–135, Oxford: Oxford University Press.
- Schmidt, M. F. , H. Rakoczy , and M. Tomasello . 2011. "Young Children Attribute Normativity to Novel Actions without Pedagogy or Normative Language." *Developmental Science* 14 (3): 530–539.
- Schroeder, M. 2008. "What Is the Frege-Geach Problem?" *Philosophy Compass* 3 (4): 703–720.

- Searle, J. R. 2010. *Making the Social World: The Structure of Human Civilization*. New York: Oxford University Press.
- Scott-Phillips, T. 2014. *Speaking our minds: Why human communication is different, and how language evolved to make it special*. Basingstoke: Palgrave.
- Sellars, W. 1949. "Language, Rules and Behavior." In *John Dewey: Philosopher of Science and Freedom*, edited by S. Hook, 289–315. New York: Dial Press.
- Sellars, W. 1953a. "Inference and Meaning." *Mind* 62 (247): 313–338.
- Sellars, W. 1953b. "A Semantical Solution of the Mind-Body Problem." *Methodos* 5: 45–82.
- Sellars, W. 1954. "Some Reflections on Language Games." *Philosophy of Science* 21 (3): 204–228.
- Sellars, W. 1956. "The Myth of the Given: Three Lectures on Empiricism and the Philosophy of Mind." In *The Foundations of Science and the Concepts of Psychology and Psychoanalysis*, edited by H. Feigl and M. Scriven, 127–96. Minneapolis: University of Minnesota Press; reprinted in Sellars: *Science, Perception and Reality*, 127–96. Atascadero: Ridgeview, 1963.
- Sellars, W. 1962a. "Philosophy and the Scientific Image of Man." In *Frontiers of Science and Philosophy*, edited by R. Colodny, 35–78. Pittsburgh: University of Pittsburgh Press.
- Sellars, W. 1962b. "Truth and Correspondence." *The Journal of Philosophy* 59 (2): 29–56.
- Sellars, W. 1963a. "Abstract Entities." *The Review of Metaphysics* 16 (4): 627–671.
- Sellars, W. 1963b. *Science, Perception and Reality*. Atascadero: Ridgeview.
- Sellars, W. 1968. *Science and Metaphysics: Variations on Kantian Themes*. London: Routledge.
- Sellars, W. 1969. "Language as Thought and as Communication." *Philosophy and Phenomenological Research* 29 (4): 506–527.
- Sellars, W. 1974. "Meaning as Functional Classification." *Synthese* 27 (3–4): 417–437.
- Shapiro, L. 2020. "Sellars, Truth Pluralism and Truth Relativism." In *Wilfrid Sellars and Twentieth-Century Philosophy*, edited by S. Brandt and A. Breunig, 174–206. New York: Routledge.
- Shapiro, S. 1997. *Philosophy of Mathematics: Structure and Ontology*. Oxford: Oxford University Press.
- Shapiro, S. J. 2006. "What Is the Internal Point of View." *Fordham Law Review* 75: 1157–1170.
- Sinha, C. 2014. 'Niche Construction and Semiosis: Biocultural and Social Dynamics'. *The Social Origins of Language*, 31–46. Oxford: Oxford University Press.
- Skyrms, B. 2004. *The Stag Hunt and the Evolution of Social Structure*. Cambridge: Cambridge University Press.
- Slooman, S., and P. Fernbach. 2018. *The Knowledge Illusion: Why We Never Think Alone*. London: Penguin.
- Soja, N. N., S. Carey, and E. S. Spelke. 1991. "Ontological Categories Guide Young Children's Inductions of Word Meaning: Object Terms and Substance Terms." *Cognition* 38 (2): 179–211.
- Spiekermann, K. P. 2009. "Sort Out Your Neighbourhood." *Synthese* 168 (2): 273–294.
- Sripada, C., and S. Stich. 2007. "A Framework for the Psychology of Norms." In *The Innate Mind, vol. 2: Culture and Cognition*, edited by P. Carruthers, S. Laurence and S. Stich, 280–301. Oxford: Oxford University Press.
- Sterelny, K. 2021. *The Pleistocene Social Contract: Culture and Cooperation in Human Evolution*. Oxford: Oxford University Press.
- Stovall, P. 2021. "Rationality, Autonomy, and Obedience to Linguistic Norms." *Synthese* 198 (9): 8955–8980.
- Stovall, P. 2022. *The Single-Minded Animal*. New York: Routledge.
- Sturgeon, S. 1991. "Truth in Epistemology." *Philosophy and Phenomenological Research* 51 (1): 99–108.
- Svoboda, V. 2018. "The Nature and Diversity of Rules." In *From Rules to Meanings: New Essays on Inferentialism*, edited by O. Beran, V. Kolman, and L. Koreň, 261–277. New York: Routledge.

- Thompson, J. C. , S. Carvalho , C. W. Marean , and Z. Alemseged . 2019. "Origins of the Human Predatory Pattern: The Transition to Large-Animal Exploitation by Early Hominins." *Current Anthropology* 60 (1): 1–23.
- Tomasello . 1999. *The Cultural Origins of Human Cognition*. Cambridge, MA: Harvard University Press.
- Tomasello, M. 2014. *A Natural History of Human Thinking*. Cambridge, MA: Harvard University Press.
- Tomasello, M. 2019. *Becoming Human: A Theory of Ontogeny*. Cambridge, MA: Belknap Press.
- Tomasello, M. , M. Carpenter , J. Call , T. Behne , and H Moll . 2005. "Understanding and Sharing Intentions: The Origins of Cultural Cognition." *Behavioral and Brain Sciences* 28 (5): 675–690.
- Tuomela, R. 2013. *Social Ontology: Collective Intentionality and Group Agents*. Oxford: Oxford University Press.
- Turner, J. 1997. *The Institutional Order*. New York: Longman.
- Von Wright, G. H. 1963. *Norm and Action*. New York: Humanities Press.
- Whiten, A. 2021. "The Burgeoning Reach of Animal Culture." *Science* 372 (6537): abe6514.
- Wikforss, Å. M. 2001. "Semantic Normativity." *Philosophical Studies* 102 (2): 203–226.
- Williams, G. 1970. *Group Selection*. New York: Routledge.
- Wittgenstein, L. 1922. *Tractatus Logico-Philosophicus*. London: Routledge; English translation *Tractatus Logico-Philosophicus*, London: Routledge, 1961.
- Wittgenstein, L. 1953. *Philosophische Untersuchungen*. Oxford: Blackwell; English translation *Philosophical Investigations*, Oxford: Blackwell, 1953.
- Wittgenstein, L. 1969. *Philosophische Grammatik*. Frankfurt: Suhrkamp; English translation *Philosophical Grammar*, Blackwell, Oxford, 1974.
- Wittgenstein, L. 2016. *Lectures, Cambridge 1930–1933, From the Notes of G. E. Moore*. Cambridge: Cambridge University Press.
- Wrangham, R. 2019. *The Goodness Paradox: The Strange Relationship between Virtue and Violence in Human Evolution*. New York: Pantheon.
- Wray, A. 1998. "Protolanguage as a Holistic System for Social Interaction." *Language and Communication* 18 (1): 47–67.
- Zachník, V. 2020. "When and Why Conventions Cannot Be Social Institutions." *Philosophia* 48 (3): 1235–1254.
- Zahavi, A. , and A. Zahavi . 1997. *Handicap Principle: A Missing Piece of Darwin's Puzzle*. Oxford: Oxford University Press.
- Zermelo, E. 1913. "Über eine Anwendung der Mengenlehre auf die Theorie des Schachspiels." In *Proceedings of the Fifth International Congress of Mathematicians*, edited by E. W. Hobson and A. E. H. Love , 501–504. Cambridge: Cambridge University Press.