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Evolutionary Debunking Arguments in Ethics

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Introduction

There are at least three different genealogical accounts of morality: the ontogenetic, the sociohistorical, and the evolutionary. One can thus construct, in principle, three distinct genealogical debunking arguments of morality, i.e., arguments that appeal to empirical data, or to an empirical hypothesis, about the origin of morality to undermine either its ontological foundation or the epistemic credentials of our moral beliefs. The genealogical account that has been, particularly since the early 2000s, the topic of a burgeoning line of inquiry in the metaethical literature is the one that explains the origin of moral thinking by appealing to Charles Darwin's theory of evolution through natural selection. For this reason, when it comes to genealogical debunking arguments, it is various types of evolutionary debunking argument (EDA) that are the focus of the current debate between moral skeptics and moral realists. Evolutionary moral debunkers maintain that the capacity to make moral judgments is an evolved trait—a view accepted by most of their detractors. They maintain, in addition, that such a capacity is an adaptation—i.e., a trait selected for because it enhances reproduction and survival—and not merely either a by-product of an adaptation or an evolutionary accident—a view accepted by fewer of their detractors. Roughly put, the thrust of EDAs is that biological evolution is aimed, not at moral belief-forming processes that are reliable, but at moral belief-forming processes that are adaptive. In other words, the evolutionary function of those processes is not that of tracking the moral truth: their general success at matching or accurately representing allegedly objective or attitude-independent moral facts, properties, or truths explains neither their emergence nor their persistence. Humans are therefore disposed to make moral judgments regardless of the evidence to which they are exposed, regardless of whether there are or are not objective moral facts, properties, or truths. In the contemporary scene, the most important and influential EDAs are those advanced by Richard Joyce and Sharon Street. Although Joyce's EDA is more elaborate than Street's inasmuch as it is based on a detailed evolutionary account of morality, it is Street's EDA that has received the most attention among those seeking to defend moral realism against EDAs. If an EDA can establish at most an epistemological conclusion, then it could be argued that Joyce's argument (at least the version defended in his later works) is superior to Street's given that the conclusion of the former is epistemological whereas that of the latter is ontological. Indeed, while Joyce's EDA is taken to support epistemological moral skepticism, according to which our moral beliefs are epistemically unjustified, Street's is taken to support moral anti-realism (moral constructivism in particular), according to which attitude-independent moral facts do not exist.

Overviews

Several accessible general presentations of the evolutionary account of morality, the distinct debunking arguments based thereon, and the various replies to these arguments are available. Schroeder 2001 and FitzPatrick 2008 are encyclopedia entries on evolutionary ethics in general, but only the latter offers a thorough, updated, and authoritative overview. Allhoff 2003 offers an outline of the history of evolutionary ethics from its beginnings to the second part of the 21st century. Machery and Mallon 2010 provides a clear presentation and a critical examination of the different versions of the claim that morality is a product of biological evolution. Vavova 2015 and especially Wielenberg 2016 provide fine overviews of the contemporary metaethical discussion of evolutionary debunking arguments (EDAs).

Allhoff, Fritz. "Evolutionary Ethics from Darwin to Moore." *History and Philosophy of the Life Sciences* **25.1 (2003): 51–79.**

After dividing the history of evolutionary ethics into three stages, namely, development, criticism and abandonment, and revival, Allhoff focuses on the first two stages on the grounds that they are those regarding which the philosophical merits have already been largely

decided.

FitzPatrick, William. "Morality and Evolutionary Biology." In *Stanford Encyclopedia of Philosophy*. Edited by Edward N. Zalta. Stanford, CA: Stanford University, 2008.

Updated in 2014, this entry provides (*i*) an overview of the basic issues and distinctions in evolutionary ethics, and offers a critical examination of (*ii*) descriptive evolutionary ethics, (*iii*) the connection between evolutionary biology and normative ethics, and (*iv*) evolutionary metaethics, taking into account the main EDAs advanced in the literature and the replies thereto.

Machery, Edouard, and Ron Mallon. "Evolution of Morality." In *The Moral Psychology Handbook*. Edited by J. Doris and the Moral Psychology Research Group, 3–46. Oxford: Oxford University Press, 2010.

Distinguishes three versions of the claim that morality is a product of biological evolution—what has evolved are some components of moral psychology, or normative cognition in general, or moral cognition in particular—and critically reviews the empirical evidence in support of each one of them.

Schroeder, Doris. "Evolutionary Ethics." In *Internet Encyclopedia of Philosophy*. Edited by J. Fieser. Martin: University of Tennessee, 2001.

Presents some of the key figures and concepts in evolutionary ethics, its contribution to the different areas of ethics, and some of the challenges it faces. The entry is excessively brief and has not been updated since its first publication in 2001, which means that it does not take account of the vast body of literature on the evolutionary debunking of morality published in the last fifteen years.

Vavova, Katia. "Evolutionary Debunking of Moral Realism." *Philosophy Compass* 10.2 (2015): 104–116.

Distinguishes three different EDAs implicit in the literature and claims that only one of them appeals to evolution in a way that prevents the argument from collapsing into a more general skeptical argument. It also considers several objections to that evolutionary argument, which are found deficient, and proposes an allegedly promising rescue for moral realism.

Wielenberg, Erik. "Ethics and Evolutionary Theory." *Analysis* 76.4 (2016): 502–515.

Presents the EDAs advanced by Richard Joyce and Sharon Street, examines the various ways in which these EDAs have been interpreted in the literature and the main responses that have been offered to them, and identifies some new issues for future research.

The Evolution of Morality

Current discussion of arguments for and against the evolutionary debunking of morality rests at least to a considerable extent on studies on the (alleged) evolutionary origin of our capacity to experience moral emotions and make moral judgments. Darwin 2009 (originally published in 1871), Spencer 2012 (originally published in 1883), and Huxley 2009 (originally published in 1893) provide the first evolutionary accounts of morality. De Waal 1997 addresses the evolution of morality by comparing human behavior with that of other animals. From the viewpoint of metaethics, while Joyce 2001 and Joyce 2006 offer an evolutionary account of morality in connection with various forms of moral skepticism, Joyce 2014 discusses the evolutionary origin of morality in its own terms, emphasizing some of the difficulties in resolving certain current debates. Krebs 2005 offers a useful survey of the evidence in favor of the view that human morality is a biological adaptation. Mackie 1977 refers to evolution in connection with moral error theory as a possible explanation of the origins of our moral sentiments and dispositions. And Mackie 1982 claims that morality can be seen as an outgrowth from genetically determined retributive (particularly, hostile retributive) tendencies that were favored by evolutionary selection. The reason for including works by Mackie, a highly influential contemporary moral skeptic, is that this article is concerned with the appeal to evolution in the context of skepticism about morality.

Darwin, Charles. *The Descent of Man, and Selection in Relation to Sex*. 2 vols. Cambridge, UK: Cambridge University Press, 2009.

This work is the first to provide a substantial evolutionary account of the origin of the moral sense. It argues that, given that our evolutionary history accounts for the moral beliefs we form, if it had been different, then we would believe different things to be right or wrong. Originally published in 1871 (London: John Murray).

de Waal, Frans. *Good Natured: The Origins of Right and Wrong in Humans and Other Animals*. Cambridge, MA: Harvard University Press, 1997.

This renowned primatologist argues that some aspects of human morality, such as cooperation, empathy, and observance of social rules, can be observed in other mammals, and hence that human moral behavior is to be explained as a result of biological evolution.

Huxley, Thomas H. *Evolution and Ethics*. Cambridge, UK: Cambridge University Press, 2009.

Huxley claims that, although both moral and immoral sentiments are the product of natural selection, ethics is an autonomous domain inasmuch as evolution by itself provides no reason for preferring the former to the latter. Huxley also remarks that the moral progress of society depends on combating the negative tendencies rewarded by natural selection. Originally published in 1893 (London: Macmillan).

Joyce, Richard. *The Myth of Morality*. Cambridge, UK: Cambridge University Press, 2001.

Chapter 6 of this book offers an evolutionary account of morality in the context of a defense of a moral error-theoretic position according to which all first-order moral judgments are neither true nor false.

Joyce, Richard. *The Evolution of Morality*. Cambridge, MA: MIT, 2006.

Availing itself of results from psychology, neuroscience, biology, and anthropology, the first part of this work considers whether, in what sense, and to what extent our capacity to employ moral concepts and make moral judgments is innate. The second part examines the metaethical implications of the evolutionary hypothesis, namely, whether it vindicates or debunks morality.

Joyce, Richard. "The Origins of Moral Judgment." *Behaviour* 151 (2014): 261–278.

Examines the challenges that arise for any attempt to settle the debate between those who hold that the capacity to make moral judgments is a discrete biological adaptation and those who maintain that it is a by-product of other evolved psychological traits. [Reprinted in *Evolved Morality: The Biology and Philosophy of Human Conscience*, edited by Frans de Waal, Patricia S. Churchland, Telmo Pievani, and Stefano Parmigiani (Leiden, The Netherlands: Brill, 2014), pp. 125–142.]

Krebs, Dennis. "The Evolution of Morality." In *The Handbook of Evolutionary Psychology*. Edited by David M. Buss, 747–771. Hoboken, NJ: Wiley-Blackwell, 2005.

Explains how mechanisms that give rise to moral and immoral behaviors can evolve, and reviews evidence in favor of the view that those mechanisms have evolved through natural selection in both the human species and others.

Mackie, John Leslie. *Ethics: Inventing Right and Wrong*. Harmondsworth, UK: Penguin, 1977.

After making his case in favor of a moral error theory, Mackie briefly appeals to evolution as a possible explanation of the origin of our moral sentiments and dispositions.

Mackie, John Leslie. "Co-operation, Competition, and Moral Philosophy." In *Cooperation and Competition in Humans and Animals*. **Edited by Andrew M. Colman, 271–284. Wokingham, UK: Van Nostrand Reinhold, 1982.**

Argues that the pre-moral tendencies to care for one's offspring and close relatives, to enjoy the company of fellow members of a small group, to exhibit reciprocal altruism, and to display kindly and hostile retribution are to be ascribed to biological evolution.

Spencer, Herbert. *The Data of Ethics*. **New York: Cambridge University Press, 2012.**

Spencer maintains that, since natural selection, when it works without interference, improves the quality of the species by allowing the survival of the fittest, then the morally good behavior is the relatively more evolved and the morally bad behavior is the relatively less evolved. Originally published in 1883 (New York: Appleton).

Radical Evolutionary Moral Debunkers

Among authors advancing EDAs, one can distinguish between radical and moderate evolutionary moral debunkers. The former target moral realism in general, of both a naturalist and a non-naturalist stripe. Ruse 1986 is an early attempt to undermine morality on the basis of an evolutionary account. The two most important recent evolutionary debunkers of morality are Richard Joyce and Sharon Street. Joyce 2001 and Joyce 2006 offer arguments for the hypothesis that the formation of beliefs about objective moral rightness and wrongness may have served to enhance our ancestors' reproductive fitness independently of whether there existed any moral properties or facts. Our moral judgments are the product of a process whose function is not to track the truth. While Joyce 2001 uses an EDA mainly as a supplement to his arguments for a moral error theory and Joyce 2013 examines the prospects of an EDA that alone grounds such an error-theoretic view, Joyce 2006 and Joyce 2016 appeal to an EDA to establish an epistemological skepticism. Joyce 2013 and Joyce 2016 also claim that EDAs place the burden of proof on the moral realist defending the justification of our moral judgments inasmuch as EDAs present a new plausible hypothesis about the origin and epistemic status of those judgments. Street 2006 argues that evolutionary considerations pose a "Darwinian dilemma" for realist theories of value: the fact that the forces of natural selection have greatly shaped the content of our evaluative judgments raises the challenge to explain the relation between such evolutionary influences and the independent evaluative facts posited by the realist. Ruse 1986 and Street 2006 offer EDAs that purport to establish ontological conclusions: while Ruse takes his EDA to support moral error theory, Street takes her EDA to support value anti-realism, in particular moral constructivism. Gibbard 1990, written by a prominent moral expressivist, argues that normative judgments have evolved only for the sake of coordination, and also draws an ontological conclusion. Kitcher 2006 takes the evolutionary account of morality to support moral non-cognitivism. While Joyce 2001 seems to hesitate between an ontological and an epistemological conclusion, Joyce 2006, Joyce 2013, and Joyce 2016 are clear that the conclusion of an EDA can only be epistemological. Fraser 2014 maintains that those who deny that EDAs establish the unreliability of our moral faculty fail to engage with relevant empirical issues. In a similar vein, Braddock 2016 defends the evolutionary debunking of morality on the basis of empirical considerations. Both Fraser 2014 and Braddock 2016 are concerned with epistemological EDAs.

Braddock, Matthew. "Evolutionary Debunking: Can Moral Realists Explain the Reliability of Our Moral Judgments?" *Philosophical Psychology* **29.6 (2016): 844–857.**

Drawing from work in moral psychology and the evolutionary and social sciences, Braddock argues that there are empirical grounds for maintaining that moral realists have not met—and moreover cannot meet—the challenge to explain the reliability of our moral judgments given their evolutionary sources.

Fraser, Benjamin. "Evolutionary Debunking Arguments and the Reliability of Moral Cognition." *Philosophical Studies* **168.2 (2014): 457–473.**

Fraser claims that there are four conditions that must be met by an evolved cognitive faculty for it to be reliable, and argues that so far no convincing case has been made that our evolved faculty for moral judgment meets those conditions, and that there is even some reason to think that it may not meet them.

Gibbard, Alan. *Wise Choices, Apt Feelings: A Theory of Normative Judgment*. Cambridge, MA: Harvard University Press, 1990.

Gibbard argues that it is gratuitous to suppose that there exist normative (and hence moral) facts because our making the normative (and hence moral) judgments we make is to be explained exclusively by the rewards of coordination.

Joyce, Richard. *The Myth of Morality*. Cambridge, UK: Cambridge University Press, 2001.

In chapter 6, Joyce appeals to the evolutionary account of morality to complement his arguments for moral error theory, but he also makes the further stronger claim that the fact that moral thinking is a naturally evolved trait has error theoretical implications or provides evidence in favor of error theory.

Joyce, Richard. *The Evolution of Morality*. Cambridge, MA: MIT, 2006.

Chapter 6 maintains that accepting the hypothesis that our tendency to make moral judgments is the product of biological natural selection leads to an epistemological skepticism: our moral beliefs are, not false, but epistemically unjustified.

Joyce, Richard. "Irrealism and the Genealogy of Morals." *Ratio* 26.4 (2013): 351–372.

Joyce explores the prospects both for an EDA that establishes a moral error theory and for an evolutionary debunking argument against non-cognitivism.

Joyce, Richard. "Evolution, Truth-Tracking, and Moral Skepticism." In *Essays in Moral Skepticism*. By Richard Joyce, 142–158. Oxford: Oxford University Press, 2016.

After examining the different EDAs advanced in the literature and some of the anti-skeptical replies to them, this article maintains that the evolutionary nativist hypothesis undermines the epistemic justification of our moral judgments inasmuch as they would be the output of a non-truth-tracking process.

Kitcher, Philip. "Biology and Ethics." In *The Oxford Handbook of Ethical Theory*. Edited by David Copp, 163–185. New York: Oxford University Press, 2006.

Conjectures that humans first evolved a capacity for normative guidance that served the function of promoting social cohesion via the extension of our psychological altruistic dispositions, and that a later process of cultural evolution led to the social norms with which we are familiar. Given that the notion of moral truth plays no role in such a conjectural account of the genealogy of morality, this account lends support to non-cognitivism.

Ruse, Michael. *Taking Darwin Seriously*. Oxford: Blackwell, 1986.

Objective moral facts are not needed to explain our beliefs about right and wrong inasmuch as we would form those beliefs irrespective of whether or not such facts existed. Morality is nothing but a collective adaptive illusion that has been foisted on us by our genes, and it has no ontological foundation out there in the world.

Street, Sharon. "A Darwinian Dilemma for Realist Theories of Value." *Philosophical Studies* 127.1 (2006): 109–166.

The fact that the forces of natural selection have had a tremendous indirect influence on the content of our evaluative judgments raises the challenge to explain the relation between such evolutionary influences and the independent evaluative facts posited by the normative realist. The normative realist then faces a dilemma: either he is forced to embrace a far-fetched moral skepticism or he must propose a scientifically unacceptable tracking account.

Moderate Evolutionary Moral Debunkers

While authors such as Joyce and Street advance EDAs whose conclusions are broad in scope, other authors (considerably) restrict the debunking extent of the evolutionary hypothesis. Parfit 1984 claims that evolutionary considerations call it into question merely those moral beliefs that are held because everyone accepts them. Greene 2008 and de Lazari-Radek and Singer 2012 maintain that such considerations undermine only non-utilitarian or non-consequentialist normative theories, a view heavily criticized in Kahane 2011, Kumar and Campbell 2012, and Kahane 2014. Bogardus 2016 constructs an EDA purported to undermine only naturalistic moral realism.

Bogardus, Tomás. "Only All Naturalists Should Worry about Only One Evolutionary Debunking Argument." *Ethics* **126.3 (2016): 636–661.**

After concluding that most of the epistemic principles on which rely the various EDAs discussed in the literature are false, the article introduces an "argument from symmetry" that poses a real menace, but only for all versions of moral naturalism, leaving non-naturalists free and clear.

de Lazari-Radek, Katarzyna, and Peter Singer. "The Objectivity of Ethics and the Unity of Practical Reason." *Ethics* **123.1 (2012): 9–31.**

The authors maintain that showing that Sidgwick's response to genealogical arguments against the objectivity of ethics is also effective against Street's recent EDA allows us to resolve the dualism of practical reason in favor of utilitarianism. For Sidgwick would remark that, whereas evolutionary considerations can undermine the moral views that give weight to rational egoism, they cannot undermine the principle of universal benevolence because its truth is intuitively grasped by reason.

Greene, Joshua. "The Secret Joke of Kant's Soul." In *Moral Psychology*. **Volume 3,** *The Neuroscience of Morality*. **Edited by Walter Sinnott-Armstrong, 35–79. Cambridge, MA: MIT, 2008.**

On the basis of an analysis of a number of moral dilemmas involving personal and impersonal harm, Greene claims that deontological judgments tend to be driven by emotional responses that were evolutionarily adaptive, and hence that deontological philosophy is primarily an exercise in rationalization. Given that deontological judgments reflect the influence of morally irrelevant factors, they are unlikely to track independent moral truths.

Kahane, Guy. "Evolutionary Debunking Arguments." *Noûs* **45.1 (2011): 103–125.**

Kahame remarks that the use of EDAs in normative ethics to undermine certain moral theories and vindicate others is incompatible with their more sweeping use in metaethics, and that even if one could resist metaethical EDAs, this would not rehabilitate their targeted or piecemeal use in normative ethics because this use considerably underestimates the extent to which evaluative belief is infected by evolutionary influences.

Kahane, Guy. "Evolution and Impartiality." *Ethics* **124.2 (2014): 327–341.**

Kahane argues that even if one grants de Lazari-Radek and Singer's claims that evolutionary considerations can explain our self-centered tendencies but that they cannot account for our belief in the principle of universal benevolence, their appeal to evolutionary debunking is ultimately self-defeating, so that utilitarians should resist the temptation to make use of EDAs to vindicate their view.

Kumar, Victor, and Richmond Campbell. "On the Normative Significance of Experimental Moral Psychology." *Philosophical Psychology* **25.3 (2012): 311–330.**

The authors hold that whereas Greene's empirical research undermines attempts to reconcile opposing judgments about trolley cases, his arguments based on that research (including the one that appeals to biological evolution) fail to debunk deontology either because they rest

on implausible and undefended normative assumptions or because they confuse these assumptions with others that are plausible but that render the arguments invalid.

Parfit, Derek. *Reasons and Persons*. Oxford: Oxford University Press, 1984.

Parfit contends that the discovery that a moral belief can be explained by natural selection undermines the belief in question only if the person holding it does so solely because everyone accepts it. For, given that the fact that everyone accepts the moral belief can be explained by natural selection without reference to its truth or falsity, its widespread acceptance provides no evidence that it is true.

Debate On Street's Darwinian Dilemma

Several authors have engaged specifically with Street's EDA. Critics of her Darwinian dilemma typically accept that biological evolution is one important influence on our moral beliefs, but they claim that it is compatible with moral realism: we can track moral truths even if our moral faculty was not selected for to do so. Copp 2008 (to which Street 2008 is a reply) holds that a version of naturalistic moral realism (society-centered moral theory) can meet the Darwinian dilemma. FitzPatrick 2014 contends that science does not actually support Street's claims about the origin of our moral beliefs. Artiga 2015 defends the plausibility of the tracking account. Graber 2012 argues that Street's dilemma actually poses a challenge to the moral anti-realist that he cannot meet, and that only the realist can explain the role of moral beliefs in our evolutionary history. While Berker 2014 claims that the two lines of argument found in Street's EDA are ineffective against moral realism, Locke 2014 maintains that the two main responses to her EDA advanced in the literature fail. Though most authors are not disposed to give up evolutionary theory if it turns out to be incompatible with moral realism, Nagel 2012 is willing to do so. While most responses to the Darwinian dilemma engage with its epistemological elements, Deem 2016 focuses on the scientific methodological criteria that Street claims are satisfied by her adaptive link account of evaluative judgment, but not by the realist's tracking account.

Artiga, Marc. "Rescuing Tracking Theories of Morality." *Philosophical Studies* 172.1 (2015): 3357–3374.

Artiga argues that the three main objections Street levels against the tracking account of the relation between moral beliefs and moral facts are flawed, and hence that moral realism can resist the Darwinian dilemma.

Berker, Selim. "Does Evolutionary Psychology Show that Normativity Is Mind-Dependent?" In *Moral Psychology and Human Agency: Philosophical Essays on the Science of Ethics*. Edited by Justin D'Arms and Daniel Jacobson, 215–252. Oxford: Oxford University Press, 2014.

Berker claims that there are two independent lines of argument in Street's Darwinian dilemma. While the first appeals to evolutionary considerations, the second raises the old problem of how to justify our reliance on our most basic cognitive faculties without non-question beggingly relying on them. Neither line of argument shows that normative realism is to be rejected.

Copp, David. "Darwinian Skepticism about Moral Realism." *Philosophical Issues* 18.1 (2008): 186–206.

Objectively right actions are those that conform to a society's authoritative moral codes, which are those that best enable it to meet its needs, such as needs for social stability, peacefulness, and cooperation. Given that such actions are among those that were adaptive for our ancestors, it is not sheer luck that many adaptive behaviors are morally right.

Deem, Michael. "Dehorning the Darwinian Dilemma for Normative Realism." *Biology & Philosophy* 31.5 (2016): 727–746.

Deem maintains that Street's adaptive link account of evaluative judgment fails to satisfy the scientific criteria of clarity and illumination of the *explanandum*, and that the criterion of ontological parsimony does not weigh against a conjunction of normative realism and a by-product account according to which the capacity for evaluative judgment was not an adaptation, but rather an incidental effect of cognitive mechanisms that were fashioned by natural selection.

FitzPatrick, William. "Why There Is No Darwinian Dilemma for Ethical Realism." In *Challenges to Moral and Religious Belief: Disagreement and Evolution*. **Edited by Michael Bergmann and Patrick Kain, 237–255. Oxford: Oxford University Press, 2014.**

FitzPatrick claims that, even though the moral debunker presents his explanatory claims about the etiology of our moral beliefs as if they were scientific results, they are not supported by actual science unless it is supplemented with philosophical claims that are question-begging against moral realism.

Graber, Abraham. "Medusa's Gaze Reflected: A Darwinian Dilemma for Anti-realist Theories of Value." *Ethical Theory and Moral Practice* **15.5 (2012): 589–601.**

Our disposition to make evaluative judgments will be fitness enhancing only if they track an appropriate set of properties. Whereas given the current state of empirical research the anti-realist is unable to identify a set of non-normative properties as the relevant set, the realist offers an explanation of such a disposition: we have been selected to make true evaluative judgments because, by so doing, we are responsive to a set of supervenient normative properties.

Locke, Dustin. "Darwinian Normative Skepticism." In *Challenges to Moral and Religious Belief: Disagreement and Evolution*. **Edited by Michael Bergmann and Patrick Kain, 220–236. Oxford: Oxford University Press, 2014.**

Locke considers two responses to Street's evolutionary argument—the naturalist response and what he calls the "minimalist" response but is commonly known as the "third-factor" response—and concludes that neither succeeds.

Nagel, Thomas. *Mind and Cosmos*. **Oxford: Oxford University Press, 2012.**

Nagel maintains that whereas Street concludes that moral realism is false because the evolutionary account of moral judgment is supported by science, one should follow the opposite direction: given that moral realism is true, one must conclude that the evolutionary account is false despite the scientific consensus in its favor.

Street, Sharon. "Reply to Copp: Naturalism, Normativity, and the Varieties of Realism Worth Worrying about." *Philosophical Issues* **18.1 (2008): 207–228.**

Maintains that Copp's society-centered moral theory, and naturalistic versions of moral realism in general, face a problem: either they fall victim to the Darwinian dilemma by making normative claims or else they escape it, but only at the expense of failing to vindicate the objective bindingness of morality.

Debate On Joyce's EDA

As noted in the Introduction, it is Sharon Street's Darwinian dilemma that has been the main focus of discussion in the metaethical literature. However, some discussion specifically of Joyce's EDA has also taken place. Carruthers and James 2008 argues that a certain type of moral constructivism can successfully provide an answer to that argument inasmuch it is fully consistent with an evolutionary account of the origins of morality. Toner 2011 maintains that certain moralities can co-opt our evolved moral sense so as to make possible moral judgments that track the moral truth. Braddock 2017 raises some epistemological objections to Joyce's EDA.

Braddock, Matthew. "Debunking Arguments from Insensitivity." *International Journal for the Study of Skepticism* **7.2 (2017): 91–113.**

Braddock argues that Joyce's EDA faces a number of epistemological difficulties that determine that the type of insensitivity to which the argument appeals is not a sufficient condition for the defeat of justification. The author also develops and defends a new debunking

argument from insensitivity.

Carruthers, Peter, and Scott James. "Evolution and the Possibility of Moral Realism." *Philosophy and Phenomenological Research* **77.1 (2008): 237–244.**

Joyce's EDA undermines the warrant for our moral beliefs only temporarily, since, if we accept an independently motivated account of moral truth, then the warrant for some of them can be restored by showing that they are entailed by that account. The correct account of moral truth will be provided by a realist and naturalistic form of moral constructivism, for there seems to be an innate disposition to engage in constructivist reasoning.

Toner, Christopher. "Evolution, Naturalism, and the Worthwhile: A Critique of Richard Joyce's Evolutionary Debunking of Morality." *Metaphilosophy* **42.4 (2011): 520–546.**

Toner maintains that, even if the moral sense is an innate biological adaptation, certain developed moralities, such as Aristotelian eudaimonism, can reflectively co-opt it into new functions so that the resulting modified and enriched moral judgments can transcend the evolutionary process and non-accidentally track moral facts. Hence, a non-moral genealogy does not account for all the ways the moral sense may function or for all our moral judgments.

Responses to EDAs

The various responses to EDAs against moral realism can be divided into at least five categories. Of course, most of the works cited in the previous two sections are responses to EDAs, but those to be mentioned in what follows fall more clearly under one of the five categories in question. In addition, this layout makes it possible to take account of as many relevant works as possible, given that each (sub)section may include up to ten citations. This also explains why some of the works bearing on the debate on Street's EDA cited below have not been included in the section devoted to that debate. It should finally be noted that, together with the works that offer responses to EDAs, this section will also consider those that critically engage with such responses.

Third-Factor Views

What are commonly called "third-factor" responses to EDAs maintain that there is a factor that correlates with both our moral beliefs and the objective moral truths, and that therefore explains their correlation with each other even though the objective moral truths do not account for (are not the cause of) our having the moral beliefs we have. In other words, as a matter of fact our moral beliefs track the objective moral truths even if we did not evolve to track them. Third-factor responses vindicate only some moral belief and, taking it as a starting point, attempt to vindicate other moral beliefs by means of deliberation, reflection, or reasoning. Proponents of such responses typically claim that these do not provide new evidence for the truth or the epistemic justification of our moral beliefs, but rather show that the empirical considerations appealed to in EDAs do not actually provide undercutting defeaters for those beliefs—i.e., reasons that undermine the connection between one's moral beliefs and the original evidence for those beliefs. The best-known version of a third-factor response is probably that defended in Enoch 2011, which claims that the third factor is the fact that survival or reproductive success is by and large good. Those actions that promote survival are believed to be good because they are adaptive and they are in line with the objective moral truths because survival is good. For Copp 2008, the third factor is the fact that certain actions conform to a society's authoritative moral codes; for Wielenberg 2010 and Wielenberg 2014, certain cognitive faculties we possess; for Brosnan 2011, cooperation with others; for Skarsaune 2011, the fact that pleasure is usually good and pain usually bad; for Talbott 2015, "egalitarian satisficing." Proponents of third-factor responses normally claim that these responses are not question-begging because the evolutionary debunker assumes for the sake of argument that moral realism is true and hence that objective moral facts exist. Those responses can therefore assume specific moral facts and explain how our moral beliefs can reliably and non-accidentally correlate with them. But note that taking for granted for the sake of argument the existence of such facts neither amounts to nor implies that specific moral facts exist or that specific moral beliefs are true. That is to say, the moral debunker provisionally concedes the truth of a general metaethical claim, not the truth of specific first-order moral claims, such as those made by proponents of third-factor responses. What epistemological EDAs call into question is precisely that we can have first-order knowledge or epistemically justified first-order beliefs about the objective moral facts posited by the moral realist. Shafer-

Landau 2012 and Crow 2016 contend that third-factor views are circular, question-begging, or illicit, while Braddock 2016 maintains that they lack empirical support.

Braddock, Matthew. "Evolutionary Debunking: Can Moral Realists Explain the Reliability of Our Moral Judgments?" *Philosophical Psychology* **29.6 (2016): 844–857.**

Braddock argues that the third-factor views of Copp 2008 and Enoch 2011 rely on the pivotal epistemic claim that the evolutionary processes leading to our starting commonsense moral judgments are sufficiently reliable, but that there are strong empirical reasons for contesting the likelihood of such processes leading us to form those judgments rather than their alternatives. As a result, we should suspend judgment about the reliability of those evolution-shaped processes.

Brosnan, Kevin. "Do the Evolutionary Origins of Our Moral Beliefs Undermine Moral Knowledge?" *Biology & Philosophy* **26.1 (2011): 51–64.**

Cooperative behavior has two effects: it promotes both fitness and well-being. While the former effect explains why the belief that cooperation is morally good was favored by natural selection, the latter explains why cooperation is in fact morally good inasmuch as well-being is (assumed to be) morally good.

Copp, David. "Darwinian Skepticism about Moral Realism." *Philosophical Issues* **18.1 (2008): 186–206.**

Assuming that right actions are those that conform to a society's authoritative moral codes, Copp argues that, given that such actions are among those that were adaptive for our ancestors, then many adaptive behaviors are non-accidentally morally right, even though this was not the reason why they were fitness enhancing, and hence why they were selected for.

Crow, Daniel. "Causal Impotence and Evolutionary Influence: Epistemological Challenges for Non-naturalism." *Ethical Theory and Moral Practice* **19.2 (2016): 379–395.**

Crow maintains that third-factor explanations make an illicit appeal to first-order moral beliefs: if the evolutionary account conceded by the proponent of a third-factor explanation is correct, then most of our moral beliefs, including the one assumed in the explanation, have been selected only for their fitness-enhancing effects and with no regard for the truth, in which case we should not believe that any of those beliefs corresponds with the moral facts.

Enoch, David. *Taking Morality Seriously: A Defense of Robust Realism*. **Oxford: Oxford University Press, 2011.**

Enoch argues that, given that survival or reproductive success is on the whole good in the sense that it is an aim recommended by normative truths, and given that selective forces have shaped our normative beliefs so as to achieve survival or reproductive success, our normative beliefs have developed to be somewhat in line with the normative truths.

Shafer-Landau, Russ. "Evolutionary Debunking, Moral Realism, and Moral Knowledge." *Journal of Ethics & Social Philosophy* **7.1 (2012): 1–38.**

The success of third-factor responses—also called here "indirect tracking hypotheses"—depends on the truth of a substantive moral claim, which the realist is not entitled to make. For, if he is as yet unsure of the soundness of the EDA, then he is uncertain of the reliability of our moral faculties, in which case he cannot appeal to moral beliefs generated by those faculties to bolster our confidence in them.

Skarsaune, Knut. "Darwin and Moral Realism: Survival of the Iffiest." *Philosophical Studies* **152.2 (2011): 229–243.**

If we assume that pleasure is usually good and pain is usually bad, then there is a truth-conducive relation between evolutionary pressures and independent evaluative facts. The reason is that evolution selected for individuals who took pleasure in activities and states of affairs

that were reproductively beneficial and who believed such pleasurable activities and states of affairs to be good. The same applies, *mutatis mutandis*, to the case of pain.

Talbott, William. "How Could A 'Blind' Evolutionary Process Have Made Human Moral Beliefs Sensitive to Strongly Universal, Objective Moral Standards?" *Biology & Philosophy* **30.5 (2015): 691–708.**

Moral judgments about particular cases are probabilistically sensitive to causally inert, universal, and objective moral standards thanks to a benign (albeit imperfect) correlation: egalitarian satisficing, i.e., the tendency to be satisfied with what each member of a group gets. This tendency was selected for because of its ability to solve gene-propagation collective action problems and it correlates with the objective moral standards of cooperation and fair division of the benefits and burdens of cooperation.

Wielenberg, Erik. "On the Evolutionary Debunking of Morality." *Ethics* **120.3 (2010): 441–464.**

Assuming that we have moral rights, the author argues that, given that such rights supervene on our evolved cognitive capacities—so that the presence of the former is guaranteed by that of the latter—and given that these capacities allow us to grasp the concept of moral rights and to form the belief that we have such rights, then this true belief is produced by a reliable process.

Wielenberg, Erik. *Robust Ethics: The Metaphysics and Epistemology of Godless Normative Realism*. **New York: Oxford University Press, 2014.**

Offers the same third-factor response as Wielenberg 2010, but in more detail and in the context of a larger defense of robust moral realism, according to which there are moral facts that are objective, non-natural, irreducibly normative, and causally inert.

Moral Truths Can Explain Our Moral Beliefs

Third-factor responses to EDAs either agree or concede for the sake of argument that moral truths or facts play no role in explaining the correlation between them and our moral beliefs, and that our having these beliefs is to be explained by non-truth-tracking selection pressures. Other responses, by contrast, defend our ability to reliably track moral truths or facts, while recognizing the influence of evolutionary forces on either our moral capacities or the content of our moral beliefs. Levy 2010 responds to EDAs by focusing on the transformation of our inherited proto-morality effected by our evolved cognitive abilities; Brosnan 2011, Shafer-Landau 2012, and FitzPatrick 2015 by emphasizing the role of culture and systematic reflection in reliably tracking moral truths; Deem 2016 by claiming that grasping normative (and hence moral) truths is a by-product of adaptive cognitive mechanisms; and Mogensen 2015 by appealing to the biological distinction between proximate and ultimate causes. Severini 2016 and FitzPatrick 2017 both reject Mogensen's response to EDAs, but whereas Severini believes that moral realism is undermined by such arguments, FitzPatrick thinks it is not.

Brosnan, Kevin. "Do the Evolutionary Origins of Our Moral Beliefs Undermine Moral Knowledge?" *Biology & Philosophy* **26.1 (2011): 51–64.**

Brosnan maintains that, even if the evolutionary origins of our moral beliefs have corrosive effects on their epistemic credentials, a process of rational reflection aimed at moral progress can restore those credentials.

Deem, Michael. "Dehorning the Darwinian Dilemma for Normative Realism." *Biology & Philosophy* **31.5 (2016): 727–746.**

Humans grasp objective normative truths and make true evaluative judgments because the cognitive mechanisms necessary to do so were adaptive. However, grasping such truths and making such judgments were not the functions, but rather the by-products or incidental effects, of those mechanisms, which were selected for to perform specific fitness-enhancing biological functions.

FitzPatrick, William. "Debunking Evolutionary Debunking of Ethical Realism." *Philosophical Studies* 172.4 (2015): 883–904.

FitzPatrick argues that our evolved cognitive capacities have been refined in cultural contexts so as to make them non-accidentally and reliably truth tracking; and that science only shows that evolution has (partially) shaped some of our current moral beliefs, which leaves open the possibility that many others have been (entirely) shaped by critical reflection that has allowed us to apprehend objective moral truths by recognizing the reasons why certain actions are right or wrong.

FitzPatrick, William. "Misidentifying the Evolutionary Debunker's Error: Reply to Mogensen." *Analysis* 76.4 (2017): 433–437.

The author maintains, against Mogensen, that evolutionary moral debunkers neither confuse ultimate and proximate causes of moral beliefs nor take ultimate causal explanations to preclude proximate ones. For evolutionary moral debunkers contend that evolutionary explanations for those beliefs appeal at both the ultimate and the proximate level to causal factors that have nothing to do with tracking moral facts.

Levy, Neil. "The Prospects for Evolutionary Ethics Today." *EurAmerica* 40.3 (2010): 529–571.

Even though morality has its origin in a set of evolved proto-moral dispositions that were fitness enhancing, it is actually the result of a thoroughgoing transformation of those dispositions by our evolved cognitive capacities so as to bring them into some sort of reflective equilibrium and make them answer to the concept of morality shared by most philosophers and by common sense.

Mogensen, Andreas. "Evolutionary Debunking Arguments and the Proximate/Ultimate Distinction." *Analysis* 75.2 (2015): 196–203.

Mogensen claims that, given that proximate and ultimate causes are not competing but complementary, the fact that evolutionary forces are ultimate causes of our moral beliefs does not entail that moral facts are not proximate causes of those beliefs, and hence that moral facts do not play any role in explaining why we have the moral beliefs we have.

Severini, Eleonora. "Evolutionary Debunking Arguments and the Moral Niche." *Philosophia* 44.3 (2016): 865–875.

Severini contends that Mogensen's response to EDAs misconceives the biological distinction between proximate and ultimate causes, and that if these two kinds of causes are properly understood to be complementary, even to the point of being hardly distinguishable, then such a distinction cannot be used to undermine EDAs.

Shafer-Landau, Russ. "Evolutionary Debunking, Moral Realism, and Moral Knowledge." *Journal of Ethics & Social Philosophy* 7.1 (2012): 1–38.

Given that evolutionary moral debunkers have failed to show that evolutionary forces have had a thoroughgoing distorting influence on our moral beliefs or our moral faculties, it is possible that we have been able to recognize and compensate for evolutionary distortions by critically assessing the evidence for moral claims.

Contesting the Influence of Evolution

The previous two types of response to EDAs accept that evolutionary forces have entirely or considerably shaped the content of our moral beliefs. A third type of response, by contrast, calls into question the very claim that there is such an (all-embracing) influence. Machery and Mallon 2010 argues that the available empirical evidence does not establish that the capacity to make moral judgments is the product of biological evolution, and hence provides no support for the view that the authority of moral norms is undermined by the evolution of morality. Parfit 2011 maintains that there is no strong evidence for the view that biological evolution had a tremendous influence on our normative beliefs. Huemer 2016 makes a historico-empirical case against the view that all moral beliefs can be regarded as evolutionary adaptations. Mogensen 2016 appeals to the philosophy of biology to call into question the view that natural selection can explain the moral

beliefs of individuals. Hanson 2017 contests the influence of evolution by distinguishing between predicative and quantificational readings of the claim that natural selection has shaped our moral beliefs.

Hanson, Louise. "The Real Problem with Evolutionary Debunking Arguments." *The Philosophical Quarterly* **67.268 (2017): 508–533.**

The claim that our moral beliefs have been shaped by natural selection can mean either that natural selection is the process by which individuals have formed their moral beliefs or that natural selection has made it the case that individuals with these moral beliefs, rather than individuals with other moral beliefs, exist. While the latter reading is plausibly true but epistemically irrelevant, the former would be epistemically worrying but is false.

Huemer, Michael. "A Liberal Realist Answer to Debunking Skeptics: The Empirical Case for Realism." *Philosophical Studies* **173.7 (2016): 1983–2010.**

Huemer argues that consideration of empirical data concerning the development of moral values over the course of human history shows that there is a general convergence on liberalism, which cannot be accounted for by moral debunkers of any stripe and is best explained by the fact that the central moral claims of liberalism are true in an objective, realistic sense.

Machery, Edouard, and Ron Mallon. "Evolution of Morality." In *The Moral Psychology Handbook*. **Edited by John M. Doris and the Moral Psychology Research Group, 3–46. Oxford: Oxford University Press, 2010.**

Whereas two versions of the claim that morality is the product of evolution are empirically supported but are of little philosophical significance inasmuch as no moral consequences follow from them, a third version, according to which the capacities to grasp moral norms and to make moral judgments evolved, is of real philosophical interest but is empirically unsupported. Such capacities involve various evolved cognitive traits, but they themselves are not the product of evolution.

Mogensen, Andreas. "Do Evolutionary Debunking Arguments Rest on a Mistake about Evolutionary Explanations?" *Philosophical Studies* **173.7 (2016): 1799–1817.**

Mogensen holds that a prominent view in the philosophy of biology, according to which natural selection cannot explain the traits of individuals, undermines the view of those who maintain that facts about natural selection provide debunking explanations for certain moral beliefs of individuals. The author also claims that debunking arguments based on an evolutionary explanation in terms of phylogeny rather than selection might fare better.

Parfit, Derek. *On What Matters*. **Vol. 2. Oxford: Oxford University Press, 2011.**

There is no strong evidence for, but rather much evidence against, the view that our moral beliefs are the product of evolution. If those beliefs were mostly produced by evolutionary forces, we would expect people to have reproductively advantageous beliefs. However, most people do not believe, e.g., that they have a duty to have and raise as many surviving children as they can and that deciding not to have children is wrong.

EDAs Debunk Too Much

A fourth group of responses to EDAs holds that, if these arguments were sound, their conclusions would extend either beyond their intended moral target or beyond the field of ethics. Tropman 2014 argues that Street's EDA also undermines the latter's moral constructivism. Clarke-Doane 2012 claims that EDAs would also undermine mathematical beliefs. Shafer-Landau 2012, Vavova 2014, and Das 2016 maintain that they would lead to a more general, even global, skepticism. It should be noted that, if it is the case that EDAs lead to such skepticism, then this fourth type of response raises a serious challenge to evolutionary moral debunkers *provided that* they reject a more radical form of skepticism or *provided that* such skepticism is shown to be indefensible. Even though as a matter of fact most

evolutionary moral debunkers restrict their evolutionary debunking to the moral domain, it should be noted that the type of response in question does not prove the untenability of evolution-based moral skepticism if the proponents of that response merely take for granted, rather than establish, the indefensibility or absurdity of radical skepticism. It might be argued that the evolutionary moral debunker intends to undermine a particular set of beliefs on the basis of what is deemed to be good scientific evidence. But note that a more radical skeptic who proceeds piecemeal and who wants at some point to call into question specifically our moral beliefs may appeal to such evidence in an *ad hominem* manner, and hence without being himself committed to regarding it as good or reliable.

Clarke-Doane, Justin. "Morality and Mathematics: The Evolutionary Challenge." *Ethics* **122.2 (2012): 313–340.**

Clark-Doane claims that the epistemological challenge for moral realism generalizes to the extent that it also represents a challenge for mathematical realism.

Das, Ramon. "Evolutionary Debunking of Morality: Epistemological or Metaphysical?" *Philosophical Studies* **173.2 (2016): 417–435.**

In addition to arguing that the debunking force of the main EDAs advanced in the literature derives primarily from metaphysical assumptions about morality or moral truth rather than from epistemological worries concerning our evolutionary history, Das maintains that those EDAs face a dilemma: either they find no application anywhere or they apply everywhere, debunking also our knowledge of science and the external world.

Shafer-Landau, Russ. "Evolutionary Debunking, Moral Realism, and Moral Knowledge." *Journal of Ethics & Social Philosophy* **7.1 (2012): 1–38.**

The author claims that some EDAs would lead us to wholesale skepticism, which is deeply problematic assuming that such skepticism is erroneous and assuming that evolutionary debunkers purport to identify something especially worrisome about morality.

Tropman, Elizabeth. "Evolutionary Debunking Arguments: Moral Realism, Constructivism, and Explaining Moral Knowledge." *Philosophical Explorations* **17.2 (2014): 126–140.**

Tropman maintains that, although certain forms of moral constructivism are commonly taken to have the epistemological advantage of being immune from the EDAs directed against moral realism, moral constructivists are nonetheless vulnerable to them and fare worse than moral realists when trying to defend the possibility of moral knowledge from those arguments.

Vavova, Katia. "Debunking Evolutionary Debunking." *Oxford Studies in Metaethics* **9 (2014): 76–101.**

There are two ways of interpreting the debunker's challenge: as resting on a distinctly empirical claim or as focusing on a striking coincidence. While the first version of the challenge provides no good reason to think that our evaluative beliefs are mistaken, the second is compelling but collapses into a general skeptical argument, thereby entailing a skepticism that is far more pervasive than the debunker ever intended.

Moral Fixed Points

One of the horns of Sharon Street's Darwinian dilemma is that there is no relation between the influence of natural selection on our moral judgments and the stance-independent moral facts posited by the moral realist. This leads, according to Street, either to the adoption of a far-fetched moral skepticism or to the claim that an incredible coincidence took place. Shafer-Landau 2012 and particularly Cuneo and Shafer-Landau 2014 counter such a line of argument by appealing to "moral fixed points," which are conceptual moral truths that are taken to make it possible to explain the correspondence between our moral beliefs and the objective moral facts as a correlation that could not be a matter of sheer luck. Their view is a form of minimal non-naturalistic moral realism inasmuch as the moral fixed points it posits are constituted by non-natural moral concepts and inasmuch as it remains neutral on the existence of objective moral facts and properties.

Ingram 2015, Evers and Streumer 2016, and Killoren 2016 have offered replies to Cuneo and Shafer-Landau's position. Although these replies do not engage with EDAs, they are mentioned here because they identify allegedly serious problems with the moral-fixed-points argument against EDAs.

Cuneo, Terence, and Russ Shafer-Landau. "The Moral Fixed Points: New Directions for Moral Nonnaturalism." *Philosophical Studies* **171.3 (2014): 399–443.**

With a focus on EDAs, but also on moral supervenience and disagreement, Cuneo and Shafer-Landau claim that there are substantive moral propositions that are non-naturalistic conceptual truths, and hence that constitute "moral fixed points" that impose constraints on the realm of conceptually possible moral truths. Given that morality cannot therefore be about anything, it is not a surprising coincidence that our moral beliefs significantly coincide with the non-natural moral truths.

Evers, Daan, and Bart Streumer. "Are the Moral Fixed Points Conceptual Truths?." *Journal of Ethics & Social Philosophy* **10.1 (2016): 1–10.**

Moral error theorists are not conceptually deficient, as entailed by Cuneo and Shafer-Landau's view, because moral fixed points are not conceptual truths inasmuch as, e.g., the essences of the concepts *recreational slaughter of a fellow person* and *wrong* do not make it a conceptual truth that it is wrong to engage in recreational slaughter of a fellow person, but only that, if anything is wrong, then it is wrong to engage in that activity.

Ingram, Stephen. "The Moral Fixed Points: Reply to Cuneo and Shafer-Landau." *Journal of Ethics and Social Philosophy* **9.1 (2015): 1–6.**

Ingram contends that moral fixed concepts are not conceptual truths because it is not the case that those who reject them, such as moral error theorists, are conceptually deficient: they do not fail to appreciate the implications of moral concepts due to the adoption of a distorting philosophical methodology, as Cuneo and Shafer-Landau claim, since their methodology is widely used in philosophy.

Killoren, David. "Why Care about Moral Fixed Points?" *Analytic Philosophy* **57.2 (2016): 165–173.**

Killoren argues that Cuneo and Shafer-Landau's position is not a genuine form of moral non-naturalism because moral fixed points are made true by natural facts about concepts; and that their position drains morality of its normative significance because facts about the relations between concepts rarely, if ever, provide reasons to perform or not to perform an action.

Shafer-Landau, Russ. "Evolutionary Debunking, Moral Realism, and Moral Knowledge." *Journal of Ethics & Social Philosophy* **7.1 (2012): 1–38.**

Focusing on EDAs, Shafer-Landau maintains that not every possible moral proposition could be an objective moral truth. For some moral propositions are reference-fixing inasmuch as denial of (enough of) them shows that an agent is no longer talking about morality. Using moral fixed points to assess the reliability of our moral faculties is not question-begging because affirming such propositions presupposes, not the reliability of those faculties, but only minimal semantic competence with moral concepts.

Morality, Religion, Common Sense, and Mathematics

EDAs against morality have been compared to EDAs used in other areas or have been taken to pose similar challenges in other areas. Clarke-Doane 2012 claims that the evolutionary debunking challenge posed in ethics can be posed in mathematics as well. Wilkins and Griffiths 2012 and Wielenberg 2016 compare EDAs against moral beliefs with EDAs against religious beliefs or against commonsense and scientific beliefs. Crow 2016 compares Sharon Street's Darwinian dilemma for value realism with Alvin Plantinga's evolutionary argument against atheism.

Clarke-Doane, Justin. "Morality and Mathematics: The Evolutionary Challenge." *Ethics* 122.2 (2012): 313–340.

Opposing a widespread view, this article argues that the evolutionary challenge for moral realism is equally a challenge for mathematical realism, given that it is intelligible to imagine the mathematical truths being very different while our mathematical beliefs remain the same.

Crow, Daniel. "A Plantingian Pickle for a Darwinian Dilemma: The Evolutionary Debunking of Atheism and Morality." *Ratio* 29.2 (2016): 130–148.

Given that in her Darwinian dilemma for value realism Street makes epistemological commitments that ultimately support Plantinga's EDA against atheism, and given that atheism is a suppressed premise of the Darwinian dilemma, then this dilemma is internally incoherent.

Wielenberg, Erik. "Evolutionary Debunking Arguments in Religion and Morality." In *Explanation in Ethics and Mathematics: Debunking and Dispensability*. Edited by Uri D. Lebowitz and Neil Sinclair, 83–102. Oxford: Oxford University Press, 2016.

Examines together the most challenging EDAs against moral and religious beliefs on the grounds that those arguments share the same basic structure, and exposes their alleged weaknesses.

Wilkins, John, and Paul Griffiths. "Evolutionary Debunking Arguments in Three Domains: Fact, Value, and Religion." In *A New Science of Religion*. Edited by James Maclaurin and Gregory W. Dawes, 133–146. New York: Routledge, 2012.

The authors argue that, whereas it is possible to offer successful responses to EDAs against moral, commonsense, and scientific beliefs, it does not seem possible to do the same in the case of EDAs against religious beliefs.

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