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A Genealogy of Modernity and Dennett's Strange Inversion of Reasoning

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RESUMEN

Este artículo analiza la expresión de Dennett 'extraña inversión del razonamiento'. En primer lugar, se argumenta que esta expresión cubre dos conceptos relacionados que comparten un parecido de familia. En segundo lugar, se muestra que los conceptos comparten una fuente común, el Apéndice de la *Ética* de Espinosa, Libro 1. El artículo revela una suerte de genealogía de la modernidad que Dennett ha inscrito en *From Bacteria to Bach and Back*.

PALABRAS CLAVE: *Daniel Dennett; Espinosa; modernidad; genealogía; extraña inversión del razonamiento; epistemología histórica.*

ABSTRACT

This paper analyzes Dennett's term 'strange inversion of reasoning.' First, it argues this term covers two related concepts, which share a family resemblance. Second, it shows the concepts share a common source, the Appendix of Spinoza's *Ethics*, Book 1. The paper reveals a kind of genealogy of modernity that Dennett has inscribed in *From Bacteria to Bach and Back*.

KEYWORDS: *Daniel Dennett; Spinoza; Modernity; Genealogy; Strange Inversion of Reasoning; Historical Epistemology.*

In this paper I analyze Dennett's term, 'strange inversion of reasoning.' I offer two main arguments. First, I argue this phrase covers two related concepts, which share a family resemblance. Second, I show the concepts share a common source, the Appendix of Spinoza's *Ethics*, Book 1. A byproduct of my narrative is a kind of genealogy of modernity that Dennett has inscribed in *From Bacteria to Bach and Back*. In the conclusion I offer a speculative suggestion on the significance of this genealogy for understanding the rise of modern science.

PART 1

Dennett uses the term, ‘strange inversion of reasoning,’ throughout *From Bacteria to Bach and Back Bacteria* (hereafter FBtBaB), but never defines it. But I think Dennett — perhaps with a nod to old Wittgenstein — would not find it objectionable if we infer his meaning(s) from his uses.¹ In this paper, I focus only on the ones that he associates with historical figures (that is, a sub-set of his uses): Darwin, Turing, and Hume.

Dennett is fond of quoting the following passage from a fierce critic of Darwin, Beverley:

In the theory with which we have to deal, Absolute Ignorance is the artificer; so that we may enunciate as the fundamental principle of the whole system, that, IN ORDER TO MAKE A PERFECT AND BEAUTIFUL MACHINE, IT IS NOT REQUISITE TO KNOW HOW TO MAKE IT. This proposition will be found, on careful examination, to express, in condensed form, the essential purport of the Theory, and to express in a few words all Mr. Darwin’s meaning; who, by a strange inversion of reasoning, seems to think Absolute Ignorance fully qualified to take the place of Absolute Wisdom in all the achievements of creative skill [Beverley (1868); as quoted by Dennett].

As it happens, Beverley did not invent the phrase, but that will not concern us here.² In context, Dennett quotes Beverley approvingly (although disagreeing with Beverley’s own intentions; FBtBaB: 53-4).³ Dennett endorses Beverley’s interpretation of Darwin. For example, Darwin’s strange inversion of reasoning is described and updated by Dennett as “a process with no Intelligent Designer can create intelligent designers who can then design things that permit us to understand how a process with no Intelligent Designer can create intelligent designers who can then design things” [FBtBaB: 77-78].

Second, here’s Dennett’s version of Turing’s strange inversion (in language that pays homage to Beverley): “IN ORDER TO BE A PERFECT AND BEAUTIFUL COMPUTING MACHINE, IT IS NOT REQUISITE TO KNOW WHAT ARITHMETIC IS” [FBtBaB: 55; capitals in the original].

While not denying their many differences,⁴ Dennett treats Turing and Darwin as contributing to a shared insight:

[A]// the brilliance and comprehension in the world arises ultimately out of uncomprehending competences compounded over time into ever more competent — and *hence* comprehending — systems. This is indeed a strange inversion, overthrowing the pre-Darwinian mind-first vision of

Creation with a mind-*last* vision of the eventual evolution of us, intelligent designers at long last" [FBtBaB: 57-8; emphases in original; Dennett repeats the claim on p. 75].

The idea of an uncomprehending competence is crucial to Dennett's larger argument, and very important in re-establishing the legitimacy of functional explanations in the human sciences.⁵ But that is not my present concern. Instead, let me offer a brief analysis of what Dennett means by a "strange inversion of reasoning" when discussing Darwin and Turing. It has three crucial steps, and goes something like this:

1. One may think that some basic property/structure/cause X is required for the explanation of observed properties Y.
2. Where X's exhibit (at least) some intelligence/mindedness/ intentionality and Ys typically do not.
3. But in reality, properties Y are needed to explain X.

In cases where Y is a living organism (or mind, etc.), one must rewrite 2 as follows:

- 2*. Where X's exhibit more intelligence/mindedness/intentionality than Ys do.

These two variants capture the canonical version of the term, 'strange inversion of reasoning' in Dennett.⁶ This schema, does not originate with Darwin. But is already visible in Spinoza's famous attack on final causes:⁷

I shall, however, add this, this doctrine concerning the end [final cause] turns Nature completely upside down. For what is really a cause, it considers as an effect, and conversely:⁸ What is by nature prior, it makes posterior. And finally, what is supreme and most perfect it makes imperfect [Spinoza, *Ethics*, Appendix 1].⁹

In fact, without offering the theory of natural selection,¹⁰ Spinoza does go on to anticipate (a non-selectionist version of) Darwin's 'strange inversion of reasoning' in the same Appendix: "when they see the structure of the human body, they are struck by foolish wonder; and because they do not know the causes of so great an art, they infer it has been constructed, not by mechanical, but by divine, or supernatural art."¹¹

PART II

In this section I analyze Dennett's treatment of Hume's strange inversion of reasoning. I quote:

Seeing A, we are wired to expect B, and then when B happens — this is Hume's master stroke — we misattribute our perceptual reaction to some external cause that we are somehow directly experiencing...In fact, we are succumbing to a benign user-illusion, misinterpreting our fulfilled expectation of an ensuing B as somehow coming from the outer world. This is, as Hume says, a special case of the mind's "great propensity to spread itself on external objects" [1739, I:xiv]. The "customary transition" in our minds is the source of our sense of causation, a quality of "perceptions, not of objects," and, as he notes, "the contrary notion is so riveted in the mind" that it is hard to dislodge. It survives to this day in the typically unexamined assumption that all perceptual representations must be flowing inbound from outside [FBtBaB: 355; in context Dennett is quoting *Treatise* 1.3.14.25/SBN 167].

For the sake of argument, I accept Dennett's projectivist interpretation of Hume.¹² Dennett does not pause to reflect on the fact that it was Hume's empiricist defense of the priority of impressions over the ideas corresponding to them which seems to be the source of the unexamined assumption (that all perceptual representations must be flowing inbound from outside.)¹³ But I leave that aside here as well as the trickiness of establishing to what degree anything can be 'outside' in Hume's system.

So, Dennett's version of Hume's version of the strange inversion goes something like this:

- A. One may think that causal necessity as a basic property of external reality is required for the explanation of observed (tightly conjoined) regularities.
- B. And so one infers causal necessity from the empirical evidence (say, via abduction or enumerative induction).
- C. But in reality it is the mind's properties that explain the sense of necessity we feel when we observe (tightly conjoined) regularities.

While there are family resemblances between this strange inversion and the others above, it really is a different schema. For, B is different from 2 (recall, "Where X's exhibit (at least) some intelligence/mindedness/intentionality

and Ys typically do not”) and 2* (recall “Where X’s exhibit more intelligence/mindedness/intentionality than Ys do.”) This is not to deny it is also clearly a strange inversion of reasoning. But it can be distinguished from the canonical version.¹⁴

Dennett’s tendency to treat these conceptual, family resemblances under the same term is no coincidence.¹⁵ For the Humean version also has a Spinozistic provenance (even though one of Hume’s targets here is Spinozism).¹⁶

For in the very same appendix to *Ethics* 1, Spinoza develops an error theory in which “We see, therefore, that *all* the notions by which ordinary people are accustomed to explain Nature are only modes of imagining, and do not indicate the nature of anything, only the constitution of the imagination,” (emphases added; notice the wide scope of the claim.)¹⁷ By saying it has a Spinozistic provenance I do not mean to suggest that Hume (or Dennett) gets it from Spinoza.¹⁸ But Spinoza here encourages the ambitious reader to offer a common style error theory (which has the schema of the Humean ‘strange inversion of reasoning’) for both — to invoke one of Dennett’s favorite Sellarsian distinctions — the manifest image as well as the scientific image¹⁹ of nature.²⁰

CONCLUDING SPECULATIVE SUGGESTION.

I close with a historical, empirical hypothesis on what above I have called Dennett’s ‘genealogy of modernity.’ But, since I am under my word-limit, I introduce it auto-biographically. Dan Dennett was one of my undergraduate teachers at Tufts. One of his colleagues, and one of my other teachers there, George E. Smith, is one of the foremost experts on the good evidential and methodological tricks that allowed scientists, post Newton, to turn ‘data into high quality evidence.’²¹ (I use “tricks” here in homage to Dennett and in order to avoid the more Popperian sounding ‘logic of discovery.’) The following suggestion is the product of more than a quarter century worth of (on and off) reflection on Dan’s and George’s projects.

Dennett’s genealogy of modernity — Spinoza, Hume, Darwin, Turing — can complement George Smith’s insights into the history of science. For this genealogy suggests there exists a basic good trick that facilitated the explosion of scientific knowledge of the last few centuries.²² I call it ‘basic’ not because it is simple or the only such trick. I do wish to convey it is rather fundamental. For, while it would be too simple

to reduce Dennett's whole philosophy to the following point, it is also true that Dennett's works show — and the resistance to and basic misunderstandings of his ideas reveal — that in historical context each of these strange inversions of reasoning would have been really hard-won and at odds with how we are led to think and conceive of the world.²³

With that in mind, it would be useful to return to the history of the human and natural sciences armed with Dennett's two schemas of the 'strange inversion of reasoning,' and explore how many conceptual breakthroughs involve some such inversion. Such a hypothesis may well be a fruitful guide to renew naturalized epistemology -- not in a logical but - in a historical fashion.²⁴

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NOTES

¹ Dennett seems to introduce the term in *Freedom Evolves*, London: Penguin (2003) p. 47. See also, "Darwin's "strange inversion of reasoning," "PNAS June 16, 2009. 106 (Supplement 1) 10061-10065; <<https://doi.org/10.1073/pnas.0904433106>>. See also Dennett, D. C. (2015). "Why and How Does Consciousness Seem the Way it Seems?" In T. Metzinger & J. M. Windt (Eds). *Open MIND*: 10(T). Frankfurt am Main: MIND Group. [https://doi: 10.15502/9783958570245](https://doi:10.15502/9783958570245); Haig, David and Dennett, Daniel (2017) Haig's 'strange inversion of reasoning' (Dennett) and "Making sense: information interpreted as meaning" (Haig), [Preprint]. <<http://philsci-archiv.pitt.edu/13287/>>. I thank Dennett for sending Dennett 2015 to me while researching this article. I thank Maarten Boudry for reminding me of Dennett 2017 (a piece I read in earlier draft) when I was composing this paper. I tried out the ideas in this essay in a blog post, "Dennett's Genealogy of Modernity: On Spinoza, Hume, Darwin, Turing," first published in 03/13/2018 <<http://digressionsnimpresions.typepad.com/digressionsnimpresions/2018/03/dennetts-genealogy-of-modernity.html>>.

² The earliest use I can find is in Thomas Rawson Birks (1854) *Outlines of unfulfilled prophecy, an inquiry into the Scripture testimony*, London: Seeleys, p. 97. In context Reverend T.R. Birks (later Knightbridge Professor of Philosophy at Cambridge) is discussing a controversy over scriptural interpretation.

³ Beverley's phrase was noticed by an anonymous reviewer in *The Athenaeum*, No. 2101, February, 1868, p. 217, located on Google, accessed on March 30, 2018. <<https://books.google.com/books?id=P3FYjfiuRCwC&dq=%22strange%20inversion%20of%20reasoning%22&hl=nl&pg=PA217#v=onepage&q&f=false>>.

⁴ Again, here's Dennett: "There is one big difference between Darwin's strange inversion and Turing's. Darwin showed how brilliant designs could be created by cascades of processes lacking all intelligence, but the system for Turing's cascades of processes was the product of a very intelligent designer, Turing" [FBtBaB: 58].

⁵ For some introductory remarks, see my blog post, "On the Significance of Dennett's Free-Floating Rationales for Social Science (I)," published, 03/20/2017, <<http://digressionsnimpresions.typepad.com/digressionsnimpresions/2017/03/on-the-significance-of-dennets-free-floating-reasons-for-social-sciene.html>>. For an alternative approach, see William C. Wimsatt (2007) *Re-engineering Philosophy for Limited Beings: Piecewise Approximations to reality*, Cambridge, MA.; Harvard University Press, pp. 164-7.

⁶ See, for example, Dennett's treatment of Haig in Dennett 2017.

⁷ I am not suggesting Spinoza invented the schema. Lucretius's attack on final causes is clearly an inspiration to Spinoza, see, especially Lucretius *De Rerum Natura (On The Nature of Things)*. Translated by William Ellery Leonard. E. P. Dutton. 1916. 4.823ff. In fact, Leonard translates Lucretius's '*omnia perversa prae-postera sunt ratione,*' (4.833) somewhat freely (but nicely anticipating the Spinoza-Dennett point), 'All such interpretation Is aft-for-fore with inverse reasoning.' <<http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.0.2.0130%3Abook%3D4%3Acard%3D823>>, Accessed April 3, 2018. Lucretius, in turn, is anticipated by Aristotle who lets a hypothetical critic (inspired by Empedocles's proto-selectionist argument, – "wherever then all the parts came about just what they would have been if they had come be for an end, such things survived, being organized spontaneously in a fitting way; whereas those which grew otherwise perished and continue to perish, as Empedocles says his 'man-faced ox-progeny' did"–) make the same point in *Physics*, book 2, part 8 (as noted by Paul Janet *Final Causes*, translated by William Affleck, Edinburgh: T.T. Clark (1878) p. 201). Translation of Aristotle by R. P. Hardie and R. K. Gaye reproduced by <<http://classics.mit.edu/Aristotle/physics.2.ii.html>>, accessed April 3, 2018.

⁸ As Curley notes, the 1677 Dutch translation adds, "what is an effect it considers as a cause."

⁹ Translation by E. Curley in *A Spinoza Reader*, Princeton NJ, Princeton University Press (1994), p. 112.

¹⁰ This is not to deny that there are both other proto-Darwinian elements in Spinoza as well as earlier historical sources (e.g., Lucretius) for these familiar to Spinoza. See, for example, Tinneke Beekman, "The Philosophical Naturalism of Spinoza and Darwin". (*Dis*) *Entangling Darwin: Cross-disciplinary Reflections on the Man and His Legacy*. Edited by Sara Graça da Silva, Fátima Vieira, Jorge Bastos da Silva. Cambridge: Cambridge Scholars. (2012): 28-41.

¹¹ Curley, op. cit., p. 113.

¹² See Peter Kail (2007) *Projection and Realism in Hume's Philosophy*, Oxford, Oxford University Press.

¹³ Hume writes: “where-ever by any accident the faculties, which give rise to any impressions, are obstructed in their operations, as when one is born blind or deaf; not only the impressions are lost, but also their correspondent ideas; so that there never appear in the mind the least traces of either of them.” (Treatise 1.1.1.9). In my book on Hume’s friend’s Adam Smith, I show that Smith challenged this feature of Hume’s empiricism and anticipated thereby elements of Andy Clark’s “predictive brain;” see Eric Schliesser (2017) *Adam Smith: Systematic Philosopher and Public Thinker*, Oxford: Oxford University Press, p. 66.

¹⁴ There is a clearer resemblance here with what Kripke calls “inversion of a conditional,” which is a device for reversing priorities. Among the examples he offers is Hume on causation and (without naming Spinoza) a somewhat Spinozistic interpretation of morality. Unlike Dennett, Kripke is “suspicious” of such inversions. See Saul Kripke *Wittgenstein on Rules and Private Language: An Elementary Exposition*, Cambridge MA: Harvard university Press (1982), pp. 93-4, especially note 76. I thank Jody Azzouni for calling my attention to the Kripke passage.

¹⁵ In commenting on an earlier draft of this paper, Bryce Huebner suggested what “holds these things together is a skepticism about appeals to experienced kinds as metaphysically basic.” This strikes me as an important insight. But I take this skepticism as being the first step in (each of) the strange inversion(s).

¹⁶ In recent years, Hume’s engagement with Spinoza has been of renewed scholarly interest. See, for example, Della Rocca, Michael. “Playing with Fire: Hume, Rationalism, and a Little Bit of Spinoza.” *The Oxford Handbook of Spinoza*. New York: Oxford University Press, forthcoming (2014).

¹⁷ Curley, op. cit., p. 114.

¹⁸ I am also not claiming that Spinoza invented this move (one finds it also in Bacon’s idols of the mind); Locke takes up the idea in the *Essay*.

¹⁹ One may object that the quoted passage only (‘ordinary people’) refers to the manifest image, but a few lines before Spinoza had made fun of and offered a similar error theory of the (Keplerian idea) that “the motions of the heavens produce a harmony.” [Curley, op. cit. p. 114]. And he had suggested that “as if order were anything in Nature more than a relation to our imagination” [Curley, op. cit. p. 113].

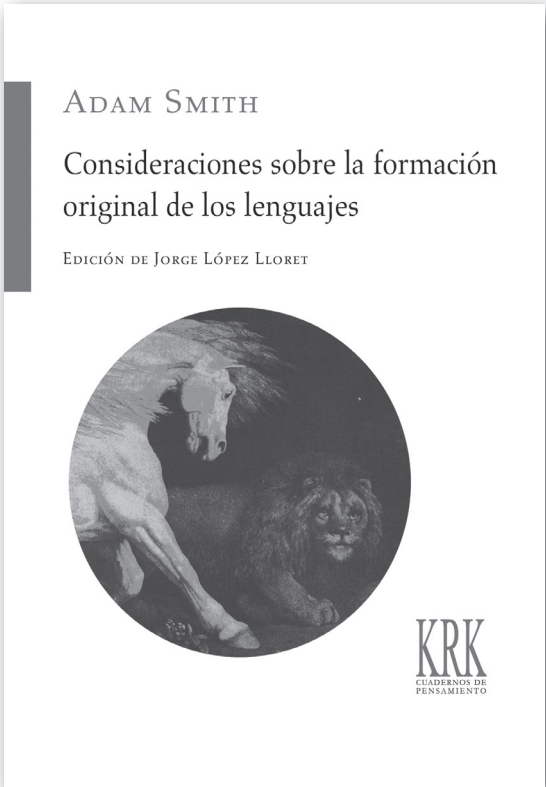
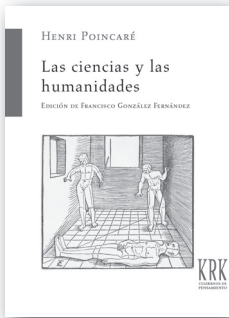
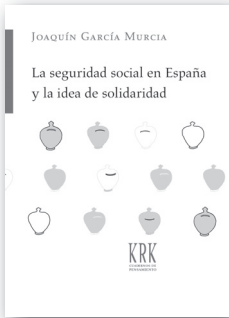
²⁰ Despite the fact that Spinoza is the great rationalist and Dennett the foremost contemporary scientific naturalist, for quite some time Bryce Huebner has been insisting to me that there are great resonances between Dennett’s and Spinoza’s (and Nietzsche’s) philosophy. The present essay is further confirmation of the fruitfulness of his hunch. See, for example, Bryce Huebner “Planning and Prefigurative Politics: The Nature of Freedom and the Possibility of Control” in Bryce Huebner (2018) *The Philosophy of Daniel Dennett*, Oxford: Oxford University Press.

²¹ See, for example, Smith, George E. (2014) “Closing the Loop.” In *Newton and Empiricism*. Edited by Z. Biener & E. Schliesser (2014) Oxford: Oxford University Press: 262-352.

²² If this is right, I was wrong to suggest that Spinoza does not belong in the history of science! Cf. Schliesser, Eric. "Spinoza and the Philosophy of Science." *The Oxford Handbook of Spinoza* (2017), edited by Michael Della Rocca. Oxford: Oxford University Press.

²³ My own sense is that this is due to a mixture of biology and deeply entrenched memes, especially what I have called in previous work, social, conceptual-necessitation relations. Adam Smith, in reflecting on the enduring hold of Aristotelian metaphysics, suggested it relies on a kind of natural taxonomy of the world (which reflects our cognitive biases). For discussion, see Schliesser (2017), *op. cit.*, 62-4.

²⁴ I thank Dan Dennett, Pepa Toribio, Mario Santos Sousa for discussing an early draft of Dennett's book with me Spring 2015. Special gratitude to our wonderful hosts at the University of Girona, especially Joan Vergés Gifra. I also thank Dan Dennett, Charles T. Wolfe, and Bryce Huebner for comments on an earlier draft of this paper.



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