The Design Inference from Specified Complexity Defended by Scholars Outside the Intelligent Design Movement

A Critical Review

PETER S. WILLIAMS
Southampton, England

The quality of a scientific approach or opinion depends on the strength of its factual premises and on the depth and consistency of its reasoning, not on its appearance in a particular journal or on its popularity among other scientists.

Stephen Jay Gould, *amici curiae*,
Daubert v. Merrell Dow Pharmaceuticals

According to mathematician and philosopher William A. Dembski, "given an event, object, or structure, to convince ourselves that it is designed we need to show that it is improbably (i.e. complex) and suitably patterned (i.e. specified)."[1] Dembski has defended "specified complexity"—or "complex specified information" (CSI)—as a reliable design detection criterion in numerous writings,[2] including his peer-reviewed monograph *The Design Inference*.[3] In simplified sum, a long string of random letters is complex without being specified (that is, without conforming to an independently given

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1. William A. Dembski, "Another Way to Detect Design?" http://www.arn.org/docs/dembski/wd_responsetowiscu.htm.
2. Cf. William A. Dembski, "The Logical Underpinnings of Intelligent Design," in *Debating Design: From Darwin to DNA*, ed. William A. Dembski and Michael Ruse (Cambridge: Cambridge University Press, 2004), 311–30; William A. Dembski, "Reinstating Design within Science," in *Darwinism, Design, and Public Education*, ed. John Angus Campbell and Stephen C. Meyer (East Lansing, MI: Michigan State University Press, 2003), 403–17; William A. Dembski, "Naturalism and Design," in *Naturalism: A Critical Analysis*, ed. William Lane Craig and J. P. Moreland (London: Routledge, 2000).
3. William A. Dembski, *The Design Inference* (Cambridge: Cambridge University Press, 1998). Cf. Hugh Ross, review of *The Design Inference*, by William Dembski, *Philosophia Christi* 2 (2000): 142–4.

pattern that we have not simply read off the object or event in question). A short sequence of letters like "this" or "that" is specified without being sufficiently complex to outstrip the capacity of chance to explain this conformity (for example, letters drawn at random from a Scrabble bag will occasionally form a short word). Neither complexity without specificity nor specificity without complexity compels us to infer design. However, this paper is both specified (conforming to the functional requirements of grammatical English) *and* sufficiently complex (doing so at a level of complexity that makes it unreasonable to attribute this match to luck) to trigger a design inference on the grounds that "in all cases where we know the causal origin of . . . specified complexity, experience has shown that intelligent design played a causal role."[4]

As J. P. Moreland and William Lane Craig note, "The central aspect of ID theory is the idea that the designedness of some things that are designed can be identified as such in scientifically acceptable ways. . . . William Dembski has been the main figure in developing this aspect of ID theory."[5] Hence the propositions that design can be detected via CSI, and that doing so can be legitimately described as a scientific activity, have become foundational principles of Intelligent Design (ID).

Leaving to one side the secondary question of whether inferring design can be legitimately described as a *scientific* activity,[6] this paper reviews

4. Stephen C. Meyer, "Teleological Evolution: The Difference It Doesn't Make," www.arn. org/docs/meyer/sm_teleologicalevolution.htm.

5. J. P. Moreland and William Lane Craig, *Philosophical Foundations For A Christian Worldview* (Downers Grove, IL: InterVarsity, 2003), 356.

6. Richard Dawkins affirms the scientific status of ID in *The God Delusion*: "The presence or absence of a creative super-intelligence is unequivocally a scientific question, even if it is not in practice—or not yet—a decided one. . . . The methods we should use to settle the matter . . . would be purely and entirely scientific methods" ([London: Bantam, 2006], 59). Cf. Michael J. Behe, "The Modern Intelligent Design Hypothesis," *Philosophia Christi* 3 (2001): 165–79; Michael J. Behe, "Whether Intelligent Design Is Science," http://www.discovery.org/scripts/viewDB/filesDB-download.php?command=downloadandid=697; William A. Dembski, *The Design Revolution: Answering the Toughest Questions about Intelligent Design* (Downers Grove, IL: InterVarsity, 2004); William A. Dembski, "In Defence of Intelligent Design," in *Oxford Handbook of Religion and Science*, ed. Philip Clayton (Oxford: Oxford University Press, 2006), 715–31; Stephen C. Meyer, "The Scientific Status of Intelligent Design: The Methodological Equivalence of Naturalistic and Non-Naturalistic Origins Theories," in *Science and Evidence for Design in the Universe*, ed. Michael J. Behe, William A. Dembski, and Stephen C. Meyer (San Francisco: Ignatius, 1999), 151–211; Bradley Monton, "Is Intelligent Design Science? Dissecting the Dover Decision," http://philsci-archive.pitt.edu/archive/00002583/01/Methodological_Naturalism_2.pdf; Alvin Plantinga, "Whether ID Is Science Isn't Semantics," http://www.discovery.org/scripts/viewDB/index.php?command=viewandid=3331; Alvin Plantinga, "Methodological Naturalism?" *Perspectives on Science and Christian Faith* 49 (1997): 143–54; Del Ratzsche, *Science and Its Limits: The Natural Sciences in Christian Perspective* (Leicester: Apollos, 2000); David Tyler, "Is Design Part of Science?" http://cis.org. uk/conferences/past_conferences/northern_conference_2006/D_Tyler.pdf; Peter S. Williams, "If SETI Is Science and UFOlogy Is Not, Which Is Intelligent Design Theory?" http://www. arn.org/docs/williams/pw_setivsufology.htm; Peter S. Williams, "The Definitional Critique of

the work of several scientists and philosophers outside the ID movement, in order to demonstrate that, explicitly and implicitly, they endorse CSI as a design detection criterion. This agreement is metaphysically bipartisan, coming from naturalists and theists alike. This agreement also comes from hostile witnesses, in that some of the scholars whose work I will review are actively opposed to ID.

Independent agreement among a diverse range of scholars with different worldviews as to the utility of CSI adds warrant to the premise that CSI is indeed a sound criterion of design detection. And since the question of whether the design hypothesis is true is more important than the question of whether it is scientific, such warrant therefore focuses attention on the disputed question of whether sufficient empirical evidence of CSI within nature exists to justify the design hypothesis.

ID is a theory advanced by a growing number of scientists and other academics (design theorists) who believe empirical evidence within the natural world justifies a design inference on the basis of reliable design detection criteria (such as CSI): "As a scientific theory, ID only claims that there is empirical evidence that key features of the universe . . . are the products of an intelligent cause."[7] Neither "creationism,"[8] nor natural theology,[9] ID simply holds that

> intelligent agency, as an aspect of scientific theory making, has more explanatory power in accounting for the specified, and sometimes irreducible complexity of some physical systems, including biological entities, and/or the existence of the universe as a whole, than the blind forces of . . . matter.[10]

As Marcus R. Ross explains, "ID is classified as a philosophically minimalistic position, asserting that real design exists in nature and is empirically detectable by the methods of science."[11] Hence, abstracted from the debate

Intelligent Design Theory: Lessons from the Demise of Logical Positivism," http://www.arn. org/docs/williams/pw_definitionalcritique.htm.

7. David K. DeWolf et al., *Traipsing into Evolution: Intelligent Design and the Kitzmiller vs. Dover Decision* (Seattle: Discovery Institute, 2006), 30.

8. Cf. Francis J. Beckwith, *Law, Darwinism, And Public Education* (Oxford: Rowman and Littlefield, 2003); Dembski, "In Defence of Intelligent Design"; Dembski, *The Design Revolution*; DeWolf et al., *Traipsing into Evolution*; Marcus Ross and Paul Nelson, "A Taxonomy of Teleology: Philip Johnson, the Intelligent Design Community and Young-Earth Creationism," in *Darwin's Nemesis: Phillip Johnson and the Intelligent Design Movement*, ed. William A. Dembski (Downers Grove, IL: InterVarsity, 2006).

9. Although natural theology can build upon ID. See Beckwith, *Law, Darwinism, And Public Education*; Michael J. Behe, "Whether Intelligent Design Is Science"; Dembski, "In Defence of Intelligent Design"; DeWolf et al., *Traipsing into Evolution*; Casey Luskin, "Is Intelligent Design Theory Really an Argument for God?" http://www.ideacenter.org/contentmgr/showdetails. php/id/1341.

10. Beckwith, *Law, Darwinism, and Public Education*, xiii.

11. Marcus R. Ross, "Intelligent Design and Young Earth Creationism: Investigating Nested Hierarchies of Philosophy and Belief," http://gsa.confex.com/gsa/2003AM/finalprogram/

about whether or not ID is science, ID can be advanced as a single, logically valid syllogism:

(Premise 1) Specified complexity reliably points to intelligent design.

(Premise 2) At least one aspect of nature exhibits specified complexity.

(Conclusion) Therefore, at least one aspect of nature reliably points to intelligent design.

Concerning premise 2, design theorists have proposed that intelligent design can be inferred from several facets of nature, including cosmic fine-tuning, the fine-tuning of our local cosmic habitat, the origin of life, irreducibly complex biomolecular systems, and the "Cambrian Explosion."[12] However, my concern here is with the first premise, without which the empirical data

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abstract_58668.htm. That is, it is at least *sometimes* detectable.

12. On cosmic fine-tuning, see William Lane Craig, "Review: The Design Inference: Eliminating Chance Through Small Possibilities," http://www.reasonablefaith.org/site/PageServer?pagename=scholarly_articles_existence_of_God; William Lane Craig and Walter Sinnot-Armstrong, *God? A Debate between a Christian and an Atheist* (Oxford: Oxford University Press, 2004); Moreland and Craig, *Philosophical Foundations for a Christian Worldview*; Robert C. Koons, "Post-Agnostic Science: How Physics Is Reviving the Argument from Design," http://www.arn.org/docs/koons/rk_postagnosticscience.htm.

On the fine-tuning of our local cosmic habitat, see Guillermo Gonzalez and Jay Richards, *The Privileged Planet*: *How Our Place in the Cosmos Is Designed for Discovery* (Washington, DC: Regnery, 2004).

On the origin of life, see Dean Kenyon, *The Origin of Life*, http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/6470oriLif.rm; Charles B. Thaxton, *The Origin of Life 2*, http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/6464OnTheOriLif.rm; Charles B. Thaxton, Walter L. Bradley, and Roger L. Olsen, *The Mystery of Life's Origin: Reassessing Current Theories*, 4th ed. (Addison, TX: Lewis and Stanley, 1992); Stephen C. Meyer, "DNA and the Origin of Life: Information, Specification and Explanation," in *Darwinism, Design, and Public Education*, 223–85; Stephen C. Meyer, "DNA by Design: An Inference to the Best Explanation for the Origin of Biological Information," *Rhetoric and Public Affairs* 1 (1999): 519–55; Stephen C. Meyer, "Teleological Evolution: The Difference It Doesn't Make," in *Darwinism Defeated? The Johnson-Lamoureux Debate on Biological Origins*, ed. Phillip E. Johnson, Denis O. Lamoureux et al. (Vancouver: Regent College Publishing, 1999), 91–102; Ø. A. Voie, "Biological Function and the Genetic Code Are Interdependent," *Chaos, Solutions and Fractals* 28 (2006): 1000–4.

On irreducibly complex biomolecular systems, see Michael J. Behe, *Darwin's Black Box*, rev. ed. (London: The Free Press, 2006); Michael J. Behe, "Design in the Details: The Origin of Biomolecular Machines," in *Darwinism, Design, and Public Education*, 287–302; Behe, "The Modern Intelligent Design Hypothesis"; Behe, "Darwinism Gone Wild: Neither Sequence Similarity Nor Common Descent Address a Claim of Intelligent Design," http://www.evolutionnews.org/2007/04/darwinism_gone_wild_neither_se.html; Michael J. Behe and D. W. Snoke, "Simulating Evolution by Gene Duplication of Protein Features that Require Multiple Amino Acid Residues," *Protein Science* 13 (2004): 2651–64; William A. Dembski, *No Free Lunch: Why Specified Complexity Cannot Be Purchased without Intelligence* (Oxford: Rowman and Littlefield, 2001); Stephen Griffith, "Irreducible Complexity," http://www.iscid.org/papers/Griffith_IrreducibleComplexity_052504.pdf; Scott Minnich and Stephen C. Meyer, "Genetic Analysis of Coordinate Flagellar and Type III Regulatory Circuits," *Design and Nature 2: Comparing Design in Nature with Science and Engineering*, ed. M. W. Collins and C. A. Brebbia (WIT Press, 2004), 395–304; William A. Dembski, "Still Spinning Just Fine: A Response to Ken Miller," http://www.designinference.com/documents/2003.02.Miller_Response.htm; William A. Dembski, "Irreducible Complexity Revisited," http://www.designinference.com/documents/2004.01.

lacks evidential traction. Rather than drawing upon the work of its defenders within the ID movement, I will draw attention to the fact that scientists and philosophers outside the movement, including some who are opposed to the theory, use CSI as a design detection criterion. These scholars can be divided into two groups: atheists and theists. I will review each group in turn.

Three Atheists Outside the ID Movement

Massimo Pigliucci: Cosmic Fine-Tuning and Irreducible Complexity

Massimo Pigliucci is an associate professor at the University of Tennessee in Knoxville, where he teaches ecology and evolutionary biology. Pigliucci has a PhD in botany from the University of Connecticut and a PhD in philosophy from the University of Tennessee. A self-styled "skeptic," Pigliucci's articles have appeared in such publications as *The Skeptic* and *Free Inquiry*. According to Pigliucci,

> Should we conclusively determine that the probability of existence of our universe is infinitesimally small, and should we fail to explain why physical constants have assumed the quantities that we observe, the possibility of a designed universe would have to be considered seriously.[13]

In discussing the fine-tuning of the cosmos, Pigliucci lays down a pretheoretic version of Dembski's CSI criterion, which infers design, on the basis of experience, whenever an independent specification (for example, the set of physical constants required by a life sustaining universe) is exhibited at sufficiently low probability. Pigliucci and design theorists differ on whether we can infer that our universe is indeed the product of design, but there would appear to be at least an implicit agreement on the criteria for making such a judgement.

Pigliucci explicitly affirms that "[Michael] Behe . . . does have a point concerning irreducible complexity. . . . irreducible complexity is indeed a

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Irred_Compl_Revisited.pdf; Mike Gene, "Evolving the Bacterial Flagellum Through Mutation and Cooption," pts. 1–6, http://www.idthink.net/biot/index.html.

On the Cambrian Explosion, see Stephen C. Meyer, "The Origin of Biological Information and the Higher Taxonomic Categories," *Proceedings of the Biological Society of Washington* 117 (2004): 213–39; Stephen C. Meyer, Marcus Ross, Paul Nelson, and Paul Chien, "The Cambrian Explosion: Biology's Big Bang," in *Darwinism, Design, And Public Education*, 323–402.

13. Massimo Pigliucci, "The Provine-Scott Discussion at the RET: Methodological vs. Philosophical Naturalism," http://www.rationalists.org/rc/1998_spring/provine-scott.htm; cf. Peter S. Williams, "Reviewing the Reviewers: Pigliucci et al. on 'Darwin's Rotweiller and the Public Understanding of Science,'" http://www.arn.org/docs/williams/pw_pigliucci_reviewingreviewers.htm.

hallmark of intelligent design."[14] Behe's most notable presentation of irreducible complexity (IC) is *Darwin's Black Box: The Biochemical Challenge to Evolution*, where he defined his terms as follows:

> By *irreducibly complex* I mean a single system composed of several well-matched, interacting parts that contribute to basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced directly . . . by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition non-functional.[15]

Dembski points out that IC systems are a concrete example of specified complexity:

> The irreducibly complex systems Behe considers require numerous components specifically adapted to each other and each necessary for function. On any formal complexity-theoretic analysis, they are complex in the sense required by the complexity-specification criterion. Moreover, in virtue of their function, these systems embody patterns independent of the actual living systems. Hence these systems are also specified in the sense required by the complexity-specification criterion.[16]

Charles Darwin argued that the existence of a single IC system would falsify his evolutionary hypothesis: "If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive modifications, my theory would absolutely break down."[17] Darwin made the universal negative bet that no such system would be discovered and his contemporary followers, like Pigliucci, make the same bet.[18]

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14. Massimo Pigliucci, "Design Yes, Intelligent No," *Darwinism, Design, And Public Education*, 467.

15. Behe, *Darwin's Black Box*, 39.

16. William A. Dembski, *Intelligent Design: The Bridge between Science and Theology* (Downers Grove, IL: InterVarsity, 1999), 149.

17. Charles Darwin, *The Origin of Species*, 6th ed. (1872; New York: New York University Press, 1988), 154.

18. Richard Dawkins places the same bet when he acknowledges that Darwin's remark about systems that cannot be built gradually "is valid and very wise . . . his theory is indeed falsifiable . . . and he puts his finger on one way in which it might be falsified" ("Universal Darwinism," in *The Philosophy of Biology*, ed. David Hull and Michael Ruse [Oxford: Oxford University Press, 1998], 29.) However, he asserts that "not a single case is known to me of a complex organ that could not have been formed by numerous slight [unguided] modifications. I do not believe that such a case will ever be found" (*The Blind Watchmaker* [London: Penguin, 2006], 91.) Nevertheless, he concedes, "If it is—it'll have to be a really complex organ, and . . . you have to be sophisticated about what you mean by 'slight'—I shall cease to believe in Darwinism" (*The Blind Watchmaker*, 91). In *The God Delusion* (London: Bantam, 2006) Dawkins writes, "Maybe there is something out there in nature that really does preclude, by its genuinely irreducible complexity, the smooth gradient of Mount Improbable . . . if genuinely irreducible complexity could be properly demonstrated, it would wreck Darwin's theory. Darwin himself

By definition, any system that is IC cannot have evolved directly by a series of incremental evolutionary improvements. Ruling out direct, incremental evolution does not exclude what Darwin called "a sudden leap," but as Richard Dawkins notes, "The larger the leap through genetic space, the lower the probability that the resulting change will be viable, let alone an improvement."[19] Behe observes that

> Even if a system is irreducibly complex (and thus cannot have been produced directly) . . . one can not definitely rule out the possibility of an indirect, circuitous route. As the complexity of an interacting system increases, though, the likelihood of such an indirect route drops precipitously. . . .[20]

Behe argues that at the biomolecular level of life (an unknown "black box" in Darwin's day) there are several IC systems that are highly unlikely to have been formed by numerous, successive (unguided) indirect modifications, "including aspects of protein transport, blood clotting, closed circular DNA, electron transport, the bacterial flagellum, telomeres, photosynthesis, transcription regulation, and much more."[21] Given that IC systems are resistant to evolutionary explanation, and given our everyday experience that intelligent agents regularly produce IC systems (and other systems exhibiting CSI), Behe argues that the best explanation of such molecular machines is intelligent design:

> the onus of proof is on the one who denies the plain evidence of the eyes. For example, a person who conjectured that the statues on Easter Island or the images on Mount Rushmore were actually the result of unintelligent forces would bear the substantial burden of proof the claim demanded. In those examples, the positive evidence for design would be there for all to see in the purposeful arrangements of parts to produce the images. Any putative evidence for the claim that the images were actually the result of unintelligent processes (perhaps erosion by some vague, hypothesized chaotic forces) would have to clearly show that the postulated unintelligent process could indeed do the job. In the absence of such a clear demonstration, any person would be rationally justified to prefer the design explanation.[22]

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said as much . . . genuine irreducible complexity would wreck Darwin's theory if it were ever found . . ." (125). Dawkins has a lot riding on the universal negative bet that nothing in nature is irreducibly complex.

19. Richard Dawkins, "Darwin Triumphant," in *A Devil's Chaplain* (London: Phoenix, 2004), 86.

20. Behe, *Darwin's Black Box*, 40.

21. Michael J. Behe, "Molecular Machines: Experimental Support for the Design Inference," http://www.arn.org/docs/behe/mb_mm92496.htm.

22. Behe, *Darwin's Black Box*, 265–6. This point is also made by Robert C. Koons, "The Check Is in the Mail: Why Darwinism Fails to Inspire Confidence," in *Uncommon Dissent: Intellectuals Who Find Darwinism Unconvincing*, ed. William A. Dembski (Wilmington, DE: ISI Books, 2004), 3–22.

If there is irreducible complexity in living organisms, then Pigliucci would agree with Behe and Dembski that it is evidence of intelligent design: "irreducible complexity is indeed a valid criterion to distinguish between intelligent and nonintelligent design."[23] However, Pigliucci thinks that "there is no evidence so far of irreducible complexity in living organisms."[24]

Richard Dawkins

Presidents and Safe-Cracking. Zoologist Richard Dawkins is Oxford University's Professor for the Public Understanding of Science. Dawkins is well-known as a vocal atheist through his popular books and media appearances.[25] He is also an outspoken critic of intelligent design theory.[26]

In *Climbing Mount Improbable*, Dawkins draws a distinction between objects that are clearly designed and objects that are not clearly designed but superficially look like they are—which he calls "*designoid.*"[27] Dawkins illustrates the concept of being designoid with a hillside that suggests a human profile: "Once you have been told, you can just see a slight resemblance to either John or Robert Kennedy. But some don't see it and it is certainly easy to believe that the resemblance is accidental."[28] Dawkins contrasts

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23. Pigliucci, "Design Yes, Intelligent No," 471.

24. Ibid., 467.

25. For a critique of Dawkins' views, see Antony Latham, *The Naked Emperor: Darwinism Exposed* (London: Janus, 2005); Alister E. McGrath, *Dawkins' God: Genes, Memes and the Meaning of Life* (Oxford: Blackwell, 2004); Alister E. McGrath, *The Dawkins Delusion* (London: SPCK, 2007); Keith Ward, *God, Chance and Necessity* (Oxford: OneWorld, 1996); Keith Ward, *Is Religion Dangerous?* (Oxford: Lion, 2006); Peter S. Williams, *I Wish I Could Believe in Meaning: A Response to Nihilism* (Southampton: Damaris, 2004); Andrew Wilson, *Deluded by Dawkins? A Christian Response to "The God Delusion"* (Eastbourne: Kingsway, 2007); William Lane Craig, "Richard Dawkins' Argument for Atheism in the *God Delusion*," http://www.reasonablefaith.org/site/News2?page=NewsArticle&id=5493; Thomas Nagel, "The Fear of Religion," *The New Republic Online*, http://www.tnr.com/doc.mhtml?i=20061023ands =nagel102306; Alvin Plantinga, "The Dawkins Confusion," *Books and Culture*, March/April 2007, http://www.christianitytoday.com/bc/2007/002/1.21.html; Richard Swinburne, "Response to Richard Dawkins's Criticisms in *The God Delusion*," http://users.ox.ac.uk/~orie0087/ framesetpdfs.shtml; Peter S. Williams, "Darwin's Rottweiler and the Public Understanding of Scientism," http://www.arn.org/docs/williams/pw_dawkinsfallacies.htm; Peter S. Williams, "The Faith Based Dawkins," www.bethinking.org/resource.php?ID=166; Peter S. Williams, "*The God Delusion* Deconstructed at Southampton University," http://www.ecs.soton.ac.uk/ ~pjb304/SUCU_talks/eternity/2007-02-15-PeteWilliams-TheGodDelusionDeconstructed.mp3; Peter S. Williams, "The Big Bad Wolf, Theism and the Foundations of Intelligent Design: A Review of Richard Dawkins' *The God Delusion*," http://www.arn.org/docs/williams/pw_ goddelusionreview.htm; Peter S. Williams, "Who's Afraid of the Big Bad Wolf? Dawkins' Failed Rebuttal of Natural Theology," http://www.arn.org/docs/williams/pw_goddelusionreview2. htm.

26. See Peter S. Williams, "The War on Science: How Horizon Got Intelligent Design Wrong," http://www.arn.org/docs/williams/pw_horizonreview.htm.

27. Richard Dawkins, *Climbing Mount Improbable* (London: Viking, 1996), 4.

28. Ibid., 3.

this Kennedy-esque hillside with the four president's heads carved into Mt. Rushmore in America, which "are obviously not accidental: they have design written all over them."[29] Hence Dawkins admits intelligence is capable of outperforming the design-producing resources of nature in such a way as to leave empirical indicators of its activity.

Dawkins argues that, while "a rock can weather into the shape of a nose seen from a certain vantage point,"[30] such a rock (for example, the Kennedy-esque hillside) is designoid. Mt. Rushmore, on the other hand, is clearly not designoid: "Its four heads are clearly *designed*."[31] The fact that Rushmore is designed is, according to Dawkins, empirically detectable: "The sheer number of details [that is, the amount of complexity] in which the Mount Rushmore faces resemble the real things [that is, the complexity fits four specifications] is too great to have come about by chance."[32] In terms of mere possibility, says Dawkins: "The weather *could* have done the same job. . . . But of all the possible ways of weathering a mountain, only a tiny minority [complexity] would be speaking likenesses of four particular human beings [specification]."[33] Hence, "Even if we didn't know the history of Mount Rushmore, we'd estimate the odds against its four heads [specification] being carved by accidental weathering as astronomically high . . . [complexity]."[34]

Again, Dawkins argues that "Of all the unique and, with hindsight equally improbable, positions of the combination lock [complexity], only one opens the lock [specification]. . . . The uniqueness of the arrangement . . . that opens the safe, [has] nothing to do with hindsight. It is *specified* in advance."[35] According to Dawkins, the best explanation of an open safe is not that someone got lucky, but that someone knew the *specific* and *complex* combination required to open it.

Directed Panspermia and "God-Like Beings." Crop circles are obviously the product of design because they exhibit CSI. Some people suggest that the source of crop-circle design is extraterrestrial. No matter how sceptical we are about extraterrestrials, it would be irrational to argue that because extraterrestrials do not exist, crop circles are not the product of design (since aliens are a sufficient but not a necessary condition for crop circles). Likewise, however sceptical someone is about the existence of God, it would be irrational to argue that since God does not exist, nothing in nature is the product of design (since God is a sufficient but not a necessary condition of intelligent design in nature). The scientific inference to design, whether in the case of crop circles or not, is prior to the inference to a particular de-

29. Ibid.
30. Ibid.
31. Ibid.
32. Ibid.
33. Ibid.
34. Ibid.
35. Dawkins, *The Blind Watchmaker*, 9.

signer, and it stands or falls on its own merits. Dawkins admits as much in an article that appeared in the secular humanist magazine *Free Inquiry*. In this editorial opinion piece, Dawkins explicitly acknowledged that CSI is a valid criterion of design detection:

> "specified complexity" takes care of the sensible point that any particular rubbish heap is improbable, with hindsight, in the unique disposition of its parts. A pile of detached watch parts tossed in a box is, with hindsight, as improbable as a fully functioning, genuinely complicated watch. What is specified about a watch is that it is improbable in the specific direction of telling the time. . . .[36]

Dawkins is clearly saying that it is the *specified* complexity of a watch that warrants a design inference (mere complexity is not the issue). Dawkins admits that "Behe and Dembski correctly pose the problem of specified complexity as something that needs explaining,"[37] and he even allows that "Design is the temporarily correct explanation for some particular manifestations of specified complexity such as a car or a washing machine."[38] Here we begin to see Dawkins's philosophical commitment to naturalism affecting his conclusions: "sooner or later, in order to explain the illusion of design, we are going to have to terminate the regress [of explanations] with something more explanatory than design itself,"[39] says Dawkins, for "Design can never be an ultimate explanation."[40] Dawkins is happy to concede that intelligent design is a legitimate and evidentially supported explanation for CSI, but his naturalistic philosophy dictates that explaining *anything* in terms of intelligent design is only ever a "temporarily correct"[41] placeholder for a nonteleological explanation. This philosophical deduction from naturalism applies just as much to watches and washing machines as to cosmic fine-tuning or bacterial flagella.

Of course, even in the case of design detected within the texture of nature itself there are numerous explanatory options. Inferring intelligent de-

36. Richard Dawkins, "Who Owns the Argument from Improbability?" *Free Inquiry*, October/November 2004, 11–12.

37. Ibid.

38. Ibid. Discussing SETI in *The God Delusion*, Dawkins notes: "It is a non-trivial question . . . what kind of signal would convince us of its intelligent origin . . . Metronomic rhythms can be generated by many non-intelligent phenomena. . . . Nothing simply rhythmic . . . would announce our intelligent presence to the waiting universe" (71). The regular, specified but uncomplicated pattern of a pulsar does not require an explanation in terms of design. Neither, of course, does the irregular, unspecified complexity of static. So what sort of signal would do the job? Dawkins notes: "Prime numbers are often mentioned as the recipe of choice, since it is difficult to think of a purely physical process that could generate them" (*The God Delusion*, 43). Hence Dawkins affirms that there is a type of pattern, in principle discoverable by empirical, scientific investigation, for which it is difficult to account in purely physical terms and which would rightly trigger a design inference; and this is clearly a pattern exhibiting CSI.

39. Dawkins, "Who Owns the Argument from Improbability?" 11–12.

40. Ibid.

41. Ibid.

sign does not automatically equate with inferring any particular designer(s). As Dawkins writes: "It could conceivably turn out, as Francis Crick and Leslie Orgel . . . suggested, that evolution was seeded by deliberate design, in the form of bacteria sent from a distant planet in the nose cone of a spaceship."[42]

Nobel laureate Francis Crick (credited as codiscoverer of the double helix structure of DNA) and origin-of-life researcher Leslie Orgel first proposed the theory of "directed panspermia" as a hypothesis worth considering in an article published in *Icarus*.[43] Crick expanded upon the hypothesis in his book *Life Itself* suggesting that an advanced alien species sent one or more spacecraft to earth with the intent of peppering it with the necessary life forms (or components of life) to generate a zoo of diverse species.[44] The theory continues to attract a small number of supporters amongst origin-of-life researchers. Dawkins' philosophy dictates that such an explanation must ultimately track back to a nonteleological explanation. Given the assumption that minds can be explained naturalistically (an assumption Dawkins makes),[45] metaphysical naturalism is logically compatible with inferring intelligent design from nature. Perhaps, as members of the naturalistic, ID-endorsing Raelian UFO religion believe, aliens are responsible for life on earth.[46] Perhaps the big bang was fine-tuned to produce a life-sustaining universe by aliens in a parallel universe. For Dawkins, the ultimate explanation of any and all CSI *must* be naturalistic:

> It is easy to believe that the universe houses creatures so far superior to us as to seem like gods. I believe it. But those godlike beings must themselves have been lifted into existence by natural selection or some equivalent. . . .[47]

As Dawkins says in response to the question "What do you believe is true even though you cannot prove it?"[48]

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42. Ibid.

43. Francis Crick and Leslie Orgel, "Directed Panspermia," *Icarus* 19 (1973): 341–6.

44. Francis Crick, *Life Itself* (New York: Simon and Schuster, 1981).

45. I do not share this assumption. See William Lane Craig and J. P. Moreland, eds., *Naturalism: A Critical Analysis* (London: Routledge, 2001); William Hasker, *The Emergent Self* (Cornell University Press, 1999); Angus J. Menuge, *Agents Under Fire: Materialism and the Rationality of Science* (Oxford: Rowman and Littlefield, 2004); J. P. Moreland, *Scaling the Secular City* (Grand Rapids, MI: Baker, 1987); Alvin Plantinga, *Warrant and Proper Function* (Oxford University Press, 1993); Victor Reppert, *C. S. Lewis's Dangerous Idea* (Downers Grove, IL: InterVarsity, 2003); Peter S. Williams, *The Case for Angels* (Carlisle: Paternoster, 2002); Peter S. Williams, *I Wish I Could Believe in Meaning*.

46. See Peter S. Williams, "Raelians Successfully Clone Naturalism," http://www.arn.org/docs/williams/pw_raeliansclonenaturalism.htm.

47. Dawkins, "Who Owns the Argument from Improbability?" 11–12.

48. Cf. *Edge: The World Question Centre*, "What Do You Believe Is True Even Though You Cannot Prove It?" http://www.edge.org/q2005/q05_easyprint.html.

> . . . I believe that all intelligence, all creativity, and all design any-
> where in the universe is the direct or indirect product of Darwinian
> natural selection. It follows that design comes late in the universe,
> after a period of Darwinian evolution. Design cannot precede evolu-
> tion and therefore cannot underlie the universe.[49]

Since Dawkins explicitly accepts CSI as a reliable criterion of design detec-
tion, and since he already believes in the existence of "godlike" extrater-
restrial beings, one would predict that were he to concede the existence of
empirical evidence within the natural world that triggers a design inference,
he would likely affirm that the intelligence in question was extraterrestrial,
thereby retaining his philosophical assumption that design inferences can
only be temporarily correct explanations that must be susceptible to a reduc-
tive, naturalistic explanation in the final analysis.[50] This thought experiment
demonstrates that design theorists are right when they point out that arguing
for intelligent design does not necessarily equate with arguing for supernatu-
ral, let alone divine design. As Michael J. Behe explains:

> my argument is limited to design itself; I strongly emphasize that it
> is not an argument for the existence of a benevolent God, as Paley's
> was. I hasten to add that I myself do believe in a benevolent God,
> and I recognize that philosophy and theology may be able to extend
> the argument. But a scientific argument for design in biology does
> not reach that far. Thus while I argue for design, the question of the
> identity of the designer is left open . . . as regards the identity of the
> designer, modern ID theory happily echoes Isaac Newton's phrase,
> *hypothesis non fingo*.[51]

Potential philosophical and theological disputes about the nature of the
designer(s) aside, Richard Dawkins explicitly endorses the first premise of
the argument for intelligent design.

Carl Sagan: Presidential Eggplants and the "Face" on Mars

Carl Sagan was an American astronomer, astrobiologist, and science
popularizer. Sagan was a pioneer in exobiology, promoting the Search for
Extra-Terrestrial Intelligence (SETI). A famous author of popular science
books, Sagan also wrote the novel *Contact*, upon which the 1997 film of
the same name was based. Considering that the scientists in *Contact* infer
the existence of extraterrestrials when they detect a radio signal exhibiting

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49. Richard Dawkins, interview by Fi Glover, *Broadcasting House*, BBC Radio 4, January 9, 2005. Cf. Peter S. Williams, "The Faith Based Dawkins."

50. *Contra* Dawkins on this point, see Alvin Plantinga, "The Dawkins Confusion"; Peter S. Williams, "The Big Bad Wolf, Theism and the Foundations of Intelligent Design."

51. Behe, "The Modern Intelligent Design Hypothesis," 165.

specified complexity,[52] it is unsurprising that Sagan implicitly endorses CSI as a design detection criterion in his other writings.

In *The Demon Haunted World*, Sagan debunks a number of claims about purported instances of design. For example:

> There was a celebrated eggplant that closely resembled Richard M. Nixon. What shall we deduce from this fact? Divine or extraterrestrial intervention? Republican meddling in eggplant genetics? No. We recognize that there are large numbers of eggplants in the world and that, given enough of them, sooner or later we'll come upon one that looks like a human face, even a very particular human face.[53]

Notice that the suggestion of design here is based upon the fact that the eggplant in question exhibits a specification. In this case, the specification is looking like a human face, and more than that, looking like a particular human face (although it is hard to believe that the resemblance can have been all *that* tight). Sagan implicitly accepts that the eggplant exhibits a specification. So why does Sagan reject the idea that the correspondence between the eggplant and the Nixon specification is the result of design? Because the example lacks complexity. Given the number of human faces and eggplants that have existed, Sagan argues that it is not all that unlikely that we would come across an eggplant that bore a resemblance to Nixon. Hence we do not have to deduce divine, or extraterrestrial, or Republican design from the eggplant.

Sagan's argument for rejecting a design inference from the eggplant implicitly accepts that if the eggplant exhibited a specification at a sufficient level of complexity, then a design inference would be justified. In other words, Sagan recognized that a design inference is warranted when faced with an example of "specified complexity." This is why, in order to debunk a proposed instance of design which he admits exhibits specification, Sagan argues that the proposed example lacks sufficient complexity.

Sagan implicitly endorses the point that while specified complexity warrants an inference to "intelligent design," it does not in and of itself warrant an inference to any particular designer: "Divine or extraterrestrial intervention? Republican meddling in eggplant genetics?"[54] All three explanations would be possible candidates if a design inference in this case were justified.

Sagan goes on to discuss the infamous so-called face on Mars,[55] first photographed by one of the Viking orbiters in 1976. Sagan argues against

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52. Cf. William A. Dembski, 'Science and Design" *First Things*, October 1998, http://www.firstthings.com/ftissues/ft9810/dembski.html; Dembski, "SETI and Intelligent Design," December 2, 2005, http://www.uncommondescent.com/index.php/archives/541.

53. Carl Sagan, *The Demon Haunted World* (London: Headline, 1996), 47.

54. Ibid.

55. See David John Owen, "The Face on Mars," http://www.dave.co.nz/space/mars/face.html.

a design inference in this instance by arguing that the "face" is neither very complex nor tightly specified. (Pointing out that something does not exhibit CSI can only justify the conclusion that it was not designed in concert with an application of Ockham's razor, since objects can be intelligently designed without exhibiting CSI. "Specified complexity" is only a positive test for design. Arguing against a design inference is not the same as arguing against design *per se*.) Sagan first examines the complexity of the "face":

> Mars has a surface area of almost 150 million square kilometers. Is it so astonishing that one (comparatively) postage-stamp-sized patch in 150 million should look artificial—especially given our penchant, since infancy, for finding faces?[56]

In other words, it is not all that *unlikely* that a small area of Mars should look sufficiently like a face under certain conditions to make it appear face-like to casual observation. Then Sagan goes after specification:

> If we study the original image more carefully, we find that a strategically placed "nostril"—one that adds much to the impression of a face—is in fact a black dot corresponding to lost data in the radio transmission from Mars to Earth. The best picture of the Face shows one side lit by the Sun, the other in deep shadow. Using the original digital data, we can severely enhance the contrast in the shadows. When we do, we find something rather unfacelike there. The Face is at best half a face. . . . *the Martian sphinx looks natural—not artificial, not a dead ringer for a human face*.[57]

While at first glance the "face" seems to exhibit a specification, a closer look shows that it does not. In Richard Dawkins' terminology, the supposed face on Mars is "designoid"; it gives a superficial impression of design at first glance, but the more we investigate its salient features, the less designed it looks. Hence Sagan concludes, "It was probably sculpted by slow geological processes over millions of years."[58] The important point here is that in order to justify this conclusion Sagan seeks to undermine precisely those twin features that Dembski argues are as jointly sufficient conditions for justifying a design inference, namely, complexity and specification. If Sagan is right to argue that the "face" does not justify a design inference because it fails to exhibit specified complexity (indeed, because it is neither sufficiently complex nor tightly specified) then design theorists must be right to argue that anything which does exhibit specified complexity *should* be attributed to intelligent design. For example, Sagan would not argue that slow geological processes sculpted the presidential faces on Mount Rushmore, because unlike the "face" on Mars, Mount Rushmore does exhibit specified complexity.

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56. Sagan, *The Demon Haunted World*, 56.
57. Ibid., emphasis added.
58. Ibid.

Although he does not use the terminology of "specified complexity," Sagan clearly endorses specified complexity as an adequate criterion of design detection, because he argues that design inferences cannot be supported if the putative designed object lacks sufficient complexity, fails to exhibit a specification, or both. This negative argument implies the positive argument that when a putative designed object does exhibit CSI, a design inference *is* thereby warranted.

Four Theists Outside the ID Movement

Keith Ward: Abiogenesis and Improbable Processes Structured to a Good End

Keith Ward is the Regius Professor of Divinity and head of the Faculty of Theology at the University of Oxford, and is a fellow of the British Academy. Ward contributed to the "Theistic Evolution" section of the Cambridge University volume *Debating Design: From Darwin to DNA*, which was co-edited by Michael Ruse and William A. Dembski.

In *God, Faith, and The New Millennium*, Ward takes stock of the implications of the improbability of abiogenesis:

> It seems hugely improbable that, in the primeval seas of the planet earth, amino acids should meet and combine to form large molecular structures capable of self-replication. . . . The motive for positing some sort of intelligent design is almost overwhelming.[59]

Ward references a specification (being "capable of self-replication") and argues that the case for positing "intelligent design" is "almost overwhelming" because the structures exhibiting this specification are complex ("hugely improbable"). Ward goes on to argue that:

> if one is asking . . . whether a very improbable process is compatible with intelligent design, the answer is that if the process is elegantly structured to a good end, then the more improbable the process, the more likely it is to be the product of intelligent design.[60]

Ward is clearly not arguing for the mere *compatibility* of very improbable processes with intelligent design; rather, he is arguing that very improbable processes warrant explanation in terms of intelligent design when they are also specified.[61]

Ward does (unnecessarily in my view) restrict what ID theorists would term a specification to the elegant achievement of a good end; but this is

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59. Keith Ward, *God, Faith, and The New Millennium* (Oxford: OneWorld, 1999), 110.
60. Ibid, 118–19.
61. Ward advances the same sort of design argument in *God, Chance and Necessity*.

neither here nor there with respect to the observation that Ward argues for intelligent design by advancing the claim that nature exhibits non–*ad hoc* patterns at low probability and that the combination of the right sort of pattern (specifications) with sufficient improbability (complexity) warrants a design inference. That is, although Ward does not argue that his design inference is scientific, he is otherwise at least in the same ballpark as Dembski as regards the methodology of design detection.

Colin J. Humphreys: The "Guiding Hand" of Exodus

Colin Humphreys is the Goldsmiths' Professor of Materials Science at Cambridge University, and a vice president of Christians in Science. In *The Miracles of Exodus: A Scientist's Discovery of the Extraordinary Natural Causes of the Biblical Stories*, Humphreys argues that the Exodus account in the Bible is factually accurate "down to points of tiny detail"[62] and that modern science can "explain every miracle in the Exodus story."[63] However, Humphreys concludes by asking:

> Is there any evidence of a "guiding hand" in the events of the Exodus? What I've found is that the Exodus story describes a series of natural events like earthquakes, volcanoes, hail, and strong winds occurring time after time at precisely the right moment for the deliverance of Moses and the Israelites. Any one of these events occurring at the right time could be ascribed to lucky chance. When a whole series of events happens at just the right moment, then it is either incredibly lucky chance or else there is a God who works in, with, and through natural events to guide the affairs and the destinies of individuals and of nations. Which belief is correct: Chance or God? I'm not going to answer that question for you; you must answer it yourself.[64]

It is clear that Humphrey's himself would answer his question by saying that there is indeed evidence of a "guiding hand" in the events of the Exodus, because the specification of the Israelites being delivered from slavery in Egypt and into the "promised land" was exhibited by a series of events with a very high level of compound complexity.[65]

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62. Colin J. Humphreys, *The Miracles of Exodus: A Scientist's Discovery of the Extraordinary Natural Causes of the Biblical Stories* (London: Continuum, 2003), 339.

63. Ibid.

64. Ibid, 339–40.

65. This is an example of CSI being applied within the field of historical apologetics. Another example would be arguments from fulfilled biblical prophecy. Gregory Koukl draws this parallel in his article "Prophecy and People: Both Designed to Fit," http://www.str.org/site/News2?page=NewsArticle&id=5508. See also John A. Bloom, "Is Fulfilled Prophecy of Value for Scholarly Apologetics?" *Apologetics.com*, http://www.apologetics.com/default.jsp?bodycontent=/articles/biblical_apologetics/bloom-prophecy.html; Robert C. Newman, "Fulfilled Prophecy as Miracle," in *In Defence of Miracles: A Comprehensive Case for God's Action in History*, ed. R. Douglas Geivett and Gary R. Habermas (Leicester: Apollos, 1997);

Denis Alexander: The Anthropic Teleological Argument

Denis Alexander is head of the T Cell Laboratory, the Babraham Institute, Cambridge. He is also director of the Faraday Institute for Science and Religion at St. Edmund's College, Cambridge, and editor of the journal *Science and Christian Belief*. Dr. Alexander is a theistic evolutionist vigorously opposed to ID.[66]

In *Rebuilding the Matrix*, Alexander observes that the search for extraterrestrial intelligence "is based on the assumption that a single message from space will reveal the existence of intelligent life elsewhere in the universe."[67] He quotes Norman L. Geisler that "even if the object of pursuit is the reception of only one message, nevertheless, the basis of knowing that it was produced by intelligence is the regular conjunction of intelligent beings with this kind of complex information."[68] Although Alexander does not make it explicit, the "kind of complex information" Geisler is talking about in this passage is complex specified information.[69]

Alexander has earlier argued for design on the basis of the fine-tuning of cosmic constants:

> we have argued that the universe has some very unusual properties that render conscious life possible—and that those properties are not unusual because we observe them but because the physical constants that make them unusual could, presumably, have been otherwise.[70]

Alexander's anthropic-teleological argument is based upon the existence of "unusual properties," that is, an unlikely or complex set of physical properties, that are specified as the set of properties (or one of a small number of such sets) "that render conscious life possible." While Alexander does not use the *terminology* of CSI, his argument nevertheless uses CSI by appealing to the combination of complexity ("unusual properties") with a specification ("that render conscious life possible").

Robert C. Newman, "On Fulfilled Prophecy as Miracle" *Philosophia Christi* 3 (2001): 63–7; Hugh Ross, "Fulfilled Prophecy: Evidence for the Reliability of the Bible," http://www.reasons.org/resources/apologetics/prophecy.shtml.

66. See Denis Alexander, "Creation and Evolution: Hot Issues for the Twenty-First Century," http://www.bethinking.org/resource.php?ID=193; Peter S. Williams, "Theistic Evolution and Intelligent Design in Dialogue," http://www.bethinking.org/resource.php?ID=216); Denis Alexander, "Designs on Science," http://www.bethinking.org/resource.php?ID=260; Peter S. Williams, "Intelligent Designs on Science: A Surreply to Denis Alexander's Critique of Intelligent Design Theory," http://www.iscid.org/boards/ubb-get_topic-f-10-t-000107.html.

67. Denis Alexander, *Rebuilding the Matrix* (Oxford: Lion, 2001), 448.

68. Norman L. Geisler, *Miracles and the Modern Mind* (Grand Rapids, MI: Baker, 1992), 79–80, quoted in Alexander, *Rebuilding the Matrix*, 448.

69. See Norman Geisler and Peter Bocchino, *Unshakeable Foundations: Contemporary Answers to Crucial Questions about the Christian Faith* (Minneapolis: Bethany House, 2001), chapter 6, "Questions about the Origin of Life."

70. Alexander, *Rebuilding the Matrix*, 421–2.

Alexander's reliance upon CSI is emphasized by the fact that he quotes design-theorist William Lane Craig in defence of the argument from fine-tuning: "we should be surprised that we do observe basic features of the universe which individually or collectively are excessively improbable [complexity] and are necessary conditions of our own existence [specification]."[71]

Alexander paints two scenarios to push home the point that one cannot sidestep this argument by noting that we would not exist to be surprised by fine-tuning if that tuning were not as fine as it is. The first story involves a kidnapped accountant told that unless he wins the national lottery for ten consecutive weeks he will be killed, who is surprised to survive (at odds of around 1 in 10^{60}), but who is told that "he should not be surprised that such an unlikely event happened for, had it not, he would not have been alive to observe it."[72] Clearly, the accountant is right to be surprised and to suspect that there must be an explanation for his survival. The second story concerns a gambler who will be killed unless he gets ten coins flips in a row to show heads: "the fact of the gambler still being alive does not explain why he got ten heads in a row—the probability of this unlikely event remains at one in 1,024. What requires explanation is not that the gambler is alive and therefore observing something but rather that he is not dead."[73] Indeed, what requires explanation, in both stories, is the occurrence of unlikely (that is, complex) events that are specified as the necessary conditions of our observers not being killed. Likewise, in the case of the anthropic-teleological argument, what requires explanation is that "our finely tuned universe is not just any old 'something,' but contains within it a planet full of people who postulate theories about cosmology and the meaning of the universe. . . ."[74] That is, an explanation of fine tuning, indeed *an explanation in terms of design*, is required not simply because the fine-tuning represents an unlikely (complex) set of constants, but because the particular unlikely constants that exist are specified as necessary preconditions for the existence of complex life:

> The data pointing to a series of remarkably finely tuned constants [complexity] which have promoted the emergence of conscious life [specification] sit more comfortably with the idea of a God with plans and purposes for the universe than they do with the atheistic presupposition that "it just happened."[75]

Alexander implicitly deploys CSI as an argument for the conclusion that the data of cosmic fine-tuning does demand an explanation rather than an evasion. Alexander also implicitly uses CSI as a basis for inferring that the best

71. William Lane Craig, "Barrow and Tipler on the Anthropic Principle vs Divine Design," *British Journal of the Philosophy of Science* 39 (1988): 389–95, quoted in Alexander, *Rebuilding the Matrix*, 420.

72. Alexander, *Rebuilding the Matrix*, 421.

73. Ibid.

74. Ibid., 422.

75. Ibid., 424.

explanation of cosmic fine-tuning is intelligent design; for the *reason* that the specified complexity of cosmic fine-tuning "sits more comfortably with the idea of a God with plans and purposes for the universe than they do with the atheistic presupposition that 'it just happened'"[76] is surely "the regular conjunction of intelligent beings with this kind of complex information."[77]

In a lecture presented by Christians in Science at Southampton University, Alexander made it clear that he has "no problem with the language of design so long as it's kept to the big picture design which makes science possible [and which is seen in] the anthropic structure of the universe."[78] Just as Phillip E. Johnson has asked Darwinists, "What should we do if empirical evidence and materialist philosophy are going in different directions?"[79] so I would ask Alexander what he would do if empirical evidence which triggers a design inference according to the same criteria that he applies to "the big picture" of anthropic fine-tuning were to be found within any of the smaller details of that picture? Which should we deny, the empirical evidence, the design-detection criteria which he applies to cosmic fine-tuning, or his objection to invoking the language of design at that level?

Alexander's objection to using "the language of design," except in the case of "the anthropic structure of the universe," either rests upon the confusion of intelligent design with supernatural design and the questionable assumption that the latter cannot enter into scientific theorizing;[80] or else (if such a confusion is not made) it implies either the excommunication from science of numerous established scientific fields (for example, SETI, which Alexander himself references), or an apparent double standard which admits the scientific validity of intelligent design in some scientific fields (for example, cosmology) but not in others (for example, molecular-biology).

Basil Mitchell: Telekinesis and Disembodied Agency

In the course of defending the coherence of talking about incorporeal agency in *The Justification of Religious Belief*, Basil Mitchell (then Nolloth Professor of the Philosophy of the Christian Religion and Fellow of Oriel College Oxford) has this to say on the subject of telekinesis (the alleged power to alter events, such as the fall of dice, by simply "willing"):

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76. Ibid.

77. Geisler, *Miracles and the Modern Mind*, 80, quoted in Alexander, *Rebuilding the Matrix*, 448.

78. Denis Alexander, "Beyond Belief? Science and Religion in the 21st Century," Southampton University, May 8, 2006.

79. Phillip E. Johnson, *Defeating Darwinism by Opening Minds* (Downers Grove, IL: InterVarsity, 1997), 114.

80. Cf. J. P. Moreland, *Christianity and the Nature of Science* (Grand Rapids, MI: Baker, 1989); J. P. Moreland, "Is Science a Threat or Help to Faith?" http://www.leaderu.com/real/ri9404/threat.html.

> Whether or not telekinesis actually occurs, it does not seem difficult
> to specify the conditions under which we should be prepared to admit
> its occurrence. If the dice were to fall with a certain number upwards
> whenever a particular individual was asked to bring it about and not
> otherwise, we should conclude that he had the power to cause physical
> changes without bodily movement. Bodily movement on the part of
> the agent is normally a reliable guide as to whether an occurrence is an
> action or not, and, if so, whose; but we could, in principle, settle both
> questions without recourse to this criterion, if the other indications
> were clear enough. What are these? A combination of the following:
> (i) The unlikelihood of the event's occurrence apart from the interven-
> tion of some agent. (ii) The event's contributing to some purpose. (iii)
> The agreement of that purpose with the independently known charac-
> ter and purposes of the putative agent.[81]

(Note that Mitchell is arguing that intelligent design can in principle be de-
tected even if it is not implemented by bodily agency.) Mitchell's design
detection criterion has more parts than Dembski's, but then it attempts to do
more, because it attempts to provide a criterion whereby we can detect not
only that "an occurrence is an action" but also "whose" action it is. Mitch-
ell's criterion for detecting intelligent design *per se* appears to be similar to
Dembski's.

Mitchell says that whether an occurrence such as the falling of dice is an
action (that is, is the result of intelligent design) can be answered positively
if two conditions are met—and those conditions are sufficient complexity
("The unlikelihood of the event's occurrence apart from the intervention
of some agent") combined with an independent specification ("specify the
conditions under which we should be prepared to admit its occurrence"; "If
the dice were to fall with a certain number upwards whenever a particular
individual was asked to bring it about and not otherwise"; "The event's con-
tributing to some purpose"). Knowledge concerning "The agreement of that
purpose with the independently known character and purposes of the puta-
tive agent," while helpful in pinning a designed event on a specific agent, is
clearly not necessary for Mitchell's design inference *per se*. This shows once
again that, as Dembski asserts, "detecting design . . . does not implicate any
particular intelligence."[82]

Suppose paranormal investigators set up some rigorous scientific ex-
periments into telekinesis (would critics of ID condemn such experiments
as nonscientific in principle?[83]) and the dice do indeed "fall with a certain
number upwards whenever a particular individual was asked to bring it about
and not otherwise." Suppose the specified complexity of this result exceeded

81. Basil Mitchell, *The Justification of Religious Belief* (London: Macmillan, 1973), 8.

82. William A. Dembski, "Skepticism's Prospects for Unseating Intelligent Design," http://
www.designinference.com/documents/2002.06.Skepticism_CSICOhtm.

83. Cf. the Princeton Engineering Anomalies Research group (PEAR), http://skepdic.com/
pear.html.

Dembski's universal probability bound (something Mitchell does not bother calculating): While we should conclude that the best explanation for this result is intelligent design, we could not implicate our test subject on the basis of CSI alone. Any agent with the requisite causal power might have caused the result we detected. To settle on attributing the exercise of telekinetic powers in this instance to our test subject (rather than to God, or a god, or a ghost, or a demon, or an angel, or another human or alien with telekinetic powers who is trying to dupe our researchers into thinking that their test subject has telekinetic powers when they do not) our scientists must appeal to criteria *beyond* CSI. Mitchell's "agreement of that purpose with the independently known character and purposes of the putative agent" might be useful here; but one imagines that Ockham's razor should feature fairly heavily in such deliberations.

Unlike contemporary ID theorists, Basil Mitchell did not clearly distinguish between criteria for inferring design and criteria for inferring the responsibility of putative designers. Mitchell also left his design detection criterion in a fairly pretheoretic state (simply suggesting the combination of low probability with a specification) without the context of information theory and universal probability bounds deployed by Dembski; and perhaps for these reasons, Mitchell never made much of his criterion. Nevertheless, it seems clear that Mitchell was thinking along the same lines as Dembski.

Conclusions

William A. Dembski claims to have formalized (one of) the intuitive design detection tools of humanity. Confidence in the truth of this claim, and in the claim that CSI is a reliable criterion of design detection, is bolstered by the fact that academics outside the ID movement (irrespective of their worldview, and sometimes despite their own negative assessment of ID) explicitly or implicitly employ (pretheoretic versions of) the CSI criterion when arguing for (and against) design inferences.

Moreover, the greater the number of scholars who independently arrive at the same answer to a problem, the more confident we tend to be about the truth of their answer. Hence, discovering CSI used to solve the problem of justifying and repudiating design inferences in the work of a diverse group of scholars outside the ID movement (including several "hostile witnesses" opposed to ID) justifies some confidence in the first premise of ID.

Since the conclusion of intelligent design follows logically if we add a premise affirming the existence of sufficient relevant empirical evidence (even if in only one field of inquiry), the truth of such a second premise would therefore seem to be the crucial issue between supporters and detractors of the claim that intelligent design theory can be advanced as a sound argument. And if ID is acknowledged to be advancing a sound argument,

advocates of the definitional, "it's not science" critique of ID will either have to eat their proverbial hats, or else endorse transferring assets from university science departments to philosophy departments in the interests of furthering our understanding of physical reality.