NOMA Revisited

James Downard – June 2014 (revised from postings at *www.spokanefavs.com* appearing as "NOMA: The religion and science debate")

In his 1999 book *Rocks of Ages*, Stephen Jay Gould sought to diffuse the creationism/evolution debate (boiling over then in the Kansas science standards debate) by sequestration. According to his proposed nomenclature, religion and science occupy *Non-overlapping Magisteria* (NOMA), modes of thought operating in separate domains, using different methods of inquiry where, properly engaged, they really shouldn't be bumping into one another in controversial ways. So settle down kids.

Neither side of the debate accepted this olive branch.

Skeptics reminded Gould that religious believers were all too prone to trampling across his NOMA fence, most notoriously Young Earth Creationists who resolutely shaved off half a dozen orders of magnitude from the age of the Earth and universe, while making the resulting created landscape safe for herbivorous pre-Flood tyrannosaurs and strictly heterosexual family arrangements (though hypocritically not dwelling too much on Old Testament patriarchal polygamy).

Religious believers, meanwhile, felt Gould was edging religion out of all the gutsy verifiable stuff (the Cosmos in all its variety whose handiwork of God it is all supposed to be) that has long been the playground for Natural Theologians who find marveling at the Creation (jaw agape) more congenial than trying to avoid jaw dropping by trying to wrestle with the wackier rules laid out in the various versions of what is supposed to be, after all, the Creator's autobiographical *User Manual* (like behavioral foibles such as that "thou shalt not suffer a witch to live" rule in Exodus 22:18 and refined by Leviticus 20:27).

There is much irony here, not the least of which is why pondering morality, ethics, and meaning in life is to be considered any less important than paleontology or particle physics, and thus a diminishment to have to stay on their side of the NOMA fence.

Having studied the methodological ins and outs of the creation/evolution debate for some years, though, it has come to me that Gould got the issue *almost* right. Looking at how people had thrashed over the issues, what evidence and arguments they deployed (and equally importantly, what ammunition or reasoning they did not address), I began to notice a surprisingly consistent evidential and conceptual divide between cognitive domains, but it was not strictly between science and religion. It was between *decidable* and *undecidable* propositions.

Here the ghost of the mathematician Kurt Gödel winks down at us: the idea that *all* logical systems ultimately contain intrinsically undecidable propositions, lurking like philosophical icebergs to sink the logical positivist ship (such as atheist Bertrand Russell, whose faith in the tidy ineluctability of mathematical logical may have been just as faithfully trusting as Christian William Lane Craig cuddling close to an Anthropic Big Bang).

No matter how you tried to work around it, any logical system eventually bumps into something outside its ability to resolve from within its logical frame. It is typified by imagining a catalog of all library catalogs: do you have to include the main catalog itself on the list, or blow a gasket if you don't?

Lots of things in mathematics provoke disquiet in that way, and remind us how common sense can break down at the margins. For years I have enjoyed toying with the brains of practical systems engineers by quizzing them on whether some infinities are bigger than others (they are) and seeing their consternation as they try to wrap their heads around issues they simply had never considered. But, it's like, "infinite"—there's just *infinity*, isn't there?

It's not that common sense has to be junked, or that reasoning is no longer applicable. In fact, *scientific* reasoning in the form of rigorous, organized common sense is the tool for figuring out which decidable propositions are actually true, while *philosophical* reasoning is what you have to employ when grappling with undecidable propositions.

And what do I mean by *decidable* and *undecidable*? Propositions are "decidable" to the extent that you can work out what sufficient evidence would be for accepting or rejecting them (like the Earth revolving around the sun, and not the other way around). Propositions are "undecidable" though whenever it is the nature of "sufficient evidence" that is turning into the point of dispute. You can't logically reason your way to such a proposition because what you can't settle is what would be sufficient for it. I contend that all moral, ethical and esthetic judgments are strictly undecidable in just that way and for that very reason.

If you like, this version may be dubbed $NOMA_D$ to distinguish it from the unalloyed Gould original.

In a shorthand way, decidable issues might be considered matters of empirical *knowledge*: one can "know" that the Earth revolves around the sun because there is sufficient evidence at hand to show that to be the case (though a 2012 National Science Board survey found 20% of Americans aren't all that convinced here, and a busy minority of creationists still embrace geocentrism as a viable scientific option, including Paul Ellwanger and Tom Willis who were involved in the 1980s "Equal Time" legislation and 1999 Kansas science standards revisions respectively).

Undecidable notions, by contrast, are really matters of *belief*. One decides to take a stand on an undecidable prospect, to "believe" that it either is or is not so, precisely because you're never going to be able to resolve such questions if you are restricted to the dictates of truly "sufficient" evidence.

As it happens, philosophers have been dancing around this divide for some time without clarifying it in quite the way I am trying to do here. A nice example was William Clifford, a brilliant American mathematician and freethinker whose work on curved spatial geometries might well have brought him into relativity theory well ahead of Albert Einstein. But he dropped dead in his thirties in the 1870s so we'll never know that (another of those pesky undecidables).

Anyway, in an 1877 essay written late in his short life, "The Ethics of Belief," Clifford proposed something dear to the secularist's heart: that as a general principle people

should never believe *anything* without sufficient evidence. As examples of things that didn't sound very plausible using that yardstick, he included belief in religion and miracles, pitting the claims of Islam against the mutually contradictory concepts of Buddhism. But if the idea that Buddha was born of a virgin and ascended into heaven could be elbowed aside by that logic, by proxy he had done away with the Biblical miracles much closer to home (and readers of Clifford then and since spotted what he was up to in his carefully chosen exotic examples).

Generations of atheist rationalists have followed much the same line of reasoning, from Bertrand Russell to Carl Sagan, typifying the Logical Positivist side of rationalist thinking (or Scientism, if one wants to get more snarky). Extraordinary claims require extraordinary evidence, don't they?

Russell slipped on the $NOMA_D$ issue, though, when he dismissed the existence of gods as just as unprovable (or disprovable) as whether a teapot orbits the sun. Alas, Russell forgot rocketry here: the existence of an orbiting teapot, while not easily ascertained without expenditure on a lot of space probes and maybe porcelain-detecting instrumentation, could in principle be nailed down just as precisely as the reality of *Olympus Mons* on Mars (or the lack of Martian-built canals or mesa faces have been in the years since Russell did or did not find out whether there was or wasn't an afterlife).

And that nature of decidability as a strictly defined standard is exactly what is not available when trying to affirm whether Zeus or Quetzalcoatl or the God of Abraham are more or less "real" than the Flying Spaghetti Monster or the Thor of Marvel Comics (grist for atheist Joss Whedon film epics these days rather than the province of devout ode chanters).

Now you'll notice Clifford's use of the word "belief" in his essay and recall my $NOMA_D$ distinction between "decidable" knowledge versus "undecidable" belief. How can anyone "know" that religious events (from voices from shrubbery to Joseph Smith's golden tablet library loan) either did or did not occur (or, for that matter, that Caesar did or did not have an illegitimate son by Cleopatra, or what went on in the mind of Elizabeth I as the Spanish armada neared). What are the *standards of evidence* for essentially historical events, inaccessible to direct verification unless you have a Time Machine? Historical events start out observed and occurring or not, but by their nature transform into matters of probabilistic conviction and philosophical judgment for later generations as the events fade out of personal experience.

Take, for example, a gathering of contemporary atheists for their monthly club meetings. Imagine one of their number suddenly raptured away by an otherwise shy Omnipotent Intelligence to a mesa for a one-on-one heartfelt chat on theological realities (rather in the way of Grace Hanadarko in Holly Hunter's *Saving Grace* series that ran on *TNT* from 2007 to 2010). The atheist checks their watch to note the passing of time, and after a half hour is summarily plunked back down amongst their nonbelieving skeptical brethren, poof! The atheists Left Behind (to muse on Kirk Cameron perhaps) have in the meantime also checked their watches, having observed the magical disappearance and subsequent reappearance of their fellow after a half

hour (a confirmation of elapsed time comparable to the static-laden video evidence in the movie version of Carl Sagan's *Contact*).

Now just how much a gang of blockheads would this crowd have to be not to be impressed by this empirical disruption of secular reality, or not to at least consider the possibility that the atheist's testimony of their half hour chat with the OI signified a transcendent event of some significance?

But look what happens as this epochal occurrence slips into the past, with all of the original observers eventually dying off and now only the written testimony of the facts left for others to assess and accept or reject. It is now not unreasonable for later readers of that atheist rapture incident to be skeptical of its veracity, which is just the boat skeptics are in when dealing with Jesus' resurrection (or the Buddhist counterpart Clifford used as his proxy).

Actually its worse than that, since the historical trail back to primary sources to assess what actually "happened" is part of the difficulty of establishing sufficient evidence in matters miraculous (the Gospel of Luke, for example, is explicitly a secondary compilation, but nothing in the text allows us to even know who the putative author may have interviewed or what written sources were consulted, and the absence of independent primary sources rules out consulting them even if we had a list to go on).

Which is why human history is a philosophical art rather than a scientific discipline (even though the grist of its mill would have been at one moment in time objectively observable events). Fortunately, historical sciences like astronomy or geology do not suffer from that inadequacy, for there is no possibility of mendacity on the part of stellar spectra or sedimentary deposits (though the reports of the observing scientists can be legitimately scrutinized, which is why that repeatability issue plays such an important role in scientific observation).

So laying out "sufficient" evidence can be tricky. What's wrong with that? Knowledge would just be a refined and scrutinized version of belief, where standards of evidence run along a simple spectrum, from bad to better and finally slam-dunk best. That's the line of reasoning a lot of people want to take, independent of whether they are religious or secular.

But things are not so simple. There is a problem with Clifford's main argument, right at the level of assumptions, and it's a rather big one, as philosopher William James noted in his 1896 essay, "The Will to Believe." To be fair, this was long after Clifford was dead, so we have no way of knowing how he might have modified his views in response to James' criticism, which was this: aren't you assuming that *all* true beliefs that people would benefit from believing are notions for which you can in principle find sufficient evidence?

What if that isn't true? And the area James highlighted concerned not religious stories, but more fundamental moral and ethical matters, the *shoulds* and *oughts* of daily life, the very turf religionists today are so keen to defend as their proprietary hill. Never mind whether any particular god or gods exist, or whether tales of divine activities really happened, are "good" or "bad" things *good* or *bad*, and how do you decide? (And Plato's Euthyphro is waiting in the wings from 2500 years ago to quiz

today's moralists on command versus absolute morality, allowing secular moralists like Austin Dacey to step onto the field and defend absolute ethics no less fervently than Ten Commandment groupies.)

Questions like these are *undecidable* in the strict sense defined here because what you ultimately can't settle are the standards of evidence for accepting them. What is "better" to do, and why is your "better" *better* than my "better"? And around and round all will go, the issues never going away, never getting resolved, in the way *decidable* scientific propositions can be settled, like the earth revolving around the sun (Ellwanger and Willis notwithstanding).

It isn't that science plays no role in supplying evidence relevant to undecidable propositions. For example, science can lay out the mechanics of the human brain systems that contribute to our making moral judgments (at least two are currently identified, one running off rational assessment circuitry, and another more snap judgment system riffing off our emotional amygdala network). But even knowing that still doesn't answer whether the actions we engage in are right or wrong—those judgments are matters of belief (taking a stance in the undecidable realm) and should never be thought of as being knowledge in the sense decidable notions ought to be.

And you may notice how I couldn't avoid using "should" and "ought" just now, once more stepping across the $NOMA_D$ line. It's *really* easy to do, and complicates a lot of the discourse that takes place on Science versus Religion.

Here again, though, William James comes in handy to offer a way out of this maze. His idea of *pragmatism* may be employed: looking at the history of a belief, how it has been used before, and what the consequences of that belief led to in the way of action, and using that historical example to inform the decisions we make today on those (still "undecidable") issues. It is applying the scientific method to marshal empirical evidence (to the extent that is possible) to give the philosophical reasoning the widest range of data to act on.

So knowledge of the decidable realm can't decide for you what to believe when it comes to undecidable propositions, but it can suggest what might happen *if* you chose to believe a certain way.

Free will is an example. Philosophers and scientists tie themselves in knots debating whether we actually do have a measure of free will, which may be a clue that this is an undecidable proposition. Purely mechanistic systems can be that way after all, as the Qualia problem shows (do all people have the same *experience* when we see the same color or hear the same sound, and how you can't really figure that out by any empirical measure). So our brains could be a fully naturalistic system and yet still have features about its operation that must elude our scientific grasp in the decidable realm.

But however undecidable the existence of free will may be, its consequences drop into the decidable realm of observation, for scientists can pragmatically measure what happens when a person *believes* in free will. There's already a pile of technical literature on this topic, prompting some coverage in the June 2014 issue of *Scientific American*. As it turns out people who believe they have free will tend to be less likely to cheat you than people who don't, and so if you think less cheaters *ought* to be the case,

you *should* encourage belief in free will, independent of whether we really do have free will.

And aren't we now caught in a spiraling storm drain of contradiction: would your affirmation of the desirability of free will belief be an act of free volition or not? Welcome to the rabbit hole.

In this way ideas (and our beliefs about them leading to action) have definite and usually very important consequences, so no one should think that the taxonomy of "undecidable" is either dismissive or trivializing. In fact, quite the opposite. The knowledge that science culls from the decidable realm may not affect our behavior at all: how many people behave differently based on a refinement of the mass or the proton, or whether Pluto qualifies as a planet or not?

But the "undecidable" conundrums of ethical and esthetic reasoning (what is "evil" and "art" and can you know it when you see it and what should you do about it when you do?) almost invariably impact our actions, because they are the reasons we do them, from helping or hindering our fellow humans through charity or war, deriving from the *oughts* and *shoulds* to be pondered when strolling the landscape on that side of the $NOMA_D$ barrier.

The complex character of this distinction hangs over the issue like Banquo's ghost in Macbeth: the very matters of greatest import to our action are saddled with the limits of decidability, while the "safe" decidable realm, of the observable and testability that science does so well can only step so far towards addressing the important questions of life without bumping into the $NOMA_D$ fence.

It would be nice if there were some gate or bridge available, to allow thinkers to slip back and forth from the domains and render it a nice friendly spectrum once again. But I contend that is not going to happen, and all attempts to construct such a philosophy-saving "Get out of Jail Free" card are doomed to failure. You can't get from one to the other, not really.

If that is so, and knowledge-belief isn't a spectrum but reflections of distinct polarities on the $NOMA_D$ landscape, then the practical consequence is not to get frustrated when the nonexistent gate won't open, or why the bridge from one to the other keeps falling apart. Instead, learn to use the tools of each domain (science and philosophy) to better navigate the landscape without tripping too often over the Rocks of Ages littering them both.

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