

Article

The Natural Pathways to Atheism: Cognitive Biases, Cultures, and Costs

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Abstract: Some recent scholarship in the bio-cultural sciences of religion has argued that atheism, like science and doctrinal theology, is less natural than religion. This scholarship, however, draws on problematic natural/unnatural and nature/culture binaries that denaturalize culture and reify a more basic essence/accident binary. Here, I argue that (1) while the suggestion that religion is more natural than atheism indicates something important, it reinforces assumptions about the naturalness of cognition and the unnaturalness of culture that confuse as much as they explain; (2) a clearer understanding of atheism requires the thorough naturalization of culture; (3) multiple pathways to atheism can then be understood as natural developments of both cognitive and cultural predispositions, and analyzed along continua of religion-reinforcing cultural scaffolding and religion-fostering cognitive intuitions; and (4) finally, I suggest an economic frame for better understanding atheist expressions that construes atheism, despite its relative costs and rarity, as a natural though expensive phenomenon. Because atheist expressions are differentiated by the mechanisms (cultural and cognitive) they utilize to pay the costs of overriding religion-fostering intuitions and religion-reinforcing cultural scaffolding, all atheist expressions are naturalized along with culture; however, the basic insight, indicated by the claim that religion is more natural than atheism, is preserved.

Keywords: atheism; cultural scaffolding; cognitive science of religion; bounded rationality; cognitive variability; economics; religion; content biases; context biases



Citation: Daniel-Hughes, Brandon. 2021. The Natural Pathways to Atheism: Cognitive Biases, Cultures, and Costs. *Religions* 12: 867. <https://doi.org/10.3390/rel12100867>

Academic Editors: F. LeRon Shults and Joseph Langston

Received: 19 August 2021
Accepted: 6 October 2021
Published: 13 October 2021

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1. Introduction

The use of “natural” and “unnatural” to describe religious phenomena has a complicated history in both religious studies (Pailan 1994) and the scientific study of religion (Bloom 2006; De Cruz and De Smedt 2015; Smith 2009; Visala and Barrett 2018). This is foregrounded in Robert McCauley’s *Why Religion is Natural and Science is Not*, where he carefully defines the terms and places them on a continuum (McCauley 2011). Despite his care, a more simplistic natural/unnatural binary has proven difficult to dislodge. This is reflected in a body of literature addressing the “naturalness” or “unnaturalness” of atheism (Barrett 2010; Bloom 2006; Caldwell-Harris 2012; Geertz and Markússon 2010; Gervais et al. 2011; 2021; Johnson 2012; Kalkman 2014; Launonen 2018; Norenzayan and Gervais 2013; Szocik and Walden 2015; Van Eyghen 2016; Wildman et al. 2013). The argument of this paper is less concerned with banishing “natural” and “unnatural” as descriptors of “belief–behavior complexes” (Shults 2018) and more interested in (1) elaborating a categorical scheme that organizes diverse families of atheist expressions without rendering any of these “unnatural” and (2) developing an economic frame that can capture the real differences that the terms “natural” and “unnatural” indicate.

The cognitive science of religion (CSR) has furthered our understanding of the core set of evolved intuitions that most modern humans share and the ways in which these are manifested across cultures. Its successes have convinced even once skeptical philosophers of religion, like me, of the general truth of Pascal Boyer’s claim that “[o]ur minds are prepared [to learn religious ideas] because natural selection gave us particular mental

predispositions" (p. 3, 2001). However, as CSR has matured, the need has grown to integrate strictly cognitive treatments of religion within the larger "bio-cultural sciences of religion" (BCSR) to capture the contributions of both the "hard" and the social sciences (Wildman et al. 2012). Noted voices have long recognized this. Witness Boyer's acknowledgement that our predispositions to entertain and believe religious ideas are only relevant if such ideas are present in a particular culture. If they are not, then we would have the ability but no opportunity "to catch them" (p. 4, 2001). Therefore, while CSR's explanations are necessary, they are not sufficient for an adequate understanding of something as complex as atheism or religion.

Unless maximum care is taken, employing "natural" and "unnatural" risks reinforcing the disciplinary isolation of CSR and limiting its integration into the larger BCSR. The "naturalness" or "unnaturalness" of atheism is a particularly thorny problem in this regard because, "it draws on the same natural cognitive capacities that theism draws on" (Geertz and Markússon 2010, p. 157; Johnson 2012; Szocik and Walden 2015). Investigating the causes and development of atheism, therefore, requires the kinds of close considerations of culture that are too easily impeded by loose deployments of "natural" and "unnatural". It may be true that religion is "natural", and atheism is not, given the ways in which those terms are usually deployed in CSR, but this observation provides little explanatory traction for understanding the development of atheist expressions.

To aid in remedying this situation, the argument below proceeds in four stages. The opening section frames the entire inquiry by focusing on deployments of the natural/unnatural binary. The second section focuses on ways in which cultural scaffolding has been, at least obliquely, treated as "unnatural", and works to naturalize culture (Barrett 2010). Section 3 offers an alternative categorization involving four families of pathways to atheism. It emphasizes the import of "individual-differences variables" and "natural variation" of cognitive traits (Caldwell-Harris 2012; Johnson 2012), and the relative presence or absence of religion-reinforcing cultural scaffolding. The final section addresses these pathways within a single frame that foregrounds economic concepts and terminology to integrate discussions of atheism and finite cognitive and cultural resources. When using "default-interventionist" models of dual-process cognition (Evans 2002; Evans and Stanovich 2013; Kahneman 2011; Kalkman 2014; McCauley 2011; Morgan 2016), the natural/unnatural binary indicates something important about religious and nonreligious belief-behavior complexes. However, widening our aperture to register cultural contexts yields a better categorization of atheist expressions and a better understanding of their cognitive and cultural costs.

2. Atheism and the "Unnatural"

CSR has stabilized the term "natural" within BCSR while stripping it of much of its rhetorical power and normativity. These still lurk in the shadows, but "natural" and "normative" are no longer synonymous as they often were in centuries past in philosophy of religion (De Cruz and De Smedt 2015), and "unnatural" is no longer a term of rebuke. Scholarly atheists now announce the "naturalness" of religion (Dennett 2006; Shults 2014), echoing and inverting the rejection of natural theology by some of the twentieth century's most acclaimed Christian theologians (Barth 1980). This indicates a shared rejection of the naturalistic fallacy, but forces the question of what exactly constitutes the "naturalness" of some belief-behavior complexes.

"Natural" is notoriously slippery and has been used to designate beliefs and behaviors that are "innate", "implicit", "native", (Bering 2002, 2006), "automatic" (Boyer and Barrett 2005), shaped by "cognitive constraints" (Barrett 2007), "likely but not necessary" (Geertz and Markússon 2010), "non-reflective" (Clark and Barrett 2011), and those to which we are "predisposed" (Alogna et al. 2019; Cummins and Cummins 1999), or to which we cognitively "default" in most circumstances (Bering 2010; Barrett and Lanman 2008; Tremplin 2005). This incomplete list speaks to agreement among a range of scholars that labeling religion "natural" indicates something important. Provisionally, I adopt Bering's

characterization of the import of the “naturalness stance”. “[R]eligious belief”, he writes, “though it is by no means deterministic, is still a highly probabilistic phenomenon. It is this probabilism that captures the naturalness stance [. . .]” (p. 167, 2010). Most CSR scholars suggest a range of mechanisms and predispositions that explain the probabilism, near universality, and persistence of religion in most contexts, but one widely shared characterization is that religion is “natural” because it is the “default setting” of our species (Caldwell-Harris 2012).

Having provisionally characterized the “religion is natural” thesis, I move to surer footing in acknowledging the challenges this poses for explaining atheism. “[T]he naturalness of religion makes atheism appear, in a sense, ‘unnatural’”, and implies that atheism should be “unusual”, superficial or “skin deep”, and necessitate the reflective “override of theistic intuitions”. To correct this, atheism must be placed “within the ‘naturalness of religion’ hypothesis” by taking into account “the broader cultural context” (Gervais et al. 2011, p. 402). This point highlights the degree to which a *purely* cognitivist account is incoherent. If religious belief–behavior complexes are spontaneously generated by our species under normal conditions, then atheism must involve abnormal conditions and its emergence would demand something more than a purely cognitivist account (Richerson and Boyd 1978).

Recently, however, the *explanandum* and *explanans* of atheism have changed in two important ways. First, when scholarship on religion was dominated by theologians and their institutional commitments, the perceived need was to explain the existence of foolish atheists in explicitly religious terms (Anslem [1077–1078] 1995). However, since the birth of modern scientific studies of religion, “the puzzle to be explained [has been] religious belief, not atheism” and the explanations have largely been couched in methodologically naturalist terms. Presently, the relative success of these explanations has turned atheism into the pressing *explanandum*, and spurred scholars to find similarly methodologically naturalist *explanans*. “Indeed, we may not be able to understand one [religion] without understanding the other [atheism]” (Johnson 2012, p. 49). Second, while various scholars within CSR hypothesize a range of evolved cognitive mechanisms, devices, predispositions, or modules as *explanans* of cross-culturally recurrent patterns (Barrett 2007), the historical particulars of any given culture are rarely evoked as *explanans* except when the *explanandum* is either (1) a deviation from a recurrent pattern identified by CSR, or (2) a more “fine-grained” culturally specific manifestation of a more “course-grained” cognitive faculty (Clark and Barrett 2011). This is a perfectly acceptable use of explanatory reductionism that aims to allow evolved cognitive predispositions, “evoked culture”, and the unique features of different cultures each their proper explanatory place (Tooby and Cosmides 1991). It does, however, stack the deck against interpretations of atheism as anything other than a cultural *intervention* in “natural” cognition.

To be clear, something is amiss in the way atheism is often taken, almost *a priori*, to have little to no grounding in human nature. Something about the way the natural/unnatural binary is deployed predetermines the outcome of inquiries into atheism’s roots. To be equally clear, I am not the first to note this problem (Kalkman 2014; Norenzayan and Gervais 2013; Visuri 2018; Weustink 2020). Common deployments of “natural” and “unnatural” almost necessitate this predicament. This is regrettable, since McCauley’s influential text, *Why Religion is Natural and Science is Not* (2011), though problematically titled (Neville 2013), is admirably clear on their proper usage.¹

McCauley’s conception of “naturalness” has three key features. First, it amends “the dual process tradition’s distinction between intuitive and reflective cognition” (p. 6, 2011). Labeling beliefs or actions as “natural” that are “familiar, obvious, self-evident, intuitive, or held or done without reflection”, and those that require reflection as “unnatural”, is but a first step. McCauley carefully characterizes the relative influences of reflective and non-reflective forms of cognition on downstream cognition and action. All else being equal, “when reflection about many religious matters occurs, nonreflective habits of mind typically *overwhelm* its effects in on-line cognitive processing” (McCauley 2000, 62 emphasis added). In other words, one reason why non-reflective cognition is more “natural” is because it

is more apt to find downstream expression, and reflective cognition is less so because its expression requires more effort.

Second, McCauley further parses natural cognition into maturational and practiced naturalness. Maturationally natural cognition involves areas where most humans have “immediate, intuitive views that pop into mind in domains where they may have had little or no experience and no instruction”, while practiced naturalness “comes from having extensive experience in dealing with some domain” (p. 5, 2011). The former involves knowledge “that we get *for free*”, whereas the latter is knowledge we must work for (p. 170, 2011). This distinction is not absolute, and calling a particular bit of knowledge “natural” only means that it is more or less natural than some other bit; “naturalness” is always a matter of degree. “With extensive practice [. . .] thoroughly *cultural* activities eventually begin to feel natural. They become *second nature* [. . .] However natural they may come to feel, though, their cultural origins should, by now, be evident. There is a *practiced* naturalness” (pp. 24–25, 2011). Practiced naturalness is acquired not merely through repetition or individual determination but through cultural instruction and scaffolding, processes which are somehow different from the cultural processes that involve the “cultural infiltration” and tuning of maturationally natural systems (p. 26, 2011).

Third, despite McCauley’s admonitions that “natural” is only a relative term and his bracketing of innatism, a kind of essentialism remains. This is not a flaw in his analysis so much as a feature of the nature/culture binary that is baked into disciplinary boundaries and definitions, and perhaps even our intuitive ways of thinking. One of McCauley’s major contributions is to put some more pragmatically useful flesh on the dry, old nature/nurture bones insofar as the maturational/practiced distinction has robustly empirical implications that lend themselves to experimentation. Nevertheless, one defining characteristic of maturationally natural actions is their relative independence from cultural inputs. Nature and culture remain opposed to one another terminologically and theoretically even though McCauley’s impulses throughout the text lead him to integrate them in practice.²

Though beyond McCauley’s control, “Why X is Natural and Y is Not” has become something of a Dawkinsian meme (Dawkins 1976). Variations have proliferated, but so too has the problematic tendency to equate “natural” with inborn, innate, intuitive, universal, and genetically inherited cognitive habits, and “unnatural” with those that are products of cultural instruction, supported by cultural scaffolding, and culturally variable. What has spread less successfully is McCauley’s careful insistence that “natural” is always a relative term. What remains is a fairly conventional understanding of “natural” as aligning with mechanisms of biological inheritance and “unnatural” as aligning with various forms of cultural inheritance, and this suggests that “just like “innateness”, “naturalness” seems itself to be a folk-psychological and hence a cognitively natural idea” (Launonen 2018, p. 98; Slingerland 2008). We have reached an impasse. On the one hand, the natural/unnatural binary does indeed indicate something important about religion and atheism. On the other, Launonen is correct that “a scientifically precise definition of “naturalness” seems hard to formulate” (p. 83, 2018).

Two complications muddy the waters further. First, many traits or human propensities are subject to natural variation so that individuals display these traits (approximately) along a normal distribution curve. Male heights cluster around the 175 cm mark, though there are plenty of men who are much shorter and much taller without being “unnaturally” short or tall. The complication questions whether the cognitive habits that predispose humans toward religion are more like height, where we would expect normal variation among the population that includes outliers on the tails of the distribution curve, or more like bisymmetry where individual variation is nearly impossible. Recent scholarship (Johnson 2012; Caldwell-Harris 2012) has suggested treating religion-fostering cognitive predispositions more like traits that are subject to individual variation and less like all-or-nothing mechanisms. “Natural”, even if understood as relative to “cultural”, will always have to reckon with individual variation.

The second complication has also been noted by others (Gervais et al. 2011; Henrich 2009; Henrich and McElreath 2003, 2007; Norenzayan et al. 2016). BCSR often “recognize two broad types of psychological mechanisms that aid in the processing of such information [information of varying quality and reliability], termed *representational content biases* and *context biases* (or *model-based learning biases*), respectively”. A decade later, the observation that “[c]ontent biases have been the primary focus of much of the previous work in the understanding of the cognitive origins of religion”, remains true, especially in CSR (Gervais et al. 2011, pp. 391–92). Here, however, another provisional characterization is required. One way of characterizing an important debate in BCSR is as an extended contest between ‘team content biases,’ which emphasizes the “naturalness”, memorability, and intuitiveness of theistic conceptions, gravitates toward the “naturalness of religion” and the “unnaturalness of atheism” theses, and tends to imagine culture as an overlay on “natural” cognition (Barrett 1999, 2011); and ‘team context biases,’ which acknowledges the importance of content biases but argues that these alone cannot account for the much shorter list of representations that are actually reproduced and transmitted in a particular culture. They also emphasize the curatorial role played by conformist and prestige biases that help to determine which conceptions are reproduced and the importance of credibility enhancing displays (CREDS) which indicate trustworthy models for emulation (Gervais et al. 2011, Henrich 2009), Culture, for ‘team context biases,’ is not an overlay on cognition, but an ingredient of it. Therefore, while still accepting the “naturalness of religion” thesis, they move away from the “unnaturalness of atheism” thesis and toward explanations of both religion and atheism that foreground the contributions of available cultural representations, cultural scaffolding, and social context cues.³ While this contest is civil, its root causes run deep within BCSR.

I side with ‘team context biases,’ though with a proviso. I am unconvinced that the content/context biases distinction moves us much beyond nature/culture unless we recognize that a context bias is a species of content bias. If a content bias is a cognitive predisposition preferentially to notice, remember, store, or reproduce conceptions, representations, or information with a particular kind of content—say, minimally counterintuitive content—then a context bias that predisposes us to preferentially notice, remember, store, or reproduce information associated with a particular kind of person—say, the behavior of a prestigious elder—is best understood as an exceptionally “vague” content bias.⁴ In both cases, we are biased toward preferring particular kinds of information, but in both cases, that information is left indeterminate by the cognitive bias itself. In both cases it is left up to the cultural context (or environment) to afford the determinate information to which our biased minds are drawn, though content biases certainly yield more uniform results across cultures. In both, information is taken as germane, not based on some objective criteria, but based on largely opaque-to-self cognitive heuristics and predispositions. At most, one could argue that content biases unconsciously assess the value of representations based on the character of the representations themselves, while context biases make assessments based on the character of conspecifics who index the character of the representations. In neither case is information assessed on its own terms; i.e., biases are “triggered” when something familiar, attractive, important, salient, or easily processed is recognized, not when an exhaustive exploration of the relevant information has run its course (Kahneman 2011).⁵

This suggests two questions. First, what constitutes the content of a representation or conception? Second, can a defensible line really be drawn between the primary or essential content and secondary or accidental content such that “the ontological domain of X” counts as content essential to the conception while the fact that “all my friends agree that X” counts as merely contextual or accidental content? The only way—excluding metaphysical or semiotic analysis—to defend a distinction between the essential content of a conception and its merely accidental context is to ground the essentialist claim in an intuitive ontology that begs rather than addresses the question. To argue that content biases and context biases are essentially different based on the deliverances of those biases themselves is circular.⁶ We do better to focus on integrating context biases within the larger fold of content biases

in the hope that, by so doing, we may simultaneously help ‘team content biases’ continue the process of naturalizing culture.

3. Naturalizing Culture

A classic essay on personality observes that “[e]very man is in certain respects (a) like all other men, (b) like some other men, (c) like no other man” (Murray and Kluckhohn 1953, p. 53). CSR has focused on universal features of human cognition and emphasized the degree to which all people are, in certain respects, like all other people, and that, consequently, all religious beliefs and behaviors tend to be like all other beliefs and behaviors in many respects. Other BCSR have focused on the degree to which most religious people are more like *some* other religious people, i.e., religious peers with and from whom they inherit rituals, beliefs, languages, worldviews, and representations. Traditional humanities scholars of religion have also favored this more cultural approach, and often focus on the kinds of individual experiences and biographical details that make one person like no others. This division of labor seems well built to assess religious phenomena on multiple levels, but disagreements arise whenever one group claims to be better to explain religion than the others. I do not aim to mediate disciplinary conflicts, but to point out one of the more interesting issues that grows up along the boundaries between ‘cognition first’ and ‘culture first’ camps.⁷

Scholars of both camps tend to agree that there is important reciprocal influence across the cognition/culture divide. This influence has been variously named “cultural infiltration” (McCauley 2011), cultural “tuning” (Barrett 2010), “cultural enrichment” (Boyer 1999), and “cultural scaffolding” (Barrett 2011; McCauley 2011; Upal 2011) when the emphasis is on the ways in which culture directs the expression of representations, and cognitive “anchoring” (Barrett 2011; Barrett and Lanman 2008), cognition’s “informing/constraining function” (Barrett and Lanman 2008), and the cognitive constraint of “cultural transmission” (Boyer 1999) when the limiting role of cognition is emphasized. The central issue at the juncture of cognitive and cultural approaches is to understand the ways in which cultural scaffolding and cognitive predispositions might liaise to help explain what has been called “religion in the round” (Day 2005). We need to understand both why so many religious beliefs and behaviors across cultures cluster around “the cognitive optimum position (COP)” described by CSR, *and* why there are a variety of religious forms that develop “computationally heavy, fluorescently counterintuitive concepts that are fiendishly difficult to acquire and transmit” (Day 2005, pp. 94–95). We need, in statistical terms, to understand both the draw of the religious center (COP) and the processes that produce the maximally counterintuitive outliers. What is more, we need to understand both without chalking the former up to the “natural” influence of universal cognitive traits and ascribing the latter to “unnatural” culture.

This necessity is yet another reason that atheism presents such a challenge for anyone unwilling to dismiss it as a statistical outlier or unique instance of cultural forces overwhelming cognitive predispositions. Insofar as atheism seems to resist “the gravitational pull of the COP” (Day 2005, p. 97), it demands an explanation that draws on culture without reifying the nature/culture dichotomy. What I am after, then, is an understanding of human nature that is broad enough to make room for culture within itself rather than as an overlay. This requires a closer consideration of cultural scaffolding.

The topic is immense, so I limit myself to points of discussion related to the taint of the “accidental” that often adheres to culture when it is contrasted with nature. I am leery of natural/unnatural, nature/nurture, cognition/culture, and other related binaries that all owe their plausibility to the pervasive essence/accident binary (DeLanda 2006; Aristotle 1984). Overall—commenting now as an appreciative outsider—the BCSR are relatively careful not to reify such binaries more than necessary in order to fractionate complex phenomena for analysis and experimentation. Nevertheless, essentialism remains a threat even when scholars consciously try to sidestep discussions of “innatism” (McCauley 2011). Insofar as “practiced naturalness” is taken to be less natural than “maturational

naturalness” because it relies on “extensive experience in dealing with some domain”, “experienced instructors modeling them [skills] and providing detailed, targeted tutelage”, “external cognitive prostheses”, or “environments ordered *by* or *as* tools that we have crafted” (McCauley 2011, pp. 5, 24, 18), it is *only* insofar as the individual organism operates *only* on the basis of biologically reproduced developmental programs or predispositions that their actions are understood as maximally natural. When these maturationally natural or “essential” characteristics are enabled by processes other than the merely biological or the passage of time, when, in other words, development is scaffolded by cultural affordances and built environments, then such normal processes of development are taken as somehow less or minimally natural.⁸

I turn now from what might appear to be definitional hairsplitting with regards to “natural”, and examine the function of cultural scaffolding. This discussion echoes themes from dual-inheritance theory and gene-culture coevolution, but leans primarily on work by Wimsatt and Griesemer highlighting scaffolding’s developmental function (Wimsatt and Griesemer 2007; see also Bickhard 1992; Heintz 2013). Scaffolding is not exclusively cultural, as the following characterization makes clear. “Scaffolding involves a mix of (relatively) static resources and constraints and dynamically interacting processes that together facilitate the acquisition of complex skills, knowledge, and behavioral routines when these interactions are appropriately organized” (Wimsatt and Griesemer 2007, p. 260). Scaffolds enable the *developmental* acquisition of such “skills, knowledge, and behavioral routines” by preserving or reproducing previously successful scaffolds so that they are available to subsequent generations, thus enabling later generations to acquire such skill more easily. “If the environment is reliable in delivering resources and scaffolding to the developing entity, then (presumably) development would go faster for those entities that didn’t have to build their own internal scaffolding as part of their developmental process—they would get their developmental organization “for free”(Wimsatt and Griesemer 2007, p. 279). Scaffolding is a cumulative process that may involve multiple actors, cultural artifacts, and institutions, but it is also a process that shapes the environment of “developing entities” so that they are able to *express* complex skills more efficiently.

Here, an overtly metaphysical question seems necessary: where do these expressions come from—the developing entity or the cultural environment? The question misses the point and unduly constrains possible answers. These expressions are neither innate to the essence of the entity nor do they belong to external components of an accidental environment. Rather, they are *expressed* through “dynamically interacting processes” of entities-in-and-of-environments.⁹ I emphasize *expression* to make a critical analogy between the relationship of environment and gene expression and the relationship of environmental scaffolding and behavioral expression. I will not push this analogy any further than necessary in order to make the point that just as epigenetics has not, so far as I am aware, questioned the “naturalness” of environmental conditions playing a role in the way in which genes are expressed, I see little reason for questioning the “naturalness” of an environment replete with cultural scaffolding playing a robust role in the expression and development of various behaviors. Put bluntly, we should not be misled by bio-essentialist assumptions to ignore the fact of human nature that culture, like calories, is not an accidental or optional input just because cultures, like calories, come in many varieties. Culture may not be “built in” in any genetic sense, but culture, like other environmental affordances, offers the bare genotype live options for development and expression. If the nature/culture binary is to be retained in BCSR, and it seems far too entrenched to disappear, then we need to stress, along with McCauley, that such and similar distinctions are only ever “differences of degree” (p. 13, 2011) and, along with Henrich, that cultural inheritance is biological, though not genetic.¹⁰ This means that, in addition to noting that biology plays a significant role in determining our cultures, we must also recognize that our “biological preparedness” for culture entails that culture is, in a Peircean vague sense,¹¹ part of our bio-cognitive human nature (Cummins and Cummins 1999; Henrich 2016).

To naturalize cultural scaffolding in a more thoroughgoing manner, we need to recognize both the culture-shaping pull of the COP and the pull of culture, actuated by the “generative entrenchment” of cultural scaffolds, that shapes the expression of bio-cognitive dispositions (Wimsatt and Griesemer 2007). These “pulls” are best imagined not as competitive forces, but as anchors. This requires adapting a metaphor that appears frequently in the work of Barrett and colleagues who describe the “maturationally natural cognitive anchors” that allow for flexible but limited religious expression (Barrett and Lanman 2008, p. 119).¹² This metaphor nicely captures the emphasis of CSR but underplays the importance of culture, which should be imagined within the metaphor as a second anchor. Religious expression is most often anchored both by maturationally natural cognitive anchors (hereafter the “cognitive anchor”) that are practically universal, *and* by culturally scaffolded, entrenched, and learned cultural anchors that may be unique to a given culture, and it is within the surrounding ellipses that actual religious expression occurs.¹³ This modification captures most everything that Barrett uses the single anchor metaphor to highlight, including his emphases on the relative unnaturalness and rarity of cognitively effortful theology and the frequent occurrence of “theological incorrectness” (Barrett 2011; Slone 2004), but it allows for visualizing the simultaneously stabilizing and generative effects of culture as much more robust than a simple “tuning” of natural dispositions. The religious expression “boat” remains tethered to the cognitive anchor, and culturally evolved anchors are thereby also indirectly tethered to natural religion, but cumulative cultural evolution and scaffolding are now given their due, and their relatively entrenched positions and influence on the “boat’s” area of operation are recognized. While the modified metaphor is limited, it highlights the degree to which actual religious expression is both subject to multiple real inherited constraints and free to learn and move within that constrained space of possibilities.

The final step necessary to naturalize culture is to recognize that both nature and culture are forms of inheritance or, more controversially, forms of learning. Rather than rehearse ongoing debates (Baumard and Boyer 2013; Cavalli-Sforza and Feldman 1976; Cronk 1995; Geertz 2013; Gervais et al. 2011; Henrich 2009; Henrich and McElreath 2003, 2007; Mesoudi et al. 2006; Norenzayan et al. 2016), I offer only what I take to be a defensible middle position and contend that (a) we biologically inherit many of our cognitive biases, predispositions, and preparednesses, and (b) we culturally inherit specifications of and elaborations on these biological inheritances. Additionally, (c) we inherit or learn through individual experience, the mode of inheritance that makes each person like no other person (Murray and Kluckhohn 1953). Describing learning through experience as a kind of inheritance may seem an overreach, but note that this is exactly the kind of self-habituation that McCauley describes in his discussion of practiced naturalness (McCauley 2011, pp. 20–30), and that it often draws on culturally scaffolded mnemonic techniques and technologies, such as writing, that enable a kind of conscious “self-scaffolding” (Bickhard 1992; Wimsatt and Griesemer 2007). We inherit our habits, instincts, intuitions, and dispositions by means of multiple channels, some ancient and genetic, some historical and cultural, and some proximate and personal, but all of them are perfectly natural channels.¹⁴ The “actual religious expression” of a mature adult is an idiosyncratic mixture of inheritances that are bio-cognitive, cultural, and experiential. Though it is the worthy goal of the academic study of religion to fractionate these channels of inheritance for greater explanatory power and understanding, we do well to recognize that none is any more essential or accidental, natural or unnatural than the others, and that they are all entangled.¹⁵

I see little evidence that moderate scholars either in the ‘culture first’ camp or the members of ‘team context biases’ are hostile to any but the most extreme claims for priority, modularity, or informational encapsulation made by cognitivists. What they seem to want is to provide a bit more elbow room for culture by relaxing some of the stronger cognitivist claims that make it nearly impossible to provide naturalistic accounts of phenomena like atheism, science, and doctrinal theology (Day 2005; Henrich and Boyd 1998; Whitehouse 2004, 2005). I share this aim, and am convinced that naturalizing culture points is the way

forward. An additional benefit of the two anchors metaphor is that it suggests another helpful concept. Visualizing the cognitive and culturally evolved anchors as two foci of an ellipses suggests that different forms of actual religious expression might be characterized by the distance between these foci, i.e., the *eccentricity* of the ellipses. We can describe different religious expressions as more or less eccentric. Minimally eccentric expressions remain quite close to the COP, while maximally eccentric expressions are characterized by much more expensive and complex scaffolding that allows for expressions that are often characterized as “unnatural” when they wander further from the COP. This focuses attention on the fact that even very eccentric religious expressions are natural and remain tethered to the “cognitive anchor” even as they drift far from it and explore “rarified corners in the evolutionary design space of all possible religions” (Day 2005, p. 96). Such explorations may be both culturally expensive and individually effortful, but they are a perfectly natural part of our species’ bio-cultural repertoire.

4. Paths to Atheism

Any attempt to explain atheism must first specify the question it aims to answer. The questions how did Karl become an atheist?, what is the function of atheism?, where did atheism come from?, why are some people atheists and some not?—all ask for very different types of answers. A similar quest for specificity led Tinbergen to formulate his famous four questions worth asking when examining a behavioral characteristic: what is a characteristic’s development (ontogeny), survival value (function), evolutionary history (phylogeny) or cause (proximate mechanism)? (Tinbergen 1963). Since neither religion nor atheism is a single identifiable adaptation, trait, or characteristic behavior that could be analyzed using these in any straightforward way, it is important to note that attempts to answer these questions requires placing answers to one within the context of the others (Johnson 2012). In this section, I am concerned primarily with developments and proximate mechanisms that lead to atheism, and will lean on previous attempts to organize the various pathways to atheism. What becomes evident is that atheism, much like religion, is an order of belief–behavior complexes that can be further divided into at least four families, each characterized by unique developmental paths and similar causal mechanisms.

I begin with two previous projects that, while they differ on important points, share (1) a recognition of the importance of both biological and cultural systems of inheritance, and (2) an acknowledgement that “default-interventionist” or “effortful override” understandings of atheism, in which powerful cognitive biases favoring religion must be overcome by effortful rational reflection, do not tell the full story (Kalkman 2014; Norenzayan and Gervais 2013). Kalkman organizes atheisms into three “routes”—one “reflective route” and two “unreflective routes”—weak theory of mind (wToM) atheism, and “environmental atheism”. Reflective atheism results when Type II cognitive processing “overrides”, “inhibits”, or “overturns” Type I “default cognition” (Kalkman 2014). While the reflective override of cognitive defaults that support supernatural agent detection and religion is often effortful, culture (education, science, social safety nets, etc.) may step in to provide scaffolds that strengthen such efforts and make them more common. Nevertheless, this route “cannot account for those people who ‘just are’ atheists and who have not had to overturn intuitively held beliefs to arrive at atheism” (p. 78, 2014). Some atheists are atheist by default because they lack or have weakened religion-relevant “unreflective cognitive modules”, such as ToM, or because they inhabit cultures that lack environmental cues that “render religious belief more salient”, either because it is less “relevant” or less “urgent” in these environments (p. 79, 2014; Geertz and Markusson 2010). Neither of these routes require the effortful override indicative of reflective atheism either because, for those with wToM, natural variation in the strength of the relevant cognitive module means that there is nothing much to overcome, or, for those in secure cultures, the environment never cues religion-supporting intuitions. Kalkman’s categorization is helpful, and I second his contention that “it is plausible that the three cognitive routes interact”. This categorization

does not, however, pay sufficient attention to, and in fact rejects, the relevance of cultural scaffolding in the latter two routes (p. 81, 2014).

Alternatively, a categorical scheme from [Norenzayan and Gervais \(2013\)](#) pays much more attention to cultural scaffolding and identifies four pathways to “disbelief” (see also [Gervais et al. 2011, 2021](#); [Gervais and Norenzayan 2012a](#)). It builds on a theory of religious belief as “an over-determined complex of tendencies” so that nonbelief may result if any of three pathways (cognition, motivation, and cultural learning) to religious belief are “altered or disrupted”. Additionally, it identifies four “predisposing conditions that give rise to religious belief”, which they correlate with four pathways to disbelief (p. 20, 2013). Their first pathway, “mind-blind atheism” closely tracks Kalkman’s wToM atheism. In this pathway, “individuals with poor mentalizing abilities” are less apt to find supernatural agent representations intuitively compelling, and the cognitive pathway to religious belief is disrupted. The second pathway, “apatheism”, is characterized by “indifference towards religion that, [they] argue, arises from conditions of existential security” ([Norenzayan and Gervais 2013](#), p. 21). In such environments, the existential motivations are altered, and disbelief proliferates. This pathway reflects the same absence of religious motivations that Kalkman describes in “environmental atheism”.

The next two pathways do not align so neatly with those of Kalkman. “InCREDulous atheism” builds on a theory of credibility enhancing displays ([Henrich 2009](#)). Here, the social learning pathway to religious belief is blocked whenever children do not experience religious CREDs, and neither conformity nor prestige biases are activated to support belief in supernatural agents. Interestingly, when outlining this pathway, Norenzayan and Gervais take the additional step of describing “credible secular alternatives to the cooperation-facilitating functions of religion”. It would seem, therefore, that the absence of CREDs is insufficient to prevent the spread of religious belief throughout much of a population, and that additional cultural scaffolding (social institutions) must be erected to supplant religion. When successful, secular institutions can combine with “existential security and relative absence of sincere religious displays” to replace religion in a society (p. 23, 2013). As in Kalkman’s categorization, multiple pathways “are often intertwined in the real world”, and InCREDulous atheism and apatheism are likely to be mutually reinforcing of religious indifference ([Norenzayan and Gervais 2013](#), p. 23).

Their fourth pathway, “analytic atheism”, is a more carefully elaborated version of the “effortful override” pathway; what Kalkman calls the “reflective route” to atheism. They diverge from Kalkman, however, in their contention that “[a]nalytic overriding of intuitions can, but need *not*, involve *effortful* processing” ([Norenzayan and Gervais 2013](#), p. 23 emphases added). The analytic override may (a) involve effortful thinking in many people, but may also (b) involve minimal effort for those with a more analytic thinking style, or (c) those who have been implicitly primed to think analytically. This suggests that individual differences in thinking style, likely one of many relevant cognitive and personality variables ([Caldwell-Harris 2012](#)), as well as different micro-contexts and manipulations play a role in raising or lowering the amount of effort required for analytic override of theistic intuitions. These careful elaborations of the “effortful override” pathway have important consequences, and one way of emphasizing these is to attend to a question for further research that the authors raise: “Does analytic thinking *inhibit* intuitions that make religious cognition attractive or merely allow people to *override* theistic beliefs encouraged by these intuitions” ([Norenzayan and Gervais 2013](#), 24 emphases added)? As I suggest below, the answer to this question may be different for different pathways.

Recognizing that multiple variables contribute to the development of atheism, that multiple mechanisms are likely involved, and that there is likely entanglement between mechanisms, I offer an alternative organization of the various pathways to atheism by means of two orthogonal continua: (a) a continuum of religion-reinforcing cultural scaffolding that runs the gamut from maximal to minimal cultural scaffolding, and (b) a continuum of religion-fostering cognitive intuitions that vary across a population and perhaps across individual lifetimes.¹⁶ Any individual’s likely expression of belief or disbelief can be lo-

cated by identifying the degree of religious scaffolding provided within the culture they inhabit. The individual's location may be further specified along a second continuum of religion-fostering cognitive intuitions, so that a person with wToM or weak mentalizing abilities would be located nearer to the minimum religion-fostering cognitive intuitions end of the continuum (Kalkman 2014; Norenzayan and Gervais 2013). A person with robust religion-fostering cognitive intuitions in a cultural context replete with religious scaffolding would be more likely to be religious, *ceteris paribus*, but if they were atheist, then their pathway to atheism is likely to be quite different than that of a person with minimal religion-fostering cognitive intuitions in a cultural context with minimal religious scaffolding. Taking these two continua together, four families of pathways emerge wherein different mechanisms and developmental paths all lead to atheism or disbelief (Table 1).¹⁷

Table 1. The Four Families of Pathways to Atheism (adapted from Norenzayan and Gervais 2013).

| Pathway | Description | Intrapathway Continuum of Atheist Expressions |
|---------------------|---|---|
| ambivalent atheism | Individuals with minimal religion-fostering cognitive intuitions live in cultures with maximal religion-supporting cultural scaffolding. Atheist practice is challenging to sustain. | While individuals lack intuitions that would make religious representations attractive and might therefore reject culturally normative religious beliefs and actions, the social rewards of religious participation might be sufficient to lead such individuals to engage in the cultural learning of and participation in religious representations and behaviors. |
| effortful atheism | Individuals with maximal religion-fostering cognitive intuitions live in cultures with maximal religion-supporting cultural scaffolding. Atheism of belief <i>or</i> practice is very difficult to sustain. | While both cultural context and individual cognitive intuitions predispose individuals toward religious belief and behavior, the potential for effortful reflective override allows some individuals to reject religious belief and behavior either publicly or privately. Effortful atheists may exist either incognito, clustered around culturally sanctioned roles or professions that reward counterintuitive thinking, or in the open as public gadflies or outcasts. |
| vigilant atheism | Individuals with maximal religion-fostering cognitive intuitions live in cultures with minimal religion-supporting scaffolding. Atheism of belief is challenging to sustain. | The culture does not provide scaffolds for gods or religions and generally lacks CREDS and other cues for religious belief and behavior, thus freeing individuals from any obligations to believe or behave religiously. Atheism may be widely affirmed though intermittently practiced as individuals endogenously generate, entertain, and reproduce a wide array of culturally non-sanctioned but nevertheless intuitive religious or pseudo-religious representations. |
| uncontested atheism | Individuals with minimal religion-fostering intuitions live in cultures with minimal religion-supporting scaffolding. Atheism of belief and practice is easy to sustain. | Most atheists are atheist in both belief and behavior, and it is religion that requires the effortful override of both intuitions and culture. |

- Maximal religion-reinforcing cultural scaffolding and minimal religion-fostering cognitive intuitions: ambivalent atheism

Recognizing that religious belief–behavior complexes are over-determined and inherit tendencies from multiple channels entails acknowledging that agents are often pulled in multiple directions. Ambivalent atheism, one of two families of pathways that involve conflicting mechanisms, results when individuals (a) occupy a culture with robust religious scaffolding, but (b) exhibit minimal cognitive traits that foster religious intuitions. Religious scaffolding may include institutions (religious schools, priestly offices, religiously sanctioned cultural norms), artifacts (art, architecture, music, literature), and individual actors (religious peers, parents, elders). Religion-fostering cognitive intuitions may, however, be associated with—and perhaps rely on—several cognitive and personality traits and thinking styles that all vary across a population. While both Kalkman (2014) and Norenzayan

and Gervais (2013) correlate wToM or weakened mentalizing tendencies with a specific pathway to atheism, it is worth noting that the expression of atheism by individuals with wToM or other weakened religion-fostering cognitive intuitions is likely to be significantly different in cultural contexts with different levels of religious scaffolding.

Speculatively, we can imagine that ambivalent atheism might entail dismissal of religious conceptions and representations as wholly counterintuitive and intellectually irrelevant even though the culture is replete with such representations. Alternatively, many ambivalent atheists, though they lack the predispositions that make religion cognitively attractive, may still find that the culture provides sufficient motivations for engaging in cultural learning of religious behaviors, even if these are not accompanied by religious beliefs. Such ambivalent atheists may find religion wholly counterintuitive, but nevertheless socially worthwhile—they might choose to belong without believing (Storm 2009). Interestingly, these atheists might become adept at religious practice and demonstrate a kind of “practiced naturalism” even though religion would always remain, for them, relatively “unnatural” (McCauley 2011). Thus, within the family of ambivalent atheism, we would expect to find both avowed atheists who are willing to swim openly against the cultural stream, and incognito atheists who are able to learn and are motivated to reproduce the culturally relevant religious representations.

- Maximal religion-reinforcing cultural scaffolding and maximal religion-fostering cognitive intuitions: effortful atheism

Across the BCSR, evidence suggests that most people have lived in cultures with significant levels of religion-reinforcing cultural scaffolding and with minds that evince religion-fostering cognitive intuitions so that atheism has been historically rare. Under such conditions, atheism tends to be of the effortful variety because atheists must resist both their own cognitive dispositions and the inclinations of their cultures. Here, atheism is decidedly “unnatural” (McCauley 2011), and likely unwelcome among one’s peers. It involves the effortful override of both intuitions and cultural norms, and relies heavily on Type II cognitive processing and sustained rational reflection unless or until it becomes a kind of second nature through practice.

Speculatively, though we should expect these pathways to be the most difficult to traverse, we might also expect effortful atheists to face resistance if they go public with their effortful reflections. Alternatively, given that both the cultural and cognitive decks are stacked against such sustained efforts, we might also expect to find effortful atheists who have either decided to keep their efforts private, or have found ways to offset their costs by inhabiting institutions that reward them. We should expect to find effortful atheists in scientific, theological, or other academic institutions where facility with reflective override is rewarded, and their willingness to question the intuitive and cultural inheritances are safely cordoned off from activities that directly affect the broader public.¹⁸ Thus, within the family of effortful atheism, we would expect to find both the most vociferous public advocates of atheism and a larger body of skeptics whose efforts remain private, and who may even perform the occasional public sacrifice or prayer for the sake of reputation management.

- Minimal religion-reinforcing cultural scaffolding and maximal religion-fostering cognitive intuitions: vigilant atheism

While CSR has argued that most humans are cognitively biased toward religious conceptions and representations, when CSR is “disencultured”, this observation does not get us very far (Geertz 2015). When, however, we consider the prospects of an agent with maximal religion-fostering cognitive intuitions in the context of a culture with minimal religion-reinforcing cultural scaffolding and, thus, few sanctioned representations for the agent to entertain, we face what might be a relatively novel set of circumstances: a mind prepared for religion, but with few religious representations with which to work. Further, the absence of religious scaffolding suggests the presence of social institutions that foster cooperation and existential security through nonreligious means. If religion is purely

a creation of culture, then atheism should abound in such contexts. But if religion is a complex product of culture and cognition, then the absence of cultural scaffolds and cues tells only part of the story. The difficulty here is that such contexts are historically rare, and most scholarship has focused on the novel context of contemporary northern Europe (Gervais and Norenzayan 2012b; Habel and Grant 2013; Kay et al. 2010; Lanman 2012; Smith and Cragun 2019; Storm 2009; Zuckerman 2008, 2012). In this second family of pathways that involves conflicting impetuses, we find that organized religious belief and practice is largely vestigial, but that some religious, or at least religion-adjacent beliefs and behaviors, persist. Here, atheism is the conscious reflective default, but human intuitions remain biased toward entertaining supernatural agent conceptions.¹⁹

Speculatively, if advocates of secularization prevail, then this family of pathways to atheism promises to be the most interesting. In the absence of religion-reinforcing cultural scaffolds but the presence of religion-fostering intuitions, we should expect the emergence of epistemically vigilant atheism—a brand of atheism that guards against “anthropomorphic promiscuity” in all its guises (Shults 2014). These include representations of gods, disembodied forces with purposes or essences like nations and ideologies, afterlives or previous lives, and a welter of other supernatural practices, pseudo-sciences, and forms of divination that larger organized religions often push to the periphery of culture. We should expect a surfeit of “spiritual but not religious” beliefs and practices to fill the void left by the retreat of culturally dominant religious traditions (Storm 2009). If CSR is correct in its central claims about human cognition, then many of these ideas are simply too attractive to ever disappear entirely, and atheism under such circumstances will need to remain vigilant against their return. The epistemically vigilant pathway entails the active resistance to both the re-emergence of religions and persistent but less organized superstition.

- Minimal religion-reinforcing cultural scaffolding and minimal religion-fostering cognitive intuitions: uncontested atheism

Uncontested atheism is the pathway easiest to describe but most difficult to imagine, since it entails the absence of both religion-fostering cognitive intuitions and religion-reinforcing cultural scaffolding. Under such circumstances, atheism would indeed be the default position because it would almost never be challenged. The so-called “Mickey Mouse, Zeus, and Santa problems”, wherein representations seem to match all of the relevant cognitive criteria for godhood but never become live options for religious belief or interaction because relevant CREs and cultural scaffolds are missing, are neatly sidestepped, because these representations are neither culturally reinforced, nor intuitively compelling (Barrett 2008; Bulbulia et al. 2014; Gervais and Henrich 2010; Lanman 2012; Van Eyghen 2020; Wood and Shaver 2018). The very existence of religion during other eras, in other cultures, or among one’s peers endowed with religion-fostering cognitive intuitions would likely be puzzling to uncontested atheists who lack an intuitive understanding of religious representations, live in contexts where religious institutions and CREs are absent, and may inhabit existentially secure communities where social cooperation is achieved through extra-religious means.

Speculatively, in this situation, religious conceptions could be entertained only as a kind of reflective thought experiment. It is imaginable that certain forms of hyper-intellectual deism or religious naturalism might emerge through philosophical reflection, but the social motivation for such pursuits is lacking. Here, the relationship between atheism and religious belief is inverted, and belief is the more effortful of the two. What seems more likely is that this cohort of atheists would largely ignore religious representations in their day-to-day lives and become apatheistic.²⁰

While this categorization of four families of pathways to atheism is preliminary, it offers several advantages. First, through an emphasis on continuum thinking over either/or thinking, it recognizes both naturally occurring variation in cognition, personality types, and thinking styles, and the breadth of cultural contexts that our species has created and inhabited. Not only does this register scholarship on cognitive variability and religion (Baron-Cohen 1995; Caldwell-Harris 2012; Caldwell-Harris et al. 2011; Haidt and Graham

2007; Reddish et al. 2016), but it acknowledges scholarship on the role of cultural innovation in support of the spread of religion and atheism (Boyd et al. 2011; Henrich 2004, 2016; Henrich and Boyd 1998; Lawson and McCauley 1990; Norenzayan 2013; Norenzayan et al. 2016; Whitehouse 2004; Wilson 2002) in a way that does more than layer culture on top of cognition. Atheist expression is always a bio-cultural phenomenon that must be explained in both developmental and mechanistic terms that honor the contributions of both cultural context and cognition as equally natural. By treating both as natural channels of inheritance, neither the natural/unnatural, nature/nurture, nor essential/accidental binaries are reified.

Second, by noting the plurality of pathways within each family, it makes room for further studies that both (a) consider personal experiences and life history and (b) attend to culture and history and the ways in which explanations of the mechanisms and ontogeny of religion and atheism shed light on these.²¹ The pathways to atheism are as numerous as its expressions, and this scheme for organizing these into four families recognizes the most universal cognitive biases and cultural patterns that channel expressions into families that share important characteristics.

The final two advantages echo the discussion in Section 2, which sought to naturalize culture and questioned the validity of the distinction between essential and accidental characteristics of a bias. Third, therefore, it captures the claim that CREDs and other context biases are best thought of as a species of content biases by treating the presence (or absence) of religious CREDs as contributing to the overall presence (or absence) of religious scaffolding within a culture. Certainly, there is no clear boundary between CREDs that affect only a few individuals (a mother who sacrifices in front of her children) and CREDs that influence an entire culture (a leader who sacrifices in front of the entire tribe or on television), and we are born with a “preparedness” to attend to and draw inferences from such displays. Cognitive biases are vague predispositions to preferentially attend to certain kinds of information afforded by the physical and cultural environment. This suggests that maintaining a hardline between “cognitive, motivational, and cultural learning processes” is not always necessary or helpful (Norenzayan and Gervais 2013). Fortunately, there is, within this organizational scheme, no need to mark a hard boundary insofar as it admits that cultural scaffolds may include artifacts, institutions, and various actors (Wimsatt and Griesemer 2007), and that cognition is both embodied and encultured.

The final advantage relates to “environmental atheism” (Kalkman 2014) and “ap-atheism” (Norenzayan and Gervais 2013), both of which suggest that existentially secure cultural contexts tend to inhibit religious inferences. The construction of security-enhancing social institutions is its own kind of, likely unintentional, cultural scaffolding of atheism, as is the construction of scientific methods and institutions. Scaffolding, whether cultural or cognitive, involves the creation or reappropriation of apparatuses that enable us to *override predispositions* but also to do so *without eliminating them*. Reflective cognition (Type II) may override intuitive cognition (Type I), but it does not eliminate it. With the notable exception of uncontested atheism, almost all paths to individual disbelief require the override of some biologically or culturally inherited predispositions to religious belief and behavior, and no pathway or family of pathways achieves and sustains disbelief without maintaining the social institutions and/or intellectual disciplines that enable the repeated override of aspects of our bio-cultural inheritance.

Despite its problems, the characterization of religion as natural and atheism as unnatural does indicate something important: in most cases, atheism and disbelief require the expenditure of considerable energy, whether at the level of the society that builds and maintains institutions that promote existential security without recruiting supernatural agents (Shults 2014), or at the level of individuals who cultivate a taste for the intellectual discipline necessary consistently to override religion-fostering intuitions and resist religion-supporting cultural norms and practices. For most people, atheism requires engaging (collectively or individually) in some kind of override, and so it will always need be effortful, vigilant, or both because even atheist expressions remain tethered to the cognitive

anchor. Ultimately, this is why “atheism” and “disbelief” remain lexically significant; the prefixes indicate the persistent need for the expenditure of energy.

5. Economics of Atheism

This closing section emphasizes the continuities between the four families of pathways by addressing them within a single economic frame. It is exploratory, but builds on a largely unexamined impulse within the BCSR, and CSR in particular, to use economic terminology even if only analogically or metaphorically. There is much to be gained by turning this implicit comparison into an explicit analytic lens.²² The argument is simple, but its implications may prove far-reaching. Given our species’ nearly universal cognitive and cultural predisposition to entertain and reproduce representations of supernatural agents, to engage these representations in collective rituals, and to use these engagements to foster group solidarity and cooperation and to sanctify cultural norms, religious belief–behavior complexes have shown themselves to be relatively efficient means for achieving group-level ends. In other words, given our cognitive inheritance, religion is a relatively *cheap* scaffold for achieving otherwise *expensive* cooperative ends. Concomitantly, however, whenever and wherever religion is deeply entrenched, it is also more difficult, effortful, and *expensive* to override. While the relevant currencies of payment are only occasionally monies and are more often time, attention, conscious and cooperative effort and emotional strain, the *costs* of override are high. Intuitions and biases are expensive to override. Cultural habits and norms are expensive to override and replace for both nonconformist individuals within societies and for societies as collectives (Bulbulia et al. 2014). Individually learned habits are expensive to override and “unlearn”. Most importantly for the present argument, *atheism is expensive*, though its *price* fluctuates considerably for individual atheists depending on their cognitive and cultural inheritances. Religion is simply too cheap and too entrenched to override without incurring significant relative *costs*, though where and how those costs are paid varies considerably.²³

If this exploration seems too metaphorical, consider the definition of “economics” offered by Lionel Robbins. It is “the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses” (Robbins 1932, p. 15). Nowhere in this widely appreciated description are money, finance, or markets mentioned. Robbins and economists who follow his lead are intentionally vague as to the exact nature of those ends and means. All that matters is that economic behavior involves plural ends and finite means. Most interesting human behavior is economic because it requires scarce resources that are indeed capable of alternative uses. We have finite quantities of time, energy, attention, self-control, and property, as well as finite cultural resources that we must economize as we pursue multiple ends. Again, given the constitutive inheritances of our minds and cultures, religion has proven to be an efficient strategy for marshalling finite individual and societal resources for promoting collective endeavors (agriculture, communal defense, hunting, childrearing, education, etc.), even as it has become cognitively and culturally entrenched. This does not mean that religion cannot be dislodged or decentered, as testified to by the presence of individual atheists and even some largely secular societies. It does mean, however, that all four pathways to disbelief are likely to require the robust expenditure of finite resources.²⁴

When religion-fostering cognitive intuitions are maximal (effortful and vigilant atheism), atheists must draw on a range of variable finite cognitive resources (conscious reflection, attention, self-control, etc.) as well as intermittently available cultural resources (literacy, education, scientific institutions, social safety nets, etc.) to engage in the “effortful override” of these intuitions. When religion-reinforcing cultural scaffolding is maximal (ambivalent and effortful atheism), atheists must lean heavily on their own variable finite cognitive resources to resist the lure of abundant religious scaffolds (communal norms, CREDS, rituals, doctrines, etc.). Individuals with minimal religion-fostering cognitive intuitions inhabiting cultures with minimal religious-reinforcing scaffolding (uncontested atheism) may seem to get atheism for free, but, as is the case for vigilant atheism, they

are likely to inhabit a culture that has scaffolded, i.e., *paid for*, its existential security and secularism in numerous ways.

My point here is simple: overriding religion-fostering intuitions and religion-reinforcing cultural scaffolding is always relatively expensive. Atheist individuals with nontypical cognitive endowments may not pay the price of intuitive override, and atheist individuals in secular contexts may not pay the price of cultural override, but somewhere, either upstream or through ongoing cultural investment in scientific education and existential security-enhancing social institutions, the price either was or continues to be paid. So, while some atheists may pay a very low individual price for their atheism (uncontested atheists), they benefit from atheism-reinforcing and religion-resisting cultural scaffolding that is costly to erect and maintain. This is, I argue, the deeper truth behind the claim that “disbelief does not always require hard or explicit cognitive effort, and that rational deliberation is only one of several routes to disbelief” (Norenzayan and Gervais 2013, p. 20). Atheism is individually costly for most individuals in religious cultures because they must work to override either their culture (ambivalent atheists) or both their culture and their intuitions (effortful atheists). But even in secular cultures, where cultural override is unnecessary for atheism, most individuals must still work to keep their own intuitions in check (vigilant atheists) and share in the collective maintenance of costly atheism-reinforcing cultural scaffolding. Even the atheism of uncontested atheists is culturally uncontested because they inhabit a culture that has shouldered the social and material costs of displacing religion-reinforcing scaffolding with secular institutions and norms. Atheism, in such cultures, is not free, but its costs are offloaded onto the entire society, allowing individuals to pay a much lower price.²⁵

This economic lens enables a binocular analysis of the costs of atheism that allows us to (a) appreciate the multiplicity of pathways to atheism and the degree to which analytic, conscious, and effortful override of religion-fostering intuitions by individuals is only sometimes necessary for atheist expression, and (b) the extent to which the costs of such efforts are modulated by the creation and maintenance of costly social institutions that effectively lower the individual price of atheism through externalization. In effect, this displaces the natural/unnatural binary in which “religion is natural and science [or theology or atheism] is not” with an economic frame in which religion, science, theology, and atheism are all natural, but all require different levels of energy expenditure, paid for by different individuals or collectives at different times and places, with earlier expenditures scaffolding latter efforts so that they are proximately cheaper.²⁶ Religion is not more natural than atheism, it is more common. It is more common because it asks most individuals to use less and fewer of their scarce resources to override religion-fostering intuitions and/or religion-reinforcing cultural scaffolds to achieve their individual and collective goals. Atheism appears to be unnatural because it is less common, and it is less common because it asks most individuals to use more of their scarce resources to achieve their goals. The analysis of atheism gets really interesting when the cost curves begin to change, either because individuals lack some religion-fostering intuitions, or because they inhabit cultures that lack religion-reinforcing cultural scaffolding. These are the circumstances where we might feel tempted to argue that atheism is natural and religion is not (Szocik and Walden 2015; Geertz and Markússon 2010), but do better to note that, while individuals in such circumstances are called on to use fewer of their own finite resources to express atheism and thereby appear to come by it cheaply, finite resources are still expended, though the cost is *externalized* onto the larger society.

Viewed through the lens of an economic analysis, “natural” may often be replaced with “*ceteris paribus*”, since what is most often meant by “natural” is that a behavior is likely in most circumstances, all other things being equal. But the economic terminology sheds the unhelpful metaphysical binaries (natural/unnatural, nature/nurture, essence/accident, etc.) that frequently cloud analyses. Science, theology, and atheism are not, then, best understood as unnatural, but as unlikely in most circumstances, all other things being equal. However, as the existence of atheists and the rise of secular societies testifies, things

are not always equal; important cultural and cognitive variables fluctuate, and atheist expressions are perfectly natural under some conditions. Science, atheism, secularism, and even theology are difficult, rare, and fragile because they require expensive inputs, not because they are unnatural. This does not mean that “natural” and “unnatural” must be banished from the lexicon of the BCSR, but it does suggest that, when they are not replaced outright by economic concepts, they should at least be utilized like economic concepts (cheap and expensive) and always be understood as relative so that any behavior is always only more or less natural than some other behavior, *ceteris paribus*.

Lest my advocacy of an economic approach to analyzing families of atheist expressions mislead, I conclude by closing the door on a potential misinterpretation. I am explicitly not arguing that every human is a fully rational agent (*homo economicus*), nor even suggesting that we might all be treated as such for the sake of simplicity. It is not the case that atheist and religious agents all make rational choices given their limited cognitive and cultural resources, either to be or not to be religious,²⁷ nor am I suggesting that we make irrational choices. My argument is only that, to the degree that the choices we make are rational choices about how best to spend our finite resources to realize multiple ends, that rationality itself is bounded, i.e., is best understood as yet another scarce means.²⁸ Both atheist and religious expressions emerge from decision-making processes that occur in environments where agents have differential access to an array of qualitatively different and quantitatively finite cognitive and cultural resources. One’s individual cognitive resources may tip the scales one way or another within a given cultural environment, but whether the majority of actors decide for religious or atheist expression may depend in large part upon the quality and quantity of cultural resources available to scaffold that decision-making process.

6. Conclusions

While the pathways to atheism are diverse, they are all more expensive, *ceteris paribus*, than pathways that lead to religious expression because they all require the costly override of cognitively or culturally entrenched channels of inheritance. This suggests that atheism is more than the absence of religious beliefs or behaviors; it is not nothing. It is something; it is the active and expensive override of cognitive, cultural, and learned predispositions. Even in cases of apatheism, it is dis-belief. We may, in time and in some localities, build social institutions that promote and scaffold such active override, but we should not expect that anyone will get atheism “for free”, if only because most of us are born with maturationally natural religion-fostering intuitions that can be overcome but likely never eliminated.²⁹ The costs of atheism are built into our minds and, most often, our cultures. This should not be taken to mean that atheism is unnatural or purely a cultural product, for there is significant variability in the degree to which any of us possess such religion-fostering intuitions; but, neither should we take seriously grand narratives of secularization that envision the elimination or irreversible constraint of religion-fostering biases through processes that scaffold scientific education and existential security. Religious expressions are with us for the foreseeable future; religion is natural. However, atheism is also natural; as natural as any behavior that requires cumulative cognitive and cultural scaffolding (literacy, agriculture, large-scale cooperation, etc.). This argument has sought to advance the discussion of atheism by arguing that it is a natural expression of our capacities to override cognitive and cultural channels of inheritance. This may appear to portray atheism as a product of two kinds of overriding processes, and this is true to the degree that I have emphasized the multiplicity of pathways. At a more general level, however, cognitive and cultural override are manifestations of a single economic phenomenon: resource intensive override. Religious expression is both easier and less costly than atheism, but that does not make paying a higher price to take the more difficult path less natural.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

Notes

- ¹ See note 7.
- ² McCauley writes, “[f]ocusing on the interaction of maturationally natural systems and culture, instead of on what is innate or what should qualify as a module provides a ready means for highlighting what virtually all of the participants in these debates agree about” (p. 75, 2011).
- ³ Though my presentation of both ‘teams’ is impressionistic, most of the positions defended by “team context biases” are thoroughly articulated by Joseph Henrich (2016).
- ⁴ The logic of vagueness is one of the more overlooked but most helpful aspects of Charles Peirce’s semiotics. The following lines from Peirce offer a brief summary of his characterization of vague signs. “A subject is determinate in respect to any character which inheres in it or is (universally and affirmatively) predicated of it, as well as in respect to the negative of such character, these being the very same respect. In all other respects it is indeterminate [...] A sign (under which designation I place every kind of thought, and not alone external signs), that is in any respect objectively indeterminate (i.e., whose object is undetermined by the sign itself [emphasis added]) is objectively general in so far as it extends to the interpreter the privilege of carrying its determination further [...] A sign that is objectively indeterminate in any respect is objectively vague in so far as it reserves further determination to be made in some other conceivable sign, or at least does not appoint the interpreter as its deputy in this office [...] Usually, an affirmative predication covers generally every essential character of the predicate, while a negative predication vaguely denies some essential character” (Peirce 1935, vol. 5, p. 446). By calling a context bias an open-ended or exceptionally vague content bias, I am merely highlighting the degree to which an interpreter of a bit of information or a sign is reliant upon the further affordances of the environment to specify the informational content of the sign. As biased interpreters, we preferentially pay attention to some signs and packages of information more than others. They “catch our eye” or, better yet, “catch our minds”, but having done so, they may yet provide content over and beyond the content that caused us to attend to them. They may, in Peirce’s words, “further determine” themselves in ways that are beyond the control of the interpreter. A context bias is thus an extension of a content bias, where the bias is often a predisposition to attend to the actions of a particular agent and to subsequently imitate behaviors of that agent.
- ⁵ Daniel Kahneman’s work on heuristics draws on earlier scholarship by Herbert A. Simon on bounded rationality, which entails decision makers pursuing “satisficing” rather than optimizing solutions to problems (see also note 28). Rarely do inquirers attempt to exhaustively explore all avenues of inquiry and pursue all relevant information before making judgements, especially when inquiries happen “online” and in real time, i.e., outside of controlled settings. Most judgements are made with the aid of heuristics, which Kahneman defines as “a simple procedure that helps find *adequate*, though often *imperfect* answers to difficult questions” (Kahneman 2011, 98 emphasis added). Heuristics, like biases, are commonly employed as efficient ways of making judgements based on limited time and incomplete information.
- ⁶ Pascal Boyer makes a related argument against the nature/culture binary, suggesting that its persistence may indicate a tendency toward reflective elaboration on some basic intuitions involving separate cultural and natural domains of information (see Boyer 2018, pp. 272–76). It should be noted, however, that these intuitive ontologies appear to be universal.
- ⁷ An anonymous reviewer called my attention to several pieces by Thomas Lawson and Robert McCauley from the 1990s written in support of their approach in *Rethinking Religion: Connecting cognition and culture* (1990). In these, the authors emphasize the degree to which recognizing the “mutual penetration of mind and culture encourages disciplinary cross-talk” (McCauley and Lawson 1996, p. 188; see also Lawson and McCauley 1993). Supporting such “cross-talk” with regards to religion and atheism is one of the main reasons that a fully naturalized conception of culture is preferable to one in which culture is associated, almost exclusively, with learned (unnatural) aspects of behavior. As I note in several places throughout my argument, McCauley’s work has consistently avoided this mistake through his recognition of both maturational and practiced naturalism.
- ⁸ To avoid turning the rest of my argument into an analysis of McCauley’s text, I point the reader to a collection of short papers on his book and McCauley’s own response (Wildman et al. 2013). Several of these respondents take up the question of essentialism (Cho 2013; Mercier and Heintz 2013; Neville 2013), but Konrad Talmont-Kaminski’s comments are particularly resonant with my own analyses. He writes, “One of the elements of essentialism is to think of the development of an organism in terms of the successive unfolding of an unalterable plan, for all practical purposes totally determined by its internal and invisible essence—much the same error as underlies the idea that there is a human nature” (Talmont-Kaminski 2013, p. 156). How, then, is the error of essentialism related to natural/unnatural and other binaries that I am troubling? Talmont-Kaminski’s illustrative terms are “unalterable” and “totally determined”. The pragmatic distinction between *natural cognition*, i.e., cognition “that follows from the internal structure of the mind and is therefore not dependent on any particular cultural influence”, and *unnatural cognition*, i.e., cognition that is dependent on cultural inputs and must be learned, is both unproblematic and a useful tool within CSR (quoting the helpful phrasing of an anonymous reviewer). The problem I am identifying occurs when the distinction is absolutized, so that natural cognition is treated as static, unalterable, and totally determined. To be clear, McCauley is careful not to do this in the body of his text. However, when the natural/unnatural binary is deployed to label an entire phenomenon such as

atheism or science as unnatural, it is no longer being used merely as a useful tool of fractionation. It is, instead, obscuring the degree to which religion, science, and atheism are all three complex phenomena with components inherited from biological, cultural, and experiential channels of transmission. In sum, the usual deployment of the natural/unnatural binary in CRS does point to something important, but, as I suggest in the concluding section below, an economic lens may capture much that is important in the natural/unnatural distinction without problematically isolating biological channels of inheritance from others.

9 For similar reasons, Wimsatt and Griesemer call for a “medium viscosity theory” of culture that moves “away from “thick” views of culture that, by definition, rule out human culture as an evolved product from animal ancestors and “thin” views that make culture ubiquitous as mere nongenetic trait transmission” (p. 276, 2007). We share an understanding of culture and biology as reciprocally influential on and responsive to one another, so that bio-cognitive evolution responds to cultural pressures, while cultural evolution also responds to bio-cognitive constraints.

10 Joseph Henrich’s claim that “[c]ultural evolution is a type of biological evolution; it’s just not a type of genetic evolution” (p. 263, 2016) makes his one of the strongest examples of a fully naturalized conception of culture.

11 See note 4.

12 This metaphor is most fully elaborated in Chapter Eight of *Cognitive Science, Religion, and Theology*, where Barrett compares natural religion to an anchor and actual religious expression to an anchored boat, and notes that “under ordinary conditions, the boat will tend to float right above the anchor”. The implication here is that it is only by means of cultural interventions, individual efforts, or extraordinary environmental conditions that actual religious expression will deviate much from natural religion (pp. 131–32, 2011).

13 This distinction points to one of the more interesting live debates within CSR, regarding both the proximate mechanisms and the ontogeny of apparently universal religious beliefs—beliefs in minimally counterintuitive supernatural agents, for instance. While the older and more dominant position within the field has tended to argue for the existence of distinctive cognitive mechanisms, a hyperactive agency detection device (HADD), for instance, as the best explanation of such human universals, others have more recently made the case that predictive processing can account for the same phenomena while also allowing that such dispositions to predict ‘agents’ might not be based in the evolved architecture of the human mind, but rather emerge from actively engaging the world with prior religious expectations (Andersen 2017). The debate is far from settled, but with regards to my present argument, the predictive processing account is promising because it “leaves more room for (divergent) cultural influences and does more justice to the (limited) flexibility of human minds” (Van Eyghen 2020, p. 187; Szocik and Van Eyghen 2021).

14 This claim resonates with Charles Peirce’s discussion of habits, dispositions, and instincts. Per Peirce, “If I may be allowed to use the word “habit”, without any implication as to the time or manner in which it took birth, so as to be equivalent to the corrected phrase “habit or disposition”, that is, as some general principle working in a man’s nature to determine how he will act, then an instinct, in the proper sense of the word, is an inherited habit, or in more accurate language, an inherited disposition. But since it is difficult to make sure whether a habit is inherited or is due to infantile training and tradition, I shall ask leave to employ the word “instinct” to cover both cases”. (Peirce 1935, vol. 2, p. 170).

15 I will, however, bracket individual experience throughout the remainder of the paper and focus almost entirely on the importance of cognitive and cultural inheritance.

16 Again, for the remainder of this argument, I bracket what might be a fruitful line of inquiry and ignore the question of variability across life history, much like I bracketed the question of individual experience.

17 The primary weakness of this organizational scheme is that it utilizes the simplifying assumption that cultures are homogeneous in order to generate a manageable number of categories. In all largescale cultures, this is empirically false, which is one reason that I discuss “families of pathways” instead of individual pathways; the simplifying assumption looks only at the maximal and minimal ends of the relevant continua. The actual continua likely contain numerous middle positions and cultural variations, including, as one reviewer pointed out, pluralistic cultures that host multiple religious communities each with their own levels of religion-supporting scaffolding (Daniel-Hughes 2020). Thus, the position of any individual atheist likely does not fall neatly within any of the preferred families of pathways, which are simplified ideal types and not actual cultures. The position, for instance, of an atheist who exists within a large pluralistic culture with minimal culturally sanctioned religion-supporting scaffolding, but who simultaneously belongs to a smaller, minority religious community with robust religion-supporting scaffolding might exist on the border between effortful and vigilant atheism. As I mention below, one of the strengths of this categorical scheme is that it focuses on continuum thinking instead of either/or thinking, and makes room for further examination of such interesting and complex cases.

18 Related arguments regarding the segregation of publics from counterintuitive concepts and precocious inquirers in science and theology may be found in (Barrett 1999; Boyer 2001; Kuhn 1962; McCauley 2011; Nicholson 2016; Slone 2004; Wildman 2017).

19 Here, I am being maximally generous in construing a bias “toward entertaining supernatural agent conceptions” to include any tendency to conceive of events as having a “greater purpose”, meaningfulness, or teleology. See (Heywood and Bering 2014) for a more detailed discussion.

20 Since Norenzayan and Gervais (2013) adopted “apatheism” from Rauch (2013), I feel relatively free to use the term a bit differently while remaining true to its original usage. Apatheists evince “a disinclination to care all that much about one’s own religion, and an even stronger disinclination to care about other people’s” (Rauch 2013, p. 34). For Norenzayan and Gervais, this disinclination

“arises from conditions of existential security” because “[w]here life is safe and predictable people are less motivated to turn to gods for succor” (pp. 21–22, 2013). I agree with their characterization, but expand apatheism to include those disinclined atheists who are not motivated to believe because their culture lacks CREDs or other forms of religious scaffolding. Thus, for me, apatheism includes both their understanding of apatheists and inCREDulous atheists.

²¹ Hugh Nicholson (2016) provides an excellent example of the integration of these kinds of scholarship. Scholars from either the sciences or the humanities who are suspicious of one another or of robustly interdisciplinary undertakings would do well to examine his work closely. See also (Slingerland 2008) for a thoughtful defense of this kind of “vertical integration”.

²² It may be that viewing religious and atheist expression through an economic lens is merely a case of adopting the terminology and concepts of economics (a fairly well understood source domain) and applying them to religious belief–behavior complexes (a less well understood target domain) in order to gain some inferential insights and proffer some hypotheses (Lakoff and Johnson 1980). I am not, therefore, making the strong claim that religious cognition and expression is economic all the way down. I am, however, making the weaker case that employing economic analyses of religious cognition offers the kind of cross-domain cognitive fluidity that is often a helpful source of abductive insights.

²³ By differentiating between the “cost” of atheism and its individual “price”, my aim is to highlight the degree to which prices are paid by individual agents at the margins (to believe and behave religiously or not), while costs may be paid by larger social groups or even by means of externalization through environmental energy capture. Receiving a scientific education in a secure, secular society may very much lower the price of atheism for individuals, but those educational, social, and political institutions are costly to build and maintain. So, while the price of atheism may vary widely depending on one’s cognitive profile and cultural context, the costs of various cultural scaffolds are likely less volatile. I am deeply skeptical that the various economic inputs and outputs can ever be measured using a single metric, but it does seem clear that energy capture and output are significant sources of economic value that any functional system (biological or social) will need to maximize and minimize, respectively.

²⁴ I am, for the purposes of this argument, largely ignoring the plurality of ends. Suffice it to mention that all humans must have shelter, food, water, and individual security.

²⁵ This reflects the conclusions of the FOReST modeling project, especially the suggestion that “it is difficult to produce and sustain a population in which post-supernatural secular postures are dominant because the relevant conditions require a high level of energy input to the social system” (Wildman et al. 2020, p. 13).

²⁶ This too-brief mention of the costs of theology elides one of the key distinctions in CSR; the distinction between folk theologies that draw on minimally counterintuitive religious ideas, and the more cognitively demanding rationalized theologies of theological specialists that often draw on maximally counterintuitive religious ideas. The former are likely not very costly insofar as they are more intuitive and closer to the COP (Day 2005), while the latter may be quite expensive. The relative costs of atheist expressions would therefore seem to depend on the kinds of religious ideas that one would need to resist. Viewed through an economic lens, it may actually be much easier and therefore cheaper in terms of cognitive effort to consistently resist relatively counterintuitive theological ideas than it is to resist more intuitive kinds of supernatural beliefs that are less in need of cultural scaffolding in the first place.

²⁷ While there are numerous points of connection between my argument in this final section and the growing field of economics of religion, my basic contention that reflective cognition is one of many “finite resources” means that I cannot view “religious behavior as an instance of rational choice” (Iannaccone 1998, p. 1478). This in no way invalidates the economics of religion, but it does suggest that there is more to the economic story than can be captured using the assumption of rational decision-making (see note 28).

²⁸ The literature on “bounded rationality” is enormous, but for present purposes, it is best understood as an attempt to correct the assumption of classical economics that agents make optimizing (rational) cost-benefit decisions. Empirically, this is not the case, as agents frequently act within the bounds of limited information, time, and cognitive capacities. The best introduction is found in two of Simon (1955, 1956), which lay out the case for “bounded rationality” with respect to individual (1955) and environmental variables (1956). “Broadly stated”, he writes “the task is to replace the global rationality of economic man with a kind of rational behavior that is compatible with the access to information and the computational capacities that are actually possessed by organisms, including man, in the kinds of environments in which such organisms exist” (p. 99, 1955). However, Simon is also remarkably astute about the need to integrate thinking about culture and biology, writing that “we must be prepared to accept the possibility that what we call “the environment” may lie, in part, within the skin of the biological organism” (p. 101, 1955). Economic rationality is bounded, in part, because it is not a purely mental phenomenon, but rather a product of the interactions of biology, cognition, culture, and experience, all of which are bounded. This work eventually led to a Nobel Prize in Economics in 1978.

²⁹ Though the question posed by Norenzayan and Gervais (2013)—Does analytic thinking inhibit intuitions that make religious cognition attractive or merely allow people to override theistic beliefs encouraged by these intuitions?—demands an empirical answer, I am suggesting that even in cases of broad inhibition of theistic beliefs, we should expect to find that serious expenditures are required to maintain the social institutions that enable such inhibitions.

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