Intellectual Arrogance and Intellectual Humility:

An Evolutionary-Epistemological Account

Aiden P. Gregg

Nikhila Mahadevan

University of Southampton

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Dr Aiden P. Gregg and Nikhila Mahadevan, University of Southampton, School of Psychology, Center for Research on Self and Identity, Southampton, SO17 1BJ, UK. Correspondence concerning this article should be addressed to the first author. Email: aiden@soton.ac.uk; tel: +44 (2380) 594601.

Abstract

In this paper, we scrutinize intellectual arrogance and intellectual humility through an evolutionary lens. Our basic thesis might be summarized as follows. Human cognition, though it partly transcends the natural order, remains rooted in it: it is half-emancipated, half-embodied. In particular, it bears the lowly stamp of competitive dynamics that form part of the adaptive behavioral repertoire of all complex animals. Such dynamics, transmuted to the mental realm in human beings, help to explain, in psychological terms, why argumentation and ratiocination can be sometimes motivationally biased, but sometimes dispassionately truth-oriented too. Alongside furnishing our evolutionary-epistemological account of intellectual humility, we embed the construct in a wider nomological net, and report some recent empirical findings illustrating the automaticity of the tendency towards intellectual arrogance. We conclude by considering the role spirituality and religion might play in either helpfully fostering intellectual humility or inadvertently fostering intellectual arrogance.

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As we will below attempt to give a rather abstract account of the nature of intellectual arrogance (hereafter, *IA*) and intellectual humility (hereafter, *IH*), we think it salutary to begin with a concrete anecdote that vividly illustrates the latter. It comes from Richard Dawkins—that gadfly of theists everywhere—who will no doubt be surprised to find himself so approvingly quoted in the pages of this august journal. Dawkins recounts a formative influence in his undergraduate life:

> *There was an elderly professor in my department who had been passionately keen on a particular theory for, oh, a number of years, and one day an American visiting researcher came and he completely and utterly disproved our old man's hypothesis. The old man strode to the front, shook his hand and said, "My dear fellow, I wish to thank you, I have been wrong these fifteen years". And we all clapped our hands raw. That was the scientific ideal, of somebody who had a lot invested, a lifetime almost invested in a theory, and he was rejoicing that he had been shown wrong and that scientific truth had been advanced (Dawkins, 2006).*

This anecdote, we contend, shows someone exemplifying the virtue of intellectual humility (Roberts & Wood, 2003). What, then, makes the professor's reaction so admirable? It is this: despite the theory disconfirmed being very much his *own*, the professor nonetheless manifested a complete *readiness to give it up* in the face of compelling evidence. His magnanimity in discharging his epistemic duty, moreover, magnifies the admirability of his response. Note that the professor's response might well have been very different: he might have resisted the evidence by improbably dismissing it as flawed or fraudulent; or he might have privately resented or even publicly denounced the impudent upstart who destroyed his promising theory. Yet the professor did neither: he did not treat this theory as something to

which he was entitled, nor did he construe its empirical disconfirmation as a threat. Rather, he cared everything for the truth, nothing for himself. His concerns were solely empirical, utterly selfless.

Locating Intellectual Humility in the Nomological Net

Intellectual humility, of the sort exemplified by the professor above, can be seen as a subset of two overlapping superordinate constructs: *global humility* and *intellectual integrity*.

Regarding global humility, several attempts have been made both to define it (Davis, Worthington, & Hook, 2010; Tangney, 2009) and to measure it (Ashton & Lee, 2005; Davis et al., 2010; Rowatt, Powers, Targhetta, Comer, Kennedy, & La-bouff, 2006), with a view to exploring its outcomes (Exline & Hill, 2012; Hilbiga & Zettlerb, 2009), alongside those of its near-opposites, arrogance (Johnson et al., 2010) and narcissism (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). Chief among the components of global humility are a willingness to admit imperfections, a tendency to focus on others rather than the self, and the capacity to see oneself realistically.

Humility might also be seen as the first cousin of *modesty*. Sedikides, Gregg, and Hart (2007) defined modesty intrapsychically as the holding of an *intermediately positive* self-view (see also Davis et al., 2010). Their justification was that similar definitions, as opposed to those referring to demure self-presentation, tend to be primary, rather than secondary, in leading dictionaries. Furthermore, surveys of what people intuitively understand by modesty yield reports that refer to intrapsychic concepts as often as interpersonal ones (Gregg, Hart, Sedikides, & Kumashiro, 2008), and in particular, to the mainly intrapsychic concept of *humble*.

Intellectual humility (Samuelson, Church, Jarvinen, & Paulus, 2012) then, can be construed as a form of *specific* humility or modesty. It reflects an intermediate and realistic evaluation of one's epistemic capacities, as opposed to an intermediate and realistic

evaluation of one's capacities in general. As such, IH might also be classed as a specific type of self-esteem—given that self-esteem is fundamentally a self-evaluation (Zeigler-Hill, 2013).[1] Doing so puts IH in the same class as other forms of specific self-esteem, such as academic self-esteem, which afford incremental predictive validity over self-esteem generally (e.g., Marsh & O'Hara, 2008). It also forges heuristic links to other research literatures dealing with people's blindness to their own cognitive limitations (Pronin, 2009; Kruger & Dunning, 1999).

Yet the definition has a limitation: it is neutrally descriptive. IA and IH, however, seem to be essentially defined by the presence or absence of *ego-involvement* with one's beliefs (Sherif & Cantril, 1974; Wayment & Bauer, 2008). To be intellectually arrogant is to fall prey, with respect to the evaluation of one's epistemic powers, to the motive to self-enhance (Sedikides & Gregg, 2008); to be intellectually humble, in contrast, is not to, but instead to prioritize the motive to accurately self-assess (Gregg, Sedikides, Gebauer, 2011). Accordingly, we prefer the following definition of IA: *the inclination to regard a belief as true <u>because</u> it is one's own*. IH, conversely, would then be the inclination not to, or the disinclination to do so. Such a definition, we submit, properly captures the intrinsically motivational nature of IA and IH, with reference to the self as a whole. The psychodynamics of IA might well involve the following implicit syllogism: truth is good (Gregg & Cowley, 2008); I am good (Sedikides & Gregg, 2008); therefore, what I believe is good, in virtue of being true. Clearly, the professor in the opening anecdote was conspicuously low in IA, on this definition: he was *not* inclined to regard the theory he developed as true because it was his own.

IH can also be characterized as a subset of *intellectual integrity*. The latter can be understood as an idealized state of mind in which people, when apprehending themselves or the world, are perfectly truth-oriented. Otherwise put, their motivations are entirely *alethic*

(from *aletheia [Greek]* = *"*truth"): they embody the attitude of the wholly unbiased truth-seeker. When manifesting intellectual integrity, people pursue the truth dispassionately and do not evade it defensively. That is to say, competing motives are operative that would distort the apprehension of the truth—motives that we collectively label *thymic* (from *thumos [Greek]* = "urge"). Potentially, such motives are manifold. A very partial list would include the motives to preserve a belief in a just world (Lerner & Montada, 1998), to justify the status quo (Jost, Banaji, & Nosek, 2004), to verify existing self-views (Swann, 2012), to quell the terror of death (Greenberg, 2012), to maintain a sense of meaning (Heine, Proulx, & Vohs, 2006), to maximize positive and minimize negative affect (Westen, Kilts, Blagov, Harenski, & Hamann, 2006), to achieve cognitive closure (Kruglanski & Webster, 1996), to avoid feelings of anxious uncertainty (McGregor, Nash, Mann, & Phills, 2010). Moreover, IA as defined above, also qualifies as one thymic motive, even if may partly overlap with other thymic motives (e.g., regarding a belief is true because it is one's own might also allay feelings of anxious uncertainty.) Hence, IH is but one component of intellectual integrity. As such, then, it is not sufficient for intellectual integrity. Nonetheless, in the absence of IH—that is, in the presence of IA—intellectual integrity is compromised. That is, IH is necessary for intellectual integrity.

An Evolutionary Account of Intellectual Arrogance and Intellectual Humility

Having conceptually situated IA and IH, and offered our preferred definition, let us now ask a very basic question: *why* should anyone regard a belief as likely to be true just because it is theirs? At one level, the matter might appear obvious. Do we not, if interpersonally observant, notice other people conspicuously cherishing their own beliefs? And do we not, if introspectively honest, notice that we tend to do the same? Yet, when trying to identify the exact reason *why* our holding a belief should make us more irrationally inclined to accept it, we may find ourselves a loss.

To remedy this explanatory deficiency, we here suggest that the roots of both IA and IH can be illuminated by a consideration of human beings' evolutionary past (Coyne, 2010; Darwin, 1859). We are aware, of course, that the theory of evolution remains perennially controversial, especially among the religiously inclined (Barbour, 1997; Behe, 1996; Pew Research Centre, 2009). We also acknowledge that, even though evolutionary theorizing provides a heuristic and integrative framework for understanding the structure and function of the human mind—one that is capable of yielding hypotheses that are at least in part empirically testable (Dennett, 1995; Neuberg, Kenrick, & Schaller, 2010)—there nonetheless exist serious a priori objections, raised by philosophical theists (Plantinga, 1993; Swinburne, 1997) and atheists (Nagel, 2012; Tallis, 2011) alike, about whether evolutionary theorizing can adequately account for such distinctive features of the human mind as rationality and self-consciousness. Here we take an intermediate and hopefully ecumenical position: evolutionary theorizing, although it may not explain fully the most distinctive features of human psychology—like IA and IH—may at least *help* to explain them.

Human Cognition is Partly Emancipated, Partly Embodied

Humans differ from other animals most fundamentally in their cognitive powers. As symbolic animals (Sedikides & Skowronski, 2000), they can explicitly apprehend the world (Tallis, 1991), reflexively apprehend themselves (Corballis, 2011), engage in reflective and propositional thought (Gawronski & Bodenhausen, 2011; Strack & Deutsch, 2004), and express themselves linguistically (Pinker, 2008). So equipped, they are uniquely capable of *knowing truth from falsity*, and often willing to pursue the one in preference to the other. This ability to process and pursue truth to distinguish humans from non-humans not merely quantitatively but qualitatively, making their full explanation in naturalistic or evolutionary terms problematic (Nagel, 2012; Tallis, 2011). To this extent, human cognition may be partly

emancipated from evolution—a fact that permits human beings, unlike other animals, to debate the truth or falsity of the theory of evolution itself.

Nonetheless, there remain abundant signs that human cognition bears the hallmarks of its less lofty origins. The growing field of embodied cognition (Barsalou, 2008; Gallagher, 2005; Schubert & Semin, 2009) has shown the diverse ways in which abstract or symbolic concepts can be scaled along concrete or bodily dimensions, with metaphorical correspondences implying an overlap (Lakoff & Johnson, 1980). For example, males, but not females, who clench their fists physically, then perceive themselves psychologically to be more esteemed, more assertive, and more powerful (Schubert & Koole, 2009). In addition, the vertical dimension of space implicitly scales power differentials and divinity perceptions (Schubert, 2005; Meier, Hauser, Robinson, Friesen, & Schjeldahl, 2007), while the horizontal dimension of space implicitly scales for interpersonal closeness and intimacy (Schubert & Otten, 2002; Williams & Bargh, 2008). Such findings bear out Wittgenstein's (1953) dictum that the "[t]he human body is the best picture of the human soul (p. 178)". Embodiment, then, clearly shapes thought. But now might the embodiment of the human mind, as shaped by the course of evolutionary history, explain IA or IH?

Humans Have Evolved To Physically Compete (As Well As To Cooperate)

Let us immediately note that, contrary to stereotypes of Darwinism, "the survival of the fittest" (Spencer, 1964, p. 144) need not necessarily entail the "Warre Of Every One Against Every One" (Hobbes, 1651, p. 101). Rather, mutual aid may be a no less viable route to individual survival and gene transmission (Kropotkin, 1902). In other words, to prosper and procreate, organisms can adopt either one of two basic evolutionary strategies vis-à-vis conspecifics: competition or cooperation. Obviously, context matters; but generally speaking, many organisms are highly cooperative (Nowak & Highfield, 2011). This is especially true of

human beings, who—by widely trading complementary goods that they separately specialize in producing—mutually enrich one another even remotely (von Mises, 1963).

That said, and despite much historical progress (Pinker, 2011), egocentric and antisocial impulses persist (Wilson & Herrnstein, 1985). For example, although people generously share their windfall gains with a stranger (Engel, 2011), they also nastily seize a stranger's windfall gains (Bardsley, 2008). Such ethical duality makes adaptive sense: as human beings evolved, kin or group selection pressures would have made them partly altruistic—dutifully serving others and submitting to authority—but individual selection pressures would have kept them partly selfish—defiantly serving themselves and expressing their autonomy (Wilson, 2012). Both competitive and cooperative tendencies would have persisted, to be optimally expressed in the appropriate context (Nettle, 2006).

The modest point that we wish to make here is that human beings retain *a competitive streak*, however qualified it may be by complementary tendencies towards cooperation, or however muted it may be by the advance of civilization. Hence, there is ever the potential for human beings to engage in aggressive zero-sum contests (von Neumann & Morgenstern, 1947), where a victor seizes the territory or property of the vanquished (White, 2011), or where dominance and submission dynamics yield hierarchies of relative privilege (Sidanius & Pratto, 1999). Ultimately, too, all such political competition (Oppenheimer, 2007) proceeds either via naked physical aggression, or else via signals that it will occur in the absence of capitulation. Such physical aggression, if and when it manifests itself, necessarily takes embodied form. It entails (at least) one human being, X, attempting to physically dominate another, Y, by putting himself *above* Y and moving *against* Y (albeit often with the assistance of weapons), such that Y has the choice either of himself competing too—by attempting to physically dominate X, in the same way, and thereby escalating the conflict—

or physically submitting, by putting himself *below* X or by *withdrawing* from X, and thereby defusing the conflict (Price, Sloman, Gilbert, Gardner & Rohde, 1994).

Thus, political competition ultimately reduces to an embodied reality for human beings, just as does for other animals who vie with one another for limited resources. As an embodied reality, therefore, competition is as liable to leave a mark on the cognitive architecture of human beings as is any other essential feature of their earthly existence. Moreover, this mark, we contend, can help to explain both IA and IH.

Intellectual Arrogance: the Product of Ideological Territoriality and Mental Materialism

People do not only think in a vacuum. They also engage in the social activity of *argumentation* (Willard, 1989). Moreover, it is a curious fact that the metaphors used to characterize argumentation almost exclusively invoke the idea of *warfare* (Lakoff & Johnson, 1980). One *attacks* a weak argument, and *counters* with a stronger one. Some intellectual positions are *indefensible*, being held on *shaky* grounds, and criticism can be *on target*. One can even *take a stab* at making a case, and hope others get the *thrust* of what you are *driving at*. Such familiar metaphorical expressions—and their aptness when applied to most public and many debates—suggest that the purpose of argumentation rarely exemplifies the ideal expressed in Philebus dialogue of Plato's (347 BC): "...we are not simply contending in order that my view or that of yours may prevail, but I presume we ought both of us to be fighting for the truth...". Rather, the purpose of argumentation seems often precisely *to defeat one's opponent* definitively, not to understand reality better. Thus, one participant in argumentation makes a psychological gain at the expense of the other, rather than both mutually gaining from greater illumination. We label the phenomenon—manifested at a pragmatic, interpersonal level—*ideological territoriality*.

Why does argumentation often take such an antagonistic interpersonal form? We propose that this question admits of a psychological answer. People *experience* their beliefs—the very matters over which they argue—as *personal possessions* (Abelson, 1986). They intuitively feel them to be *objects they own*, to which they are entitled, that no one else may take. Again, prevalent metaphors testify to this. As objects, they can be *acquired*, *held*, and *discarded—clung to* or *given up*. Like physical substances, they can be *shaped*, *twisted*, and *conditioned*, as well as being *weighty*, *rock-solid*, and *well-supported*; yet they may be too *rigid* and *inflexible*, and susceptible to being *shattered* or *demolished*. They are also valued commodities, being *dearly held* and *cherished*; one can even try *to sell someone an idea*, although no one may *buy it*. What this suggests is that is that beliefs are not held merely, or even primarily, because their propositional content accords with reality, but rather because they represent a type of cognitive asset residing in a psychological bank. Accordingly, people are averse to relinquishing beliefs, keen to have them grow, or both—goals that ideological territoriality, respectively defensive or offensive, facilitates. We label this phenomenon—manifested at an epistemic, intrapsychic level—*mental materialism*.

Thus IA—regarding a belief as true simply because it is one own—is a throwback to our evolutionary heritage. Propensities that apply to the physical realm of resources, where organisms engage in zero-sum contests to gain a territorial monopoly, have been transmuted to the psychological realm of beliefs, where partisans engage in zero-sum contests to maintain ideological hegemony. Although beliefs are not extended in space (Descartes, 1637/1991), and are not scarce being indefinitely replicable (Kinsella, 2012), people nonetheless relate to them psychologically as if they were concrete objects they can acquire and keep.

Intellectual Humility: the Product of Appropriate Submission to Legitimate Epistemic Authority

Having tentatively attempted to account for IA in evolutionary terms, how might we characterize IH? To do so, we must triangulate between two initial possibilities, to achieve a subtle synthesis.

The first possibility is that IH is simply the *diametric opposite* of IA. That is, just as IA entails a willingness or eagerness to retain or expand some subset of beliefs, because they are one's own, IH contrariwise entails a willingness or eagerness to relinquish or contract that same subset of beliefs, for the same reason. In other words, whereas the intellectually arrogant, being confident, tend to declare and defend their ideological positions, the intellectually humble, being diffident, tend to conceal them or concede them.

There is surely *something* in the characterization. Intellectually humble people, if they are anything, will on occasion not cling to beliefs like the intellectual arrogant will. The humble professor in the opening example distinguished himself by doing precisely this; a more arrogant professor would have reacted defensively. The intellectually humble might generally endorse the assertion by the American pragmatic philosopher C. S. Pierce (1878), that a belief is merely "the *demi*-cadence which closes the musical phrase in the symphony of our intellectual life [italics added] (p. 289)", rather than the final word on the matter. But that does not mean that the intellectually humble are characterized solely by a tendency *not* to "stick to their guns" in argumentation. Indeed, the tendency to regard a belief as false because it is one's own is no more rational than as tendency to regard it as true: as an occasional motive, self-denigration, when it occurs, is no less thymic, and no more alethic, than self-enhancement. Accordingly, there is more to IH than a tendency towards ideological submissiveness, even if IA is reasonably characterized as a tendency towards ideological dominance.

A second possibility, then, is not that IA is the diametric opposite of IH, but that it is what occurs *in the absence* of IA. Whereas IA represents human cognition in a relatively

embodied form—reflective of zero-sum contests, IH represents human cognition in a relatively emancipated form—reflective of dispassionate rationality. IH is present whenever beliefs are critically evaluated entirely *independently* of whether or not they are one's own or someone else's. IH is whenever IA isn't.

Yet, this second possibility also has drawbacks. First, by defining IH as the absence of IA, it provides only a negative, and not a positive account, of it. Second, it fails to do justice to the fact that IH involves, as the previous possibility suggests, intellectual deference of some sort, albeit not generalized and unconditional.

The trick, then, is characterize IH in evolutionary terms, while still acknowledging it as a form of emancipated cognition that is alethic rather than thymic in orientation. Accordingly, we offer this characterization: *IH is due deference to an epistemic principle that one subjectively regards as having legitimate authority.* This needs a little conceptual unpacking.

One of the fundamental features of rationality is the one cannot believe whatever one wants to. For example, although it would be no doubt pleasing to believe all sorts of flattering propositions about oneself, reality constraints impose strict limits on such motives to self-enhance (Sedikides & Gregg, 2008), and failure to observe such constraints, in any major way, would entail delusional self-inflation (Campbell & Miller, 2011). Thus, the everyday practice of not believing whatever one desires to believe—and, in particular, of not believing something just because it is one's *own* belief—can be understood as the result of adherence to an epistemic norm, of observance of a self-imposed duty. Reason is a thus type of *obligation* (Gregg, 2009). Like all obligations, it requires *deference*: an imperative of some sort must be obeyed. However, unlike other obligations, which involve deference to people, as a function of interpersonal commands or agreements, rational obligations involve deference to *principles* that are regarded as instrumental in the successful pursuit knowledge. For example,

to know mathematical truths, one should defer to the principles of logic; to know empirical truths, one should defer to the principles of science; and to know religious truths, one should defer to the principles of revelation.

It goes without saying that the reliability of such principles is always up for discussion: this is the subject matter of epistemology (O'Brien, 2006). The case can be made that some principles take priority over others, or more radically, that some principles are invalid. But that is not our concern here, for we wish only to characterize IH *psychologically*. In our view, if a person subjectively regards some epistemic principle as having legitimate authority—in the sense that he or she regards it, in good faith, as reliably conducing to true justified belief—then deferring to that authority is what constitutes IH.

Note how this account, at once, invokes both embodied and emancipated cognition. It invokes embodied cognition insofar as it appeals to the psychological dynamics of dominance and submission, which emerge from our biological heritage as earthly creatures with a propensity for zero-sum competition over scarce resources and territory. To be rational is to permit earnestly endorsed epistemic principles to dominate one's thinking insofar as they determine what one can rightly believe. Otherwise put, these are the epistemic principles to which one must duly submit, however much one would prefer not to. In some sense, those principles "win," and the rational person "loses." Most empirical scientists (the authors are no exception) know how dispiriting it is to have their beautiful hypothesis slain by an ugly fact. They are dispirited precisely because they know they must give something up. To celebrate disconfirmation of one's hypothesis—like the professor in the opening anecdote—is rare.

But the account also invokes emancipated cognition insofar as it appeals to explicit understanding, not only of target phenomena and concepts, but also of the abstract methods that are understood to be more or less reliable means of attaining knowledge about those target phenomena and concepts. To be rational is to select—not some arbitrary authority

whose pronouncements can be believed willy-nilly—but some legitimate authority whose epistemic credentials can be defended on rational grounds. Clearly, high-level cognition is called for here—far removed from more basic evolved propensities.

The Spontaneity of Intellectual Arrogance

There seems to be little doubt that IA can be created or reinforced by such fully-fledged motivational dynamics as *cognitive dissonance* (Cooper, 2007; Festinger, 1957). In particular, when people have publicly committed themselves to a counterattitudinal position (Leippe & Eisenstadt, 1994), or have come to believe that they have acted freely to bring about foreseeable aversive consequences (Cooper & Fazio, 1984), they are then liable, not to humbly and rationally abandon the beliefs that prompted the endorsement of that position or performance of that action, but instead to "double-down" on those beliefs, and come up with rationalizations that bolster them. There is good evidence, furthermore, that such rationalizations often serve to defend the ego against self-esteem threat, rather than being purely the products of sheer cognitive inconsistency (Steele, 1988; Stone & Cooper, 2001). Accordingly, when people's motives switch the alethic to the thymic, under the sway of cognitive dissonance, their intellectual integrity is compromised, in virtue of the fact that they have, albeit inadvertently, *committed themselves* to a belief, thereby making it more intimately and undeniably "theirs". The effect of abandoning such a belief, we argued above, would now be the psychological equivalent of ceding territory or of losing a valued possession. Accordingly, cognitive dissonance is liable to be a key cause of what we define as IA—considering a belief to be true simply because it is one's own. For example, one could easily imagine a professor far less magnanimous than Dawkins's hero—one who boldly articulates a theory in public, commits himself to promulgating it, influences other researchers, thereby making the theory ever more "his" in his own eyes and in the eyes of his

peers. Later, however, some evidence emerges suggesting that the theory is false. An understandable reaction would be for him to redouble efforts to confirm his theory.

But how *basic* is such intellectual arrogance? Must some cognitively complex process, such as cognitive dissonance, which serves to amplify commitment to and identification with a belief (see Abelson, 1988, 1995, for reviews of belief extremification dynamics), occur before IA manifests itself?

One broad argument from analogy suggests not. Several *minimal* effects, all related to the self, have been well established (Greenwald & Banaji, 2005). These include the *name letter effect* (Koole & Pelham, 2003; Nuttin, 1985), where people show a spontaneous preference for letters in their name over other letters; the *endowment effect* (Kahneman, Knetsch, & Thaler, 1990; Morewedge, Shu, Gilbert, & Wilson, 2009), where people show a spontaneous preference for goods they own over those they do not; *the minimal group discrimination bias* (Otten, 2005; Tajfel, Billig, Bundy, & Flament, 1971), where people spontaneously distribute more goods to members of arbitrary ingroups than outgroups; and *mnemic neglect* (Green, Sedikides, & Gregg, 2008; Sedikides & Green, 2009), where people spontaneously fail to recall negative feedback, about traits that matter to them, when it is directed at themselves but not at others. All such effects can be also interpreted in terms of *ownership*: of one's name letters, physical goods, valued ingroups, or important traits. If such self-related minimal effects occur, then IA may perhaps also occur as a minimal effect. Moreover, if so, it may be a feature of our psychological apparatus that is inherently difficult to eliminate.

In this connection, consider mnemic neglect again. This is typically induced when participants are administered a credible but bogus personality test that supposedly yields mixed feedback, taking the form of concrete actions that participants are deemed likely to perform. However, the phenomenon can also be induced simply by asking participants to

imagine receiving such feedback (Sedikides & Green, 2004, 2009). That is, even entertaining the hypothetical idea that the self might be in receipt of relevant negative feedback is enough to make people to recall such feedback more poorly. Thus, the barest pairing of self with negativity can induce a self-threat that is psychologically defended against by forgetting.

Taking our cue from the above, we recently sought and obtained empirical evidence that IA also occurs spontaneously, in the form of the *Spontaneous Preference for Own Theories (SPOT) effect* (Gregg, Mahadevan, Cisek, & Sedikides, 2013). We engineered a situation that again involved the barest pairing of self, only this time, not with feedback of varying valence, but instead with a *theory*, progressively informed by pieces of empirical evidence. Specifically, in two studies, we told participants about a fictional planet on which two alien species dwelled. In Study 1, conducted online, the species were labelled *Niffites* and *Luupites* [see Gregg, Seibt, & Banaji, 2006]; in Study 2, conducted with paper-and-pencil materials, they were labelled *Dassites* and *Fommites*. Such nonsense names were designed to be low on prior meaning, to avoid biasing responses. In each study, the theory was that one alien species was a predator and the other was its prey, with nonsense names being counterbalanced across participants. After the predator-prey theory was stated, participants were presented with pieces of factual evidence bearing on that theory, one at a time. After the first piece was presented, participants rated their subjective likelihood that the theory was true, on a continuous scale ranging from 0% (*Certain to be FALSE*) to 100% (*Certain to be TRUE*), with 50% marking epistemic neutrality. On presentation of the subsequent six pieces of factual evidence, participants did the same, expressing their subjective likelihood that the theory was true or false in light of the accumulating evidence. The first three pieces were designed to be loosely confirmatory, the latter three to be more decidedly disconfirmatory. Hence, and as intended, participants generally went from believing the theory somewhat more likely to be true (>70%) to believing it more likely to be false (<40%).

Crucially, participants in Study 1 were told to imagine either that (a) *they themselves* were the scientist who had the theory, and were evaluating it in light of the evidence, or that (b) *someone else* (an androgynous "Alex") had the theory, and was doing the same thing. In Study 2, a third condition was added: the theory was *not ascribed* to anyone. Thus, the two studies permitted a precise test of whether intellectual arrogance, as we have defined it—believing a theory to be true because it is one's own—existed. The only difference between conditions was in terms of *whose* theory it was merely imagined to be: one's own, another's, or no one's. If participants judged the theory more likely to be true when ascribed to oneself as opposed to another or to no one, then there would be little alternative but to conclude that self-ascription caused participants to *irrationally* regard that theory as more likely to be true. Moreover, the minimal nature of the self-ascription—merely asking people in passing to imagine that a novel and fanciful theory was theirs—would testify indirectly both to the primary and potency of IA. For, if intellectual arrogance could be successfully induced when so *little* is at stake for the self, then it is likely to be a basic feature of the psychological apparatus, whose effects could easily be amplified under more high-stakes conditions.

As hypothesized, the SPOT effect duly emerged. In particular, participants in Study 1 regarded the theory as being significantly more likely to be true when it was ascribed to them as opposed to another person, with the divergence in belief between the conditions growing larger as more pieces of evidence accumulated. Moreover, participants in Study 2 regarded the theory as being significantly more likely to be true when ascribed to them than when either ascribed to another person or to no one at all; furthermore, these last two conditions did not differ significantly from one another.

Religion and Spirituality: Fostering Intellectual Arrogance or Humility?

If our foregoing evolutionary-epistemological account is correct, then intellectual arrogance—regarding beliefs as more likely to be true because they are one's own—would be

an ever-present liability. It would emerge naturally—as a kind of "original sin"—from people's default tendency to regard their beliefs as a kind of personal property (i.e., mental materialism), and to regard argumentation as a kind of ownership contest (i.e., ideological territoriality). Furthermore, the SPOT effect provides a telling empirical demonstration of the readiness with which intellectual arrogance manifests itself. If so, intellectual humility would be a virtue that needs careful nurturing (even if, as deference to an epistemic principle deemed legitimate, it would have its own evolutionary roots). What role, then, might spirituality and religion play in cultivating intellectual humility and combating intellectual arrogance?

Certainly, the great spiritual and religious traditions have long condemned arrogance in general as a vice and extolled humility in general as a virtue. Theologically speaking, human humility seems well-justified: orthodox Christianity, for example, contrasts the utter perfection of Almighty God (Swinburne, 1997) with the intrinsic sinfulness of mortal man (Venema, 1994). People's failure to curtail their self-regard in keeping with this stark ontological differential—pride (which encompasses arrogance)—has been branded as one of the Seven Deadly Sins (Catholic Church, 2003, 8, III), and been argued to lie at the root of all other sins (Aquinas, 1270; I-II, 77, 4, co.). In contrast, meekness is celebrated as a virtue (Matthew 5:5, Matthew 11:29, King James Version), and considered in the spiritual literature as a precondition for union with God (Merton, 1961). Furthermore, there has been a surge of recent interest in understanding empirically how humility (or a "quiet ego") can be cultivated (Wayment & Bauer, 2008), including as a consequence of spiritual or religious practices (Wayment, Wiist, Sullivan, & Warren, 2011).

But what of intellectual arrogance and intellectual humility in particular? Here, we briefly speculate, the impact of the great spiritual and religious traditions may be more mixed.

On the minus side, all major world religions, including Christianity, have branches that teach didactically some sort of received *dogma* (e.g., the Nicene Creed). The credibility of that dogma rests, not only upon reasoned argument and empirical evidence, furnished by philosophy and science, but also upon some alleged *revelation*, conveyed prophetically or ecclesiastically, whose epistemic status, necessarily retaining elements of subjectivity, fails to convince outsiders. Simply put, people differ, for defensible reasons, about the validity of revelation as a source of knowledge, metaphysical or moral. Yet, the actual validity of revelation need not matter for determination of intellectual arrogance or humility. So long as people regard themselves has having *good grounds* to defer to the prophetic or ecclesiastic authority deemed to convey such revelations, then—even if others do *not* regard those grounds as good, and even if others are *right* not to regard those grounds as good—people may still be intellectually humble.

Nonetheless, we would suggest that adherence to dogma contains an inherent danger. Given that religion is a prominent source of moral value (Graham & Haidt, 2010), and obedience is one of the six basic foundations of morality (Haidt, 2012), deference to prophetic or ecclesiastic authority might be improperly regarded as morally good *in itself*, rather than morally good because there are, on reflection, good grounds for accepting that authority in the first place. But intellectual submissiveness to authority is *not* intellectual humility: the former, unlike the latter, is a passive state of mind, characterized by reflexive or automatic deference (Milgram, 1974; Saroglou, Corneille, & Van Cappellen, 2009), and driven by introjected (i.e., externally derived) rather than autonomous (i.e., internally originating) motivation (Ryan & Deci, 2000). If one's goal is to know the truth, then the authority to which one defers must itself be critically scrutinized as the deliberate act of a rational adult; otherwise one's motivation is irrationally thymic, not rationally alethic.

On the plus side, many great theologians have duly emphasized how God's ineffable nature makes Him impossible for mortal minds to fully fathom (Hick, 2000). Accordingly, the great religious and spiritual traditions contain strands that emphasize, not only the epistemic accessibility of God, but also His epistemic elusiveness. In particular, those traditions contain, not only *cataphatic* strands, which assertively purport to describe who or what God is, and are hence conducive to the promulgation of dogma, but also *apophatic* strands, which unassumingly limit themselves to describing who or what God is not, and are hence conducive to the practice of mysticism (McGinn, 2006). The thrust of apophatic approach is that ideas of God, although they may be initially helpful, ultimately prove an impediment to union with Him, given that His essence transcends rational thought. Famously illustrating a shift from the cataphatic and the apophatic approach, Saint Thomas Aquinas—who had devoted years to authoring weighty tomes of systematic theology—gave up writing towards the end of his life, feeling that his mystical experience of the Divine had rendered such writings redundant (Pieper, 1957). We would like to close by suggesting that, insofar as metaphysical beliefs are concerned, to the extent that religious and spiritual traditions emphasize an apophatic as opposed to cataphatic approach, they will tend to foster intellectual humility in their adherents, whereas to the extent that they do the reverse, they will tend to foster intellectual arrogance in them, all else equal.

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Footnotes

[1] If intellectual humility and arrogance qualify as a form of specific self-esteem pertaining to one's epistemic capacities, the question naturally arises of how these relate to global self-esteem (Zeigler-Hill, 2013), and to its grandiose cousin, (global) narcissism (Rhodewalt, 2012). We speculate that narcissism would show the stronger empirical link. On the grounds that specific and global forms of self-regard should be, almost by definition, somewhat correlated—either because the former cognitively informs the latter, or the latter affectively contaminates the former (Sedikides & Gregg, 2003)—a modest inverse link between intellectual humility and self-esteem might be expected, perhaps primarily driven by people with the lowest self-esteem harbouring sincere doubts about their epistemic capacities ("I'm always making mistakes"). However, given that higher narcissism is empirically associated with arrogance and dominance, and hence lower narcissism with their absence, then—especially if our evolutionary-epistemic model of narcissism is correct—a relatively strong inverse link between intellectual humility and narcissism might be expected.