*The View from Within:* A Cognitivist Account

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The awkward fact that reason, as we know it, is never aware of its hidden assumptions – has been too much for some philosophers, and even scientists to admit. (L. L. Whyte [1978] quoted by Koestler 1964, p. 177)

*The View from Within* plays a variation on Thomas Nagel’s famous theme of *The View from Nowhere* (1986). There, Nagel contrasted the objective and personal views of the world and argued for the just standing of each and how the proper balance between the two might be sought. However, Fisch and Benbaji are not primarily concerned with establishing some sort of reconciliation or defining the jurisdiction of the subjective. Instead, they are attempting to understand how *new* interpretations of the world are generated given the strictures of normative views of reality. Such breakthroughs that depict the world anew constitute a revised triangulation between the world, the epistemological agent, and the community that must, in the end, judge the novel presentation. If successful, ‘the view from within’ generates a revised objective description of the world, i.e., one to which all may subscribe. How does that occur?

Confining the discussion to the rational within strict confines of ‘reason’ strikes me as injudicious. At the risk of over-simplifying, *The View from Within* describes the process of knowledge’s revision as a property of reason itself, *reason* understood in a particular normative way. In other words, the entire process of breaking normative accounts and establishing new ones is described as rational, i.e., ‘reasonable’ all the way down. I believe a broader approach is required, and so I would advocate a line of inquiry closer to that of Nagel’s attempt to provide a balanced account of subjective and objective operations, for I am convinced that ‘reason’ originates in subjectivity and its fundamental processes are tacit. Of course, ‘subjective’ has many meanings and that is a matter we must sort out but suffice to note here that in the barest terms, the source of my dissatisfaction lies in the narrow vision of reason they endorse. After a short review of the argument presented by Fisch and Benbaji, I will posit (and merely outline) why their notion is too restrictive and thus unable to address the question-at-hand.

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*The View from Within* seeks to not only understand the character of knowledge acquisition and scientific change, but also to re-assert the intuition that reasoned discourse, which is dominated by communal languages, norms, practices, and theories, nevertheless has ample room for creative movement to revise those outlooks. In their wide-ranging study, Fisch and Benbaji examine the character of reason and the ability of an individual knower to effectively distance herself from the normative framework in which she functions in order to be self-critical and innovative. They frame their critique in dialogue with the recent writings of leading contemporary philosophers in a detailed analysis of the character of reason, the problem of relativism, and how to comprehend scientific change more generally. Firmly placed within the context of current debate, the authors provide a thorough evaluation of recent arguments, as well as offering an important critique of normative reason in scientific discourse.

Fisch and Benbaji, like others concerned with understanding objectivity and the acquisition of scientific knowledge within the larger context of conceptualizing rationality, have had to consider scientific reason challenged by constructivist formulations and postmodern attacks.[[1]](#footnote-1) Of the many ways of addressing this issue, let us consider two kinds of reason in dialectical interplay — *discursive* and *social*. The social level of communal exchange, criticism, and consensus is here coupled to the discursive problem of how normative commitments might be altered in the setting of scientific change driven by innovative findings, anomalies, and external challenges. Fisch and Benbaji consider the most deliberative character of reason, and how normative commitments might be altered by reasoned argument to generate epistemological insecurity and re-assessment. In this sense, they are internalist “defenders” of reason. Accordingly, discursive reason is formulated within a long philosophical tradition, in which rationality and advancement of science owe far less to a confident reliance on data, methods, and warrants than to the self-doubting Socratic “dialectic of interrogation” to which facts and theories are regularly subjected. Incapable (as a matter of logic) of objectively confirming her efforts, let alone of *proving* them, the scientist can, in principle, boast no more than to have prudently subjected her work to the most thorough tests available. That knowledge is incomplete and must be scrutinized through the lens of skepticism remains the key precept of critical investigation of all kinds. This epistemology serves science as it did philosophy from its earliest awakening, namely, boldly facing complacent assumptions and beliefs.

Attempting to define the conditions by which reason operates, the authors pit Kant’s autonomy of reason against the post-Kuhnian varieties of pragmatism that acknowledge the impossibility of insular reason to achieve its ostensible goals. Finding irresolvable problems at each end of the spectrum, Fisch and Benbaji have presented a portrayal of scientific change through a critique of rationality as the normative vehicle of scientific discourse and how change occurs within the constraints imposed by language. (Note, this focus is upon the individual scientist, not the collective.) They confront Rorty, and by affiliation all those who have argued the impossibility of finding a critical “Archimedean point” for assessing language or the reality, which may be described by rational methods. Rorty, as an “ironist” (one who knowingly functions in full awareness of the normative constraints on his rationality), assumed a relativist position and argued that scientific change accordingly arises through “tinkering” – undirected experimentation – that in due course generates new vocabularies and metaphors. According to Fisch and Benbaji this process, whose utility is only appreciated retrospectively, leaves the ironist unable to critically appraise her station and then to proceed under assumed rules of rationality. She thereby forfeits the idea that intellectual or political progress is rational. Fisch and Benbaji want to save normative rationality, and while they do not enlist the “outside of the framework” position, they still resist Rorty’s relativism and skepticism and, more specifically, the *ad hoc* randomness of Rorty’s notion of scientific change.

So how does such rational self-questioning function and upon what might it be based given the normative strictures in which we think? No short summary of a highly nuanced and astute reading of the “reason problem” does justice to the complex argument presented by Fisch and Benbaji. However, note that they have actually combined two separate discussions into one, and they have drawn from diverse philosophical voices to make their point. Their argument couples two positions: 1) “Comparative irrealism” accepts that no normative property shared by conflicting normative outlooks exists that would allow their ranking, and 2) just because such comparisons cannot utterly discredit one outlook over the other, *still*, internal self-criticism allows for evaluation and change. They thereby assert normative reason’s self- criticism within a relativist framework. This position is necessarily based on *intra*-subjective, not inter-personal criticism, and, in this regard, they separate themselves from other more communally-based arguments most prominently associated with Brandom, Waltzer, and MacDowell. The authors find themselves attracted to Frankfurt’s picture of the self-reflective self, but they are disturbed by the absence of an integration of the inter-personal, interpretive elements of critical discourse. Despite the open-ended nature of that inquiry (one that they cannot be fairly held to account), Fisch and Benbaji have combined the positions labeled #1 and #2 above and have settled on an “ambivalently” generated disturbance from without to spur intra-subjective criticism. On their view, imaginative self-criticism offers an effective range of reason to examine itself despite the strictures on reason that they have so carefully identified.

I doubt, however, that their prescription for the disequilibrium offered by intra-subjective scrutiny suffices, and so I take a more sympathetic view towards the inter-subjective than they allow. But this is a fair disagreement and arises from my closer adherence to the pragmatist position (Tauber 2009). Pragmatists have argued that rationality becomes a category of action, a means to expose and solve problems, and thus offers a method by which inquiry might gauge its success or failure as determined by a broader set of goals and standards. This instrumental quality of rationality breaks the strictures of language by enlarging the inquiry’s frame of reference. The individual problem is set in a context that itself has an orientation conferred by larger issues, which then direct the more local investigation. By standing outside the immediate framework, with recurrent reference to local strictures, a critical position may putatively be obtained.

Sociologically-informed pragmatists cite the fluidity of interactions between scientific communities and the ever-present opportunism of practicing scientists to enlarge their critical purchase on their investigations, where “reason” must be understood as active dialogue *between* actors. These actors revise their thinking in response to these opportunities and different kinds of knowledge. So, on this stage, the character of modern inter-disciplinary science has radically changed the older monolithic, formalistic accounts of scientific practice, and with these new scientific structures, new ways of describing rational thinking have become apparent. Following this general bearing, Fisch and Benbaji cautiously adopt the heuristic of an orienting function of a “meta-framework” as proposed by Friedman, coupled to Galison’s notion of the “trading zone,” in which more fluid dynamics might lend themselves to the initial destabilization offered by external scientists and various social forces. On this view, a broader perspective appears to guide the scientist in her more local inquiries in which a perspectival advantage cannot be obtained.

This approach has appeal, however, the psychological mechanisms, or even the parameters for drawing such a conclusion, are not provided. Confined to an abstract philosophical discussion, these claims find little support beyond the conjured arguments already rehearsed and thus suffer the charge of ‘opinion,’ as opposed to the benefits of a better-grounded argument based on empirical studies. The question deserves a wider arena, and at the end of my comments I will return to this lacuna.

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Most would concede that reason does allow for breaking the strictures of common thinking. That is not the issue, for evolution of ideas and knowledge *do* occur. The question is how? Or put in a more philosophical tone, let us recall that Adorno, in perhaps an ironic echo of Kant, described normative intentionality as the product of the *active*, willful direction of our thoughts, without which only the passive mirror of reality would remain (Adorno 1973, p. 230). And *what* is this active mind? The weakness of this book, and for that matter, one shared by all of the distinguished philosophers participating in these discussions, reduces to the paucity, actually an absence, of psychological data, cognitive science research studies, insights derived from sociological research, or examination of detailed historical case studies. (While mentioning historical cases, Fisch and Benbaji make scant use of them.) Consequently, the philosophical discussions remain more abstract (and weaker) than they might otherwise be. For example, I am repeatedly amazed at such statements as

…left to their own devices, people are simply incapable of the kind of normative self-criticism we seek to articulate….It matters little, it would seem, whether or not a person is exposed to the normative critique of others” (Fisch and Benbaji p. 275).

They provide no evidence that this central claim is *true*, and unfortunately their entire discussion, as well as those whom they engage, rests upon unfounded assertions that may correspond to how they regard their own reasoning processes. However, those descriptions hardly reflect empirical support of any sort. And, of course, there is much to choose from.

Empirical studies over the past three decades have highlighted reason’s limits and stimulated new models of thinking (reviewed in Leighton and Sternberg, 2004; Manketelow and Chung 2004). Several theories vie for explaining the reasoning process, for instance: heuristics/bias theory (Kahneman and Tversky 2000); mental models theories – humans reason by constructing small-scale models of reality or map-like representations in semantic form (Johnson-Laird 2006); mental logic theory – reason reflects an innate logical capacity inspired by Fodor and Chomsky (reviewed and modulated by Hanna, 2006); rational choice theory (Peter and Schmid 2007) and various permutations thereof have spawned a large literature (reviewed by Mele and Rawling 2004; Millgram2001; Stenning and van Lambalgen 2008). But “reason” has been so rarified in the philosophical literature cited by Fisch and Benbaji that the insights derived from other disciplines have been utterly ignored. And more to the point, I maintain that this dissociation of the philosophical discourse from empirically based studies testifies to a silo mentality that can only impoverish philosophy. To ignore empirical findings about reason in practice leaves philosophers to work in a universe of general assumptions and intuitions. If philosophers counter that theirs is solely a philosophical study, not psychological, linguistic, or cognitive scientific investigation, I would assert that any, and all, philosophies of science (and general epistemology as well) ultimately rely on the sciences that underlie them. The description of reason is no exception, and while one may claim that philosophy has its own demands and purposes, I still think it fair to place that philosophy in its most informed context. Simply, philosophy does not stand alone, and especially in *The View from Within*, where the authors situate their philosophical analysis within the real-life sphere of scientific thinking, the self-imposed restrictions cramp their argument. So, despite the philosophical elegance and the wide scope of the critique, I remain unsatisfied: The lack of historical evidence coupled to the absence of any psychological and sociological data to support the positions advocated weakens any claims about how humans *actually* think. Simply, empirical evidence would lend credibility to the claims made here.

Perhaps my resistance is not a fair criticism of this work, inasmuch as Fisch and Benbaji are working within a tradition with its own standards and methods. Indeed, they have deliberately set their own project firmly within the established literatures. That I find them wanting, is to ask for a different kind of book. Readers do that all too frequently, and I lamely admit to having fallen into that cantankerous group. Yet *someone* must at least point to historical and/or psychological case studies that support or reject the positions espoused by philosophers. Why not explicate empirical evidence that would support the philosophy and strengthen the discussion? This general complaint consequently is less directed to the work reviewed here than it is leveled against a current fashion of philosophizing.

On this general view, I am left with a nagging question, which appears recurrently in contemporary epistemology: Given the pull from relativism and the uncertainties of how to understand creative imagination, where outside the pragmatic position does the self-critical position reside and how does it, in fact, work? I suggest we begin that query at an early point in the cognitive cascade, namely novel associations that eventuate in the latter processes Fisch and Benbaji describe. So instead of looking at the enterprise as an on-going self-critical process – which it obviously is at higher levels of thought – let us reconsider the general work of creative thinking at its initial precipitating point. I take this original event that ends in revising the normative view as the result of a “disturbance” and that disruption in the coherence of a given picture or view results in a new vision or intuition. That occasion is commonly referred to as the ‘creative’ or imaginative episode. While Fisch and Benbaji have posed the issue as how to account for the achievement of self-critical rationality, I would push their immediate concerns into a precipitating “creativity” track they may regard as tangential to their own concerns. However, I do so, because it seems to me that at the root of their account of normativity, the problem of understanding *imaginative* novelty lies dormant.

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How might we account for breaking paradigms (in Kuhn’s parlance), or more generally, how are creative insights or syntheses generated when the prevailing objective accounts of the world conspire to present reality as given? The challenged posed by our authors directs them to a diversity of philosophical accounts, which by and large omit such considerations, and they are clearly dissatisfied, even provoked, by Rorty’s notion of “tinkering.” However, I am inclined to agree that the loose associative process to which Rorty alludes (albeit with little, if any, supportive evidence) is generally correct: What seems missing from *The View from Within* (and the large literature it joins in debate) is an account based on empirical studies that actually *show* what transpires in creative thought.

I advocate departing from the well-trodden philosophical paths followed by Fisch and Benbaji and instead head into the vast terrain developed from of a century of research psychology that addresses the unstated foundations of the *View from Within.* Simply, I maintain that the philosophical discussionmust reach into contemporary studies of the creative process and the *evidence* found there to ground conclusions about how humans think. Then, from that platform, the empirical evidence may be folded into the philosophical questions posed by the authors. I hope to make my point by juxtaposing two radically divergent accounts that would describe the “black box” of creativity. The first makes no attempt to discern the dynamics of reason, while the second illustrates a dominant theme in contemporary cognitive theory. The latter regards normative scrutiny as a latecomer to thought. I offer the first story to highlight certain aspects of the second.

As late as the Romantics, novel insight, imaginative genius, was understood as a gift. A muse bestows insight or creativity, notwithstanding the individual’s virtue or choice. This view commands a venerable history, which I would track to the Bible, although all myths share this characteristic. For example, consider the earliest historical record, where the discovery, or invention, of monotheism is succinctly described. This quantum leap in abstraction must count as one of the signal achievements of our civilization, one attained long before a scientific ethos took hold, or perhaps on some accounts, the beginning of a self-critical attitude. Abraham’s religious revolution radically inflected Western civilization towards a new metaphysics.

When the divine voice pronounces to Abram that he is to leave his father’s house (*Genesis* 12:1), the departure signifies a turn to an utterly different reality. No comment is made as to how such a declaration was received. The promise that the wandering will end, and that Abram will father a new nation is accepted *tout court*, and more to the point, he apparently made no contribution to the generation of the insight. *Revelation* accounts for the *vision* (*Genesis* 15:1), and as testament to the later promise of an heir, ‘Abram’ become ‘Abraham’ (*Genesis* 17:5) to signify his exalted ancestral heritage. The Bible offers no other remark about the creative act. Indeed, it is not creative, but rather a gift. Simply, Abram accepts the command, and we witness its validity as confirmed by the history of the Abrahamic peoples.

The ability to *hear* the divine is similarly not distinguished, and the ethical import, like the story of Noah before him, is, in a sense, a depiction of a moral capacity. Accordingly, Abram claims virtue, not by his cognitive or imaginative genius, but rather in his steadfast adherence to the Lord’s command. So much for the bolt of insight that breaks the normative view. He has been blessed, possibly through his worthiness, but certainly not in any sense we might construe as arising from the human imaginative faculty. One might say that any such ‘view from within’ Abram might have possessed has been bypassed altogether. In short, on the Biblical account, no active capacity has been invoked and thus from an intellectual (or cognitive-psychological) explanation, none is offered. Simply, Abraham uniquely heard and understood a message beyond the limits of understanding. This epiphany grounds what Kierkegaard (discussing Isaac’s threatened sacrifice) famously pronounced as a leap into the absurd in *Fear and Trembling*. The cognitive upheaval is acknowledged as having no rational basis, and, moreover, given the evidence at hand, Kierkegaard would not confuse descriptions for explanations. Failing to make such a distinction projects the “inner view” as no more than individual prejudice to account for the creative leap from one worldview to another.

A midrash, one not so discordant from that argued by Fisch and Benbaji, amplifies the point. Abram discerns that the idols fail the metaphysical standing attributed to them, but how is not revealed. All we have is a normative account he provides in a comic exchange with his father: Abram smashes the idols and leaves one standing with a hammer at its side. He states that this sole survivor destroyed the others, to which his father decries as an absurd conclusion, since everyone knows that idols have no such capacity, and then by implication, idols have no self-motivated capacities. The story illustrates how the idol belief system cannot sustain critical redress and the entire idolatrous metaphysic falls upon critical examination. A revolution in thought results basically in line with the normative scrutiny described in *The View from Within*, but the midrash, like our contemporary authors, do not explain why Abram, alone of the multitude, challenged the idolatry in the first place. What made him doubt the certainty of accepted practice and belief? What association between the world of man and the domain of the idols allowed the juxtaposition of one standard to the other? Once that placement was made, then a certain logic could operate, but the association itself was novel. And that is the question at the heart of understanding the normative, how are associations made that demand rational scrutiny of accepted ideas?

And let us not be confused by scientism, an epistemology embraced by a positivist ethos, yet fails scientific standards. For instance, consider J. H. Breasted’s description of the birth of monotheism in Egypt’s Eighteenth Dynasty (ca. 1375 B.C.):

Iknaton [Akhenaten] was the first individual in history. Consciously and deliberately, by intellectual process he gained his position, and then placed himself squarely in the face of tradition and swept it aside. He appeals to no myths, to no ancient and widely accepted versions of the dominion of the gods, to no customs sanctified by centuries – he appeals only to the present and visible evidence of the god’s dominion, evidence open to all. (1934, pp. 301-2)

Of course, how or why Akhenaten became an anti-traditionalist and a steadfast empiricist receives no attention, and thus Breasted only projects his own epistemological tenets to that of an ancient Egyptian. On such an account, a rational process drove a genius to deduce that monotheism must trump the Egyptian menagerie of humanoid animal representations and replace ritualistic forces.[[2]](#footnote-2) But this hardly suffices as an *explanation*. Myriad phenomenological accounts stretching from how Montaigne acquired his rationalism or Beethoven created a revolution in music composition hardly suffice to offer insight into the creative process. Indeed, the historical record, and for that matter, philosophical reconstructions too often afford little insight of *how* the rational normative is reconfigured. Below, we consider a fecund trail, associationism.

**iv**

We have many detailed historical analyses of scientific breakthroughs, which have suggested an underlying cognitive psychological mechanism: associative constructions. The ability of Darwin, for instance, to meld diverse observations concerning animal breeding, the close relationship of extinct species and living ones as deduced from the fossil record, Malthus’ theory of population growth, geographical distribution of varieties of species, and the variation observed within species yielded a creative synthesis in the theory of evolution by natural selection (Mayr 1993). The details have been well rehearsed, and for our purposes, the *synthetic* quality of Darwin’s thought illustrates a cognitive principle called by several names of which *melding* and *associationism* will adequately serve our purposes. Indeed, this is a long-standing epistemological precept: The Latin verb, *cogito* – “to think” – etymologically means to “shake together” (Koestler 1964, p. 120).

Associationism has a long history (tracked to Plato and Aristotle), but in its modern presentation most readily the theory is traced to Kant, Herbart, and John Stuart Mill, where the Kantian precept that “a Sensation is to be carefully distinguished from the object which causes the sensation” (J. S. Mill, *A System of Logic* [1873, p. 34], quoted by Greenberg 1997, p. 165) and thus the represented allows for its association with other representations. Perhaps the best-known application of this notion of mental progression is offered by psychoanalysis in which a free associative method is used to discern unconscious or pre-conscious memory. Not to judge the validity of the method, suffice it to note its logic:

The idea, or concept, of the object is itself another complex of associations composed of the most varied visual, auditory, tactile, kinaesthetic and other impressions. According to philosophical teaching, the idea of the object contains nothing else; the appearance of the ‘thing,’ the ‘properties’ of which are conveyed to our senses, originates only from the fact that in enumerating the sensory impressions perceived from an object, we allow for the possibility of a large series of new impressions being added to the chain of associations (J. S. Mill). This is why the idea of the object does not appear to us as closed, and indeed hardly as closable, while the word concept appears to us as something that is closed though capable of extension. (Freud 1953, pp. 77–78).

Note that Freud’s use of the term *Vorstellungen* (presentation) rests on Mill’s philosophical construction, which in turn relies on Kant’s representationalism. In contemporary cognitive science, ‘connectionism’ builds upon the same basic logic, but instead of ‘representations,’ mental phenomena can be described as interconnected networks composed of simple units.

We can generalize this cognitive orientation and extrapolate from experimental findings. A complex synthetic product of unconscious thought requires imaginative integration to establish contrasts, opposites, and ultimately identification. This cognitive act, the “blend,” represents an emergent structure (Fauconnier and Turner 2002, p. 49), which has become the focus of scientific scrutiny, where the “key intellectual goal is not to celebrate the imagination but to make a science of it” (ibid., p. 89). The basic insight (or perhaps the elaboration on earlier ideas) of cognitive linguists is that elements of thought – image schemas, frames, metaphors, prototypes, mental spaces – are bound together or juxtaposed and blended into new or more complex ideas (Fauconnier 1997; Fauconnier and Turner, 2002). To illustrate, consider Arthur Koestler’s Buddhist Monk riddle (1964, pp. 183-5) to illustrate the basic operation:

A Buddhist Monk begins at dawn one day walking up a mountain, reaches the top at sunset, meditates at the top for several days until one dawn when he begins to walk back to the foot of the mountain, which he reaches at sunset. Make no assumptions about his starting or stopping or about his pace during the trips. Riddle: Is there a place on the path that the monk occupies at the same hour of the day on the two separate journeys? (Fauconnier and Turner 2002, p. 39)

The answer requires placing the monk on the path on the *same* day, so that while simultaneously going up and down he will meet himself. (Without knowing the relative speed in which he ascends and descends and the distance of the path, the exact point is not solvable, but the basic solution requires merging two different space/time frames.) Koestler notes that the solution requires an abstraction, which is, in fact, a logical contradiction: the monk cannot be going in opposite directions at the same time, and in this sense, the solution is “irrational” (Koestler 1964, p. 184).[[3]](#footnote-4) Fauconnier and Turner dissect the problem and its solution as the melding of two “mental spaces” in which the ascending and descending “frames” are mapped upon each other and thereby combined to reveal the solution (2002, pp. 36-46). The process requires 1) an input space (the ascending and descending paths), 2) cross-space mapping (connecting mountain path, moving individual, day of travel, etc.), 3) generic space (a space that contains the elements of each space) and 4) a blend that maps reduces the elements into a *single* map, a vector which has the monk travelling in two directions simultaneously.

The emergent structure creates relations that previously are not appreciated in the separate inputs and thus the integration gives a ‘picture’ that is newly created. That process requires the proper association of various elements, some of which are relevant, and others not. The melding is a result of subconscious associations and blending operations that have structure governed by ‘meaning.’ In other words, end-results possess characteristics that herald the putative solution as successful. That judgment rests on myriad factors for evaluation (e.g., applicability, inclusive criteria, falsification, consideration of counterfactuals, etc.), but the process as a rational strategy requires expanding ‘reason’ well beyond usual understandings. In other words, the kind of deliberative reason discussed by Fisch and Benbaji is only the last step in rational thinking.

Rich examples of this process are found in the history of science (e.g. Darwin, as cited above). Newton’s derivation of the general laws of gravitation is another case in point. Twenty years before the intense period of writing the *Principia* (1684-87), he had initiated studies of mechanical dynamics, but little came of the effort. In that dormant period, his mathematics matured, so when the upper echelons of British natural philosophers (Halley, Wren, and Hooke) focused on the key question of the period – the derivation of Kepler’s laws of planetary motion from principles of dynamics – Newton was poised to contribute. Hooke claimed that the laws of celestial motion conformed to the inverse-square relation, but the derivation was not apparent. Newton showed the orbits were elliptical, based on an inverse-square force with one focus (*On the Motion of Bodies in an Orbit,* 1684). (As a student he had found the inverse-square relation from Kepler’s third law, and under Hooke’s provocation Newton extended the inverse-square law to account for Kepler’s first law.) He then intuited how diverse phenomena (Halley’s comet, the altered velocities of Jupiter and Saturn as they approached each other, the tides of the Thames) might follow universal laws of motion. In *On the Motion*, Newton attempted to derive orbital motion from the interaction of two forces – inherent (maintains a rectilinear motion) and centripetal (continually diverts it). Compounding these two types of motion, tangential and centripetal were different species: inherent force was the medieval notion of an intrinsic force of the body itself while external centripetal force acted upon that body. By melding the two forces, Newton derived the key principle of inertia (“every body proceeds uniformly in a right line to infinity unless something extrinsic hinders it”). [[4]](#footnote-5)

v

Much *normative* thinking occurs sub-consciously or unconsciously, which has been dubbed, “deliberative unconscious thinking” or “deliberation-without-attention” (DWA) (Dijksterhuis and Nordgren 2006; Sio and Ormerod 2009; Bos, Dijksterhuis, and van Baaren 2011). Experimental subjects demonstrated that they actively address persistent problems unconsciously and they do so with normative standards. That story, although actively debated (Bekker 2006; Dijksterhuis et al, 2006; Shanks 2006; Lassiter et al 2009; Segal 2010; Strick, Dijksterhuis, and van Baaren 2010; Bos, Dijksterhuis, and van Baaren 2011), shows that the cognitive unconscious is a wellspring of deliberation and highly dynamic in both the breadth of its engagement and surprisingly analytic in its reflections. Indeed, recent findings have dramatically demonstrated that the limited capacity of conscious thought requires delegation to unconscious sorting, relational, and rational deliberation. Whether assessed as an evaluative process, recall, or goal-directed activity, subjects permitted time for *unconscious* reckoning (by being distracted with other demands on their attention) in a variety of tasks did better than those engaged immediately in the designated deliberation, i.e., those fully conscious of their decision-making. Thus, in these controlled experiments, unconscious *rationality* operated more effectively in diverse deliberative settings than in subjects conducting conscious choices.[[5]](#footnote-6)

Conscious thinkers, using gross heuristics or a top-down strategy, characteristically form a conclusion that leads to stereotyping[[6]](#footnote-7) and hasty prejudgment (i.e., in complex evaluations a premature conscious evaluation is made that distorts later information), whereas unconscious (DWA) thought, with its high capacity to process information, slowly integrates large bodies of data to form more rational (objective) summary judgments. So with the greater capacity to process information, unconscious thought processes (in the range of complexity of these studies) – if provided with a goal (Bos, Dijksterhuis, and Baaren 2008) – are better able to weigh alternative choices as well as to employ divergent thinking (as opposed to the convergence strategies of conscious thought).

These findings have important implications for understanding selection strategies, impression and attitude formations, problem solving, and creativity. Beyond confirming the common adage, “Let me sleep on it” before making important decisions, we derive important insight in understanding the discontinuity in time between thinking of a problem and its sudden resolution as the result of an active unconscious process (Dijksterhuis and Meurs 2006). Information-gathering and certain rule-based thinking is best done consciously (e.g., arithmetic or logic exercises), but the general insight of how much deliberative thinking is conducted unconsciously, and how effective such thought operates in complex scenarios, challenges the current pre-occupation with elucidating *conscious* thought processes. In sum, a normative framework organizes DWA as it does conscious thought (i.e., the ‘better’ result is sought) and by this criterion, DWA is a potentially useful means for elucidating the roots and means of rational deliberation sought by Fisch and Benbaji.

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Here, I cannot offer more than a mere suggestion about the direction that might be followed to ground *The View from Within* in current empirical research, but I believe it essential that the cognitive-linguistic approach suggested above be adopted to fill out the project presented by Fisch and Benbaji. The description requires cognitive psychology and linguistic analysis for evidence, which in turn provides a more complete account of what appears, in retrospect, a rational, or even *logical* process of analysis and creation. Or put another way, reasoned, normative thinking follows from a sequence of several modalities of logic that begins with the play of ideas arising along a spectrum. At one end of a continuum, small incremental associations closely follow one another that may build into larger, more stable constellations of linked ideas; at the other end of the gamut, free fall of disparate ideas allows scattered thought to join into novel synthesis. At this ‘chaotic’ end of the associative process, sometimes linkages form and quickly break, while other kinds of connections reveal more stable relationships. These latter associations already stabilized by tacit criteria then are subject to the more rigorous normative logic Fisch and Benbaji describe. If stable, conceptual revisions emerge under a scrupulous process of analysis. But this is the terminus of the associative, creative process, not its beginning. Accordingly, the “view from within” portrays thinking as a sub-conscious interplay of ideas, which may be reconstructed by a retrospective analysis but does not necessarily follow prescribed rules, nor normative standards we might impose retrospectively. While logic may be operative, imaginative solutions may follow a rationality quite different from logic narrowly construed. Eureka insights are literally defined by such spontaneity.

However, I do not want to ignore the other side of the coin, namely the putative direction (even restrictions) embedded in cognitive grammar (Langacker 2008) and linguistic relativism – the Whorf hypothesis (weak and strong forms, notwithstanding) (e.g., Lakoff 1987; Gumperz and Levinson 1996; Boroditsky 2009). These views argue that language frames human reality, which from our own concerns suggests that such linguistic determinism may impose constraints on creative thought, not to speak of how cultural patterns and habits conspire to dampen innovation. This is not the place to delve further into this matter, other than to note that the degree of linguistic determinism is only one aspect of the larger impress of social determinism. The habits imposed through accepted conformities derived from orthodox training, learned customs, rhetorical traditions, and the like cannot be easily accounted, but clearly must be considered in any discussion of normative thinking and its reform:

The prejudices and impurities which have become incorporated into the verbal concepts of a given ‘universe of discourse’ cannot be undone by any amount of discourse within the frame of reference of that universe. The rules of the game, however absurd, cannot be altered by playing that game. (Koestler 1964, p. 177)

On this general view, either nullifying the rules or going beyond them is the requirement for truly new insight (Harman and Dietrich 2013). Elucidating such subterranean (or subversive!) levels of cognitive processing remains a daunting challenge. Indeed, we are at the dawn of the scientific attempt to define thinking, and so I am not suggesting that psychologists, linguists, or cognitive scientists have ‘solved’ the problem of normative reasoning and interactive rationality, but until a more informed dialogue develops between philosophers and their scientific colleagues, works like *The View from Within* will suffer from the weaknesses stemming from a forfeiture of empirical evidence. In the meantime, philosophers are offering historians and psychologists a philosophical base from which they might pursue their own tasks, and, in addition, perhaps providing a better understanding of what is still required to comprehend human reasoning and creativity.

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1. My own views on this topic have been presented in Tauber (2009). [↑](#footnote-ref-1)
2. Freud offered an account of monotheism’s origins in *Moses and Monotheism* (1939), where he applied psychoanalytic methodology to reconstructing the history of the Jews and incidentally the adoption of a singular deity. There, Freud drew from a series of associations to reconstruct the primal family drama in which Moses, like the primordial patriarch, was killed in an Oedipal drama, and again through a connected series of associations, Freud justified the conclusion that monotheism (again its creative origins left undiscerned) was first imposed and then freely adopted as recompense for a dastardly deed lost in the mists of time. The psychoanalytic fantasy is not our concern, but this case example, as in all of Freud’s writings, reveals how associative thinking works and the logical consistency expressed once the working assumptions of the theory are adopted. [↑](#footnote-ref-2)
3. I find Koestler’s *Act of Creation* (1964) a useful compendium of examples and musings on scientific and artistic creativity, which he posited had a common associative pattern he dubbed, “bisociative thinking.” He regarded insight as resulting largely from unconscious processes and that the stricture of habit and rationality as normally construed was inhibitory to creative achievement. [↑](#footnote-ref-4)
4. Newton arrived at the central insight by examining circular motion and appreciating that

   the continual action of a centripetal force produces no increase whatever in a body’s speed, that is, in what he defined as the force arising from its motion [inherent force]….Only the principle of inertia, which abandoned the concept of the force of a body’s motion, would allow him to treat changes of direction in the same terms as changes of speed. Only the principle of inertia would allow the unique leap of the imagination which made the new dynamics possible, the recognition of the dynamic identity of uniform circular motion and uniformly accelerated motion in a straight line. Heretofore in the history of mechanics, these two motions had been treated as irreducible opposites. What Newton perceived were the possibilities that opened up if he treated the two as dynamically the same….

   Once he adopted the principle of inertia, the rest of his dynamics quickly fell into place ….Impressed force alters a body’s motion; the change of motion is proportional to it. In this proportionality lay the possibility of a quantitative science of dynamics that would cap and complete Galileo’s kinematics. (Westfall 1980, p. 416-7)

   For a detailed reconstruction of Newton’s development of the *Principia*, see Westfall 1980, pp. 402-68. [↑](#footnote-ref-5)
5. The basic structure of the experiments directed by Ap Dijksterhuis may be summarized with an iconic study that tests the DWA hypothesis: Participants were presented with information about four hypothetical cars and were told to choose the best one. One of the cars had more positive features than the others. The amount of information upon which the choice was based varied across conditions. The problem was either relatively simple (each car was described by 4 features, for a total of 16 pieces of information) or difficult (12 features per car). Participants indicated their choice either after a few minutes of conscious thought or they were re-introduced to the car problem following other tasks that were designed to divert their conscious consideration of the initial task. The results showed that those deliberating over the more complex problem without their direct attention did decidedly better than those who consciously pondered their choices immediately. This experimental model has been applied to consumer choices, creativity, and rational decision-making, and this test of the DWA hypothesis repeatedly confirmed (Dijksterhuis and Meurs 2006; Dijksterhuis and Nordgren 2006; Dijksterhuis, Bos, Nordgren, and van Baaren 2007). [↑](#footnote-ref-6)
6. “Participants were asked to form an impression of a target person. First, they were given a stereotypical expectation (‘‘you are now going to read information about Mr. Hamoudi, a Moroccan man’’), and then they read more detailed behavioral information. Some of this detailed information was congruent with the activated stereotype, and some was incongruent with the stereotype. Later on, we assessed participants’ impression of the target person and memory for information about the target person. Some participants were requested to think consciously about their impression of the target person before engaging in the judgment and recall tasks, whereas others were distracted and engaged in unconscious thought. Our findings clearly demonstrated that conscious thinkers applied stereotypes more than unconscious thinkers did” (Dijksterhuis and Nordgren 2006, p. 98). [↑](#footnote-ref-7)