

Varieties of Knowing in Science and Religion

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CAN WE STILL TALK ABOUT “TRUTH” AND “PROGRESS” IN INTERDISCIPLINARY THINKING TODAY?

by J. Wentzel van Huyssteen

Abstract. On a cultural level, and for Christian theology as part of a long tradition in the evolution of religion, evolutionary epistemology “sets the stage,” as it were, for understanding the deep evolutionary impact of our ancestral history on the evolution of culture, and eventually on the evolution of disciplinary and interdisciplinary reflection. In the process of the evolution of human knowledge, our interpreted experiences and expectations of the world (and of the ultimate questions we humans typically pose to the world) have a central role to play. What evolutionary epistemology also shows us is that we humans can indeed take on cognitive goals and ideals that cannot be explained or justified in terms of survival-promotion or reproductive advantage only. Therefore, once the capacities for rational knowledge, moral sensibility, aesthetic appreciation of beauty, and the propensity for religious belief have emerged in our biological history, they cannot be explained only in biological/evolutionary terms. Finally, in this way a door is opened for seeing problem solving as a central activity of our research traditions. As philosophers of science have argued, one of the most important shared rational resources between even widely divergent disciplines is problem solving as the most central and defining activity of all research traditions. As will become clear, the very diverse reasoning strategies of theology and the sciences clearly overlap in their shared quests for intelligible problem solving, including problem solving on an empirical, experiential, and conceptual level.

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In my own recent work, I have been deeply involved in trying to construct plausible ways for theology to enter into important interdisciplinary conversations. In this kind of venture we should be wary of any kind of ideological expansion of theological descriptions or of reductionist Darwinian explanations and, over against these kinds of reductionist approaches, rather allow for a multilayered series of explanations that provide a richer and more adequate account of what we typically do and believe. Indeed, no one isolated approach or discipline, and no grand, big materialist explanation for religion and for religious faith can ever provide a complete account of the complex phenomena we encounter in contemporary interdisciplinary theology. On this view scientific and religious rationalities should be evaluated while including emergent and nonreductionist types of descriptions and explanations that also employ personal, moral, aesthetic, and religious categories.

If we take the evolution of human knowing/cognition seriously, we quickly realize that even theological reflection is radically shaped by the enduring influence of its own traditions, and therefore by its social, historical, and cultural embeddedness. However, this would imply that theology, along with theological reflection and knowledge, is not only shaped by cultural evolution, but is also definitively shaped by the deeper biological roots of human rationality. This is precisely the point made by evolutionary epistemology: like all living beings we humans have resulted from evolutionary processes and consequently, our mental capacities are constrained and shaped by the mechanisms of biological evolution.

On this view, all evolutionary epistemologists agree that the theory of evolution in essence is a *theory of knowledge* precisely because the process of evolution is the principal provider of the organization of all living things and their adaptations (cf. Wuketits 1990). Evolution thus turns out to be about much more than the “origin of species” and is revealed as a much richer process that has shaped the way our minds work, *and how we know the world*. As such, evolutionary epistemology highlights both the deeply embodied and the fallibilist nature of all human knowledge, and explains that there are advances and growth in human knowledge, but that this “progress” is not necessarily an increase in the accuracy of depiction, or an increase in the certainty of what we know. This view is strengthened by the conviction that human knowing/cognition is a crucial bridge between biology and culture, between biological evolution and cultural evolution. And this is exactly what contemporary discussions of extended notions of evolution like *niche construction* are currently focusing on.

On a cultural level, and for Christian theology as part of a long tradition in the evolution of religion, evolutionary epistemology “sets the stage,” as it were, for understanding the deep evolutionary impact of our ancestral history on the evolution of culture, and eventually on the evolution of disciplinary and interdisciplinary reflection: in the process of the evolution of human knowledge, our interpreted experiences and expectations of the world (and of the ultimate questions we humans typically pose to the world) have a central role to play. I have argued strongly for the fact that we humans relate to our worlds through our interpreted experience (hermeneutics), and that our questions, expectations, and beliefs are always based on these interpreted experiences, which in turn lead us not only to new expectations, but also to finding good reasons for holding all-important beliefs about ourselves and our world (epistemology). Evolutionary epistemology helps us to understand this all-important connection as a result of a long-term evolutionary process (cf. van Huyssteen 1989, 2006).

What evolutionary epistemology shows us, finally, is that we humans can indeed take on cognitive goals and ideals that cannot be explained or justified in terms of survival-promotion or reproductive advantage only. Therefore, once the capacities for rational knowledge, moral sensibility, aesthetic appreciation of beauty, and the propensity for religious belief have emerged in our biological history, they cannot be explained only in biological/evolutionary terms. In this sense we clearly transcend our biological origins, and do have the ability to transcend what is given to us both in biology and culture. As British philosopher Anthony O’Hear strikingly puts it: we are prisoners neither of our genes, nor of the ideas we encounter as we make our way through the world culturally (O’Hear 2002, vii).

CONTINUITY AND CHANGE IN RESEARCH TRADITIONS: NICHE CONSTRUCTION IN THEOLOGY, PHILOSOPHY, AND SCIENCE

It is especially interesting to note how most scholars today also acknowledge and accept a “hierarchical progression” model of the evolution of symbolic and semiotic capabilities in humans (cf. Robinson 2010; Mithen 1996; Donald 2001; Noble and Davidson 1996). Andrew Robinson (cf. Robinson 2010, 147) in particular has suggested that the three main assumptions behind these hierarchical approaches to human evolution, and to human semiotic competence, can be seen as follows:

- (1) The evolution of human semiotic capability moves, in some sense, from the use of simple to more complex and sophisticated signs.
- (2) The culmination of this process is the capacity for using symbols.
- (3) Once this capability has been acquired, further developments in human evolution may follow from the possibility of using symbols in novel ways.

Implied in views like these is of course the fact that Darwinism is itself evolving.

What does seem interesting is that an inherent feature of niche construction as an elementary evolutionary fact seems to be that, in contrast to other mechanisms like selection or gene drift, niche construction indeed does seem to introduce a certain directedness into the evolutionary process (cf. Odling-Smee, Laland, and Feldman 2003, 33). For Markus Mühling (2014, 147) this kind of directedness which niche construction adds to the process of evolution is a nonteleological one, but it is a kind of information related to purpose and “semantic information,” and by “semantic information” these biologists mean information that relates to the fitness of specific organisms, their requirements in their local environments, and so forth. One might even say that the niche-constructing activities of organisms could be oriented toward targeted future outcomes of organisms–environment interactions on the basis of at least rudimentary and semantically informed *search plans* (cf. Odling-Smee et al. 2003, 177f.). Therefore, in this limited and, in most species, entirely noncognitive sense, niche construction must be preparative or predictive in character (Odling-Smee et al. 2003, as quoted in Mühling 2014, 147).

On this view, then, looking at human origins and the archeology of personhood, and thus at the evolution of our lineage across the Pleistocene, it is evident that there is significant increasing complexity in the way we interface with the world (cf. Fuentes 2014, 9): increases in the complexity of culture and social traditions, tool use and manufacture, trade and the use of fire, as well as enhanced infant survival and predator avoidance, increased habitat exploitation, information transfer via material technologies, that have increased in intensity rather dramatically in the last 400,000 years. All of these increasing complexities are tied directly to a rapidly evolving human cognition and social structure that require increased cooperative capabilities and coordination within human communities. Thinking of this as specific outcomes of a niche construction actually provides a mechanism, as well as a context, for the evolution of these multifaceted response capabilities and coordination within communities (cf. Fuentes 2014, 9).

I believe one can, therefore, correctly claim that our niche construction framework may provide an all-important interactive bridge that transcends too simplistic distinctions between biological and cultural evolution because it emphasizes the active role that organisms play in the evolutionary process. In the case of humans, we are not just passive vehicles for genes, but we actively modify sources of natural selection in environments. Some have even gone so far as to call us humans “the ultimate niche constructors” (cf. Odling-Smee et al. 2003, 27ff.; also cf. Mühling 2014, 162). Mühling is quick to say, however, that we should always remember it is not the organisms themselves that are responsible for the construction of niches, but rather the whole system, including both organisms and environment.

To place human beings exclusively in the role of niche constructors would actually contradict the theory and make it more constructivist, a feature never exclusively inherent in niche construction.

This fact does seem unusually important if we also want to talk about the *future* of human evolution. We thus need to be careful not to anthropomorphize niche construction: to say humans are the ultimate niche constructors not only adds a specific value to niche construction, but implicitly may be taken to actually deny that humans can be succeeded by others in niche construction activity and capability. Maybe we should rather see ourselves as “relatively ultimate” niche constructors, that is, as relative to the history of evolution *as currently known to us* (cf. also Mühling 2014, 163). In fact, to call ourselves ultimate niche constructors might also deny the possibility that something similar might actually still take place at other unknown places in our universe. And if contingency is still part of niche construction as a free, dynamic process of evolution, it certainly prevents us humans from assuming that we could have control of over the process of niche construction.

HUMAN IMAGINATION

In terms of nonteleological directionality, finally, and in terms of our own human constructed niche, the emergence of language and a fully developed theory of mind with high levels of intentionality, empathy, moral awareness, symbolic thought and social unity, would all be impossible without an extremely cooperative and mutually integrated social system in combination with enhanced cognitive and communicative capacities as our core adaptive niche. Interestingly, on this point Agustin Fuentes wants to incorporate an analysis of *compassion* (cf. Fuentes 2014, 10). I believe this can be pushed even farther back by tracing the deep evolutionary roots of empathy and attachment (cf. van Huyssteen 2014; Hrdy 2009, 82ff.; Kirkpatrick 2004; Sheets-Johnstone 2008). Our genus thus provides a scenario wherein we can envision a distinctively human imagination as a key part of our niche and as a part of the explanation for why our species succeeded and all other hominins went extinct. Fuentes puts it rather forcefully: the imagination and the infusion of meaning into the world by the genus *Homo* in the late Pleistocene is what underlies (and preceded) our current ability to form a metaphysics which in turn eventually facilitated religious beliefs. This landscape of meaning and associated imagination is also a system that facilitates an array of other symbolic and meaning-laden aspects of human behavior and experiences that are not at the core of our current niche and lives (cf. Fuentes 2014, 11). Important though, there is no single trait that explains human evolutionary success, nor is there a particular environment that created it. And part of this significant toolkit includes a robust imagination and a landscape and perceptual reality

wherein everything, whether material or not, is infused with multifaceted meaning.

Humans thus have imagination that is part of our perceptual and interactive reality and is a substantive aspect of lived experience. Thus it is realistic to accept that at some point in the last 400,000 years language and hyper-complex intentionality acted to “lock in” the more-than-material as our permanent state of being, and so laid the groundwork for the evolution of morality, the possibility of metaphysics, aesthetic propensities, religious imagination and the propensity for religious belief (cf. van Huyssteen 2006) as crucial parts of the uniquely human experience. Existing in a landscape where the material and social elements have semiotic properties, and where communication and action can potentially be influenced by representations of both past and future behavior implies the possession of an imagination, and even something like “hope,” that is, *the expectation of future outcomes beyond the predictable* (cf. Fuentes 2014, 13). The assertion here is, then, that this interactive process occurs as a component of the human niche as it moves dynamically through the Pleistocene as part of the emerging human toolkit.

Importantly, imagination, and therefore religious imagination, on this view is not just an exaptation, a spurious by-product of evolution, but crucial to the process of human evolution; it incorporates behavioral processes and a sense of expectation and hope that would, and did, increase the likelihood of innovation and successful responses to evolutionary challenges (cf. Fuentes 2014, 14).

This brief review of human origins and human evolution demonstrates the path and substantive impact of changes in behavior, life histories, and bodies in our human ancestors and us humans ourselves. From this it is clear that patterns that in the Upper Paleolithic would lead to the unambiguous appearance of “art” and “symbol” now also combined with the evolution of empathy and compassion and deep caring for others (cf. Boehm 2012; Fuentes 2014; van Huyssteen 2014). It should therefore not be surprising that a distinctively human imagination is part of the explanation for human evolutionary success and can be seen as one of the structurally significant aspects of the transition from earlier members of the genus *Homo* to ourselves as we are today.

On this view it now quickly becomes clear that there are no easy “blueprints” available today for “doing science and theology.” In fact, the rationality of a postfoundationalist theology, like science, relies on a community, a community that converses with itself but also seeks to engage in dialogue across disciplines because of the relational resources that these various research strategies share. In this way a door is opened for seeing *problem solving* as a central activity of research traditions. And as philosopher of science Larry Laudan has argued, one of the most important shared rational resources between even widely divergent disciplines is

problem solving as the most central and defining activity of all research traditions (cf. Laudan 1977, 190ff.; van Huyssteen 1989, 172–89; 1999, 164ff.). And as will become clear, the very diverse reasoning strategies of theology and the sciences clearly overlap in their shared quests for intelligible problem solving, including problem solving on *empirical*, *experiential*, and *conceptual* levels.

As an important step beyond any universalist and generic notions of rationality, I have argued for developing a postfoundationalist notion of rationality in which rational agents situated in the rich, narrative texture of our own social practices and traditions, our self-awareness and our self-conceptions, are not only intrinsically embedded in our own embodied rationality, but are indeed indispensable starting points for an account of the values that shape human rationality. This explains why in theology, as well as in the sciences, our traditions, paradigms, and world views, like all other traditions, are historical creatures. The identity and integrity of any tradition is preserved in what we may call its heart or canon, which normally functions as an authoritative narrative and conceptual framework that shapes and molds continuity and change in traditions as lived realities. And as historical creatures, our intellectual traditions can also wax and wane. Laudan has convincingly pointed out (cf. Laudan 1977, 77ff.) that Thomas Kuhn's famous notion of a radical paradigm shift or conceptual "conversion" or "revolution" from one paradigm to another can most probably rather be seen as a natural evolution within and between research traditions. Traditions, therefore, not only imply ongoing change and evolution, but also exhibit continuity. Precisely continuity and change, then, should be seen as the primary categories of any adequate theory of traditions, especially in theology.

To understand what continuity and change might mean in the dynamics of evolving traditions, Laudan, like Imre Lakatos (1970), suggests that certain elements of a research tradition are sacrosanct and can therefore not be rejected without a repudiation of the tradition itself. Unlike Lakatos, however, Laudan insists that what is normally seen as sacrosanct in traditions can actually change with time. From recognizing that the canonical core of traditions can actually shift and change through time, Laudan can then conclude that by relativizing the "essence" or core of a research tradition with respect to place and time, we actually come closer to capturing the way that scientists and historians of science have used the concept of tradition (cf. Laudan 1977, 99f.). For me this not only reveals again the radical historical nature of all traditions, but also that intellectual revolutions do not necessarily take place through complete conceptual shifts, but rather occur through the ongoing transversal and interdisciplinary integration and grafting of (research) traditions.

This postfoundationalist view of rationality and the way it reveals the structure and functions of traditions clearly has important consequences

for theological reflection. It also shows why any uncritical retreat to a fideist commitment to a specific tradition and its canon(s) would seriously jeopardize the epistemic status of theological reflection as a credible partner in a pluralist, interdisciplinary conversation. In a fideist context all commitment and religious faith seem to be irrevocably arbitrary. However, the most serious limitation to any fideist epistemology would be its complete inability to explain why we choose certain viewpoints, certain networks of belief, and certain traditions over others. Surely there must be more to religious commitment, and to using theological language, than to just understanding and adopting the internal working of some specialized linguistic system that is not answerable to anything or anybody outside itself (cf. van Huyssteen 2006, 28f.).

PROBLEM SOLVING AND PROGRESSIVE THEORY: CHOICE AS THE HALLMARK OF A POSTFOUNDATIONALIST THEOLOGY

The kind of epistemological fallibilism that naturally follows from a post-foundationalist approach to interdisciplinary theology will, therefore, not result in that one, ideal modernist knowledge system for systematic theology or for research programs in theology and science. Instead of the one perfect representation of God, or of the world, or of God's relation to the world, however, it may yield for us a collage of knowledge claims that aims to be the most adequate, the most reliable, and, for now, the most meaningful we can claim in certain specific contexts. However, the fact that there are no longer any preset, foundationalist, universal, cross-cultural, or interreligious rules for science or for theology does not necessarily mean that all our criteria for good reliable knowledge are now always going to be only strictly local or exclusively contextual. In Delwin Brown's formulation: if none of our criteria were to be acceptable beyond the boundaries of a specific research tradition, then the giving of rational reasons beyond the boundaries of any tradition would be impossible (cf. Brown 1994, 6).

The crucial problem for a theology located in interdisciplinary conversation therefore remains the following: How do we distinguish between "good" theology and "bad" theology, and is it at all possible to make sensible and rational choices between different viewpoints and alternative, competing research traditions? At this point Laudan's admonitions to scientists and theologians again come to mind: unless we can somehow articulate criteria for choice between diverse research traditions, we neither have a theory of rationality nor a theory of what progressive growth in knowledge should look like (cf. Laudan 1977, 106). In theology, as in other forms of inquiry, providing warrants for our views thus becomes a cross-contextual obligation (cf. Brown 1994, 6f.).

Remarkable parallels are now surfacing here between the rationality of theology and other modes of knowledge. A good example is again

found in reasoning strategies as different as theology and the sciences: in both we are called to trust our traditions as we reach out beyond them in interdisciplinary conversation (cf. van Huyssteen 1999, 28ff). In both theology and the sciences we should be able to identify some criteria to warrant our theory choices, and neither scientific nor theological knowledge can ever claim demonstrably certain foundations for making these choices. Epistemic similarities between theology and the sciences do not mean, of course, that scientific knowledge is “just like” theology, but they do mean that methods in science do not provide us with a uniquely rational and objective way of discovering truth. In both theology and the sciences good arguments should therefore be offered for or against theory choice, or for or against the problem-solving ability of a specific research program. Obviously, our good arguments and our value judgments rest on broader assumptions and deeper commitments that can always again be challenged. This does not mean, however, that any opinion is as good as any other, or that we can never critically compare radically different points of view. What all of this does mean, however, is that we certainly seem to be in need of a more comprehensive epistemological program, which can facilitate and create an interdisciplinary space that would not be totalizing in any reductionist sense of the word.

Problem solving and progressive theory choice, therefore, go together closely in a postfoundationalist theology. Implied in this claim is one of the most important criteria for “good theology”: through our theological statements we should be able critically to identify and analyze real problems, and to construct theories that might provide valid and adequate solutions to those problems (cf. van Huyssteen 1989, 172ff). This not only includes a critical analysis of the process of theorizing in interdisciplinary theology, but also challenges the theologian to think anew about the following concrete questions:

- What would qualify as a problem in theology?
- What would qualify as a problem in interdisciplinary theology?
- What constitutes a shared interdisciplinary problem in theology and the sciences?
- What is it that sometimes makes one problem more important than another problem in interdisciplinary reflection?
- How would scientific problems be similar and different from problems in theology?
- What constitutes problem solving in interdisciplinary theology?
- What criteria would be valid for a converging process of problem solving in theology and the sciences?

- How are interpretative styles of problem solving in theology similar or different from explanatory styles of problem solving in the sciences?

In contemporary philosophy of science Laudan in particular has offered a model for scientific problem solving, progress, and rationality that has proven to provide important links to problem solving in theological reflection, and thus—by implication—would be valuable in our thinking through the issue of problem solving in interdisciplinary theology. Like Kuhn, Laudan has sought to demonstrate that important nonempirical, even nonscientific factors play a key role in rational development. Similarly to Kuhn, Laudan has argued that the rationality and ultimate progressiveness of a specific theory are closely related, not in terms of a positivist notion of justification, or even a Popperian notion of falsification, but rather in its capacity for effective problem solving in a given context. Different from Kuhn, Laudan points out that scientific progress is not so much only a matter of problem solving in specific theories, but also the potential for scientific progress and the growth of knowledge in global theories, which he has specifically called research traditions (cf. Laudan 1977, ff.).

Importantly, then, Laudan has argued persuasively that scientific and other problems are not all that different, and that the differences are often not a difference in kind, but largely a matter of degree. In fact, he has shown that his perspective on scientific problems could, with a few qualifications, be applied to all forms of intellectual problem (Laudan 1977, 13). On a postfoundationalist view this would mean that the focus now is on the analysis of problems as the true focus of scientific as well as theological thought. Theories, then, are important only in so far as they offer adequate solutions for real problems. On an interdisciplinary level this means that, if problems constitute the real questions of science (and of theology), then it is theories (and in theology, theories and doctrines) that constitute the answers or solutions.

For theologians this means that we have to learn to identify real problems that arise out of religious, political, and spiritual experience, including the intellectual problems that emerge out of a reflection on these problems. This implies a deeply liberating move for theological reflection: by reclaiming a broader postfoundationalist notion of rationality, theologians are now freed from reductionist models of rationality. Instead of having to ask whether a given theory is provable, correct, justified, or true, they can now first ask whether a theory offers adequate solutions for meaningful, real problems in concrete situations.

Laudan has also argued, as is well known, that scientific theories have to cope with mainly two kinds of problems, and he states explicitly that this model might also be applied to theological reflection. I have reworked this distinction within the wider scope of a postfoundationalist model for

theology and revised it as now including interdisciplinary problems (cf. van Huyssteen 1999; 2006). These two types of problems we can now identify as *empirical* and *conceptual* problems (cf. Laudan 1977, 910f.), and these concepts finally get us to Laudan's definition of intellectual (scientific and theological) progress: for science it means that scientific progress is the solving of empirical problems, and the transformation of unsolved problems into ones that have been solved as effectually as possible (cf. Laudan 1977, 120).

On exactly this point I think theology has much to learn in thinking more pragmatically about the concrete capacity of theories for finding adequate and meaningful solutions for interdisciplinary problems, instead of obsessing about truth claims *per se*. This does not take away at all from the fact that we have good reasons to believe in the constructive and progressive quality of the statements in interdisciplinary theology. From a postfoundationalist viewpoint this means finding the best available interdisciplinary reasons for making the most progressive theory choices, and thus guaranteeing a theory of intellectual growth. As to the reality of what we are referring to in our theory choices on a postfoundationalist view, in developing a criterion for progress, we will in principle have to leave room for tentative, critical or hypothetical references to the reality status of that in regard to which we believe our problems are solved progressively.

As regards the status of problems in interdisciplinary problems, an empirical problem might be anything that strikes us as unusual, and thus as calling for an explanation within, first the Christian paradigm, and second, within an interdisciplinary research paradigm. I have argued that the following might be identified as examples of empirical problems for interdisciplinary theology: the reality of evil or sin; the meaning of suffering and death in the light of faith in a good, loving God; the experiential basis of faith and the problems it causes in questioning the presence and action of God in daily life; ethical and sociopolitical questions; and so on. A second kind of problem, however, is as important as empirical ones for the advancement of interdisciplinary reflection in theology and science: this type of problem has already been identified by Kuhn, but has been developed further by Laudan as *conceptual problems*, problems with the specific aim of providing a broader and richer theory of problem solving than the merely empirical. Insight into these kinds of interdisciplinary problems arises specifically on a conceptual level as a result of interdisciplinary interaction between divergent and especially conflicting theories. Clearly the broad spectrum of issues dealt with in the current theology and science dialogue is a classic example of these kinds of conceptual problems.

Finally, Laudan has also further refined his notion of conceptual problems by helpfully making a further distinction between *internal conceptual problems*, which arise from apparent inconsistencies or ambiguities within

a particular theory, and *external conceptual problems*, which may arise from direct philosophical conflicts between two theories (the most notorious example being the ongoing conflict between Darwinian evolution by natural selection, and “biblical theories of creation”). These broader problems may have scientific, philosophical, ideological, methodological, or specifically religious/theological causes. Laudan’s useful distinction between internal and external conceptual problems would in my view need even further refinement, in the sense that what normally could be defined as an empirical problem in theology often hides a more profound conceptual or ideological problem; and what may appear to be internal conceptual problems often reveal more profound external conceptual problems (cf. van Huyssteen 1989, 176). This gets us as close as we can get to a definition of “progress” in postfoundationalist, interdisciplinary theology: in the progressive and constructive quality of interdisciplinary theories it will be the solving, however provisionally, of empirical and conceptual problems that will be at the heart of a model for advancement or “progress” in interdisciplinary theology. We may also put it as follows: in interdisciplinary theology a theory gains if it can offer provisional solutions to empirical problems, but it loses if it raises more conceptual problems.

NOTE

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