THE POVERTY OF SELECTIONISM: A CRITICAL ASSESSMENT OF DARWIN'S LEGACY FOR THE STUDY OF RELIGION

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Cognition, culture, religion and selectionism

We can get an idea of the cognitive science of religion from a recent Reader on Religion and Cognition (Slone 2006) in which the first part presents us reviews of its meta-theoretical and theoretical frameworks: "The cognitive science of religion, while welcoming interpretive work, seeks to make explanatory contributions to our understanding of religion and in the process redress the imbalance"(Slone 2006:2). The latter is a consequence of the fact that most scholars in the study of religion do exclusively interpretive work. The cognitive approach does not wish to silence the interpretivists, but reclaims a role for scientific theorizing in the study of culture. The latter is not 'owned' solely by cultural anthropology (McCauley & Lawson 1996). So what exactly are the explanatory theories of the cognitive science of religion? Most, Jason Slone writes, operate within the theoretical framework of 'cultural epidemiology' outlined by Dan Sperber. His epidemiological approach shows us a two way street: in one way, cognition constrains what kind of mental representations become cultural forms, in the other way, religious systems seem to be cultural forms fit for cognitive consumption. A third contribution in the Reader tells us what human cognition is like such that religion is such a good fit for it. The human mind is domain-specific, consisting in different "modules" that perform specific tasks. Importantly, much of the information each module possesses is non-cultural, but rather part of the cognitive architecture itself. The mind is neither a "blank slate" nor a "black box"; it is a domain specific computational, representational, information processor. It is this move that allows cognitive scholars to explain that they no longer consider religion a matter of irrationality. Religion is to be explained in terms of our normal cognitive makeup.

"[R]eligious thought and action turn overwhelmingly on harnessing perfectly ordinary forms of cognition available to all normally equipped human beings"(McCauley & Whitehouse 2005:1). The fact that minds contain non-cultural information leads to an important question: where does this cognitive information come from? Well, religion can be said to be "natural", and human evolution explains were it comes from. The step towards evolutionary psychology becomes obvious and many in the field fully agree with Tooby and Cosmides when they write that researchers in anthropology, economics, sociology, and we can include the study of religion, have to realize

> that theories about the evolved architecture of the human mind play a necessary and central role in any causal account of human affairs… Cognitive scientists will make far more rapid progress in mapping this evolved architecture if they begin to seriously incorporate knowledge from evolutionary biology and its related disciplines… into their repertoire of theoretical tools, and use theories of adaptive function to guide their empirical investigations. (Tooby & Cosmides 1998:195)

On this point, Robert McCauley and Harvey Whitehouse even see an important contribution by the study of religion. It can enrich the current theorizing about cognition that has tended to remain insulated from neural, evolutionary, emotional and bodily considerations.(McCauley & Whitehouse 2005:4) For the study of religion itself, however, it is like returning to an old dream. As Armin Geertz formulates it:

> Is there anything more intriguing than the evolutionary history of anatomically modern humans and the role that religion may have played in that history? In other words, can the study of religion continue to claim scientific status without concerning itself with origins? I think not. Fortunately for us, the methodology of prehistoric science has improved significantly, and we are now in the unprecedented position to infer insights about our origins. (Geertz 2004:355)

Paying attention to the possible evolutionary foundations of neural and cognitive processes allows of course for different perspectives. Some have tried to argue that religion and religious cognition arose as a solution to particular adaptive problems in hominid evolution. The majority of cognitive scientists of religion, however, see no evidence for a cognitive architecture specialized for the acquisition of religious thought and behavior. Most see religion as an 'accidental by-product' of specialized cognitive mechanisms, in other words, as a 'spandrel'. Some take a third option into consideration: for hominids natural evolution is accompanied by cultural evolution through

cultural pathways of descent. In any case, Matthew Day argues, selectionist theorizing or 'natural selection centered' theorizing is becoming an important trend in the study of religion, and with good reason:

> Throughout the twentieth century the evolutionary framework has demonstrated an unparalleled ability to explain the morphology, behavior, and cognition of our arboreal neighbors. This suggests that the conceptual and methodological tools that evolutionary theorists use to study other organisms should in principle work on us as well. As a consequence, if the academic study of religion is to be a genuinely human science it strikes one that it must be Darwinian in the modest sense of being consistent with the theory of evolution by means of natural selection. (Day 2005:81)

I agree with Armin Geertz (2004) that the recent developments in the study of religion characterized by the application of cognitive and related theories are not a passing fashion and that we should take these new cognitive and neo-Darwinian trends seriously. As I see it, though the task isn't small, we should interact critically, that is, not simply copy and paste, but delve in and root up, recognizing that fundamental discussions are going on even in these fields of research. I further agree with scholars like McCauley and Day and with evolutionary psychologists that discussions concerning the relationship between cognition and culture should pay attention to the broader neo-Darwinian framework. However, rather than considering the Darwinian framework simply as established, I want to give space to a view that takes it seriously enough to delve in and uproot a few things. To do so, I start from two small letters published in Anthropology Today. Ingold's 'The Poverty of Selectionism' elicited a quick response from Maurice Bloch. These letters form my entry into the thorough work of both authors. A comparison subsequently allows me to bring to the surface important points of deviation which should inform further discussions concerning nature, cogition, culture and religion.

The poverty of selectionism and response

In 'The Poverty of Selectionism'(2000), it's clear that Tim Ingold's frustrations with neo-Darwinism had come to a boiling point. The different brands of neo-Darwinism in the human sciences, he writes, see human beings, their mind as well as their manifold and ever-changing patterns of behavior, as simply explainable through attribution "to designs or programmes that have been assembled from elements of intergenerational transmissible information, through a process of natural selection

analogous if not identical, to what is supposed to bring about the evolution of organic forms" (Ingold 2000:1). In previous work, he has disagreed strongly with this view on several points. His main problem is that these 'selectionists' are unaware of significant developments in social and cultural theory, hence making mistakes which are old news for anthropologists, while new developments in that field are simply ignored. For Ingold, selectionism is just bad science, full of shoddy thinking and confusing the testing of hypotheses with the use of natural selection as a logical device that simply turns description into explanation.

Ingold's pointed article received immediate response from Maurice Bloch. In a letter in the next issue, Bloch agreed with Ingold that much in the work of memeticists, evolutionary psychologists, and sociobiologists was stupid and needed a serious response from social and cultural anthropologists. His own contribution to *Darwinizing Culture* (2000) can be seen as one such reaction. However, he considers Ingold's article as not up to the task, simply because it applies the category 'selectionist' to a group of people who hold views that have 'nothing in common'. (Bloch 2000:25) The main mistake Ingold makes according to Bloch is that sociobiologists and memeticists are seen as not much different, whereas in fact they differ significantly if only for the point that sociobiologists consider much of culture to be directly genetically determined whereas memeticists take an opposite view. Illustrative for Ingold's painting with too broad a brush is that Dan Sperber is once again miscategorized as a memeticist, in spite of the fact, Bloch points out, that Sperber is criticizing memetics in the same way Ingold does, but with more reasoned arguments. From other publications by Bloch, it's clear these reasoned arguments build upon work from a third group that Ingold seems to simply lump together with sociobiologists and memeticists: the evolutionary psychologists. However, as Bloch frequently argues in his writings elsewhere, their views again differ considerably from sociobiological and memeticist perspectives and form a rich source for a sophisticated naturalism suitable for anthropological theorizing. (Bloch & Sperber 2002:732) Ingold's anger is for Bloch just a silly response to the fact that the people he categorizes as "selectionists" sell more books. But this merely signals the fact that anthropology has no alternative to offer, since they have abandoned the very attempt to answer general questions about human beings. Nevertheless, some anthropologists, Bloch and Sperber included, stood strong against this anti-theory tide and are developing a scientific understanding of human beings. Ingold, on the other hand, seems oblivious to this trend, simply dismissing such work as selectionist and hence inadequate.

It is obvious in this discussion that lack of space as well as a lack of knowledge of each other's work has lead to simplistic views in which the central issues remain rather

obscure. In what follows I will discuss more extensively the views and goals of both authors concerning neo-Darwinist theorizing of culture and concerning anthropology as a scientific discipline. I will first outline Bloch's views as these are given in his more recent publications. Scholars of religion who build their theories upon an evolutionary psychology basis will find much they agree with and see parallels for in the study of religion. However, I will then contrast these with Ingold's in an attempt to highlight the real differences and to show how Bloch's and similar proposals are to be seen as attempts to make things cozy in a narrow closet while Ingold's work allows for the opening of a door. In other words, some fundamental issues will come to the surface that scholars of religion cannot leave untouched.

Where did anthropology Go? Or Bloch's need for "Human Nature"

On the 24th of February 2005, Maurice Bloch held the public LSE[1] lecture, titled "The Rehabilitation of 'Human Nature'. Or Where Did Anthropology Go?". He laments the fact that scholars from outside anthropology, interested in general questions about human beings, and interested in finding out what they could learn from anthropology, knock on their colleagues' door in vain. The reason is simply that anthropology lacks a generalizing theoretical framework and is a discipline without a centre, fragmented. Ironically, this is due to developments within the discipline itself in which the original centre, the study of human beings, was slowly corroded from the inside. As he notes with Sperber, the theoretical history of anthropology can be seen as unidirectional: "it is the history of the gradual abandonment of belief in the possibility of anthropology as a generalizing science. It assumes that because human beings can transmit information between individuals through symbolic communication they are entirely free of any natural constraints and essentially different from other animals, who transmit most, if not all, information genetically" (Bloch & Sperber 2002:725). For Bloch, however, this road into oblivion is not the only road anthropology can take and, in the LSE lecture, a brief overview of the history of the discipline is given to point out another possibility that will allow for an anthropology as a scientific undertaking. In his narrative, Bloch points out a positive heritage from the evolutionism/diffusionism debate that anthropology should reclaim: that is, the diffusionist reaction to evolutionism includes a profound point about the nature of human beings, "i.e. the revolutionary historical implications of the kind of brain possessed by Homo Sapiens with its ability to communicate" (Bloch 2005). For Bloch, anthropology's goal

1 London School of Economics and Political Science.

should be to draw out the implications of the continual transformation of people in the complex cumulative socio-historical process. "The implications of focusing on the ability of humans to imitate and borrow information and then to pass it on to another by non-genetic means is genuinely far reaching. It is what makes culture possible" (Bloch 2005).

However, earlier overreactions should be avoided. The "contrary, usually totally unexamined, philosophical jump from materialism to the purest of idealism" by removing internal human nature as the determinant source of what happens in history and replacing it with factors which are external is one example of such an overreaction. It ultimately results in a pure constructionism and culturalism stuck in a world of only representations. Another closely related overreaction is anthropology's blown up sensitivity to ethnocentrism that has resulted in "an absolute injunction, i.e., that we should never judge or evaluate others by the categories or standards of our culture or indeed by any standards at all". "Such a position", Bloch argues, "can easily slip into a much more radical claim that any generalisation, which will inevitably use an external basis for generalisation, is always illegitimate because it will always be nothing but the projection of the anthropologists' way of thinking" (Bloch 2005). For Bloch, the situation is simple. If anthropology wants a place on the academic map, the idea of a 'common human nature' cannot be abandoned. Anthropologists need to take up the basic anthropological questions again. As long as they don't, others will fill the vacuum and do so without the insights anthropology can bring to the table. Bloch summarizes this possible particular input under the notion of 'functionalism', which he understands as

> a commitment to seeing culture as existing in the process of actual people's lives, in specific places, as a part of the wider ecological process of life, rather than as a disembodied system of traits, beliefs, symbols, representations, etc. … For functionalism the mental exists in the practical, and both are conjoined functions of bodies in the wider ecology of life…. It requires, therefore, a form of epistemological monism, uniting people and the environment, the mental and the biological, nature and culture. … Functionalism enables us to recognise the inseparable totality created by the particularisms of the specificity of human history and the properties of natural being in the natural world. It can therefore continue the difficult anthropological enterprise and pick up again the empirical and theoretical job of understanding an animal involved in history. (Bloch 2005)

The image that arises from Bloch's response to Ingold is that the latter considers all selectionists as replicationists using an outdated notion of culture. The consequence is

that Ingold is blind for some positive developments, even in his own discipline, in which evolutionary theory is combined with a theory of culture that neither collapses in simple materialism, nor evaporates in simple idealism. In fact, Bloch and Ingold agree in their criticism of memeticism, while they differ on the usefulness of evolutionary psychology. For Bloch, Ingold's allergy for the latter seems simply a consequence of not seeing an important difference. In a critical discussion of memeticism, Bloch points out that one of the crucial lessons to learn from anthropologists, himself and Sperber included, is that "the transmission of culture is not a matter of passing on 'bits of culture' as though they were a rugby ball being thrown from player to player. *Nothing is passed on*; rather, a communication link is established which then requires an act of *re-creation* on the part of the receiver" (Bloch 2000:199). In other words, the view of cultural transmission as a simple process of replication that Ingold rejects, is not the only scenario for a naturalist theory of culture. Bloch as well as Sperber reject the memeticists' bits and pieces view on culture, because that what might have been a distinct unit in communication, is in the process of recreation transformed totally and integrated into a different mental universe, loosing its identity and specificity. (Bloch 2000:199) In a 2002 article on "Kinship and Evolved Psychological Dispositions", Bloch and Sperber present the epidemiological model of representations as the way forward for an anthropology that wants to tackle general questions. The model is defended by pointing out that it recognizes on the one hand that cultural representations and practices are specific to a community at a time in its history (rather than mere tokens of a general type) and on the other hand, that they are, in essential respects, grounded in the common evolved psychology of human beings. (Bloch & Sperber 2002: 723) That is, epidemiology lets them have it all: human nature, culture, universality and particularity, and last but not least, the possibility of an anthropology as science involving comparison. The reason for this generosity is simply the resolution of a previously committed error: The finding that humans differ from animals, because they can change with representations that are made possible by the learning and computational potential of the human brain, was linked to the idea that the contents of these representations were "not *at all* constrained by or even influenced by genetically inherited brain "hardware" (Bloch & Sperber 2002:725). The idea was that humans were liberated through culture from their biology, their nature, which subsequently left the anthropological scene. The epidemiology model, however, allows for a naturalistic explanation of cultural phenomena, by invoking "two kinds of small-scale processes: psychological processes within individuals and physical, biological, and psycho-physical interactions between individuals and their immediate environment (including interactions with other individuals) that we call "ecological processes" (Bloch & Sperber 2002:726-727).

Considering himself a well-disposed social anthropologist, Bloch shares with his colleagues the uncomfortableness they have with an idea of culture as too decontextualized from the practice of ordinary life and subscribes to the view that knowledge is quite often implicit and intimately implicated in action and interaction. His advice to memeticists is that "[i]t is therefore better to consider culture not as a set of propositions but as an only partially conscious resource, or perhaps even as a process used in making inferences which inform action – a process which, in any case, occurs at such a speed as to make it necessarily implicit" (Bloch 2000:200). Such a notion of culture allows for the following considerations: often this type of 'culture', on which inferences are based, is often at odds with explicit beliefs whether these come from participants or those studying them, especially if the latter take the participant's point of view, their declarations and the symbolic aspects of their behavior, seriously on the level of explanation. "Representations would seem strangely "right," "attractive," "natural," or "obvious" to people. This would be the case without individuals' being at all sure why these representations had these qualities, and even if they gave reasons these reasons would often be merely post hoc rationalizations" (Bloch & Sperber 2002:732). Culture, thus for Bloch, exists on many levels and is learnt implicitly or explicitly in a great variety of ways. "It is not a library of propositions or memes…. Knowledge is extremely complex, of many different kinds, and impossible to locate, as though it were of a single type" (Bloch 2000:200). Furthermore, the inseparability of knowledge from action and context, likewise involves a complex view on transmission as being of many types and as itself part of practice (Bloch 2000:201). Whereas in *Darwinizing Culture* (2000), other contributors easily talk of the transmission of information, with memes as units of information[2] it is clear that Bloch as well as Sperber go far beyond this notion of culture in their 'naturalization' of the discipline through the use of evolutionary psychology ideas. Culture, in their model, is part of 'the flow of information' that links all members of a human community to each other across time and space. It is that part of information about the people themselves, their environment, their past, their beliefs, their desires and fears, skills and practices that is rather stable in content and shared by many or even most members of the community. (Bloch & Sperber 2002:726) Such a flow of information takes place both in individual brains/minds as in the shared environment of these individual brains/minds. But, as noted before, the individual brains/minds are not just media in which simple replication occurs. Rather, public representations are recreated into private representations, which again are recreated into public representations for the flow to go on. These processes of recreation depend on and are constrained by

2 See Robert Aunger, *Darwinizing Culture: The Status of Memetics as a Science*. (Oxford: Oxford University Press, 2000), pp. 1,2,3,5,8…

characteristics of the human brain. However, by recognizing the flow of information the epidemiological model does not deny the complexity of the process of human history. "It fully recognizes that culture is both in us and outside—that it is not (even remotely) just a matter of human beings with genetically determined mind/brains reacting to diverse environments according to the dictates of their nature" (Bloch & Sperber 2002:729). The model seeks to explain the transformation and stabilization of representations in the process of cultural transmission invoking both mind-external ecological factors and mind-internal psychological/biological factors, suggesting not a direct link between biological factors and the generation of representations but an indirect relationship of genetically favored receptivity to specific information. Because of an evolved disposition, people attend to certain information or even seek it, retain it, use it to guide their behavior, and become, in turn, transmitters of such information. Hence, the generosity: the epidemiological model allows for a recognition of complexity and of "the unique fact that humans are beings that, in a strong and important sense, make themselves", while still leaving room "for considering, inter alia, the role of factors such as human psychological dispositions resulting from natural evolution" (Bloch & Sperber 2002:729). A middle road is found: cultural representations are neither just simple phenotypic expressions of genes, nor are they simple social-scale projections of the individual mind. "Actual cultural practices, as performed by specific individuals at a given time, are embedded in the sociohistorical processes that have distributed, stabilized, and transformed cultural representations and practices in the population to which these individuals belong. Each of these historical flows is unique. These processes are influenced by many types of factors, evolved psychological predispositions being only one of them. Mostly, cultural processes are influenced by other cultural processes" (Bloch & Sperber 2002:729).

Who studies humanity? The scope of anthropology according to Ingold

For Bloch, Ingold represents those anthropologists who want to withdraw from science and specialize in particularism and navel-gazing. Yet, twenty years before Bloch's LSE lecture Tim Ingold addressed a similar question in *Anthropology Today*. In a two page article Ingold ventilates his unease with developments in British social anthropology, worries especially about the fact that "anthropologists have abandoned the study of mankind" (Ingold 1985:15) and is frustrated since any attempt to refocus the discipline on humanity as such, receives the message "that the introduction of biological, psychological or evolutionary perspectives into discussions of human culture or social life is 'not proper anthropology'" (Ingold 1985:15). Such introduction is seen as futile and even detrimental to the progress of the discipline. An emphasis is placed on symbolic struc-

tures that can be considered without reference to the underlying conditions and processes of human life. The subject matter is no longer humankind but culture or society, or what Ingold considers worse, socio-cultural systems. A wall is set up between social and cultural anthropology on one side and biology and psychology on the other, with no possibility of constructive dialogue, mutual understanding and effective synthesis. At the same time, ethnography is considered as an end in itself. Students are no longer taught how to go beyond the awareness of cultural diversity to develop a more fundamental grasp of our common humanity, or in other words, how to leap from 'other cultures' to mankind. This means that theory that "enables us", according to Ingold, "to make this kind of leap from the particular to the general, from questions of what makes humans of different kinds to the question of what makes us human" (Ingold 1985:15) is no longer considered an integral part of anthropology and anthropology courses. Like Bloch, Ingold deplores the introvert navel-gazing attitude of much anthropology, points out as well that it is a bad moment even in 1985 to close the door, at a moment that other disciplines offer insights of real consequence for understanding the evolution of human culture and society. Like Bloch, Ingold sees how this absence of theorizing about humanity leaves a vacuum "that the more bigoted practitioners of other disciplines are only too eager to fill, projecting their partial and lop-sided views of man as though they embraced all that there is of human existence" (Ingold 1985:16). For Ingold, then, in 1985, anthropology could and should make a central contribution to bridging the divisions between disciplines. "Occupying the middle ground between naturalism and humanism, anthropology is uniquely qualified to relate and translate the concepts and insights of historians and sociologists to those of biologists and psychologists, and vice versa" (Ingold 1985:16).

Did Ingold since then make a turn of 180 degrees? It seems not, since he recently repeated much of his previous frustrations and misgivings and renewed his plea for an anthropology as science, that is, for an anthropology that focuses on its potential contribution to the scientific understanding of human beings and their forms of life (Ingold 2004:177). That he makes this plea, however, in an introduction titled 'Anthropology after Darwin' and that he describes this anthropology as 'a science of engagement in a relational world' shows that on some fundamental point his views have become quite different from Bloch's.[3] Somewhere along the road, Ingold did make a turn. The reason lies in an important part of his research project. Since 1985 Ingold has delved into the underbelly of evolutionary

3 In 1985 Ingold's views seem quite compatible with Bloch's. He points out that anthropologists ask absurd questions about why this or that aspect of human behaviour is essentially 'cultural' rather than 'biological' simply because they turned a blind eye to the innate components of behavioural disposition. As a consequence, what they offer is a view of how culture substitutes for the animal in man, while a view could and should be developed on how culture completes the human animal (Ingold 1985:16).

theory. Whereas Bloch takes Darwinian evolutionary theory for granted and only attempts to reinterpret 'culture' as representations that are also somehow constrained by biological factors, Ingold sees problems in both anthropology and biology that are linked in a mutually perpetuating pattern. In the following parts I will discuss this: first, I will outline Ingold's views on an important difference between Darwin's *The Origin of Species* and *The Descent of Man* and the problem that arose from it; second, I will discuss how the solution given to this particular problem involves essentialist thinking and has been persistent due to reductions that have held each other in check. It will become clear that by paying attention to discussions and new developments in biology, such as developmental systems theory, and by taking a critical anthropological look at Darwin's legacy, Ingold can embark upon a road for a scientific anthropology that is fundamentally different from Bloch's proposal. Scholars of religion, involved in similar discussions concerning religion and culture and concerning the scientific character of their discipline, cannot ignore these fundamental debates and will have to make a deliberated choice for either one or the other trajectory.

The underbelly of Darwinian thought

Evolutionary theory, human equality and a two-streams view

Ingold points out that *The Origin of Species* and *The Descent of Man* are works of very different kinds. Whereas in the first human beings are hardly mentioned while 'descent with modification' is the central argument, in *The Descent of Man*, the human being appears as the central subject matter. The change in focus comes, however, with a shift that will open the door for drifting back to pre-Darwinian essentialist thinking. Ingold explains it as follows. In *The Origin of Species*, Darwin had simply described himself as a spectator, watching the panorama of nature. He belonged to that species capable of seeing things other animals could not. Whereas animals were "destined to live *within* the world of nature, Darwin could write as though he himself were *above* it, and could observe it in the manner of a spectacle" (Ingold 2004b:210). In *The Descent of Man*, however, this possibility of watching from above becomes part of the subject matter as characteristic of man in contrast to the rest of the animal kingdom. "How was it, then, that human beings – or at least the more civilised among them – could reach such an exalted position? Whereas in *The Origin of Species*, Darwin had described the view from the summit, in *The Descent of Man* he offered an account of the climb" (Ingold 2004b:210). As a consequence, whereas *The Origin of Species* brings a story that naturally leads into innumerable directions, *The Descent of Man* establishes a single scale from the most primitive of animals to the most advanced of humans - those capable of

being spectators of the panorama of nature - and tells the story of a gradual liberation from the shackles of instincts through reason. In other words, the dichotomy between reason and nature or between intellect and instinct that in pre-Darwinian thought had informed views of an essential difference between humans and animals was not dispensed with. Rather, it became for Darwin a matter of gradation. "[T]he evolution of species *in* nature was also an evolution *out* of it, in so far as it progressively liberated the mind from the promptings of innate disposition" (Ingold 2004b: 211).

Darwin's story of gradualism, however, with ancestors becoming human by degree over countless of generations, didn't fit well with the Enlightenment view of a 'psychic unity of mankind'. For Darwin, Ingold points out, the difference between scientist and savage was not a matter of a differential development of intellectual capacities they had in common, but of a difference of capacity comparable to that which accounted for the difference between savage and ape. "Throughout human history, the advance of civilisation was supposed to march hand-in-hand with the evolution of the brain – and with it the intellectual and moral faculties – through a process of natural selection in which 'tribes have supplanted other tribes', the victorious groups always including the larger proportion of 'well-endowed men'" (Darwin 1874:197 quoted in Ingold 2004b:212). In other words, Darwin's sketch of man's decent could only work if what he considered 'the ascendancy of reason' could be attributed to hereditary endowment, quite a problematic view when human equality is high on the list. In his work Ingold narrates how the subsequent search for reconciliation between evolutionary theory and human equality led to the introduction of a *difference in kind* drawing a clear line between ape and human. For him, the appeal to an essentialist, thus pre-Darwinian, concept of human nature is a defensive reaction against the legacy of racist science left by Darwin's argument in *The Descent of Man*. In that reaction, humans were made "to appear different in degree, not kind, from their evolutionary antecedents by attributing the movement of history to a process of culture that differs in kind, not degree, from the process of biological evolution" (Ingold 2004b:214). That is, solutions were found combining evolutionary theory and the thesis of 'the psychic unity of mankind' into a story with two axes of change: "There is one process of evolution, leading from our ape-like ancestors to human beings that are recognizably of the same kind as ourselves; another process, of culture or history, leading from humanity's primitive past to modern science and civilization" (Ingold 2004b:213). This two-streams view can be found all over the academic place. Tylor, for instance, is the hero in Bloch's narrative of anthropology because he recognized that the evolution of the human brain had led to the possibility that information could replicate, persist and transform by other means than DNA. As a consequence, "human history had a different

character to the history of other animals" (Bloch 2000:190). Similarly, evolutionary psychology is built on the same solution. "[T]he psychic unity of mankind is genuine and not just an ideological fiction", Tooby and Cosmides (1992:79) state. We all share the capacities that came into being during the evolutionary process that finally distinguished man from ape; nevertheless, though engineers and scientists share these capacities with hunter-gatherers from the Upper Palaeolithic, they differ because of the separate process of history or as some would like to term it 'cultural evolution'. Thus, whereas evolutionary psychologists and anthropologists not afraid of looking for natural constraints to culture differ from culturalists by refusing to lock themselves up in a world of representations in a hypersensitive reaction to naturalist theorizing, they nevertheless share with them Darwin's legacy that led us down the two-streams path. Looking through the Darwinian looking glass, we have learned to see double and now simply discuss how to connect the two. "Whether one prefers to view religion as a phenomenon that natural selection has hard-wired into our phenotypes, a cultural invention that human beings have developed along the way, or an untidy mix of both "nature and nurture," the same Darwinian toolbox can be called upon to make sense of things" (Day 2005:81-82).

Unfortunately, one can argue, with Ingold and others that the reconciliation between evolution theory and human equality came with a high price. To make this work, cultural history was set apart as *different in kind* from the process of evolution. Furthermore, in the process of separation a problematic reduction was carried through, through a notion of information that allowed for the reinterpretation of 'descent with modification' as a story of genetics, and human history as a story of the cultural transmission of representations.

Gene centeredness, imaginary genotypes and beyond

One product of this two-streams reconciliation of evolution theory and human equality, has been the imaginary genotype. As Ingold and others involved in developmental systems theory have noticed, a notion of information helped in stabilizing it: a gene is seen to be not simply a string of DNA that interacts with its immediate environment but a carrier of information that encodes a particular trait or character. The notion of information was borrowed from a 1940s theory of information that used the term in the sense of referring to these differences in the input to a system that made a difference in the output, without any semantic value involved. However, Ingold points out, molecular biologists, recognizing that this notion of information was applicable to DNA that could thus be seen as a form of digital information in the technical, information-theoretic sense, nevertheless interpreted DNA as a code with a specific semantic

content. As Griffiths notes, in many discussions of genetic information one can easily find traces of the idea that genes have meaning in something like the way that human thought and language are considered to have meaning. In other words, involved is an intentional notion of information of which a central feature is that it retains its identity in the face of misrepresentation or, in the case of imperative representations, non-compliance. Whereas a technical notion of information involves no notion of falsehood or non-compliance, intentional representations can be false and intentional imperatives can be disobeyed. As a consequence, whereas in the first case one has a relationship between a material cause and its effect, one has in the second case quite a different relationship between an intentional imperative and its effect. (Griffiths 2005:187)

Such an intentional or semantic notion of information allows for the idea that all human beings share the same human nature as encoded in the genotype that is transmitted from generation to generation because of one fundamental characteristic: intentional information is intrinsically context insensitive since unexpected outputs can be dismissed as misrepresentations or failure to comply. In genetic language this means that the 'meaning' of a gene does not change, rather non-genetic factors merely prevent the instruction from being obeyed. Understanding genes as intentional imperatives thus implies the possibility that they are messages which can be moved easily from one context to another, hence allowing for the possibility of genetic transmission of a prespecified human nature. Genes appear in this perspective as God-like prime movers themselves unmoved. Pre-Darwinian Aristotelian thinking of essences with variations seen as "the accidental results of a natural developmental process that had been hijacked by one interfering force or another," (Day 2005:62) is back with a vengeance.

To make it work, though, those properties of human beings that are taken to be encoded as part of human nature and thus evolved by natural selection are redescribed in a way that factors out all variation that is ostensibly due to environmental experience. As Ingold writes, one seeks

> … to produce for each [property] an abstract, context-independent specification. This abstraction is then 'read in' to the genome – as if it had a concrete presence in there – so that development itself can be seen as a 'reading off', under particular environmental conditions, of a pre-existing specification. The circularity of this argument needs no further elaboration, and is one reason, of course, why it has proved so hard to refute. (Ingold 2004b:215)

Similarly, Griffiths describes this move as crossing out development and context in favor of a black-box strategy in which genes are treated as if the transmission of a

chunk of chromosome explained in and of itself the 'transmission' of the phenotypic character.[4] To summarize, the understanding of genes as semantic intentional information comes with a high price: a persistence of gene centeredness and genetic determinism combined with a strong tendency to marginalize context and development. For Susan Oyama (2001), who noted this problematic connection in 1985, it is clear that when genes are understood in terms of information metaphors, they will continue to be regarded as controlling development and representing what the organism is "meant to be" while the tendency to minimize context sensitivity and developmental contingency will persist. As Griffiths notes, "Neo-Darwinism was the result of the union of Darwin's theory of natural selection with a particular view of heredity" (Griffiths & Gray 2001:215). Developmental systems theory allows for a different notion of heredity that brings developmental processes back into the evolutionary picture, thus opening up new and promising research agendas.[5] Rather than thinking development as the determination of a phenotypic 'resultant' by a number of causal 'vectors', a more active perspective is taken seeing development as the dynamic self-organization of a total field of relationships in which an organism's life unfolds and in which properties and capacities are seen neither as somehow internally prespecified nor as externally imposed, but as arising from these dynamic processes. (Ingold 2001:130) What Ingold and others propose is a shift from neo-Darwinian decontextualizing 'population' thinking to a relational thinking that treats the gene as a string of DNA always in interaction with its environment and the organism "not as a discrete, pre-specified entity but as a particular locus of growth and development within a continuous field of relationships" (Ingold 2004b:218).

Representation-centeredness, imaginary cultural systems and beyond

Another product of this two-streams reconciliation of evolutionary theory and human equality has been the notions of culture and cultural transmission, both connected to imaginary sets of representations, information, mental models and beliefs. Since what makes us

4 Day, arguing that as long as one can identify "offspring" and "parents" and thus identify cultural pathways of descent one can use the Darwinian toolbox without the need for clear ideas about the substrate and means of transmission, seems in danger of introducing an equally problematic variant of such a black-box strategy in the study of religion.

5 On this point there is a disagreement between Tim Ingold and Developmental Systems Theory. The theory replaces genes as units of selection by developmental systems but still seeks to keep the fundamental Darwinian logic of variation under natural selection, thus reintroducing the problems that come with such logic, such as decontextualization and ruptures of the continuity of the relational field. Though this is an important point of discussion in which I tend to side with Ingold, I will not address it here. See Ingold (2002).

equal is considered to be the product of biological inheritance, working through the transmission of genetic information encoded in the DNA, to explain what makes us different a supplement process of transmission of non-genetic information seemed like a nice completion of the picture. Humans are considered to have the evolved capacity to make sense of their world, and render the world meaningful through representations that either can be assembled in the mind or communicated verbally to others, or can be the result of a complex combination of both. The idea of mind as an information processing device with in- and outputs fitted right in. The part of representations that seems cross-generationally transmitted through non-genetic means, a process that nevertheless depends upon the presence, in all human minds, of innate, species-typical mechanisms of cognition, is culture. However, as in the case of genes, an argument can be made that such a view is the result of a notion of information that allows for ignoring context, blackbox strategies and the selection and centralization of one element, which is given a semantic context-independent interpretation.

Of course, much time in anthropology and the study of religion has been spend to argue for the need to contextualize the specific content of these representations, resulting ultimately in a paralyzing relativism, and needless to say that, often in reaction to this trend, this notion of culture as representations has been remodeled time and again to include practice-related knowledge and less conscious forms of knowledge, going as far as Bloch's remark that one should not consider "culture as a set of propositions but as an only partially conscious resource, or perhaps even as a process used in making inferences which inform action – a process which, in any case, occurs at such a speed as to make it necessarily implicit" (Bloch 2000:200). The assumption long present in anthropology that "culture is inseparably linked to language, on the grounds either that culture is thought and transmitted as text through language, or that culture is ultimately 'language-like', consisting of linked linear propositions" is thoroughly questioned by Bloch, using connectionist theory in the cognitive sciences to make his point. (Bloch 1998:4)[6] It is obvious that Bloch goes to great lengths to

6 On the same basis, Bloch criticizes Sperber, Boyer and others who developed a cognitive approach that takes religion to consist of counterintuitive beliefs, their catchiness taken to explain the persistence of religion. Bloch even raises the question "whether the focus on "belief," counter-intuitive or not, as the core concern in dealing with religion, is not misleading for the type of phenomena under examination, such as ancestor worship." Informed by his own fieldwork among the Malagasy, Bloch sees the idea of counterintuitive beliefs as typically Christian and argues that Sperber and Boyer are misled in thinking that all religious manifestations are cognitively and saliently counter-intuitive, in the same way the missionaries were only looking for that type of belief in their contact with Malagasy people. In other words, with Bloch, we come close again to a rejection of the concept of religion as part of a western discourse, as he comes to question the universal usefulness of the notion of 'religion': "the English term "religion" normally indicates phenomena which imply a consideration of strange "beliefs" with an explicit and clearly emphasized counter-intuitive element… This is because the particular history of the Semitic religions, especially Christianity, influenced as it was by Platonism, made faith in the not-fully-knowable the touchstone of what religion is." See Bloch (2002:129-146).

argue both for 'human nature' as well as 'culture' while trying to avoid too easy generalizations and the universalization of Western notions and assumptions. What he doesn't see, however, and thus what keeps him finally stuck in a two-streams framework after all, is that Christian notions not only inform our thinking about culture and cultural transmission, but about genes and genetic inheritance as well. As a consequence, his functionalism, goes far, but not far enough. For Bloch, the implausibility of culture as language, as text or propositions, is due to the fact that much knowledge is of an implicit non-verbal nature and is a sign that what cognitive sciences have to say about processes of learning and storage (Bloch 1998:4), and evolutionary psychologists about innate potentials, should be taken seriously. It is this reflection that informs his strong reaction against Ingold's apparent careless throwing together of memeticists, sociobiologists and evolutionary psychologists into one homogeneous group. Whereas memeticists simply see culture in terms of selfish memes eagerly transmitting themselves in total oblivion to biological constraints, while sociobiologists go straight from gene to representation, evolutionary psychologists courageously choose to open the black box of cultural transmission. Similar arguments in favor of an evolutionary psychology or cognitive approach are made in the study of religion accusing humanistic, hermeneutical or culturalist studies of religion to black box cultural transmission. Attention is paid to the process of cultural transmission, no longer simply seen as a process of replication but of recreation and a complex interplay of genetic, environmental and cultural factors is laid bare. Taking a connectionist view of the mind, Bloch can argue that knowledge is to a large extent non-linguistic, involving implicit networks of meaning which are formed through the experience of, and practice in, the external world. (Bloch 1998:7)

However, as Ingold points out in his reply to Bloch, differences can still hide an underlying similarity. All the above mentioned approaches rest upon a common assumption: all these selectionists share the assumption that culture consists in information or content that is, in whatever form, to be socially transmitted. Opening the black box of social or cultural transmission within a neo-Darwinian framework that still takes genes as semantic codes while 'watering down' the linguistic or propositional ring of culture as representations by making them implicit, subconscious or faster than lightning, is like fighting an imaginary rat in the lion's cage. The original mistake of decontextualization + centralization of representations to make it all fit is not undone. In Ingold's words, a vertical process of inversion is sold as a lateral process of translation. Whereas anthropologists have described their business as a matter of translating alien ideas, beliefs and concepts in terms comprehensible to their western audience, Ingold describes their business rather as representing "the experience of everyday life for the people among whom the anthropologist has lived … in an analytic discourse that seeks at every juncture to deny the reality and constitutive force of the relationships that those people have with one another and

with their environments, and that underwrite their sense of belonging to locality and community" (Ingold 1993:218). Individuals are cut loose from their relational environment while the latter is translated into a factor influencing what is taken to be going on in the individual's mind. Parallel with the reduction of biology to genetics, much anthropological theorizing since Tylor reduces human history to the cultural transmission of information and knowledge from one mind to another. Whereas "population thinking" leads to a consideration of organisms as discrete individuals who are only able to generate stable patterns of properties and behavior through a genetic transmission of information, likewise such "non-relational population thinking" considers generations of humans as discrete entities that generate stable patterns over time through the additional process of a cultural transmission of information.[7] The imaginary genotype finds its counterpart: imaginary cultural systems. The mistake made is the same: abstraction is made of the organism's or person's relational field with characteristics generated in that field being attributed to either genetic make-up or the inner contents of the mind. Transmission is than brought in to stitch everything up again. But what results is a Frankenstein. For Ingold the metaphor of transmission is deeply misleading no matter whether it is attributed to genes or culture or a complex interaction of both. Whereas Bloch seems to categorize him as an anthropologist radically choosing culture in the question of the relation between 'genetic endowment' and 'culture' in humans, Ingold replies by dismissing the question as betraying "a faulty notion of both genes and culture, as intergenerationally transmitted information" (Ingold 2000c:27).

Whereas developmental systems theory goes beyond gene centeredness through a disconnection of genes and the semantic notion of information, a similar move can help us to go beyond a representation centeredness towards a refocus upon developmental systems. More precisely, Ingold argues for a disconnection of the notions of information and knowledge. A disconnection between gene and intentional information allows for the study of the gene not as overall important but as one element among others in a developmental system in which properties and capacities of organisms arise. Similarly a disconnection of information and knowledge allows for a decentralization and reinterpretation of representations as part of that same developmental system. That is, if developmental systems theory has a point and "humans are not assembled, robot-like, from prefabricated components, but undergo growth and development within matrices of environmental relationships", (Ingold 2000b:25) then it follows, as Ingold points out, that human knowledgeability is no longer to be seen as founded in some combination of

7 Peter Pels shows how Tylor's views about the progress of mankind are likewise a result of statistical thinking. See Pels (2003).

innate capacities and acquired competence, but in skill. In other words, through the lens of developmental systems theory, skill becomes the foundation of all knowledge (Ingold 2001:135). Cognitive studies focusing on the process of becoming an expert in games, such as tetris, - which Bloch (1998:15,17,18) mentions as well,- are quite useful here, and allow, for instance, for an understanding of verbal statements not so much as knowledge in themselves but as pointers opening up a path to knowledge or to further enskilment, through an education of the attention.

It is however important to realize at this point that Ingold goes further than most if not all of such cognitive studies of skill by taking processes of enskilment as the overall baseline. For human beings, being intrinsically part of a developmental system, gaining knowledge is not a matter of information transmission but a process of enskilment under the guidance of expert others who through the education of attention redirect the novice's practical engagement with his or her environment. In short, learning is a matter of guided rediscovery. Though Bloch recognizes, with connectionist cognitive studies in mind, that "anthropology has tried to analyse culture through folk modes of thought applicable only to sentential logical knowledge, which… is but a small part of knowledge," (Bloch 1998:15) he nevertheless remains solidly within a neo-Darwinian framework that keeps him talking in terms of flows of information and representations that are transmitted through a process of recreation. He, in contrast to Ingold, comes short of fully revising central anthropological notions in light of processes of enskilment and engagement in a relational world. Cultural knowledge is still considered to be transmitted, though through processes that are unknown by those involved and brought to light in evolutionary psychology (Bloch 1998:7). However, if people contribute to the knowledgeability of the next generation "not by handing down a corpus of representations, but by setting up, through their activities, the environmental contexts within which successors develop their own embodied skill of perception and action," (Ingold 2001:141) then it must be obvious that all 'culture' related notions, such as tradition, cultural traditions, and for that matter, religious traditions, religious belief, etc. are in need of a revision based on theoretical as well as empirical studies informed by a developmental systems view.

Conclusion

To conclude, I agree with Armin Geertz, Matthew Day and many others that Darwinian theory and cognitive science should be taken very seriously in the study of religion. However, rather than browsing through it, considering the Darwinian perspective simply as established and using the tools uncritically for every job that comes along, we can conclude from Ingold's analysis and from developmental systems

theory that we should consider it as a crucial piece of theory to be critically examined and worked upon if we want to make progress in human science. We can agree, parallel with Bloch's and Ingold's plea for a scientific anthropology, that the endeavor to develop a scientific study of religion as part of a scientific study of human beings is of great importance. However, we cannot simply assume that this means taking 'human nature' into account. Though on many points Bloch's and Ingold's work seems extremely close, both emphasizing for instance the importance of an outdoor perspective or an 'in the wild' perspective that studies human beings in their environment, both emphasizing the importance of context and practices, and thus not surprisingly both enthusiast about for instance Ed Hutchins' work on distributed knowledge and Jean Lave's work on apprentice learning, it should by now be obvious that at the same time their views are miles apart. Whereas Bloch happily subscribes to the Neo-Darwinian reconciliation of evolutionary theory and human equality and happily talks at one time about the interactions of genes and environment while at other times emphasizing cultural complexity and particularity, Ingold prefers to undo this problematic solution, by refusing to work with the imaginary "genotype" and its cultural counterpart, as well the distinction between nature and culture and the division between an individual mind equipped with mental models, even if of an implicit kind, and the world that these models represent. What we have are two fundamentally different views on human reality, the first based on a rather uncritical acceptance of the basic assumptions and framework of neo-Darwinism that has the air of being established, the second, still very much in its infancy and emerging out of a critical evaluation of that legacy. If Ingold's analysis of the Darwinian legacy is accurate and developmental systems theory has a point, we in the study of religion will have to consider the implications of such a change in perspective for our own subject matter. But even more, if a scientific study is what we want, we will not only have to draw out the implications, but, in my estimation, we should see studying religion as a contribution to the development of 'a science of engagement in a relational world'.

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Abstract

The trend to take Darwin's legacy seriously in the study of religion is gaining momentum. Especially in the cognitive approach to religion that builds its work on evolutionary psychology it allows for explanations bridging nature and culture. However, this seriousness usually does not involve a critical attitude towards (neo-) Darwinian theory which is simply considered 'established'. In this article I want to warn against the rather uncritical attitude that results from this, by pointing out the controversial nature of some underlying assumptions. A debate in anthropology

between Maurice Bloch and Tim Ingold allows me to bring these underlying issues to the surface. Both share the view that anthropology should contribute to a science of human beings, both deplore much of the current situation in that discipline. However, for Bloch a scientific anthropology simply means taking seriously neo-Darwinian theory. Ingold on the other hand, makes a more extensive evaluation of anthropology and its link to Darwinian theory. As a consequence, a fundamentally different explanation for the current problematic state of anthropology as well as a fundamentally different view on evolution and development opens up. A study of religion, critical and scientific, must take note of these developments.