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Webs of Belief

1. Belief holism[1]

The aim of the present paper is, simply, to discuss a number of examples which are relevant for the relation between those parts of a belief system which may be called «scientific» and those which may be called «religious». They might be useful as a little collection of case studies, all of which are, admittedly, very sketchy. The cases are all taken from the Christian tradition. I suspect that the way of thinking about them, which is presented here, could also be applied to quite different monotheistic, polytheistic or animistic beliefs, real or imaginary. The framework which I am going to use is a classic of analytic philosophy. I shall adapt it for my purpose. It is the idea of a web of belief. The concept was famously formulated by Willard Van Orman Quine towards the end of his article «Two Dogmas of Empiricism» in the early 1950s.[2] Quine introduces the idea of a web of belief for a pretty restricted purpose in the philosophy of science: his revival of the so-called Duhem thesis, which killed

[1] This text expands the text of a talk which was supposed to summarize and comment on the results of a conference on religion and science in Judaism, Christianity and Islam in Kaiseraugst near Basel in November 2010. I am grateful to Michael Hüttenhoff and Reinhold Bernhardt for the invitation and to all the speakers and participants, in particular to Philip Clayton, for most interesting discussions. The text has retained its crude and rude character. It does not do justice to the literature on any of the points mentioned. Being a philosopher and not a theologian, I am unaware of most of it. The taxonomy at the end of this paper in the section on theories of the mind may be found in similar form in my paper «Soular Eclipse», and, together with some of the points on evolutionary theory, in my article «Auferstehung des Fleisches». Cf. N. Strobach: Soular Eclipse - Dementia and Mental Disease according to Aristotle and Thomas Aquinas, in: A. Bagood (ed.): Human Fragility: An Interdisciplinary Question, Dudweiler 2010, 71-92; N. Strobach: Auferstehung des Fleisches - eine Replik auf Olaf Müller, in: F.O. Engler / M. Iven (eds.): Moritz Schlick - Ursprünge und Entwicklungen seines Denkens, Berlin 2010, 73-103.

[2] W.V.O. Quine: Two Dogmas of Empiricism, in: W.V.O. Quine: From a Logical Point of View, Cambridge / MA 1953, 20-46. For the phrase «web of belief» cf. also W.V.O. Quine / J.S. Ullian: The Web of Belief, New York, second edition 1978.

Logical Positivism, but which is of no importance for the present text.[3] Here is Quine's idea:

> The totality of our [...] beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric [«web of belief»] which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field. Truth values have to be redistributed over some of our statements [...]. But the total field is so underdetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to reevaluate in the light of any single contrary experience. [...] Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or by amending certain statements of the kind called logical laws.[4]

Often, this conception is called belief holism. The upshot of the quote may be formulated in four words: There is always an excuse. An excuse may, but need not be, a bad excuse.[5]

Why «web of belief»? One might think that it is just a pun to import a phrase from epistemology to the philosophy of religion. Is it not clear that the word «belief» means something different in both areas? However, no pun is intended here. I claim that the relationship of religion and science is best analysed by regarding webs of belief. In this context, a belief is simply some statement held true by someone (for whatever reasons), i.e. something he or she believes. Often, a belief is, as Peirce says, something on which you are prepared to act.[6] There is no difference between spiritual truth and empirical

3 Quine's version in «Two Dogmas of Empiricism» (note 2), 41, is: «[O]ur statements about the external world face the tribunal of sense experience not individually, but only as a corporate body». He refers to P. Duhem [1861-1916]: La théorie physique: son objet et sa structure, Paris 1906, 303-328.

4 Quine, Two Dogmas (note 2), 42f.

5 It is, of course, hard to tell intersubjectively at what point an excuse becomes a bad excuse. Agreement might depend on a shared paradigm. The statement of taste that some story is a bad excuse is often expressed by the exclamation «O come on... it's completely irrational to say so!» and the like.

6 «[A] genuine belief, or opinion, is something on which a man is prepared to act» C.S. Peirce: Minute Logic II (1902), in: The C[ollected] P[apers of C.S. Peirce [=CP], Cambridge / MA 1931 ff., vol.] 2, 119-218: 148. Peirce attributes the slogan to Alexander Bain (1818-1903), cf. CP 5, 12 («A Survey of Prag-

truth. There is just the holding true of beliefs. So there is no point of two different kinds of truth not being in conflict by definition. That would be a just too easy way out.

Nevertheless, my main claim is that, if you look at it in terms of webs of belief, there is reason to be rather relaxed about the relationship of science and religion. This can be shown by considering the range of alternatives there is for accomodation. The question which remains for each believer is: Do I want to accomodate this? In principle, a web of belief has no preferred direction of accomodation. So it depends on the believer whether «this» is a religious belief or a scientific belief. However, what follows as a demand is that steps of accomodation be made explicit upon being challenged to do so. Of course, one may decide to live without a coherent web of belief. But if you prefer having one, you will have to explain from time to time how certain beliefs go together. If a believer wants to accomodate certain religious beliefs to a corpus of scientific beliefs, he or she might be forced to get clear about what he or she really believes, i.e. holds to be true, about the soul or about divine action.

2. Science and sanity

In order to investigate accomodation, it is not strictly necessary to answer the question why scientific statements are usually considered valuable in our culture and time. If your primary aim is just investigating the compatibility of A and B, you do not have to say why A is plausible. It is true that not everything scientists ever said, and claimed to be results of science, is worthy of inclusion in a web of belief. Counter-examples are the beliefs that witches exist, that certain races are superior to others, that time is a fourth dimension of space, that vitamin C is the solution to all problems, that there is no such thing as being awake, and many more. It is also true that scientists today do not usually claim that their theories will never be improved upon in the future. It even seems to me that, when they talk theory of science, they are often too modest («All we've got is models...»). Still, today's science is extremely well-checked

maticism», 1907). Its content is also a main point of «The Fixation of Belief» (1877), CP 5, 358-387.

and of enormous explanatory power. Today's scientific statements are the best statements we can have today for getting around successfully and for explaining what is around us, for what they are supposed to explain.

What science can explain is not settled a priori, but is determined by what science can explain. Immanuel Kant was convinced that there was never going to be a «Newton ... who will make comprehensible the production of a single blade of grass according to laws of nature which no intention ordered.»[7] He was wrong. Todays molecular biologists are the Newtons of grass.

Let us define «insanity» as a technical term for what follows: Insanity with respect to today`s Western academic mainstream is the refusal to accept some well-confirmed result of today`s science in one`s web of belief (where it is clear from the context I shall suppress the «with respect to»-clause in what follows). It is recommendable to appear as sane as possible within the culture in which one happens to live or maybe even chose to live. This is a good pragmatic reason why one should work on accomodating religious beliefs, if one has any, to the most current scientific beliefs. It is, of course, true that there is no duty not to appear insane. You do not have to follow the advice. Sanity is, to a great extent, a matter of taste and is relative to a culture and a time. According to Kant`s useful distinction, the following is a hypothetical, not a categorical imperative: «Have beliefs that would allow you to actively engage in science!» Still, it is advisable to follow it if you want to be part of the Western mainstream. For all his merits about the revival of rational discussion of religious beliefs, Richard Dawkins is wrong in claiming that religious beliefs must make a scientist lazy and will therefore make him a bad scientist.[8] Divine creation or not, there is so much to be explained.

Let us say that a person endorses scientism if he or she has the maxim of (1) including all the well-confirmed results of today`s science in his or her web of belief, (2) not excluding any of them from his or her web of belief in favour of beliefs which contradict them and of (3) being prepared to include all

7 I. Kant: Kritik der Urteilskraft §75, AA vol. 5, 400 (my translation): «[E]s ist für Menschen ungereimt, auch nur [...] zu hoffen, daß noch etwa dereinst ein Newton aufstehen könne, der auch nur die Erzeugung eines Grashalms nach Naturgesetzen, die keine Absicht geordnet hat, begreiflich machen werde.»

8 Cf., e.g., R. Dawkins: The Ancestor's Tale - A Pilgrimage to the Dawn of Life, London 2005, 565f.

their consequences in his or her web of belief. What more could be demanded for scientism? That science answer all questions, even those of everyday life? Hardly.

So a person who wants to count as a sane member of today`s Western academic mainstream (and don`t we?) should endorse scientism in the modest sense just defined. This is true by definition. So, in a way, a web of belief analysis explains why the demarcation line between the content of a scientific theory and some alleged ideology associated with it is often a matter of (usually rather one-sided) dispute: Among those believers who have some theoretical aspirations, relatively many, at least in the West», care about sanity (in the sense just defined), hold it to be a relevant category and would try to avoid the charge of insanity. As we shall see, this leaves them with a lot of sane options, among them believing in intelligent design, occasionalism, virgin birth and resurrection.

3. Constraints for webs of belief

There are plenty of options for accomodation. There are, however, certain constraints if the application of the concept of a web of belief is supposed to make sense. They are quite demanding:

(a) Work out the details. Do not be afraid of sounding ridiculous to the many. Check if your beliefs are believable.[9]

(b) Avoid self-induced schizophrenia. Achieve one unified, coherent, consistent net of all your convictions.

(c) Strictly apply the logic you freely choose. There is some choice, since there is not just one logic. There is no reason to believe in eternal or undeniable truths of logic. It is true that laws of logic are irrefutable. But that is just because you decide for or against them in the first place. Quine goes all the way in the passage quoted above, and rightly so.[10]

(d) Be clear that you are looking for what you hold to be true. You know

9 I owe this formulation to Norbert Samuelson who used it during the conference.

10 Probably, Quine was (loc. cit.) considering quantum logic, which was not that successful after all. For a first idea of non-classical logics, cf. N. Strobach: Einführung in die Logik, Darmstadt 2005, 2011, ch.8; for all the details see G. Priest: An Introduction to Non-Classical Logic, Cambridge, 2nd edition 2008.

what it means to hold something to be true. It means the same for any kind of descriptive statement. The objects of those religious beliefs which need to be accomodated to scientific beliefs are descriptive statements (normative statements are a different matter).[11]

(e) Use plain language, and use your words as they are understood.[12] Perhaps, on this point, Quine would have been more liberal. His original idea allows for arbitrary redefinition of words. In my view, that goes too far.

Noncognitivists about religious language are outside the focus of web of belief analysis. For if none of your utterances in religious contexts expresses a belief, your web of belief, like the atheist`s, does simply not contain any religious beliefs. Of course, there is no problem of accomodation left in that case. How boring.[13] What will not do is saying that religious beliefs are neither true nor false, because they are religious. For they are beliefs.[14]

Statements (a) to (c) are the only requirements of rationality according to the web of belief view. There is no such thing as the objective rationality of any single belief. People with psychiatric disorders may be very good at working out unified webs of belief. Calling a scientific belief «rational» in contrast to some other belief is just propaganda noise.[15] What is irrational, and nothing

11 They may, however, sometimes depend more heavily on descriptive statements than one would expect. For details on this point see N. Strobach: Toleranz light - Wie anders darf der Andere sein?, in: U. Hagel et al. (eds.): Der Andere - ein alltäglicher Begriff in philosophischer Perspektive, Leipzig 2002, 107-116; see also N. Strobach / L. Jansen: Moderne Moral?, in: M. Willaschek (ed.): Ernst Tugendhat - Moralbegründung und Gerechtigkeit, Münster 1997, 53-61.

12 This point is against, among others, Pannenberg. His little book on the apostolic creed is a clear and therefore valuable text for studying a strategy of re-definition, which violates the constraint of using plain language. Cf. W. Pannenberg: Das Glaubensbekenntnis ausgelegt und verantwortet vor den Fragen der Gegenwart, Hamburg 1972. For an example, see section 9.

13 For a more extensive and refined treatment of it see C. Weidemann: Theologischer Antirealismus – und warum er so uninteressant ist, in: C.Halbig / C.Suhm (eds.): Was ist wirklich? Neuere Beiträge zu Realismusdebatten in der Philosophie, Heusenstamm bei Frankfurt a.M. 2004, 397-428.

14 Note that «belief» is a count noun and not a mass noun.

15 More on this point is found in N. Strobach: Vernunft, forthcoming in: W. Kraus (ed.): Kulturelle Grundlagen Europas – Ringvorlesung an der Universität des Saarlandes im Sommersemester 2010.

more, is adding a belief to a web of belief such that the result is a contradictory web of belief, if, on the other hand, that web of belief contains a principle of non-contradiction. Sanity is a different matter. You can be rational and insane at the same time. Rationality, as I am here using the word, is a necessary, but not a sufficient condition for sanity.

Webs of belief do have subwebs containing statements of certain kinds, but in principle, all statements are on a par. A personal web of belief is a global structure. If there is any distinction between «the natural» and «the supernatural», it does not seem like a very relevant distinction. There are no different levels in a web, nor need there be any.

Webs are not hierarchic structures. There is no privilege in principle of scientific statements (only if sanity matters). Integrating the same set of statements into one web of belief or into another might be two very different tasks. Balancing a web might be a matter of choice. But what you are certain to want to include is not necessarily. Doxastic voluntarism, the thesis that you can just choose what you want to believe, has its limits. The idea of a web of belief is not that you always have scientific beliefs first and then see if any religious belief goes with them. However, sanity imposes some constraints. In order to see how all this works, let us move on to cases.

4. Case 1: upright posture

There is no guarantee that a religious explanation will never clash with a scientific explanation. For instance, evolutionary theory has a good explanation for the fact that human females, on average and during the course of history, have suffered more and died more often while giving birth than their fellow mammal females. Roughly, the advantages of upright posture, which turn out to be reproductive advantages, outweigh its reproductive disadvantages; so painful human birth and a high death rate at birth, the unavoidable price for upright posture, were not selected against; so those features stayed as parts of a successful parcel. So indeed, sanity (if valued highly) requires abandoning the rival explanation of a divine punishment from the book of genesis (3,16); abandoning which might, in turn, increase the urge for theodicy (it's not Woman's fault any longer); which urge might, in turn, be relaxed by adding some other belief (like a belief in compensation for all suffering in heaven) etc. A web of belief is a holistic structure.

5. Case 2: Rational, true to observation, and insane: Creationism

A word on usage first: Creationism is not be confused with intelligent design (ID). It may be a subcase of ID, or not even that. The correct use of the word is determined by the relevant tradition of using it. According to this tradition (and contra Dawkins)[16] creationism is not just the claim that the world is the result of some kind of divine creation, but implies at least that the world has not existed for more than a few thousand years and was created by God during a rather short time roughly the way it is today containing human beings and members of all species which exist today nearly from the start and created in separate acts of creation (possibly, it contained Dinos up to a great flood). So it follows immediately from the present definitions of «creationism» and of «insanity» that creationism is insane. Although, of course, a creationist believes in a very special kind of intelligent design, it would, to my mind, be confusing to subsume creationism under «intelligent design view». While creationism is insane, we shall see that there is at least one version of ID which is not insane. Of course, that is, in itself, no recommendation for accepting it.

What can we learn from the insane web of belief of the creationist? Something very important: Observation does not matter much. Even though experiment and observation are the key to success in science, it is hopeless to think that any matter is «a purely empirical» matter which could be settled by just looking at the world or the «data». There are ever so many ways of interpretation. So emphasis on doing «empirical science», on having «empirically refutable hypotheses», on providing «the only scientific explanation, since it is testable» or «open to observation» and the like is at best a battle cry against aggressive insanity. As an argument, this kind of talk is not worth a penny. Observations do not enforce sane beliefs. A creationist could, in the worst case, always claim that God makes it look to the obstinate as if evolution was a fact in order to find those who have real confidence in his word. A web of belief which includes the belief in creationism in this way is empirically irrefutable. It is coherent. It includes all claims concerning empirical data which are available, and all which will ever be available, and provides a peculiar interpretation of them («I`m not denying that it looks as if...»). It is just plainly insane (relative to

[16] Loc cit. (note 8).

today's Western academic mainstream – remember that sanity was introduced as a culture-relative concept).

Sometimes an insane web of belief may also be achieved by even denying certain observations. But, as the example above shows, this is not necessary for being insane. Neither is it sufficient. It is a classic of the theory of science that, often enough scientists reject observations as being irrelevant to their holding true of a belief concerning a theory by declaring them to be errors of measurement. We need not discuss here if they really deny observations or just their relevance. The important point is that, as Quine calls it (loc. cit.), «pleading hallucination» may also be a perfectly legitimate move for obtaining a sane web of belief.

6. Case 3: Intelligent design views

Once it is clear that even insane webs of belief are empirically irrefutable, it is less surprising that other, saner, webs of belief, which do not reject but include the results of the natural sciences are not empirically refutable.

I am not sure if claiming the existence of unevolvable structures, as many U.S. proponents of «intelligent design» do, yields a sane web of belief. I am inclined to the view that this yields an insane web.[17] However, according to a web of belief analysis it is certainly no bad excuse if someone says: Given everything else I believe I simply do not feel motivated to believe this. It is probable that large-scale and mass movements in the history of ideas rather concern the motivation to hold certain beliefs than proofs for them or refutations of their opposites. Motivation for certain beliefs is, unlike local adjustments

[17] Still, alleged unevolvable structures are methodologically more complicated than Dawkins, loc. cit., (and many others) think: Imagine a proponent of ID presents a biologist with his n+1st alleged example of an unevolvable structure, after the biologist has refuted him n times by pointing out that the structures presented so far were in fact evolvable. How large must n be in order to justify the biologist`s reaction: «I have had enough. Leave me alone and let me do my work»? May the ID proponent accuse him of laziness? Or of irrationality? Or of being unscientifically arbitrary? Of being unfair? Of violence? Of «rupture of discourse»? While I am convinced that the biologist does the right thing, I am not convinced that he is being rational. How far does one's obligation to rationality extend, if there is one? Or is being irrational, if this is what it is, just fine here?

within a web of belief, a global phenomenon. You just don't feel like believing certain things. For instance, an adherent of «naturalism» might say:

«Considering that the history of life has been a history of adaptation to ever-changing environments – why should I feel motivated to include the idea in my web of belief that human beings in their present environment are so extraordinary as to be a final stage of all this?»[18]
Or: «Given everything I believe about the history of life I just don't feel like believing that, after hundreds of millions of years of continuous development all of a sudden, while this had never happened before, some infusion of spiritual souls into some living beings should begin to take place.»

A Christian believer, who perhaps knows the letter which the late pope John Paul the II wrote to the pontifical academy of sciences on evolutionary theory, might say: «How could I include any belief in my web of belief which contradicts my certain feeling that human beings are absolutely extraordinary beings in the course of natural history and are its final and unsurpassable product which, from now on, as creation has reached its goal, will continue to exist forever?» And: «Given everything I believe about spiritual souls I just cannot believe that hundreds of millions of years of continuous development did not have the purpose of letting vessels emerge which could be used for the infusion of spiritual souls.» Or, to quote the original text:

[...S]i le corps humain tient son origine de la matière vivante qui lui préexiste, l`âme spirituelle est immédiatement créée par Dieu. En conséquence, les théories de l`évolution qui [...] considèrent l`esprit comme émergeant des forces de la matière vivante [...] sont incompatibles avec la vérité de l`homme.[19]

[18] One philosopher who saw, early on, that philosophical reflection on evolutionary theory poses questions, not only about the past, but also about the future, was Friedrich Nietzsche. It would be interesting to see a theology of (evolutionary) creation developed, which envisages further more or less human creatures in the future that bear some, perhaps greater, resemblance to God than we do (according to traditional theology); a theology which envisages life on earth after the extinction of the human race and other conceivable future developments.

[19] John Paul II's message to the general assembly of the pontifical academy of sciences, Oct. 22, 1996 (original in French). The text means (my tr.): «Even if the human body has its origin in that living matter which is preexistent to it [=sperm and egg], the spritiual soul is created immediately by God. Therefore, those theories of evolution which consider the mind to be emergent from the forces of living matter are incompatible with the truth about man.» The text is available online at:

This leaves open the question in which frame evolution is inserted. Cardinal Schönborn of Vienna has interpreted this statement as a statement of the idea of design.[20]

> The Catholic Church [...] proclaims that by the light of reason the human intellect can readily and clearly discern purpose and design in the natural world [...]. Evolution in the sense of common ancestry might be true, but evolution in the neo-Darwinian sense - an unguided, unplanned process of random variation and natural selection - is not. Any system of thought that denies or seeks to explain away the overwhelming evidence for design in biology is ideology, not science.

If Schönborn claims that he can refute the belief that there is no purpose and design in the world that is a very bold claim. It would be interesting to see some argument for it. Certainly, there is no overwhelming evidence for design in biology. This is indeed an effect of Darwin's achievements, which may be regretted by some who believe in design: Many phenomena that used to count for design before 1859 have ceased to do so since. But neither is there overwhelming evidence against design to those who do not feel like being overwhelmed in the first place. It has just become easier to believe in no design.

A certain move, which might, not too seriously, be called the argument from competence will certainly not do for a refutation of no design, although it may be detected in both John Paul's message[21] and Schönborn's interpretation of it. In principle, it goes like this:

> The question of whether the statement «The world has a designer» is true or false is left open by science, at least once its borders have been drawn correctly such that ideology is excluded. Here, «left open» means, modestly, that a sane web of belief which includes the belief in divine design may be achieved. Now if the question of design is left open by science, then it is within the competence of theologians to determine the truth-value of the statement «The world has a designer». For the theologians, not the scientists, are the experts on teleology. Nowadays, scientists do not even claim to be. And it`s the experts roll to tell the non-experts what is true

http://www.vatican.va/holy_father/john_paul_ii/messages/pont_messages/1996/documents/hf_jp-ii_mes_19961022_evoluzione_fr.html.

20 Christoph Schönborn: Finding Design in Nature, The New York Times, July 7, 2005. Accessible as http://www.nytimes.com/2005/07/07/opinion/07schonborn.html.

21 John Paul II, loc cit.: «Et [...] plus que de la théorie de l`évolution, il convient de parler des théories de l`évolution. Cette pluralité tient, d`une part [...] aux diverses philosophies auxquelles on se réfère. Il existe ainsi des lectures matérialistes et réductionnistes et des lectures spiritualistes. Le jugement ici est de la compétence propre de la philosophie et, au delà, de la théologie.»

and what is false. So if theology says that the world has a designer, then it is true that the world has a designer.

One does not have to be a Kantian (in the sense of: someone with a theory of one's own as to what can be known in principle) in order to see a blatant non sequitur from «if» to «then» in this claim. It does not gain any plausibility if, as John Paul the II granted, philosophers are added to the expert circle. It is true that both philosophers and theologians may claim, and may hope to convince the public, that some statements by scientists are not science, but ideology. Time will show which. Neither should one deny that competence claims by groups of experts are sometimes true (think of mathematicians). However, the quality of experts is judged by the quality of their arguments. Just referring to some cloudy intuition of non-contingency or alleged impossibility of infinite regress might have been commonly accepted up to the 18th century. But after the weaknesses of such arguments have been exposed (i.e., at least: after it was shown that you could believe in the negations of premises they depend on) it has become clear that they simply shall not do. To claim competence for settling deep questions on that basis is nothing but arrogance blended with nostalgia.[22]

It may be objected that a web of belief analysis has no resources for being upset about proof claims. For does it not imply the idea that any proof rests on some given partial web as its background? So will not, within the paradigm of a believer, a proof for what he or she believes always be readily at hand? Is not one of the messages of belief holism that either proofs do not exist (in the way of hard proofs which everyone has to accept no matter what else he or she accepts) or that proofs for anything exist (in the way of soft proofs relative to arbitrarily strong arbitrary background assumptions and arbitrarily weird deduction rules)? The answer is that while it may be true that a web of belief analysis has to relativize the notion of a proof to a partial web of background assumptions (and «usual» deduction rules), there is still the question of which background assumptions the proponent of a proof claim may include without

[22] It is to be noted that the authors mentioned claim competence for definitely determining the truth of the statement «The world has a designer» by the light of reason, not just raising the probability of its truth. Arguments which aim at raising probabilities might be highly problematic for different reasons, but they are a different matter.

making a silly claim. Now it seems to me that the claim of being able to prove divine design by the light of reason is at least claiming the following:

> No one can add the belief that the world has no designer to a sane web of belief (which contained no belief on the matter before) without contradiction or without resorting to adding some further beliefs which would be regarded as highly extravagant by practically all other sane persons who consider the matter carefully.

That is, certainly, not a trivial claim. On the contrary: It is far too ambitious to be credible. If, however, theology already has the statement «The world has a designer» among its unargued background assumptions, it may of course not claim any competence to settling the matter without begging the question.

If, then, all that Schönborn can reasonably intend is a compatibility claim, the appropriate reaction is, in my view: why not? And why not call the kind of design Schönborn has in mind intelligent design? Let us spell out the idea: A long, long time ago (as we say), God set the boundary conditions for the universe with the intention of letting humans develop, a development which he could clearly foresee. If you are prepared to add some macroscopic relevance of quantum leaps to your web of belief, you are free to add: «...and he tipped the subatomic scales whenever necessary to achieve the desired result, while caring for the overall quantum statistics». The first option has some tendency towards classical deism, the addition seems to create more space for theism.[23] Like any version of an intelligent design view (as its proponents use the term) also this one acknowledges the fact of an evolutionary history of life on earth and is, thus, incompatible with creationism. At the same time, it implies the view that the world exists the way it is because of divine creation.

Moreover, the particular version of an intelligent design view Schönborn advocates in his 1995 contribution to the New York Times is economical as to theoretical investments (and, of course, fully compatible with observation).

[23] Not that the terms are very clear. If deism is defined as the view that there is a God who created the universe by setting its physical boundary conditions (including laws of nature) and does not have to and does not causally interfere with it later on; if, moreover, theism is defined as the view that there is a God who is a person with, among other features, benevolent design intentions, then deism and theism are clearly compatible views, while usually they are taken to be incompatible.

It clearly differs from the kind of ID view Dawkins attacks.[24] For it does not include the belief in any unevolvable structures. Rightly so. Why buy unevolvable structures if the task is accomodation, not refutation of the results of natural science? So, if read as a compatibility claim, the version of ID which Schönborn advocates here is a sane view. The only point where Schönborn's proposal faces the threat of insanity is the phrase «random variation and natural selection». For denying that biological evolution involves variation and natural selection would be insane. That is precisely how evolutionary theory explains biological evolution. What a proponent of Schönbornian ID must deny, however, is that the variation is really random.[25] Religious beliefs, if they are to be integrated into a web of belief, make their demands, too. Indeed: The belief that there is some kind of divine design cannot be accomodated to the belief that there is none («it's all random»); at least not if you decide to keep the principle of non-contradiction in the web.[26]

It seems that Schönborn has since retracted from using the expression «intelligent design» so as to not be associated with the wrong people.[27] In my opi-

24 Loc. cit. (note 8).

25 Denying that the variation is really random seems less of an investment than supposing that God interferes with natural selection by sparing especially promising candidates for what is intended from extinction. Still, there need not be a difference in principle if the events of sparing were either determined by setting the boundary conditions of the universe or are the causal result of some quantum-mechanical micro-tipping in between.

26 The word «random» is tricky. I hope it is clear enough what is meant by it in the present context which proceeds from the phrase by Schönborn quoted above. A good discussion of the word «random», along with a remarkably clear exposition of how to accomodate divine action and some brand of evolutionary theory, may be found in P. van Inwagen: The compatibility of Darwinism and design, in: N. Manson (ed.), God and Design - The Teleological Argument and Modern Science, London 2003, 347-362: 360. I may add that, although my web of belief is pretty different from his, there can, in my view, be no doubt that van Inwagen is a very able philosopher whose great influence on contemporary metaphysics has good reasons, as becomes clear from the brilliantly argued text on Darwinism as well as from many others. Why add this at all? Because of my experience of surprisingly hostile reactions to dropping the name «van Inwagen» in conversation with some theologians.

27 Cf. http://religion.orf.at/projekt03/news/0903/ne090305_schoenborn_fr.htm.

nion, this is a pity, since «intelligent design» is not at all a misnomer for what he described in his 1995 contribution in the New York Times, but quite an appropriate term. The term «intelligent design» does not even occur in the 1995 article.[28] Sure enough, the term «design» does. But then, what has happened to theological discourse if the use of the word «design» by a Christian theologian is already a scandal? If, as it seems, Schönborn has by now resorted to an evasive strategy in the style of «I'm not after the kind of causality science could ever explain, but I am talking about finality», then, regrettably, his current position has ceased to be of any interest as an example for the strife for a unified and sane web of belief.

To my imagination, the best one could make of the mention of finality would be something along the following lines: If I move my arm for a certain purpose (say: I am reaching out for the honey jar), the movement of my arm happens in full accordance with the laws of physics; so does all that happens in my brain up to that movement. For I am incapable of performing miracles. I don't have to be aware of what exactly happens physically, how neurons fire and atoms are rearranged so as to set free energy and make the fibres in my muscles contract. But even if I were constantly aware of all those details that would not make my action feel any different and it would not make it less intentional. I take this to be obvious. Now if all this is so, why should we not imagine God's intentional creation of humans as being, in the relevant respects, just like my reaching out for the honey jar? It is important, though, that this does not imply any claim as to what science might one day explain about actions. Unlike Schönborn, someone who would endorse this idea does not postulate any a priori limits to future science. In fact, I think that one should not postulate such limits. Given the previous history of science, I am inclined to some optimistic meta-induction that we will have better scientific theories of intentionality's neural aspects in the future than we have today.

The Wikipedia entry on Schönborn is usually well–informed and may be consulted for occasional updates of his views.

28 The phrase «immanent design» does occur op. cit. (note 22), as well as the phrase «overwhelming evidence for purpose and design found in modern science».

6. Case 4: The development of science

The scientific beliefs, to which religious beliefs are to be accomodated in a sane web of belief, may vary with time. In the sense defined above, sanity is time relative. Scientific beliefs in the late 19th century included a temporally as well as spatially infinite deterministic universe. So adding certain religious belief to the set of mainstream scientific beliefs, which can in fact be accomodated today in a sane web of belief, was impossible then:

(1) Big bang theory has made accomodating the idea of creation much easier than 19th century physics (which, as we can see now, was hopeless at explaining why it gets dark at night).[29] Today, it seems natural that the universe had a beginning some finite time ago (perhaps even a bit too natural, since General Relativity, and thus the structure of Big Bang, is not quite as simple as popular science sometimes presents it). Denying it, and supposing eternal infinite Euclidean space, as, perhaps, Giordano Bruno did, would be insane today.

(2) It seems that the option of quantum indeterminacy has reestablished that kind of theism which has God interfere in the course of the history of the universe as a candidate for a sane web of beliefs. How different this is from the days of the reign of the Laplacean demon in the 19th century! And might not quantum theory come in handy for what used to be thought impossible? Here is a question to quantum physicists which I would love to see elaborated: Is walking through a wall, if very improbable, excluded by modern physics? Sure enough, even if this is not excluded by modern physics, contrary to traditional physics, but just immensely improbable, many people will not be motivated to believe in something very improbable. But others might be motivated, so the point matters for their web of belief.

What was insane to add in the past (denial of global determinism, denial of an eternal and infinite Euclidean space) is sane to add now, and, vice versa, what was sane to add in the past would be insane to add to one`s web today (as the examples above show). However, this is no excuse for being insane today. We must take the best we can get. Today, this is today`s science.

[29] Details are easily found by looking up the keyword «Olbers` paradox».

7. Case 5: Islamic chemistry (or Christian chemistry etc.)

An interesting example of integration of views into a web of belief is so-called Islamic chemistry. I object to the name, because it suggests that this is a kind of chemistry. This is precisely not the case. So let me call it alchemy. Alchemy, viewed as a set of beliefs, stands in an interesting relation to chemistry: Chemistry is a real subset of alchemy. Alchemy, but not chemistry, contains the following beliefs: God exists; God is benevolent; God specified the laws of physics the way they are in order to make life possible. The chemistry part of alchemy provides the details about water molecules. So it is a faultlessly inferred truth of alchemy that God made the laws of quantum physics which lead to hydrogen bonds at the angle of 105° which explain why ice floats on water in order to create cute polar bear cubs in the arctic. I have no objections against chemistry being a part of such an Islamic (or Christian etc.) web of belief. It is just important to be clear that that web by far exceeds chemistry.

However, saying that Islamic (etc.) chemistry exists as a kind of chemistry, just because every scientist works within the «paradigm» of the culture he or she grew up in, would be an abuse of Kuhn's notion of paradigm. For the Kuhnian notion of paradigm serves exactly the purpose of isolating chemistry from the rest of some person's web of belief. A paradigm is defined as a typical way of asking the good questions of a certain field of science, and a typical way of trying to tackle them, both learned from examples.[30] So chemistry, as a paradigm, is precisely what chemists agree on in their work regardless of their possibly different religious, ethnic etc. backgrounds. So not only does Kuhn's notion of a paradigm not help the case of Islamic etc. chemistry: It is even incompatible with the claim that Islamic (etc.) chemistry is a kind of chemistry.

8. Case 6: Occasionalism

A quite spectacular structure of a web of belief which, without any problems, accomodates a religious view to almost every actual observation and

30 Cf. T.S. Kuhn: The Structure of Scientific Revolutions, Chicago 1962, chapter 5.

to any theory of natural science you like is occasionalism.[31] How spectacular occasionalism is may be seen in comparison with what might be called the identity view of divine and wordly causation, because it shows an important trade-off.

The identity view of wordly and divine causation says that worldly and divine causation are just the same thing. This view is clearly compatible with every observation and every bit of natural science, which might also be contained in an atheist's web of belief. But in the case of the identity view, all that is integrated into a web of belief which contains at least the following additional beliefs: God exists; God is causally efficient. The view has its peculiar problems: Who or what, exactly, does the causing – in particular in the case of a human action? Is causation top-down or earlier/later? Isn`t there a problem of over-determination after all? However, in trying to avoid the introduction of additional causal factors, the identity view is clearly a low-investment view. It allows to stick to the view that there are no exceptions to laws of nature.

Now for occasionalism: Consider investing a little more, i.e. that laws of nature will not be true without exception. For, according to occasionalism, laws of nature are just God's habits which he need not conform to if it is good not to do so. You do get something in return for that investment: any kind of miracle you like, as long as miracles are rare. They should be rare. For God, being as good as he is, wants you to live in a well-predictable environment.

Is the price high? Is the return worth the price? These are important questions, whose assessment may very much differ from believer to believer when he or she endeavours to balance his or her web of belief. Basically, he or she is free to pay whatever she is willing to pay. I do not have to buy what you buy and vice versa. Remember that if you do not feel any urge to believe in miracles in the first place, you will not even have to assess the costs of believing in them. Your situation is different if you do feel such an urge, but the price for believing in miracles seems so high, that you would rather not believe in them. That might be the case if you have a great preference for believing in exceptionless laws of nature.

31 For a valuable description of occasionalism in comparison with other conceivable modes of divine action see D. von Wachter: Göttliche Kreativität - Die vielen Weisen, auf die Gott Ereignisse geschehen lassen könnte, in: G. Abel (ed.): Kreativität, vol. 1, Berlin 2005, 245-253. A preprint is available online as: http://epub.ub.uni-muenchen.de/1958/1/wachter_2005-kreativitaet.pdf.

Is believing in exceptionless laws of nature a part of science and is occasionalism therefore insane? This is a difficult question. It resembles the question whether «random» variation is an essential part of evolutionary theory or rather a bit of hidden atheist ideology. The belief that nature is, to a great extent, successfully describable by laws of nature is certainly a part of science and denying that would be insane. But is the belief that nature is describable by exceptionless laws of nature a part of science? Or is it «ideology»? There seems to be room for choice.

9. Case 7: virgin birth

The web of belief view provides an interesting point of view on a particular miracle which is, regrettably, rarely discussed in detail today: virgin birth. There are three ways of dealing with it, two of whom I think are acceptable while one (i.e. the second one) is unacceptable. No 1: «I won't include that into my web of belief.» Fine. You do not have to. Just drop this belief and the corresponding clause of the apostolic creed and you have no accomodation problem concerning it. No 2: «I do include the statement ‹Jesus was born by a virgin› into my set of beliefs; but watch out, what I mean by it is: ‹Jesus was not born by a virgin; in eternity, Jesus belongs to God's essence (preexistence thesis) and Jesus was really a human being› ».[32] No 3: If you feel obliged by the text of the New Testament or, perhaps, the text of the Qur'an («Thy Lord saith: It is easy for Me»)[33] to include the belief in virgin birth in your web of belief, just go ahead. It is true that, due to scientific progress, this is not quite as easy as it used to be: Overshadowing,[34] contributing nothing but the form to the matter in Mary's womb, was a smaller investment than what is required today. In the old days, you did not need any matter for Jesus` paternal genes. Now you do.

[32] This is Pannenberg's move in his informative little book on the apostolic creed. Cf. Pannenerg: Das Glaubensbekenntnis (note 12), 78-85. The point is not restricted to Christianity. A parallel, unacceptable, move is: «Exodus took place» means «Exodus didn't take place and there is a certain tradition of reenacting the story which says it did».

[33] The quote is taken from the translation of surah 19 (Maryam), verse 21, by M.M. Pickthall: The Meaning of the Glorious Koran, Hyderabad 1938. I recommend reading a translation of surah 19 on Christmas day for a change of perspective.

[34] Luke 1, 35: «dynamis hyphistou episkiasei soi».

However, occasionalism is not strictly committed to the law of conservation of matter. Anyway: might there not have been enough suitable atoms around in Mary's womb for the other half of Jesus` genome? I do not want to ridicule anything. Here is a task which believers in virgin birth must face if they want to accomodate this belief to a sane web of belief. Can they? One could see whether or not if they tried.

10. Case 8: theories of the mind

For a close, I would like to consider an example where there is more at stake: consciousness, philosophy of mind, neuroscience, immortality of the soul. Many believers feel threatened by the progress of neuroscience (at least it is felt to be enormous; has it really been so impressive up to now?). Brain research is, it seems, telling us more and more about the workings of what is often called the «neural correlate» of consciousness. What might the «correlation» in question be? (1) It may consist in mental event tokens just being identical with brain event tokens; (2) it may be some «mirroring» of the workings of an immaterial soul, as far as required for the efficiency of the soul in the material world. Here, two subcases may be distinguished:

(a) an immaterial soul may have the ability to be conscious even without a brain; or (b) it may be dependent on some kind of brain for its consciousness, but not for its existence. The first subcase (a) leaves open the question what kind of consciousness a disembodied soul might have: it might, for instance, (a') be able to see; or it might (a") just be able to think. If all this is compatible with what we observe about brains (and why not?), the claim that there is a neural correlate of consciousness must not be mistaken for the claim that consciousness requires a neural correlate. There are quite different theories of the mind on offer in this context:

(1) Consciousness does require a material correlate. It will be provided again on the occasion of the resurrection of the body; no soul exists between bodily death and bodily resurrection, for there is no soul; the same bodily human

being exists interruptedly like a car, whose parts are temporarily disassembled in the garage.[35] Many protestant theologians, wary of all the soul talk during the past 2000 years, seem to think so today.[36] (2) starts like (1) but continues: a soul does exist, but sleeps between bodily death and bodily resurrection.[37] (3) Seeing (literally understood) etc. requires a material correlate, which will be provided again on the occasion of the resurrection of the body; consciousness does not: the soul is somehow conscious between bodily death and bodily resurrection and experiences purgatory or paradise.[38] (4) Consciousness requires no material correlate; after bodily death the soul is conscious in paradise / heaven (or, today less fashionable: hell); no general doomsday assembly, no resurrection of the body. This is the most popular view today, though not the orthodox view according to 1st Cor 15 and the apostolic creed.[39]

It is to be expected that a few more decades of brain research will render option (4) very unattractive and make orthodoxy look better than it looks today.

Moral: While Platonic-Augustinian dualism might turn out to be too modest a metaphysical claim to be accomodated to science, the belief in bodily resurrection seems to be much more robust for accomodation to science because it is less modest. So, while a belief in the consciousness of an immaterial soul might, in the future course of brain research, lead to an insane web of belief, a belief in bodily resurrection might be much easier to add to the web without insanity. This may be a surprising result of thinking in terms of webs of belief.

35 For the example, cf. P. Simons: Parts - a Study in Ontology, Oxford 1987, 196f.

36 The idea is independent of the question whether this is what the bible says if you look at the formulations in the original languages. There is a trend of claiming this, since having the authority of the bible on one's side seems still to have some attraction. Although the details of the use of the word «psychê» are often surprising, I am not convinced that, as fashion has it, there is no claim as to the soul's existence in the New Testament. But I am happy to leave that discussion to the experts.

37 Cf. M. Luther: Fastenpostille, WA 17 II, 235.

38 Cf. Thomas Aquinas: Summa contra gentiles IV 79, IV 90.

39 According to a poll, 30% of the German adult population in 2001, included option (4) in their webs of belief, against only 5% for the less well-known options (1) to (3). Cf. http://www.chrismon.de/auferstehung.pdf

11. A confession

Have I been serious about the examples I have been discussing? All the time? The extraordinary experience I have to confess to is: I do not know. Let me explain by a detour to antiquity: Like most scholars, I used to believe that, in Plato's dialogues there is a feature called Socratic irony, i.e. that Socrates often intentionally says the opposite of what he means. I do not believe that any more. Rather, I now think that it belongs to Plato's Socrates that he is always sincere and dead serious about what he is doing. So he is really surprised by where the discussion leads him and his interlocutors, and by the amazing consequences their proposals entail (perhaps just a little earlier than they are). He experiences that in the middle of a discussion, it may happen that you lose your sense of bizarreness. Isn't that philosophical, for what is a sense of bizarreness but prejudice? But then, what criterion are you left with without it? I have got the impression that I have learned a bit better what Socrates, if he resembled Plato's portrait in this respect, must have felt like when he was facing some extraordinarily puzzling topic.

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Abstract

Das Verhältnis von Religion und Naturwissenschaft wird in diesem Text an einer Reihe von Fällen insofern diskutiert, als darauf der 1951 von W.V.O. Quine geprägte Begriff eines Überzeugungs-Netzes (web of belief) angewendet wird. Ein Überzeugungs-Netz ist eine nicht-hierarchische holistische Struktur, in der es ebensowenig verschiedenen Weisen gibt, etwas zu glauben, wie verschiedene Arten von Wahrheit. Aufgabe ist vielmehr die Integration aller Überzeugungen einer Person, religiöser wie naturwissenschaftlicher, in einen Zusammenhang. Das Konzept einer empirischen wie auch einer rationalen Widerlegung wird vor diesem Hintergrund fragwürdig. Es lassen sich jedoch, relativ auf eine Kultur und Zeit, indiskutable (insane) und diskutable (sane) Überzeugungsnetze dadurch unterscheiden, dass ein diskutables Überzeugungsnetz den neuesten Stand der Naturwissenschaft einbezieht. Das Hauptergebnis ist, dass diskutable Überzeugungsnetze, die religiöse Überzeugungen enthalten, inklusive gebotener Explikation, relativ leicht zu erreichen sind. Der Begriff des Überzeugungsnetzes erlaubt, wenn auch nur skizzenhaft, das Eingehen auf so unterschiedliche Themen wie die Evolutionstheorie, den Wandel der Naturwissenschaft, das Projekt einer islamischen Chemie, den Status der Naturgesetze, das Fürwahrhalten einer Jungfrauengeburt und das Verhältnis von Leib und Seele.