
Hummingbirds Make Stars Possible

Exploring and Celebrating Ted Peters' Retroactive Ontology

Robert John Russell

I am very grateful to the organizers of this publication for inviting me to contribute an essay, even if it is far too brief and schematic, which reflects, even only in part, my immense gratitude to Ted Peters. Peters and I have interacted for nearly three decades, both verbally and in writing, through Center for Theology and Natural Science programs and conferences and in the numerous courses that we co-taught. Through it all, I have learned a tremendous amount about theology from this seasoned and immensely reasonable scholar, I have reveled in his unique interaction between theology and science in such areas as theistic evolution, stem cell research, and Extra Terrestrial Intelligence/astrobiology, and I have gained a glistening perspective and a keen sense of wisdom about what is truly important in theology from him. For this and many more things I owe Ted an immense sense of gratitude and joy.

Here, within the confines of a short essay, I wish to lift up and examine one of Peters' most important concepts as a form of praise to him. In a complex, dense and scintillating discussion, Peters tells us about this remarkable concept, "retroactive ontology," in his splendid anthology, *Anticipating Omega*.¹ According to Peters,

Our final future will retroactively transform who we are today. It will determine who we had been as we anticipat-

This article was first published in *Currents in Theology and Mission*, volume 39, number 4 (August 2012): 312-15.

1 Ted Peters, *Anticipating Omega: Science, Faith, and Our Ultimate Future* (Göttingen: Vandenhoeck & Ruprecht, 2006).

ed who we would become. I would like to call this line of thinking *retroactive ontology*. The fundamental insight is that our being is determined by, and defined by, our future. The transformed reality promised by God is the ground for all our reality that anticipates it.... The meaning and even being of the past is contingent on its future. God's omega redefines—actually defines—all that has gone before. Who we are now is dependent on who we will be at omega.²

Here we find several interwoven claims both in this paragraph and its surrounding text. I will highlight them before focusing on one in this paper.

First, the “future” Peters has in mind is really two distinct futures, the proximate and the ultimate future, and both are effective in the present. The crucial point is that they “are not separated into a short time and a long time. Rather, both are almost present, almost but not quite fully here now. Both are as close to us as is the next moment.”³ Next is the fundamental importance of this double future. According to Peters, God’s creation of the present moment is to give it a future. “To be is to have a future . . . the way God gives being is to give a future. . . . God is moment to moment giving to all of reality its future.”⁴ Third, God has what Peters calls a “double relationship to the created order,” one which is both positive and negative. God’s positive relation to time and the created order is that God upholds and supports all that is as its ground of being. Without God’s positive relation to the created order, all that is would simply cease to be. God’s negative relation to time is that “by giving [it] a new future God releases the present from the grip of the past. . . . Past causes do not hold the present moment in the grip of absolute determinism. The present moment is open to change, open to what is new.”⁵ Finally Peters recognizes that while past causes may inform the present moment, “God opens up an array of potentials [in the present]

² Ibid., 12

³ Ibid., 14.

⁴ Ibid., 13.

⁵ Ibid. Below I will suggest that the case needed to support Peters’ claim is harder if nature is deterministic at all levels, and I will suggest that, in fact, nature is indeterministic at most, if not all, levels.

that await actualization [in the future]. The way the creatures within the world behave determines which potentials become actualized.”⁶

In light of this rich array of insights and directions for conversation, I want to focus, in this short article, on Peters’ central notion of “retroactive ontology.” By this term Peters means God’s causality from the immediate future on the present. I will separate this out from Peters’ notion of “prolepsis,” the manifestation and appearance in history (at the original Easter) of the eschatological Risen Lord of the New Creation. Prolepsis deserves its own distinctive discussion at a later time.

Let the reader note: for the purposes of this paper, I will make the perhaps unexpected assumption, given one reading of my previous work, that the natural world is “open” at many, if not all, levels of complexity such as from quarks to brain states.⁷ The problem is that, for the professional field of theology and science, one must restrict oneself to interpreting well-proven theories in science, not speculating on what one hopes may be true to the world as such. Only quantum mechanics gives us the opportunity to interpret the world in such an open and indeterministic character.⁸ Nevertheless, I will here make the bold leap of faith and assume that the world is open to divine action at every level of complexity (whether or not the *current* sciences of these levels warrants

6 Ibid., 13–14. Here determining factors come from the behavior of creatures rather than entirely from the underlying physical causes, suggesting again that the physical world is indeterministic.

7 I write “unexpected” because many who have commented on my writings have assumed that since my writings tend to deal with quantum mechanics when it comes to the “open” character of nature (i.e., its ontological indeterminacy), I only believe that nature is open at the subatomic level. This is a false assumption, as I have suggested several times in writing. I happen to believe, theologically, that nature is open at many, perhaps all, levels to non-interventionist divine action. However, the field of theology and science must rely on proven theories in science if it is to interpret them philosophically (do they portray nature as open or closed?) and then use this interpretation for a theology of divine action. Here it is problematic to claim that other sciences besides quantum mechanics (and perhaps those involved in the mind-brain problem) portray the world as ontologically indeterministic, hence, the “unexpectedness” of my present assumption. In short I am relying here more on my belief in the openness of nature on many, perhaps all, levels of complexity than on its track record in the sciences of the macroscopic world.

8 My arguments against the claims for such ontological openness by John Polkinghorne (referring to chaos theory) and Arthur Peacocke (referring to the “universe-as-a-whole”) are well known. See for example, Robert John Russell, *Cosmology from Alpha to Omega: The Creative Mutual Interaction of Theology and Science* (Fortress Press, 2008), chaps. 4–5.

such an assumption).⁹ I think that this assumption is required if we are to appreciate and extend Peters' position in a creative way. Conversely it might be much harder to do so if the world were one of Newtonian mechanism—which it is clearly not.

With this in mind, I would like to compare what can be called the "ordinary open ontology" of nature to Peters' view of retroactive ontology. According to the ordinary view of an open ontology, the present, time t , contains a set of future possibilities, time $t+T$, and nature or God or both actualizes one of them to make a specific future real. For example, according to this ontology, some stars such as our sun contain futures in which hummingbirds are possible given the right evolutionary conditions on the right planet, etc., and nature or God or both actualizes that future, thus creating hummingbirds in the future out of the possibilities of the present. A standard example of this approach is theistic evolution in which God works "in, with, and under" natural processes, to use Arthur Peacocke's beautiful phrase, to bring about biological complexity and ultimately sentient life from the past inorganic world.

Now we can see the truly distinctive claim Peters makes about nature and divine action. According to his "retroactive ontology," since hummingbirds are real now at time $t+T$, stars of a certain kind must have been possible in the past at a time t , namely those such as our sun and its predecessor star in which the future of our sun, and the far future of its predecessor star, contains hummingbirds. So time $t+T$ when hummingbirds are real requires that at a time t stars such as our sun and its predecessor must have been real because they have within their future possibilities the reality of hummingbirds. So the reality of hummingbirds requires that certain kinds of stars existed in the past.

We can put this in a simplified grammar. Suppose state A is the present state at time t (e.g., stars) and state B is the future state at time $t+T$ (e.g., stars plus planets and hummingbirds). Then:

state A at time t in the present = the actual present + its multiple potential futures including state B at time $t+T$

⁹ The word "current" is meant to acknowledge John Polkinghorne's visionary agenda that, if we believe God and humans act without intervention in the world, the world must be indeterministic even at the macroscopic level. Thus, in turn, we should search for new theories of the science of chaos in which indeterminism would be favored over current theories which are obviously deterministic. He refers to such new theories as "holistic chaos." See John Polkinghorne, *Faith of a Physicist* (Philadelphia: Augsburg Fortress, 1996), chaps. 1 & 4.

state B at time $t+T$ in the future = the actual future chosen or realized from among the multiple potential futures of state A at time t

With this in place we can compare the ordinary ontology we typically assume with Peters' idea of retroactive ontology.

Ordinary ontology: t leads to $t+T$ from the possibilities of t ,
A precedes B

Retroactive ontology: $t+T$ leads to t in which $t+T$ is possible,
B precedes A

This is truly a revolutionary concept!

Another way to describe the relation between ordinary and retroactive ontology is this: *From the ordinary perspective*, today there are many possible futures; tomorrow there is only one. So God narrows the range of possibilities in the present as it leads to the future. *From the retroactive perspective*, there is only one tomorrow that God wants, so God ensures that the possibility that that tomorrow is at least one of several possibilities today which include that future state, tomorrow, in order that it becomes the actual future.

Now let's spell this out in more detail. From Peters' perspective on retroactive ontology, God both sustains ("protects") the entire history of nature in being and releases the determining factors of the past, opening the past to many new future possibilities. As before, this requires two assumptions.¹⁰ The first, already noted above, is that natural causality (i.e., the efficient causal factors in nature that physics describes) are predispositional, not deterministic. By predispositional, I mean more than the kind of "mere chance" which signals our epistemic ignorance of what are in fact real underlying deterministic causes. I mean instead genuine ontological indeterminism at many, perhaps all, levels of complexity (but note that whether science supports this is a question for ongoing research).¹¹ The second is novel: I want to combine such indeterministic efficient causality (the past affects the present) with Peters' retroactive causality (the future affects the present). Here then causality works in both directions in time.

¹⁰ Actually this scheme might work in a deterministic world, such as the Newtonian mechanistic one, but it would rely on an interventionist theory of divine agency. For related details, see Russell, *Cosmology from Alpha to Omega*, chaps. 4-5.

¹¹ See the Vatican Observatory / CTNS series on "scientific perspectives on divine action," summaries of which are available at: <http://www.ctns.org/books.html>.

ANTICIPATING GOD'S NEW CREATION

With this we arrive at a model of retroactive causality in its full bloom. Following Peters it includes four ideas:

1. God *eliminates* some predispositional factors in the present that might, working together, have completely shaped the future from the present set of possible futures.
2. God *leaves* in place some predispositional factors that tend to shape the future which God desires from the present set of possible futures.¹²
3. God *creates* new predispositional factors in the present that shape the future to be different from the present and lead to the future which God desires.
4. God does all three of these from "the immediate future."

It is the fourth idea in conjunction with the first three which, in my opinion, most sharply distinguishes Peters' view from others working on this problem, and to which we most clearly owe Peters a debt of gratitude.

I will end this brief essay by pointing to new areas in research physics which one might explore if one started from Peters' view as described above. This would primarily include an assessment of formulations in physics in which causality in nature works both from the future and from the past, the so-called "time symmetric" formulations of physics. Although it might seem unlikely, we actually find such formulations for both classical electromagnetism and quantum mechanics.¹³ These provide evidence for the fertility of the idea of retroactive ontology, and in turn a fitting tribute to Ted Peters' lifelong work on this topic.

¹² The first two lines of thinking are vaguely reminiscent of Whitehead, who includes not allowing all the effect of the causes of the past to affect the future (cf. Whitehead's "negative prehension") and allowing those causes of the past which do partially affect the future (cf. his "positive prehension").

¹³ See also Robert John Russell, *Time in Eternity: Pannenberg, Physics, and Cosmology in Creative Mutual Interaction* (University of Notre Dame: University of Notre Dame Press, 2012), chap. 6.