Does the 'God Particle' disprove God?

Prof. Cornel du Toit (Head: Research Institute for Theology and Religion) (centre) is pictured in front of the ALICE detector, one of seven detector experiments at the Large Hadron Collider at CERN.

Professor Cornel du Toit, Head of Unisa's Research Institute for Theology and Religion, was recently one of the invitees to an intellectual forum on the theme *The Big Bang and the interfaces of knowledge: Towards a common understanding of truth*.

Conducted by **Wilton Park**, an executive agency of the UK Foreign and Commonwealth Office providing a global forum for strategic discussion, the 43 participants included philosophers, theologians, physicists (some from **CERN**, the European Organisation for Nuclear Research), and sociologists. Dr Rolf Heuer, the president of CERN, attended as well. The event took place at the Hôtel Château de Divonne just outside Geneva.

This was the second round of talks trying to grapple with the implications of the discovery of the Higgs Boson particle that was announced on 4 July 2013. The particle was discovered at CERN, home of the **Large Hadron Collider**, the world's largest particle accelerator, situated 100 metres beneath the French-Swiss border region near Geneva. The importance of the boson, or rather, the Higgs field, is that it explains how massless particles acquire mass. The first round of talks took place in October 2012 on the theme: *The Big Bang and the interfaces of knowledge: Towards a common language?*.

The outcome of the 2012 talks was that more clarity was needed on the notion of truth and the 2014 round of talks set out to deal with this. People who are religious believe they know the truth, since it was revealed to them. Truth in science matters only as the confirmation of a hypothesis supported by experimental testing.

Some may ask why this debate? Very few natural scientists are still believers. We must remember that CERN cost about 8 billion euros. This is taxpayers' money, many of whom firmly believe in a creator God. But the talks were genuine and not simply window dressing.

At the round table, Cornel du Toit made the following contribution:

In the postmodern approach we have reached the end of truth in its essentialist and absolutist mode. But this refers especially to the world of texts where many layers of truth make it difficult to ascertain an 'original' or 'absolute' truth. Postmodern relativism is not really applicable to science, which is more intolerant of untestable models and rival theories.

Science can be fundamentalist to some extent. But this fundamentalist certainty covers a very narrow part of reality and is based on hypothesis confirmed by tests, and open to falsification. As we know, higher levels of complexity cannot be assessed according to criteria that apply at lower levels. Laws describing emergent phenomena are independent of laws at lower levels.

The problem lies with 'surplus truths'. Surplus truths relate to claims we make that exceed our claims base. We seldom keep to the ambit our truth allows. Surplus-truth abuses the power it has to make statements on realms not cover by its research. For example, not finding a gap in our knowledge of the process through which the universe was created does not prove that God does not exist.

Religion is based on the much higher and complex level of human consciousness, where truth appears in some existential mode of our being in the world. Evolution equipped us with a capacity to fathom and seek the transcendent. The human mind is wired for 'transcendence'. We are not satisfied with the known and are drawn to the unknown, mysterious and challenging. With reference to the question of truth it means that there is not only empirical truth based on measurement and tests but also metaphysical truth and truth based on the foundation of ultimate concerns (religion).

All this does not mean that religions are not challenged by the findings of science. It is one thing to say that our creation stories must be understood metaphorically or symbolically, it is another to proclaim a worldview that makes sense.

One challenging issue, for example, is the question whether creation really needs the idea of a creator, especially in light of the standard model of particle physics that doesn't need any supernatural hand to explain creation.

Our forebears, without the means, tools or technology, to change a hostile environment developed a unique method of dealing with nature: personifying it. You cannot understand, negotiate or plead with dead objects−only with sentient, personified nature. Hence fear of nature was allayed by believing that it was controlled by God and by getting him on your side. You can bargain with a God

that controls nature to acquire blessings.

In the course of human history, and especially since the sixteenth century, scientific revolution, the dependency relationship (fear of nature) eventually changed into one of control and exploitation. Experiences of awe of nature at whose mercy we were became rare and eventually ceased (disenchantment of our world). Weather patterns, sickness and health, fertility and abundance were stripped of their supernatural dimension by science. Today we are aware that resources are limited and conservation of creation is very much in the limelight. This in its turn evokes a different relation with nature, which may well influence the God concept.

On a religious level truth means relationship. This accords with our belief that God is seen as a personal God rather than an impersonal force, that he is a relational God and a relation implies the freedom of all parties. In relationships the freedom of others (their nature, character, circumstances) must always be respected. The same goes for nature. If God grants humans freedom and autonomy, why should that be impossible in the case of physical natural processes? Without personifying nature again we say analogously that God grants nature the 'freedom' to be natural. Nature's freedom vis-à-vis God lies in the fact that its laws and processes follow their own course without arbitrary divine intervention. Besides, it is not so easy (even for a god) to manipulate complex systems, as new insight into the role of causality, quantum indeterminacy, etc. shows.

With the latest developments in particle physics, we have entered a new era where the distinction between physics and metaphysics (including religion) is not so clear any more. Science has to deal with strictly metaphysical questions, for example, the relation between being and non-being (matter/anti-matter), the question of the nature of being (field theory), unity and dualism (symmetry and the need to break it down), divisibility and unity, and the role of different, interacting forces. Without the contraries, no movement, formation of matter, development of galaxies, solar systems and, ultimately, life itself would have been possible. Why was everything 'just right', Goldilocks style? There are also the well-known metaphysical issues like chance, creativity, matter-energy, information, the dialectic between reductionism and emergence and the like.

Many people hang on to both faith and a scientific worldview. This is because the religious décor that developed over such a long time still has meaning. It need not be taken literally to have meaning.

Science deals with a particular aspect of reality. It does not pronounce on the whole. Findings about components of reality cannot simply be projected onto more complex realities like human relations and existential challenges. Human evolution itself decides when religions are adapted, replaced or scrapped entirely. At most we can influence the process responsibly.

You can read the Wilton Park report **here**.

**By Cornel du Toit*

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