



Wilton Park

## Discussion paper developing the themes from ‘The Big Bang and the interfaces of knowledge: towards a common understanding of Truth?’

Monday 23 – Wednesday 25 June 2014 | WP1316

Held at Château de Divonne, France

The conference ‘The Big Bang and the interfaces of knowledge: towards a common understanding of Truth?’ was jointly organised by CERN and Wilton Park and took place on 23-25 June 2014 in Château de Divonne, France. The conference focused on the different aspects of the search for truth that science and religion attempt and on broadening the dialogue between scientists, philosophers, and theologians. It was noted that, although it is possible to access a measure of common language, words like truth, proof, and faith have divergent meanings. Scientists, philosophers, and theologians need to work hard to understand what other disciplines are saying in their own terms.

### Can philosophy, science, and religion speak a common language?

One of the questions raised in the conference was whether there is a need for dialogue between religion and science. More precisely, since science has very particular claims to legitimacy, truth, and knowledge, whereas religion does not, can they find common ground for discussion?

In fact, everyday practical belief in our surroundings, the contemporary scientific method, and religion are belief systems of relating to the world that exist side-by-side. For the vast majority of people, what they have for breakfast, i.e. their subjective experience, is more real than evolution. Science seeks truth through evidence; it has an epistemic goal based on a shared understanding of nature and of knowledge. At the same time, for a scientist, the honesty of the fellow scientists is profoundly important. Religion, on the other hand, provides an existential goal and a moral code for life. For religion, truth is expressed through behaviour and attitude, knowledge and understanding. However, besides religion and science, politics, law, sport, and the arts also shape people's lives and have more immediate relevance for many. Truth is rich; it is not just to be tested or believed but lived and embodied as well.

Philosophy, with its questions about knowledge, can be a space where the disciplines of science and religion can interact on an even footing. A space where ontology (the study of the nature of being and reality) can be engaged with critically and creatively. In addition, for a constructive dialogue to begin, clarification in terminology is vitally important. There are complex and ambiguous terms that need to be deconstructed due to varied meanings

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employed by different discourses. This dialogue is not solely between science and religion, but within science, within individual religions, and between different religions.

## **Understanding of truth**

Truth and reality may not be the same thing. Our understanding of truth is limited by the information or data that we gather and constrained by the tools we have to examine the universe and the nature of being. Truth may be a universal concept but reality can be external or internal. Exact science, such as physics or mathematics, shapes external reality and spiritual experience constructs internal reality. From a faith perspective, truth can come from a revelation as well as from empirical experiments and observations. Indeed, an unintended observation can provide surprising insight or revelation, as with Newton's observation of the apple falling in a Lincolnshire orchard.

Ancient philosophy, mainly Greek and Indian, was charged with understanding nature and the purpose of the universe. In other words, they strove to understand how the cosmos was created, as well as its moral nature. Truth, consciousness, and creation were all perceived to be eternal.

## **The universal definition of science and the subjective nature of religion?**

Another question that was raised at the conference was whether religion is simply a personal preference for truth and a personal language to describe that preference whereas science provides an absolute truth.

Perhaps the answer can be detected in the approaches that science and religion adopt to describe the universe. Science seeks to explain the beginning of the universe, while religion often insists on the universe being beginning-less. Traditionally, questions about the origins of the world were responded to with myths. Three monotheistic religions, – Judaism, Christianity, and Islam – share a common spiritual, theological, and cultural heritage. An unshakeable faith in the creator, sustainer, and redeemer God lies at the core of these religions and at the same time each of them has contributed to the development of rational and scientific thinking. Overall, religion provides multiple ways of understanding the cosmos – some of which can be reconciled and some of which cannot.

Science reveals the universe one step at a time as each new tool or method for its exploration becomes available. It attempts to integrate separate theories into a single universal truth. However, we live in an era where the very hegemony of science could well be challenged, as scientific advances themselves raise philosophical questions, which are potentially best answered theologically. String theory, for example, enables scientists to conceive the multiverse, each with its own unique laws of nature and establishing conditions. Scientists believe such universe exists in the absence of any other evidence, rather than theory. For some, this is an article of faith. There were also noted scientists, such as Hirsch and Darwin, who believed that God worked through and within the laws of nature.

## **Can philosophical or secular ethical approaches strengthen the common ground for dialogue?**

Science has produced a series of hypotheses on the understanding of reality, from Galileo to Descartes to Newton. Upanishad claimed that individual consciousness was intrinsic to the concept of universal consciousness; that there is a macrocosm of the universe and what we, humans, experience is a microcosm, in which the macrocosm is reflected. Along similar lines, Kuhn emphasised the role of community and the breakdown of shared belief in the progress of science and Fleck argued that every concept and theory was culturally conditioned.

Indeed, science may strive to be neutral and democratic, unaffected by the biases of the

truth seeker but it often is undemocratic, biased, and shaped by the shared experiences and values of community, society, history, and faith. Scientific 'truths' are theories. The constant efforts to prove or disprove them are embedded in communal, historical, and sociological circumstances, as well as in epistemological (theory of knowledge) paradigms.

Science adds to knowledge through complex chains of inferences – indeed the Higgs field was discovered through the smoking gun of a smoking gun. These chain of inferences requires trust between individual researchers and the development of robust mechanisms for verifying observation and experiment. As a result, scientific inferences can at times have a religious feel to them.

Rabindranath Tagore claimed that the world we perceive does not exist apart from us; it is a world that depends upon our consciousness. Albert Einstein, on the other hand, said that truth was independent of human beings. The Indian Vedanta proposes a unified reality that is absolute but not independent. In other words, truth does not belong to science but appears through science. The theory of dark matter offers a characteristic example. Dark matter populates the unobservable parts of the universe and its presence determines the behaviour and nature of the existence of the observable parts.

The growing dependence of human beings on science for their future raises serious ethical questions to which there are numerous faith-based and secular responses. Such approaches may be independent but are not mutually exclusive.

### **Is science a homogenous concept? The nature of the scientific method.**

Truth is often synonymous with power. Knowledge, therefore, which is created by science, can give rise to power. As Francis Bacon said, "ipsa scientia potestas est", i.e. knowledge itself is power. However, this is not a one way process as the relationship between them is rather complex and interactive. Nevertheless, politics and science are linked by power.

At this point, the question arises as to whether innate human nature exists or we are shaped by experiences and the power of social and cultural institutions. For example, in the mental health sphere, government policies on research and treatment are determined by interpreting people's mental health through their behaviour. There are, hence, complex relationships between politics, science, and philosophical and theological understandings of the human person.

These issues have found their way into science. At the onset of a piece of research, the scientist is faced with a number of questions: "Is it practical, useful, or interesting? What can we learn from it? What are the moral or ethical questions raised?" For some, the allied question is "what is false?" The ability to test whether something is false is an important concept in the philosophy of science. Popper would claim that unfalsifiable statements are not scientific. However, that does not mean they are without merit or relevance.

### **How do the major religions or traditions of belief have a dialogue with science?**

Both science and religion grow or develop with observation and insight. But power, a feature of both, can contain and restrict the production of new knowledge. Fundamentalism in both inhibits exploration and makes orthodoxy difficult to question. Even key texts in every religion are subjected to re-reading, so that new insights can be explored. The basis of religion, Durkheim suggested, is an engagement with a vital animating principle, a kind of anonymous and impersonal force. None possesses it entirely and all share in it. Science, therefore, may be truth, but not the whole truth. Examples can be found in many different religions. In Islam, the Arabic word "thara" is used – meaning insight. Only those that have insight can explicate scientific truths both in theory and in everyday life.

Creation myths often begin from chaos, which God resolves: nature is deified, patterns created and irregularities removed, everything is named – a process reminiscent of the

scientific method.

Other religions, such as Jainism and Buddhism, do not emphasise the discovery of the universe or its origins but focus on the source of human suffering and how to alleviate that suffering. The parallel with the applied sciences is striking.

Overall, the role of science in religion remains ambiguous. At times it seems to strengthen the sense of common ground, at others it seems to reinforce a world/otherworld dualism.

## **Truth, discovery and revelation**

In each era, religious thinkers have taken steps to reconcile the writings in the scriptures with rational inquiry. They have argued that scripture, or revealed wisdom, and science, which is also the work of God, should not be in conflict but are complementary approaches to the study of the same universe. Yet conflict has arisen and continues to be a key part of the discourse in academic and popular domains.

An example of the reconciliation of science and religion can be found in Judaism, where the pursuit of truth is one of the highest virtues. On the whole, Judaism has not been in conflict with science because it focuses on human conduct and communal life. Explanations, interpretations, clarifications of Biblical law, both in written and oral traditions and the tradition of studying both religion and science in Jewish circles have developed into a creative and largely harmonious accommodation.

Is everything arbitrary? How are authoritative decisions made about Truth?

Recognition of authoritative truth is strongly shaped by how we understand what is reality, be it materialist, natural, or metaphysical. Authoritative decisions about truth vary with the field under discussion, e.g. physical sciences, sociology, psychology.

Religion insists that reality is non-material, as well as material. In some instances, it would argue that the non-material is the greater reality. Accordingly, our concept of 'knowledge' should be broad – knowledge is not only ascertained by scientific empiricism, it also includes other ways of apprehending reality – and therefore of conveying truth – such as aesthetics, religion, the humanities, life-experiences, philosophical reflection, and so on.

Although everyone can agree with general definitions of authority and truth, there is still a lot of work that needs to be done to create significant common ground. No-one holds the full perspective on the truth. Each discipline only sees part of the picture. Through ongoing dialogue and listening, we can get closer to ultimate truth. Although knowledge is subject to change, truth remains constant.

## **What are the boundaries to knowledge and or faith; what might determine their limits; Are they self-limiting by definition?**

The need for trust is common to both science and religion. Science uses trust extensively. For example, we do not repeat all the experiments, we trust them and, in a sense, have faith in them. Similarly, religious faith involves trust in the religious revelation or faith of others (where God has directly spoken to a man or a woman) as well as personal experience.

Boundaries are key to knowledge; they are not just negative, but necessary for clarification and shape and can aid further investigation. Every time we ask a question we are setting or testing boundaries.

Recognised sources of authority can determine limits and boundaries. Religion, it can be argued, is self-limiting by definition; you cannot know God, he or she is unknowable. Authority in religion comes from a number of sources: tradition, revelation, and scripture. On the other hand, faith can be intensely personal, there is no authority (personal experience, personal belief).

## **Why CERN is reflecting on this issue: What are the challenges or risks for a scientific establishment that does not reflect on the philosophical or theological implications of its work?**

CERN, which celebrates its 60th anniversary this year, is a global institution, where over 100 different nationalities work and contribute. Different cultures, different regions, and ideas shape it and this diversity is its core strength. This year is CERN's 60th anniversary this year.

SEASAME (Synchrotron-light for Experimental Science and Applications in the Middle East) project in the Middle East is based on the model of CERN 60 years ago.

While CERN is a global institution in a post enlightenment European context, it needs to be able to reflect on the enlightenment that shapes how it conducts its science as well as to enable as wide as audience as possible to benefit from its enquiry. Given that 84% of the world's population is religious, it is advantageous for CERN to enable others to place its scientific findings within a range of religious narratives. This is both a matter public diplomacy and an opportunity to incorporate its results and implications within what others consider to be a bigger picture. It may not be the role of scientists to change people's worldview; nonetheless CERN has a responsibility to inform the wider community about its achievements.

What might philosophers and theologians offer to scientists and vice versa? What would we like to learn from each other? A key purpose of these meetings is not only to explore what we might have in common, but, more importantly, to strengthen our own disciplines because of what we have learnt in our dialogue.

## **Conclusion: Working towards a common understanding of truth? Taking the dialogue forward.**

In a globalised world, where people from all races and creeds rub shoulders together and share common endeavours, it is increasingly vital that we take knowledge of the other seriously. We need to understand other as they understand themselves. Alongside multi-disciplinary and inter-disciplinary working, we also need to be able to reflect critically on our own value systems, as well as on those of others. This requires reflective intellectual curiosity, a desire to seek common ground, the determination to use common language, and profound respect. It assumes both sides acknowledge the other has intelligence – in every sense of the word.

Everyone has different perceptions of truth and experience of our world. It is how we contribute to understanding each other which generates a better overall understanding and comprehension of truth. This is reinforced by personal truth in the everyday world – in family, in friends, in professional colleagues.

In conclusion there was generally shared appreciation of the manner in which this discussion had been held. The consideration shown to different perspectives and articulations of truth, to different traditions, and above all, the humility with which personal descriptions of truth were put forward advanced the dialogue. The conference seemed to be not so much about a shared language, but about the ability to listen to and translate with accuracy the language of the other in a willing spirit of engagement. There also was an aspiration, addressed to CERN as main convener, to continue developing the dialogue and seek to include larger number of interlocutors both from scientific and other communities.