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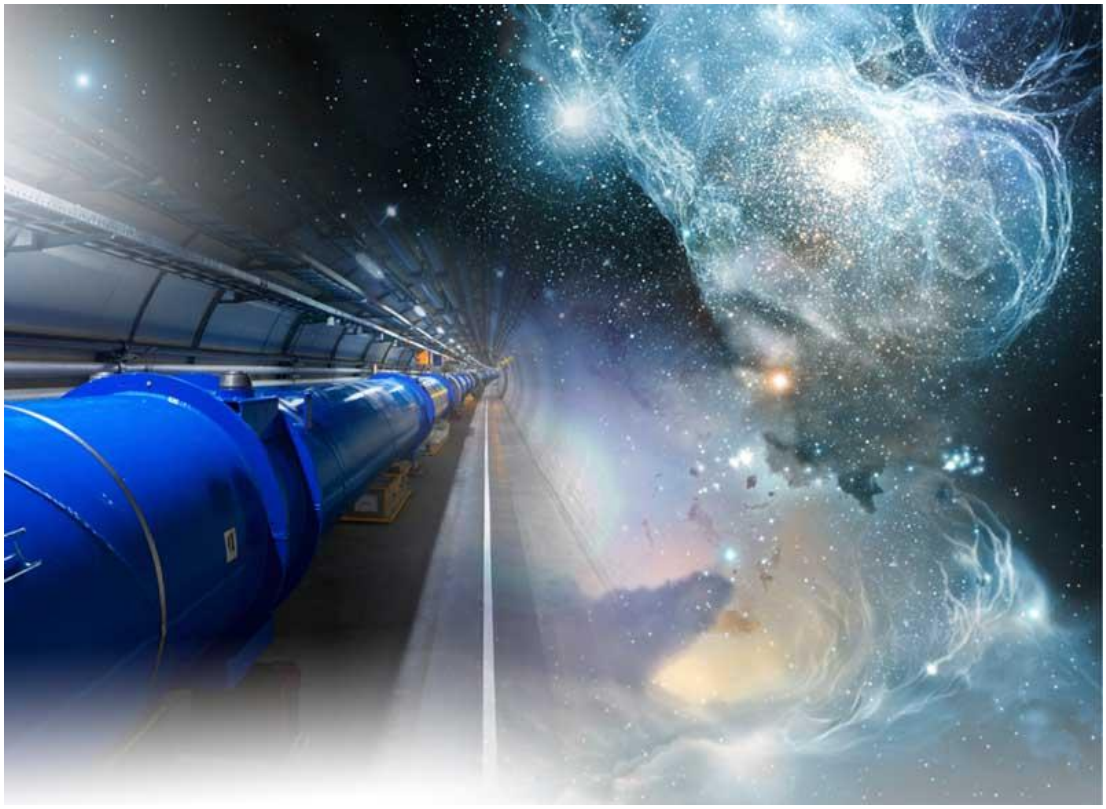

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Summary report

# 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

**In partnership with:**

CERN

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Wilton Park

Summary report

# The Big Bang and the interfaces of knowledge: towards a common understanding of Truth?

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In 2012, CERN and Wilton Park held a pioneering conference on The Big Bang and the Interface of Knowledge; towards a common language?" which attracted international attention. The conference noted that, although it is possible to access a measure of common language, the discussion has shown that words like truth, proof and faith have divergent meanings. It concluded that the interfaces of language are complex and subtle. Theologians, philosophers and scientists need to work hard at understanding what other disciplines are saying in their own terms. One of the key themes which emerged was the nature and understanding of truth, and this second conference, in 2014, was focused on broadening that dialogue between scientists, philosophers and theologians.

The report is an aide memoire for the participants and provides external readers with an idea of the flow of discussion and the issues that were raised. It also attempts to adopt a common language so as to widen access to the discussions beyond specialists and academics. As with all Wilton Park reports, it does not provide direct quotations nor does it identify participating individuals. There is no conclusion, shared communiqué or statement – the strength of this discussion was opening up the dialogue within, between, and beyond these communities. There is one main conclusion: the parameters of the quest of the common understanding of truth are to be further defined. Undoubtedly, this report will provoke disagreement, debate, and dialogue – this is to be welcomed!

"Higgs Boson was a historical discovery of the deep relationship between religion and science."

### Key actions

- As part of its public diplomacy and academic endeavour CERN sought high level critical engagement with disciplines outside the parameters of normal scientific dialogue;
- To pursue the dialogue on common language and make critical linkages between scientific discovery and a range of philosophical frameworks and religious narratives;
- To wrestle with questions concerning the nature of "truth", in order to begin to build common understanding;
- To continue to encourage learning and exchange across the disciplines, embracing diversity of approach in an open, honest and respectful manner;
- To keep the dialogue open in order to continue discussions and focus more on specific aspects of the relationship between science and religion;
- To widen the group involved in this dialogue and broaden the perspectives offered

"The discovery of the deep connection between religion and science is not, however, a 21st century phenomenon but is historical."

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

1. This was a conference about questions. We may seek a common ground for conversation but is it necessary? Science has very particular claims to legitimacy, truth and knowledge but should religion be expected to do the same? Is there a limit of communication?
2. Everyday practical belief in our surroundings and contemporary scientific method are two models of relating to the world that exist side-by-side. For the vast majority of people, what they have for breakfast is more real, is truer than evolution. Additionally, faith and science are not the only models that shape people's lives; Politics, law, sport and the arts all shape the human experience and for many people they have more immediate relevance.
3. Religion offers truth in relationship to God: It provides an existential goal, and a moral code for life. Science seeks truth through evidence; it has an epistemic goal based on a shared understanding of nature and of knowledge.
4. Truth is rich; it is not just to be tested or believed but lived and embodied as well. For example, trust in a person is a living truth. Truth for a religion is expressed through behaviour and attitude as well as knowledge and understanding. At the same time for a scientist the honesty of the fellow scientist is profoundly important.
5. 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. But the results will be philosophical and probably without direct application to life.

### Understanding of truth

6. If truth is the goal of both science and religion, then our understanding of truth will be limited by the information or data gathered and constrained by the tools we have to examine the universe and the nature of being.
7. Ancient philosophy – mainly (as apparently there are also other ancient philosophies) Greek and Indian – was charged with understanding the nature and purpose of the universe; to understand how the cosmos was created as well as its moral nature. Truth, consciousness, and creation were all perceived to be eternal.
8. Truth is often synonymous with power. Science creates knowledge which gives rise to power. Francis Bacon said "ipsa scientia potestas est" (knowledge itself is power).
9. Truth and reality may not be the same thing. Truth is shaped by the data we obtain, the perspective we have, and tools available for enquiry. Truth may be a universal concept. The reality could be "external" and "internal". The external realities are physics, mathematics, and exact science. The internal reality is getting to the spiritual.
10. From a faith perspective truth can come from revelation as well as from empirical experiment and observation. Indeed, an unintended observation can provide surprising insight or revelation, as with Newton's observation of the apple falling in a Lincolnshire orchard.

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

11. Science is presented as being a single universal concept while religion is not? Is religion simply a personal preference for truth and a personal language to describe that preference whereas science provides an absolute truth? Or is this over simplistic stereotyping?
12. The most incomprehensible fact about the universe is that it has the potential to be comprehensible. Both science and religion hold that to be true. Science reveals the universe one step at a time as each new tool for its exploration becomes available. Science attempts to integrate separate theories into a single universal truth. On the other hand, it might seem that religion provides multiple ways of understanding the cosmos – some of which can be reconciled and some of which cannot.

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

13. Rabindranath Tagore claimed that the world we perceive does not exist apart from us; it is a world that depends upon our consciousness, while Albert Einstein said truth was independent of human beings. Moreover, the Indian Vedanta proposes that there is a unified reality that is absolute but not independent Truth does not belong to science but appears through science.

14. The theory of dark matter offers a characteristic example. It describes how it populates the unobservable parts of the universe, and its presence determines the behaviour and the nature of the existence of the observable parts. Science is therefore a product of the seen and unseen.

15. 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.

16. 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.

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

18. Science strives to be neutral and democratic, unaffected by the biases of the truth seeker. But the pursuit of science can be undemocratic and biased and shaped by the shared experiences and values of community, society, history and faith.

19. Scientific ‘truths’ are theories. The constant efforts to prove or disprove them are embedded in communal, historical and sociological circumstances as well as epistemological (theory of knowledge) paradigms.

20. Human beings are now highly dependent on science for their future and this 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

21. The passion for truth, depth for meaning and universality are shared by both science and religion. Both seek to reveal what is true, practical, compelling, and related to day-to-day life. For some the antithesis of science is not religion, but politics.

22. Politics and science are linked by power. Is there such a thing as innate human nature, or are we shaped by experiences and the power of social and cultural institutions? In the mental health sphere, government policies on research and treatment are determined by interpreting people’s mental health through their behaviour. This raises complex questions about the relationship between politics, science and philosophical and theological understandings of the human person.

23. 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. But that does not mean they are without merit or relevance.

24. We live in an era where the very hegemony of science could well be challenged by scientific advances themselves raise searching philosophical questions which are

potentially best answered theologically. Hirsch and Darwin believed that God worked through and within the laws of nature.

25. String theory enables scientists to conceive the multiverse, each with its own unique laws of nature and establishing conditions. Scientists believe such a universe exists in the absence of any other evidence than theory. For some this is an article of faith.

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

26. Traditionally questions about the origins of the world are generally responded to with myths. Generally science seeks to explain the beginning of the universe, while religion, often insists on the universe being beginning-less.

27. Three monotheistic religions – Judaism, Christianity, Islam – share a common spiritual, theological and cultural heritage. An unshakeable faith lies at the core of these religions, in the creator, sustainer and redeemer God. Each of these religions has contributed to the development of rational and scientific thinking.

28. 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. Despite having to constantly negotiate, patterns of repetition are explained and irregularities controlled. Fundamentalism in both inhibits exploration and makes orthodoxy difficult to question.

29. 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.

30. Examples can be found in 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 the practicality of everyday life. So science may be truth, but not the whole truth. Creation myths often begin from chaos, which God resolves – nature is deified, patterns created and irregularities removed, everything is named – a process reminiscent of process of science. Indeed the fundamentalism in both disciplines makes such structures difficult to question once they have been discovered or revealed. 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.

31. 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.

## In what areas might religion and science further dialogue?

### Truth, discovery and revelation

32. In each era, religious thinkers have taken steps to reconcile the writings in the scriptures with rational enquiry. 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. And yet conflict has arisen and continues to be a key part of the discourse in academic and popular domains.

33. Clarification in terminology is vitally important. There are complex and ambiguous terms that need to be deconstructed due to varied meanings employed by different discourses. This dialogue is not solely between science and religion, but within science, within individual religions and between different religions.

34. As an example - truth and the pursuit of truth are one of the highest virtues within Judaism. On the whole Judaism has not been in conflict with science because of Judaism focus 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.

35. Far reaching changes in the fields of medicine and medical ethics e.g. contraception, artificial insemination, abortion, euthanasia, genetic re-engineering, transplants etc have come into conflict with specific Jewish traditions or groupings.

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

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

… if there is any possibility of promoting dialogue between the natural and human sciences, we should not hold strictly to the coherence view of truth."

37. Religion insists that life 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.

38. 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 will 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?**

39. At different times, different things have different connotations. The importance of clarity and the need to wrestle with the concept of knowledge is key. Boundaries, trust, assumptions and sources of authority are all need to be wrestled with continually.

40. The need for trust is mutual to both science and religion. Science uses trust extensively. We do not repeat all the experiments, we trust them and in this sense we express faith to them. Religious faith is involves trust in the religious revelation or faith of others (where God has directly spoken to man or woman) as well as personal experience.

41. Recognised sources of authority can determine limits and boundaries. Religion can be argued as self-limiting by definition; you cannot know God, he is unknowable. Authority in religion comes from a number of sources: tradition, revelation and scripture.

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

43. Faith can be intensely personal, there is no authority (personal experience, personal belief), however, when it comes to religion – religion is often linked to tradition and an institutional capacity to exercise authority and determine.

**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?**

"There is a material universe, but there is a feeling that there are other things as well which we don't know. Scientists currently only know 4% of the universe."

44. CERN is a global institution which impacts significantly on the world. Over 100 different nationalities work and contribute at CERN. Different cultures, different regions and ideas shape CERN. This is CERN's core strength. This year is CERN's 60$^{th}$ anniversary this year.

45. The 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.

46. While CERN is a global institution which sits 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 be able 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 locate its scientific findings within a range of religious narratives. This is both a matter public diplomacy but also an opportunity to locate 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.

47. What might philosophers and theologians could 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 perhaps 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

48. 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 the other as the other understands themselves. Alongside multi-disciplinary and inter-disciplinary working we also need to be able to reflect critically about our own value systems as well as 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 a view on religion, but most people do not have a view on particle physics"

49. It was curious that the word truth was not mentioned often in the conference. The participants did not fully get to grips with it. Perhaps that indicates we are very early in the process. The word is powerful and possessive. Approaches to the truth were discussed. There seemed to be three stages; (1) observation or revelation, (2) a period of self-reflection, (3) concluding on the meaning we derive.

50. Is the scientific and religious exploration of the truth a metaphor for looking out of two windows on the landscape? We certainly do not see the exact same view, but are we looking at the same view from different vantage points, or are the windows looking out at different angles on completely different landscapes?

51. Are truth and reality synonymous and if not what is their essential difference?

52. Above all, the search for a common understanding of truth requires mindfulness and humility.

"The key in resolving this is to know and understand the position of the other and respect the other. Both sides have intelligence."

53. Faith is not an arbitrarily chosen option but can have a strong empirical basis. For example, prayer can give a perception of space, peace, happiness and being connected.

54. 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.

55. 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. It seemed not so much about a shared language, but an 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 a larger number of interlocutors both from scientific and other communities.

**Richard Burge**
Wilton Park | August 2014

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