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Thought Experiments between Theology, Empirical Science, and Fictional Narrative

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Abstract: Starting from Fehige's and Polkinghorne's analyses of the analogies between theological and scientific thought experiments (TEs), the main aim of this paper is to clarify the distinctive character of theological TEs. For this purpose, we shall compare theological TEs with empirical and, although only in passing, with narrative TEs. In order to facilitate the comparison between scientific and theological TEs, the first part of the paper provides a brief outline of an account regarding TEs in the empirical sciences from the viewpoint of a functional, not material, a priori, which is in line with, if not the full letter, the spirit of Kant's a priori. On the basis of this view, we shall investigate the most important difference (which is the source of many others) between theological and empirical TEs. In spite of the many similarities, the most important difference between empirical and theological TEs lies in the fact that theological TEs consider both empirical-descriptive and moral-normative contents from the point of view of a search for an absolute meaning beyond all relative and finite meanings. If we—developing a suggestion by Ernst Troeltsch—interpret this claim from the point of view of a purely functional "religious a priori", we may conclude that theological TEs, which express a search for an absolute meaning, do not possess a priori contents, not even moral.

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1. Introduction

In spite of the growing awareness of the importance of thought experiments (TEs) in more and more diverse areas of contemporary philosophy, a very few authors have written about theological TEs. John Polkinghorne and Yiftach Fehige are notable exceptions. Polkinghorne insisted above all on the analogies between theological and scientific TEs (see Polkinghorne 2007). Fehige took up these considerations and put them into a more general account of TEs, but he also realized that taking the empirical sciences as the only term of comparison risked neglecting important aspects of TEs in theology, especially those that they have in common with TEs of fictional narratives (cf. Fehige 2009a, 2009b, 2011, 2012, 2014, 2018).

The main aim of this paper is to clarify the distinctive character of theological TEs. For this purpose, we compare theological TEs with empirical TEs and, although only in passing, with narrative TEs. In order to facilitate the comparison between scientific and theological TEs, Section 2 provides a brief outline of the account regarding TEs in the empirical sciences (meaning both the natural sciences and the human sciences) developed by Buzzoni (starting with his 2004 and 2008 works). The main idea of this view is that the most important aspect of empirical TEs lies in the reducibility in principle of their theoretical contents to experience, that is, to real-world experiments. The particular content of any empirical TE must be in principle ultimately reducible to empirical-operational interventions in reality, that is, to experimentation. On the basis of this view, we shall investigate the most important difference

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(which is the source of many others) between theological and empirical TEs against the background of a fundamental similarity. This aim will be pursued by assuming a notion of a priori that is functional, not material. This notion of the a priori is in line with, if not the full letter, the spirit of Kant's a priori.

Section 3 provides a discussion of the consequences that follow from these results with respect to the specificity of theological TEs. On the one hand, the most important common feature shared by both empirical and theological TEs—which is found in any cognitive enterprise—lies in the effort to let the object of the inquiry come forward as it is, without interfering with it (no matter how far this can succeed). On the other hand, empirical TEs—as Thagard (2010) emphasized one-sidedly but not wrongly—are clearly distinguished from theological ones. One assumption of modern science is that a theory says something true about the world only if it can be translated somehow into an 'experimental machine' that exemplifies a nomic connection that exists in nature. It goes without saying that in theology, the effort to let the object come forward as it is has almost nothing to do with the building of experimental machines. Far more distinctive, however, is the fact that theological TEs are irreducible to empirical ones, because they consider both empirical-descriptive and moral-normative contents from the point of view of a search for an absolute meaning beyond all relative and finite meanings. As in the case of the empirical TEs, this must be considered from the point of view of a purely functional a priori, such as that developed by Ernst Troeltsch, who at the beginning of the twentieth century pursued the same aim. Taking up his idea, we may say that the space of hope for a meaning outside the 'sweep of days' is not necessarily connected with a particular content rather than another: it should be filled by drawing on the history of human thought and practice.

2. Thought Experiments in the Empirical Sciences

To discuss Fehige's and Polkinghorne's analyses of the analogies between theological and scientific TEs and to facilitate our comparison between scientific and theological TEs, we draw on Buzzoni (2004, 2008), who examined TEs in the empirical sciences (meaning both the natural sciences and the human sciences) from the viewpoint of a functional, not material, a priori. To describe this approach in detail falls outside the purpose of this paper. We shall only sketch the main idea of it, according to which the most important aspect of empirical TEs lies in the reducibility in principle of their theoretical contents to experience, that is, to real-world experiments.

Contrary to what was commonly believed until a few decades ago, it was not Mach who introduced the term "thought experiment", but Hans Christian Ørsted. He did so with the purpose of clarifying an aspect of mathematics and its relation to physical knowledge in Kant (cf. Ørsted 1822; Witt-Hansen 1976; Kühne 2005, pp. 95–165). However, while Mach's introduction of the expression "Gedankenexperiment" (cf. Mach 1896/1897 and Mach 1976) met with immediate success, a "Kantian treatment" of TEs had to wait a long time to reappear (Brown 2011, p. 202). Ørsted's account had, indeed, no real influence on the historical development of the concept of TEs. Besides being virtually ignored for more than a century, it did not play any role in the debate that, in the 1990s, saw the various interpretations mainly polarized into two opposite trends—the Platonist account of James Robert Brown (1986, 1991, 2004, [1991] 2011) and the empiricist theory of John Norton (1991, 1996, 2004a, 2004b)—to which, thanks to the influence of Thomas Kuhn, a third position was soon added by authors such as McAllister (1996), Arthur (1999), and Gendler (2000).

Why this historical and theoretical neglect? A glance at the history of the philosophy of science not only helps to explain this, but also provides an important suggestion for a better understanding and historical reconstruction of today's debate about TEs. The logical empiricists rejected the existence of a material interpretation of Kant's a priori and so did all the main authors in the philosophy of science since the birth of this discipline at the end of the nineteenth century. This rejection came in three basic forms: (1) in the empiricist spirit of Mach, Neo-positivism, Bridgman, and Popper (cf. for example, Mach 1933, pp. 458–59; Reichenbach 1938, pp. 12, 346; Reichenbach 1965, pp. 1–5; Popper 1972, chp. 2, §9); (2) in the conventionalist spirit of Poincaré and Duhem (see for example Poincaré 1968, pp. 74–75); or (3) in the spirit of the relativist philosophy of science of the 1960s

(Hanson, Kuhn, Toulmin, Feyerabend), later carried on by the 'sociological turn', which construed the a priori as changeable, as a function of historically shifting pragmatic interests. In all cases, Kant's a priori was regarded as an error, perhaps as an inevitable one before Riemann, Einstein, and the founders of quantum physics, but, nevertheless, an error. This shift away from Kant helps to explain not only the weak influence of a Kantian perspective on TEs, but also the existence of three main trends in the literature on TEs: the empirical-naturalist; the rationalist or Platonist, and the sociological-constructivist.

From this point of view, the lack of appeal of a Kantian treatment of TEs, in an important respect, mainly depended on the one-sided interpretation and development of Kant's a priori by Ørsted, which largely coincides with that which was rejected by the main trends of contemporary philosophy of science, because it led to the unacceptable project of an a priori physics. However, as Ernst Troeltsch already emphasized, Kant's rationalism "is in truth only formal," and the fact that Kant sometimes falls into a "contentual rationalism" is both against the "principle" and against the "practice" that he follows (Troeltsch 1904, p. 126). In truth, Kant oscillated between two very different views of the a priori: on the one side, he insisted on the purely formal character of the a priori, but on the other side, as most clearly emphasized by Schlick (Schlick 1969), he attributed to it a material content.

That Kant attributes some content to the (synthetic) a priori is indubitable, because he believed that Newton's physics would provide us with universal and necessary knowledge, needing no further substantial modification. However, there is in Kant an opposite and, in our opinion, more fundamental tendency to consider the (synthetic) a priori in a purely functional sense. It is in connection with this sense of the a priori that Kant develops some of the best-known tenets of his philosophy. He emphasises again and again that the unschematized categories have insufficient meaning to give us the concept of an object. He rightly says that categories not applied to sense content are "merely functions of the understanding for concepts" and "cannot [. . .] be employed in any manner whatsoever, neither empirical nor transcendental" (cf. respectively Kant 1787, *KrV* B 187, AA 139; *KrV* B 305, AA III 208. Cf. also *KrV* B 307–8, AA III 210, lines 31–35). It is in connection with this sense of the a priori that Kant claims that the "I think" is an empty idea, devoid of content: No manifold is given through the "I", taken as a simple representation. Because the "I think", as the synthetic unity of apperception, must always accompany all perceptions, it cannot be a perception or, as Kant calls it, a "concept" (*Begriff*) (Kant 1787, *KrV* B, §16, AA 110, lines 23–24). This is also the main point of Kant's criticism of the paralogisms of pure reason. Because the "I think" is the supreme condition of the possibility of experience, it cannot have a content of its own and must be conceived as a mere form or function.

As Buzzoni (2008) pointed out, only the formal reading of Kant's a priori can provide the basis for a coherent and viable theory of TEs. We shall now very briefly sketch the basic idea of this theory, which argues for the universal but purely formal or functional (that is, devoid of any content) aspect of the Kantian a priori and which avoids any relapse into an untenable a priori physics[1].

The simplest way to introduce the guiding idea of this account is perhaps to move from the Kantian definition of a scientific experiment and then to extend it to TEs. According to Kant, a scientific experiment consists of putting a "question" to nature. The experimenter is viewed as a judge "who compels the witnesses to answer questions which he has himself formulated". The experimental setting is arranged so as to show which of the answers will actually occur, which are anticipated in the mind by a hypothesis formulated in accordance with the requirements of reason (cf. Kant 1787, *KrV* B XIII, AA 3: 10). In other words, to put a question to nature, we necessarily assume theoretical hypotheses, without which facts would remain cut off from the questions to be answered, and, on

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[1]   Fehige has also sketched an alternative Neo-Kantian account that avoids any relapse into an untenable physics a priori, but for this purpose he used Michael Friedman's concept of a contingent and relativized a priori. As Buzzoni (2013b) tried to show, a material a priori is, first, theoretically untenable, because, counter to Friedman's and Fehige's own intentions, it leads to relativism. Second, in the light of the Kantian definition of the a priori, Friedman's and Fehige's corresponding notion is contrary both to the spirit and to the letter of Kant's philosophy.

reflection, even the formulation of the experimental question would be impossible, or better, it would be a mere *flatus vocis*, devoid of meaning.

If we start from this Kantian definition and if we abstract from the precise sense in which Kant interpreted the theoretical assumptions necessary for the formulation of the experimental question (that is, the "a priori pure forms" of the mind), we may obtain a very general definition of an *empirical* TE, which should be compatible with many different accounts about this topic:

> An empirical TE is a way of arguing which anticipates, at the theoretical, discursive or linguistic level, a hypothetical, though specific experimental situation, so that, on the basis of previous knowledge, we are confident that certain interventions on the experimental apparatus will modify some of its aspects (or 'variables') with such a degree of probability that the actual execution of the experiment becomes superfluous. (cf. for example Buzzoni 2013a, p. 97)

The definition is obtained simply by emphasizing the most general similarities along with the most obvious and undeniable difference between the real world and TEs. While both types of experiments ask questions about nature and its laws by Mach's "method of variation", only TEs, relying on previously accepted knowledge, anticipate in thought nature's specific answers.

Important differences between the three competing views on TEs that we have mentioned only arise when one tries to define more precisely the nature and justification of that "previous knowledge" on the basis of which TEs, as long as they are taken as valid, reach their conclusions without directly appealing to real-world experiments. According to Brown, this knowledge may be a priori, Platonic knowledge; for Mach, it is exclusively empirical knowledge (for Norton, it is empirical knowledge and logical knowledge only as far as logic ultimately adds no content to empirical knowledge: see for example (Norton 1996, p. 335): "The outcome [*sc.*: of a TE] is reliable only insofar as our assumptions are true and the inference valid"); in Kuhn's conception of TEs, this previous knowledge is given by the paradigms and by their theoretical-practical commitments (Kuhn 1977).

Now, how ought we to interpret this "previous knowledge" from a quasi-Kantian point of view and precisely from the point of view of a functional, formal, or non-hypostatized a priori? How should we interpret this previous knowledge if, in accordance with the main tendencies in philosophy of science, we intend to avoid any relapse into Ørsted's notion of an a priori physics?

On the one hand, the a priori capacity of the mind to reason counterfactually underpins the distinction in principle—a properly transcendental distinction—between the real world and TEs. This distinction cannot be suppressed, because it is the same distinction between the hypothetical-reflexive domain of the mind (which can always contradict itself) and reality (which can always occur and develop in only one way) (Buzzoni 2013a, pp. 99–100). This thesis is one of the most important features of an account that may be called transcendental in the usual sense of the word: TEs are the condition of the possibility of real-world experiments, because, without the a priori capacity of the mind to reason counterfactually, we could not devise any hypothesis and would be unable to plan the corresponding real-world experiment that should test it.

On the other hand, according to the functional conception of the *a priori, reason cannot, by means of empirical TEs, come to conclusions that are valid independently of experience.* If pure reason cannot provide any content, our "previous knowledge" must be explained by experience, here understood in operational terms, that is, as a result of interactions between our body and our environment, as a result, in the last analysis, from actual experimentation. On reflection, the demand for reducibility in principle to the contents of experience is fully in agreement not only with empiricist positions, but also with a conception that, with good reason, may be called Kantian: any doubts or misunderstandings in physics can also for Kant always be found and ultimately eliminated "by means of experience" (cf. Kant 1787, *KrV* B 452-453, AA 3:292, lines 27–31).

If these two theses—which correspond, respectively, to the transcendental and the empirical standpoint—are combined, a very important consequence follows as to the relation between thought

and real-world experiments. Although in one (transcendental) sense, real-world experiments and TEs are distinct in principle, the purely functional character of the a priori requires that all real-world experiments—as far as their empirical content is concerned—must be thought of as realizations of TEs, and conversely, all empirical TEs must be conceivable as preparing and anticipating real ones. The real world and TEs are complementary in a typical Kantian sense: (empirical) TEs without real experiments are empty; real experiments without TEs are blind.

This relationship is best illustrated by Kant's example of a hundred thalers (cf. Kant 1787, *KrV* B 627, AA 3: 401). On the one hand, it is not the same thing to have and not to have a hundred thalers: "My financial position is [. . .] affected very differently by a hundred real thalers than it is by the mere concept of them (that is, of their possibility). For the object, as it actually exists, is not analytically contained in my concept, but is added to my concept (which is a determination of my state) synthetically." On the other hand, "the real contains no more than the merely possible. A hundred real thalers do not contain the least coin more than a hundred possible thalers" (Kant 1787, *KrV* B 627, AA 3: 401). Exactly the same is true of the relationship between TEs and real-world experiments. From this point of view, empirical TEs must, at least in principle, anticipate a connection between objects, which, when thought of as realized, makes TEs coincide completely with the corresponding real ones. As far as their conceptual content is concerned, simply to imagine that the experimental apparatus, counterfactually anticipated in a TE, has really been constructed is sufficient to erase any particular difference between TEs and real-world experiments.

These two main conclusions, with certain precautions and under certain conditions, may be generalized so as to be applicable to all kinds of TEs rather than merely to empirical ones. For this purpose, it is necessary to abstract from the most distinctive feature of empirical and scientific knowledge, namely the fact that "a particular experimental apparatus" must be understood in an empirical-operational sense. In other words, we remove the limitation to a "particular" experimental apparatus, which is a course of events that takes place in time and space and which we may causally modify by using our body. In this way, we obtain the following minimal definition of TE, which is a form of argumentation that satisfies the following two conditions:

(1) It sets forth in the most rigorous way a theoretical question and anticipates in thought the specific answer that, relying on previously accepted knowledge, abilities, and trained methods, should be held by everyone who shares with us similar knowledge, abilities, and methods.

(2) Formulations of the question and anticipations in the thought of the corresponding answers refer to the analysis or interpretation of a particular case, which must concretely exemplify the hypothesis (which may be empirical, philosophical, artistic, moral or religious, ethical or theological, etc.) that the TE intends to argue.

The generality of this definition, if compared with that of empirical TEs, depends upon the fact that by "particular case", we may understand everything that can be the object of experience in a much wider sense than the empirical one—that is, in the sense in which we also talk of an experience that is artistic, moral, philosophical, religious, etc.

In this section, we have tried to outline the relationship between empirical-scientific TEs and real-world experiments on the basis of a functional conception of Kant's a priori. From this point of view, the transcendental irreducibility of TEs to real-world experiments notwithstanding, the particular contents of any empirical TE must be, at least in principle, ultimately reducible to experience, or, more precisely, to empirical-operational interventions in reality. Anything that resists in principle this reduction thereby shows itself to be an arbitrarily introduced factor, which is legitimate only if this factor disappears in the final result. Empirical-scientific TEs have to possess an intrinsic reference to experience, which must "accompany" (in the Kantian sense of the word) them from the beginning to the end.

We are now in a better position both to discuss Fehige's and Polkinghorne's analyses of the analogies between theological and scientific TEs and to capture the distinctive character of theological

TEs. For this purpose, in the next section, we compare them with empirical TEs and, though only in passing, with narrative ones. As we shall see, there is both a fundamental similarity and a fundamental difference between theological and empirical-scientific TEs. In both cases, a functional view of the a priori requires an ultimate reducibility to particular contents, but the demand for empirical grounding, which is characteristic of empirical-scientific TEs, gives way to a search for the ultimate meaning of life in theological TEs.

3. Unity and Distinction of Theological, Empirical, and Narrative TEs

Before entering *in medias res*, it is advisable both to delimit the scope of our considerations and to provide some paradigmatic examples of TEs in theology. In what follows, our notion of "theology" is freely borrowed from Kant's use in *Religion within the Boundaries of Mere Reason*. On the one hand, Kant drew a clear distinction between philosophical (based on reason) and biblical theology (based on revelation), but on the other hand, he also implicitly assumed that there is a more general notion of theology, when he said that philosophers rightly start with mere reason and seek to understand revelation, while biblical theologians start from revelation and use reason to understand it (cf. Kant 1793, *Religion*, AA, 6: 9–10; Engl. Trans., p. 38).

According to this last remark, philosophical and biblical theologians need both reason and revelation, because, although starting from two diametrically opposite positions, they are moving toward one another. Accordingly, a TE (in its most general sense, as defined in Section 2) will be considered here as theological if it contains both the argumentative or critical use of reason and some reference to revelation (in whatever proportion these might appear). Without denying the utility of the distinction between a philosophical and a revealed theology in many different contexts, our considerations will apply, at least to some extent, to both[2]. In accordance with this, the term "theological TE" will be meant to include many parables told by Jesus in the Bible, such as, for example, the Parable of the Two Sons (Matthew 21:28–32), and Xenophanes' critique of religious anthropomorphism. The case of Jesus' Parable of the Two Sons is an almost pure case of revealed theology, in which we are supposed to draw conclusions from a scenario that is implicitly counterfactual. Xenophanes' critique is an almost pure case of philosophical theology in which the counterfactual component is completely explicit: "Now if cattle, <horses> or lions had hands and were able to draw with their hands and perform works like men, horses like horses and cattle like cattle would draw the forms of gods, and make their bodies just like the body <each of them> had" (Diels and Kranz 1951–1952, Fr. 20, Engl. Trans., pp. 110–11). More recent and well-known examples of TEs of this last kind are, among others, John Hick's TE, aimed at defending verifiability in the principle of religious hope (see Hick 1960, pp. 18–19), and John Wisdom's famous parable of the Invisible Gardener (Wisdom 1944–1945, pp. 191–92). Finally, many of the arguments developed by medieval theology are considered to be TEs. Thus, as Perler (2008) pointed out, angels were often the object of TEs, for example, by William Ockham and Duns Scotus to answer the question of whether angels need species to have intuitive cognition (Scotus) or not (Ockham). Marilyn McCord (2010) interpreted many medieval texts as theological TEs. For example, from Anselm forward, the immaculate conception of the Blessed Virgin Mary remained a controversial TE in theology. For Bernard of Clairvaux, unlike Anselm, Mary's immaculate conception

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2　For the distinction between revealed and philosophical (or rational) theology, see for example Griffioen (2017). According to the "more common understanding", revealed theology would occupy itself with "only those propositions purportedly conveyed via a special divine act of communication to particular persons at particular times—truths generally passed down in the holy texts or oral tradition of a particular religious tradition" (Griffioen 2017, pp. 146–47). However, as we have just seen, it does not seem possible to develop a theological reflection that does not imply, even if only to a very slight degree, some reference both to revelation and to reason. The distinction between philosophical and revealed theology is, in fact (though not in principle), only a difference in degree. It is no accident that, as shown by Fehige (2009b); but see also Fehige (2009a, 2011), an argument such as the ontological one, which at first sight seems to be a typical example of philosophical theology, can also be understood as a TE of revealed theology. For this reason, our use of the term "theology" may apply both to the TEs of philosophical theology and to those of revealed theology.

was a TE contrary to well-established doctrinal principles: if the immaculate conception of the Blessed Virgin Mary were accepted, it would undermine not only Mary's privilege of being the only member of Adam's lineage to conceive a child without original sin (because even her mother, St. Anne, would have had it), but also the pre-eminence of Christ, since a savior would be superfluous for a human being conceived without original sin (cf. McCord 2010, p. 138). Additionally, the well-known question of whether God could have become incarnate in an ox or a donkey, is a TE (which seeks to clarify, among other things, our concept of divine omnipotence).

As already noted above, only a very few philosophers have written about theological TEs, and fewer still have compared them with scientific TEs, perhaps the most important of which are John Polkinghorne and Yiftach Fehige. Fehige, in particular, took up Polkinghorne's comparison between quantum physics (as representative of scientific knowledge) and Christological theology (as representative of theology). This comparison, as the title of Polkinghorne (2007) text suggests ("Quantum Physics and Theology: an Unexpected Kinship"), was intended to emphasize above all the similarities between these two fields. Moreover, Fehige put these similarities into a more general account of TEs and realized that taking the empirical sciences as the only term of comparison risked neglecting important aspects of TEs in theology, especially those that they have in common with TEs of fictional narratives (cf. Fehige 2009a, 2009b, 2011, 2012, 2014, 2018).

Polkinghorne's more general point is that, even if "neither science nor theology should make the mistake of supposing that it can answer the other's proper question" (Polkinghorne 2006, p. 57), there is "a cousinly relationship between the ways in which theology and science each pursue truth within the proper domains [*sc.*: nature and God, respectively] of their interpreted experience" (Polkinghorne 2007, p. 15; see also Polkinghorne 1998, chp. 2; Polkinghorne 2007, pp. 15–22 and passim).

The idea is not a new one; to take one important example, it was defended by Pannenberg, according to whom it has to be recognized that, in science and theology, there is a common "verification in the broader sense of an evaluation of hypotheses by testing them against all relevant circumstances" (Pannenberg 2008, p. 22). In general, this reflects an important tendency in today's dialogue between science and religion, sometimes designated as the "contact view". However, Polkinghorne went so far as to say that the principle of superposition "had to be accepted as an article of quantum faith" exactly in the same way as did the Christological and Trinitarian dogma: in both cases, we have to deal with principles that go beyond close contact with experience (Polkinghorne 2006, p. 93).

Fehige not only defends Polkinghorne's search for similarities between theology and the empirical science, but also affirms a methodological view that applies Rachel Cooper's principle according to which a unified account of TEs, which explains TEs both in science and in philosophy, "should be preferred" "on grounds of simplicity" (Cooper 2005, p. 329). It is in this methodological spirit that Mach's view—also taken up by other leading exponents of the current debate (see for example Brendel 2004; Gendler 2007)—has been developed by Fehige into an alternative Neo-Kantian account that utilizes Michael Friedman's concept of a contingent and changeable a priori. According to this view, TEs are "facilitators of intuitions": they trigger intuitions, where the terms "intuitions" is to be understood not in the Platonic way defended by Brown or Bealer (see for example Brown 2004), but in that of a contingent a priori that is "relatively stable and commonly shared", as a result of the fact that "we belong to the same biological species and to cultural and scientific communities with some shared knowledge" (Fehige 2009a, pp. 250 and 255 respectively).

Based on this view, Fehige also agrees with Polkinghorne that "[i]n quantum physics and Christian theology, [. . .] thought experiments are performed to explore concepts to achieve theoretical progress" (Fehige 2012, p. 257). More precisely, the cognitive value of the TE in theology would consist of its ability to promote the growth of theological knowledge through a re-examination of the chief "metaphysical-epistemological" pillars on which the Christian tradition rests: "Thought experiments can be of assistance in theological progress, because they trigger intuitions that might conflict with

crucial elements of this metaphysical-epistemological framework, and thus induce belief-revisions" (Fehige 2012, p. 282).

We agree with Fehige's insistence on the importance of TEs for triggering more or less unconscious intuitions. Moreover, we agree with his view that intuitive expertise "is not due to a capability of the mind's eye", but, unlike Brown's Platonism, "is acquired through interactions with the natural and social environment" (cf. for example Fehige 2012, p. 280). However, this is too general, and important distinctions are lost: this fails to distinguish the various kinds of TEs from each other, or even a TE from a non-TE, because this applies to every kind of TE and even to every kind of rational (not only cognitive) investigation. A too-general use of the expression "TE", which would be made to stand for too many things and, in particular, would not distinguish it from real-world scientific and fictional narrative experiment, risks depriving the notion of its distinctive meaning and explanatory force. For example, as already noted by Franz Brentano, Franz (Brentano, Franz 1905, pp. 86–87 and 111) against Mach's theory of TEs, this would no longer allow us to understand why, despite their outstanding achievements in other fields, the Greeks failed to take the path leading to Galilean experimental science.

Even more important, the similarities that can be found between theological and empirical TEs are, in principle, unlimited. For this reason, they should be not only integrated by specific differences (if one stresses similarities at the expense of fundamental differences, one will inevitably end up with a false picture of reality), but also relativized and justified from the point of view of their epistemological relevance (we do not confuse pedestrian crossings with zebras just because they have both stripes and/or because we use the same name for both).

On the one hand, theological TEs, similar to any other type of TE that intends to provide intersubjective or transpersonal legitimation, aims at saying how things are in the world. The claim that things can, at least in principle, be represented as they really are (no matter how far this can actually succeed), is not confined to empirical science. Not only in the empirical sciences, but also in other cultural fields, all discussions are guided by the underlying assumption—which is a purely formal criterion—that some settlement of different opinions or rival interests is in principle always possible, because things are as they are, quite independently of our opinion. The effort to let the object come forward, without obfuscating how it is, is also to be found as the driving force of any theological dispute or religious dialogue. If we claim or deny that God exists or if we claim or deny that this statement can be proved or disproved by reason, in both cases we are claiming something which we implicitly profess as universally valid, regardless of whether any conscious being (including the limiting case of the person who made the claim!) ever happened to be entirely convinced by it. The claim that things can, at least in principle, be represented as they really are, is common to philosophy, science, theology, etc. Because of its pure formality, this criterion does not coincide with any particular cultural (scientific, philosophical, religious, theological, etc.) field and therefore can work as an independent criterion for judging what is objectively right: strictly speaking, it coincides with the same use of reason as such.

However, if the claim to represent things as they are is not to remain devoid of any cognitive function, it must be expressed by means of concrete methodical procedures that make it possible to reconstruct, re-appropriate, and evaluate in the first person the reasons why it should be accepted. When we try to convince someone that something is true, good, beautiful, holy, etc., our truth-claim should be supported by 'reasons' that, in principle, can be reproduced and appropriated in the first person even by those who do not share our views. Thought experiments are one of many valuable ways to pursue this task, and this holds true for every rational discussion that does not exclude a priori or dogmatically the possibility of being influenced by reasons.

Now, the claim to represent things as they are is realized in different contexts with different methods, and it is for this reason that the resemblance just mentioned between theological and empirical TEs forms the background against which we may perceive, by way of contrast, some of their fundamental differences. There are at least two differences that need to be mentioned. The first

difference consists of the fact that the relationship, made up of correlation and distinction, which connects TEs with real-world experiments in the empirical sciences, does not take place in theology: we do not find in theology the attitude typical of the empirical sciences for settling disputes, namely that of resolving without residue—in principle, though certainly not in fact—their content in real experiments, which can, in principle, check reflection at every point. This attitude consists in the construction of an 'experimental machine', which concretely and technically exemplifies the theoretical content of a claim about nature and its laws. In both experiments and scientific thought experiments, we test statements by the actual or only imagined functioning of an 'experimental machine': given a certain input, there follows a chain of events that is independent of our will (for more details on this point, see Buzzoni 2008, chp. 1). It goes without saying that in theology, the effort to let the object come forward as it is has almost nothing to do with the building of experimental 'machines'.

We may accept Fehige's claim that (in King's words: King 1991, pp. 43–44) the "method of medieval science was thought-experiment rather than actual experiment or testing". However, this in no way diminishes the importance of the difference just noted; indeed, on closer inspection, it even increases it, because the more traditional explanation of the hiatus created by modern science laid great emphasis on the experimental method. A too-general use of the expression "TE", which would not distinguish it from a real-world scientific experiment and would be made to stand for too many things, risks depriving the notion of its distinctive meaning and deprives it of any real explanatory force. As we have already seen, Polkinghorne goes so far as to say that both the Trinitarian dogma and the principle of superposition had to be accepted as articles of faith. However, the fact that both principles "aim to offer more than an immediate matching with experience" (Polkinghorne 2006, p. 93) is not enough to remove the difference we have already found to exist between the real world and TEs in the empirical sciences. God has always been considered to be something that, despite being in direct and causal connection with concrete reality, exists beyond it and, at least in some sense, never can be, both *de facto* and *de jure*, completely reduced to it. On the contrary, even though quantum physics has some counterintuitive assumptions or consequences, it is supposed to be able, at least in principle, to trace back the theoretical content of these assumptions or consequences to real-world experiments, that is to say, to real interactions between our bodies and the surrounding world. For this reason, the difficulties in conceiving quantum theories did not prevent physicists from striving to overcome these difficulties and to turn the content of the theory into working machines, from large particle accelerators to scanning tunneling microscopes. If the demand for a reduction in principle to empirical-operational interventions in reality were not characteristic of scientific knowledge in its Galilean form, superstring theory would not be so controversial: given our current technical means, the theory, though, in principle, empirically testable, in practice is—as Polkinghorne himself realizes—believed only on the basis "of mathematical considerations alone" (Polkinghorne 2007, p. 99).

Similar considerations apply, *mutatis mutandis*, to Fehige's comparison between theological and narrative TEs, about which no more than some sketchy remarks can be given here, focusing on the peculiarity of theological TEs. It is difficult to deny the many similarities between narrative and theological TEs. Fehige argues that TEs in revealed theology exhibit the same cognitive traits as narrative TEs: they not only are able to bring out contradictions within a system of beliefs, but elicit non-propositional knowledge connected with past experiences and, through the construction, in imagination and by reasoning, of a hypothetical scenario, help to explicate the meaning of a linguistic-conceptual framework (see for example Fehige 2012, p. 282; 2016, pp. 188–90). We may still add, among other things, the striking similarity, or even, so to speak, 'phenomenological' identity, of most of the narratives or theologically relevant texts, which influenced the genesis of "narrative theology" (on this point, see for example Loughlin 1996). Finally, an important similarity lies in the fact that, as remarked above all by Noel Carroll (2002), fictional narratives (such as novels or other forms of fiction) have a moral import, which can hardly be denied to theological TEs; in other words, both narrative and theological TEs exhibit a practical element unknown to scientific TEs.

However, it is precisely against the background of fundamental similarities (into which we cannot enter) that it is relatively easy to perceive the distinctive character of theological TEs. A reference or appeal to another reality, placed—in Camus' words—"outside the sweep of days", and endowed with an absolute meaning and value, is essential to religion. For example, it is certainly true that the Bible can be read as a classical text—perhaps the most influential one in Western culture; however, noting the analogy immediately brings to the fore the difference: it is precisely for the same reason that religious and theological TEs cannot be reduced to narrative ones, because the Bible can be seen as a sacred text only if it is considered as a text divinely inspired, or, more generally, as a text providing us with absolute criteria towards which the believers feel they must orient themselves in order to give a true meaning to their lives. As Kant pointed out long ago, moral rules are interpreted by the religious consciousness as divine commands, or, more generally, the moral contents of a piece of narrative fiction become religiously significant in so far as they are interpreted in light of criteria that are, so to speak, good in an absolute sense. This applies, with little modification, to the relationship between empirical and theological TEs: what science conceives as a mere chance or as a fact that is not satisfactorily explained, may be interpreted, in a context of faith, as an opportunity offered by divine providence or as a miracle. In other words, if we drop the demand for an absolute meaning of life, what is narrated as a miracle, an opportunity offered by divine providence, or a religious prescription can turn out to be an empirical claim, which as such can be supported or challenged by real experiments. However, none of this, in so far as it is interpreted as religious or theological claims, can be supported or undermined by experience: all this may be only supported or undermined by a properly religious and/or theological discussion.

Against the background of this commitment or appeal to an absolute meaning of our lives, theological TEs develop counterfactual arguments that should be accepted as valid by everyone who, at least hypothetically, shares the same premises: on the one hand, knowledge, abilities, and methods that we believe to be reliable from a cognitive, rational point of view and, on the other hand, a content of faith that is believed to be revealed by a divine (and therefore absolutely objective and universal) source. According to Polkinghorne's happy description, theological TEs are "pictures of the eschaton" (Polkinghorne 2006, p. 93), and, as Fehige has aptly suggested, they can also be called "eschatological TEs" (Fehige 2012, p. 267).

This commitment or appeal to an absolute meaning that we find in religious and theological texts was, in the last analysis, what some authors at the turn of the twentieth century referred to as the "religious a priori". Windelband, without (to our knowledge) using the term, paved the way for this development, stating that what is essential in religion is "the consciousness of belonging to a world of spiritual values," "the not being satisfied with the empirically real" (Windelband 1907, p. 424). However, it was Ernst Troeltsch who resisted the subordination of the religious a priori to the moral law. He gave currency to the term "religious a priori" and, as already noted, emphasized that Kant's philosophy is an "entirely formal" (*völlig formal*), not a "material or contentual" (*material oder inhaltlich*) rationalism.

At this point, we have to raise the question of how the religious a priori, from the point of view of a purely functional a priori, should be understood more precisely. We have claimed that the purely functional nature of the a priori—in the sense explained in Section 2—is well suited to understanding the connection, made up of unity and distinction, between RE and TE in the empirical sciences. According to this reading of the a priori, pure reason can provide no content at all, and the 'previous knowledge' on which scientific TEs as anticipations of experience are based can only come from empirical, operational interventions in reality. We must now see whether the purely functional nature of the a priori may be combined with Kant's idea of "a rational concept a priori" of religion, "remaining after everything empirical has been removed" (Kant 1793, *Religion*, AA 6:12, lines 25–26; English Transl., p. 40).

First, we may accept without quarrel Kant's contention that a reference and an appeal to the unconditioned are deeply rooted in human reason. In accordance with this, just as the transcendental

ideas of reason "are imposed by the very nature of reason itself" and what they push us towards "remains a problem to which there is no solution" (Kant 1787, *KrV* B 384, AA, 3: 254, lines 06–08 and 22 respectively), so the religious a priori, as a need or search for an absolute meaning, should be regarded as unavoidable or "unhintergehbar", because it is rooted in human reason[3]. As Windelband already pointed out, the strength of Kant's philosophy of religion consisted of having adopted towards religion the same anthropological attitude as he did towards metaphysics: we recognize in religion "a search for something purer, better, more lasting, for things above space and time. This affinity between religion and metaphysics is clear and unmistakable" (Windelband 1920, p. 33, Engl. Trans., p. 39).

Second, for reasons already given at the beginning of this section, we may accept Kant's contention that theology—it does not matter whether revealed or philosophical—must have recourse to both some reference to revelation and the argumentative, critical use of reason (in whatever proportion). This depends upon the fact that neither a positive nor a negative (even nihilistic) answer to the ultimate questions of meaning and value may be ruled out by reason alone, which must acknowledge its own limits:

> By virtue of his very title, the rationalist must of his own accord hold himself within the limits of human insight. Hence he will never deny in the manner of a naturalist, nor will he ever contest either the intrinsic possibility of revelation in general or the necessity of a revelation as divine means for the introduction of true religion; for no human being can determine anything through reason regarding these matters. (Kant 1793, *Religion*, AA, 6:1550; English Transl., p. 154)

However, if we accept the purely functional nature of the a priori, we cannot follow Kant when he tries to interpret the relationship between morality and religion as one of inclusion. As he writes in the preface to the first edition of *Religion within the Boundaries of Mere Reason*:

> Since, after all, *revelation* can at least comprise also the pure *religion of reason,* whereas, conversely, the latter cannot do the same for what is historical in revelation, I shall be able to consider the first as a *wider* sphere of faith that includes the other, a *narrower* one, within itself (not as two circles external to one another but as concentric circles); the philosopher, as purely a teacher of reason (from mere principles *a priori*), must keep within the inner circle and, thereby, also abstract from all experience. From this standpoint I can also make this second experiment, namely, to start from some alleged revelation or other and, abstracting from the pure religion of reason (so far as it constitutes a system on its own), to hold fragments of this revelation, as a *historical system,* up to moral concepts, and see whether it does not lead back to the same pure *rational system* of religion [from which I have abstracted]. (Kant 1793, *Religion*, AA 6:12; English Transl., p. 40)

It is easy to see that the way in which Kant conceives of the relationship between morality and "the pure religion of reason" betrays the fact that he still retains a residue of a material conception of the a priori. On the one hand, Kant rightly insists on the very close connection between morality and religion and resists admitting a specific a priori to justify religious beliefs in the same sense in which an a priori justification of the practical use of reason is possible. On the other hand, however, Kant conceives of the relationship between morality and religion as a relationship of set inclusion, as we can see from the image of the concentric circles. In this way, Kant ascribes a determinate content to the notion of "the pure religion of reason", which however, according to Kant's own claim already quoted, ought to be examined as "a rational concept a priori" of religion, "remaining after everything empirical has been removed". If the a priori element in religion, of which Kant is determining the

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[3]　On the connection between the demand for an absolute meaning and the a priori, see also Rigobello (2007). The "religious a priori" that we are outlining is similar to what Rigobello understands as "hermeneutic a priori".

concept, is merely functional, it must be knowable and, strictly speaking, exist only in its application to the concrete cases, which are presented with respect to personal and historical experience and not separate from our experience.

It is only on the basis of the tacit ascription of a determinate content to the notion of "the pure religion of reason" that Kant is justified in concluding that we shall be left with a permanent a priori core if we abstract from the multiplicity given in empirical and historical experience. This conclusion stands in sharp contradiction to the view of a purely functional religious a priori and, as Troeltsch did not fail to point out (see for example Troeltsch 1909, p. 763), is not essentially different from the Enlightenment idea of a rational religion.

On the contrary, from the point of view of a merely functional conception of the a priori, we should conclude that, if we abstract from the multiplicity of empirical and historical factors, we simply would be left with a radical demand for an absolute meaning and value, devoid of any particular qualification. From this point of view, the religious a priori is not another a priori that should be added to that of the empirical sciences or to other types of a priori (such as those of morality and aesthetics), but it is always the same subject, human beings, which, on the one hand, conceive the formal necessity and universality of their discourses and their moral actions as a regulative ideal, and, on the other hand, are well aware of their own limitations: no matter how many particular contents are taken into account, they can never reach the ideal of absolute meaning. From this tension arises the idea of an ultimate and absolute, not purely formal, meaning. We can perceive both this limitation and what lies beyond but that does not enable us to jump over our own shadow: we can refer back to a final and absolute end, but the purely formal character of this referring remains, and we are unable to further specify what a final and absolute meaning, an end which cannot become a means to a further end, might concretely be.

Theological (and religious) TEs, including those that refer to the ultimate mysteries of faith, are one of the means or methods of exemplifying (whether rightly or wrongly is beside the point) the mentioned reference, appeal, or commitment to the question of an absolute meaning and value—a question that human beings can hardly escape. Even in the rarefied air of some medieval disputations, what matters is, in the last analysis, to clarify anthropological and existential questions. Because no absolute meaning can be circumscribed within the field of historical (moral, political, social, economic, etc.) institutions, we might also say that, even when theological TEs call for the adoption of rules of practical conduct, they confer on these rules the sense of the development of a personality that believers regard as having to be positively evaluated, so to speak, also from the "God's eye" point of view. The empirical-descriptive and moral-normative contents that appear in theological TEs are considered from the point of view of a search for an absolute meaning beyond all relative and finite meanings, towards an elsewhere, a utopian space, or, more traditionally, an afterlife. All of this can be thought of as an expression of the difficulty, if not the impossibility, of accepting the limits of the human condition, beginning with death, which is paradoxically certain despite its resting upon a very incomplete induction.

As a result, we may conclude—against the letter but not the spirit of Kant's philosophy—that the religious a priori, which characterizes theological TEs as such, expresses only a search for an absolute meaning beyond all relative and finite meanings, but it does not possess in itself a priori contents, not even moral. Thus, we cannot define a proper or rational religion, in Kant's sense, a priori and by particular contents. Theological TEs make explicit the implicit quest for absolute meaning contained in all human experiences and, at the same time, promote the conscious awareness of their historical and cultural relativity. They open a space of hope outside the 'sweep of days', but this space is not connected with any particular content: it should be filled by drawing on the history of human thought and practice.

From this point of view, adapting a famous saying of Leibniz, one is inclined to say that Fehige and Polkinghorne tend to be right in what they affirm but wrong in what they do not say. The similarities between, on the one hand, theological, and, on the other hand, scientific or narrative TEs, which they

have so strongly emphasized, however important in themselves, risk overshadowing at least two important differences or not making them explicit to a sufficient degree. The first difference consists of the fact that the relationship, made up of correlation and distinction, which connects TEs with real-world experiments in the empirical sciences, does not take place in theology: we do not find in theology the attitude typical of the empirical sciences for settling disputes, namely that of resolving, in principle without residue, their content in real experiments. Far more distinctive, however, is the fact that theological TEs are irreducible to empirical ones, because they consider both empirical-descriptive and moral-normative contents from the point of view of a search for an absolute meaning beyond all relative and finite meanings.

This does not imply that we can give a criterion or a set of criteria to be used when we wish to settle the question of whether a theological TE is good. It only means that we should strive for objectivity, universality, and impartiality (or, in one word, rationality) in assessing our own (implicit or explicit) answer(s) to the quest for the meaning of life. The general criterion of rationality must translate into concrete and detailed criteria or methods, which are as numerous as the different questions that one might ask about the final meaning of any aspect of human life. Because the number of these problems is indeterminate, no complete list of these criteria or methods can be given a priori or (what comes to the same thing) they cannot be reduced to a single criterion or method. It is only through a process of interpretation and reinterpretation of the past history of knowledge (in this case, of the past evaluations of TEs) that we know anything about such methods and criteria (for more details on this point, see Buzzoni 2013b). Surely, this may lead to the charge of relativism, but here, nothing can help us but our openness to dialogue. If one still wanted to have a criterion placed outside the continuity of this evaluation process, he would, even if tacitly and unwillingly, enter the realm of force and leave that of reason. A criterion placed outside the continuity of the historical evaluation process could only be imposed by means that can be neither learned nor (of course) taught. For this reason, it would be restricted to those real audiences that are under the sway of the contingent power that enforces it. The realm of reason, on the contrary, includes the future members (or current ones who have not yet spoken up) of an unlimited research community, which is by definition open and unpredictable. In this realm, anyone can legitimately claim to have succeeded in discovering an absolute criterion, but no one can protect this claim from critiques and demands for clarification.

4. Conclusions

The main aim of this paper was to clarify the distinctive character of theological TEs by comparing them with empirical TEs and, although only in passing, with narrative TEs. Section 2 sketched the outlines of an account of empirical TEs (summarized in more detail elsewhere), whose most important aspect lies in the reducibility in principle of their theoretical contents to experience, that is, to real-world experiments. On the basis of this view, Section 3 emphasized the most important difference between theological and empirical TEs against the background of a fundamental similarity. On the one hand, the most important similarity—which is also to be found in any cognitive enterprise—consists of the effort to let the object come forward as it is, without interfering with it, as much as possible. On the other hand, in theology the effort to let the object come forward as it is has almost nothing to do with the building of experimental machines. Rather, theological TEs are importantly dissimilar to empirical and narrative ones, because they consider both empirical-descriptive and moral-normative contents from the point of view of a search for, or an appeal to, an absolute meaning beyond all relative and finite things.

However, as in the case of empirical TEs, this difference ought to be interpreted from the point of view of a purely functional, not material, a priori, which is in line with, if not the full letter, the spirit of Kant's a priori. Developing a suggestion by Ernst Troeltsch, we saw that natural and historical reality can be considered from the point of view of a "religious a priori", which is the condition of the possibility of religious experience. It allows us to interpret, rightly or wrongly, empirical-natural and moral-historical reality on the basis of a different reality, which can give a final and absolute meaning

to human existence. The last point indicates also the most important difference between theological and narrative TEs. In a world in which faith played no role at all and scientific reason was the only perspective from which reality could be viewed, there would be no difference between a biblical story and a literary story, and an empirical event that in a sacred text qualified as a miracle would simply be a natural process in need of further investigation. Theological TEs, which express a search for, or an appeal to, an absolute meaning, do not possess a priori contents, not even moral. They, on the one hand, open a space of hope over and beyond the life we already have, but this space is in itself void of any content and should therefore be filled by drawing on the history of human thought and practice.

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