

A Methodology for Theological Systems: The Relation between Theological Systems and External Data

Mansour Nasiri

Associate Professor, College of Farabi, University of Tehran, Qom, Iran.
E-mail: nasirimansour@ut.ac.ir, (Corresponding author).

Muhammad Legenhausen

Professor, Imam Khomeini Educational and Research institute, Qom, Iran. E-mail: legenhausen@gmail.com.

Abstract

In this paper, the scientific methodology of the contemporary philosopher *Imre Lakatos* is revised to construct a methodology for theological systems. In this methodology, each theological system consists of the following main elements: (1) hard core I, (2) protective wall, (3) hard core II, and (4) auxiliary hypotheses. We will expound the criteria for the evaluation of different theological systems and show how a theological system prevails over other theological systems in the light of these criteria. These criteria are of two types: first, the criteria that we have presented for a successful and progressive theological system; second, the criteria mentioned in the philosophy of science for the evaluation of competitor scientific hypotheses and theories. In conclusion, we present the results of our proposed theological plan. Some of the results include preserving religion from distortion and deterioration, resolving the disputes over the relation between science and religion or reason and religion, and considering theology as a science parallel to other sciences.

Keywords: explanation, theology, methodology of theological theories.

1. The Methodology of Scientific Theories in Lakatos's View

In his *The Methodology of Scientific Research Programmes* (1978; see also Lakatos 1970; 1976), Lakatos holds that a research program in any science or tradition of scientific theorizing is carried out on the basis of the following structure: The research program has a pivot and center, including a central theory called its hard core. The hard core is stable and unifies the program by providing a general view of the entities being investigated. Immediately after this hard core, which is the axis of the research program, there are auxiliary hypotheses. Auxiliary hypotheses provide the information needed in order to make possible the relation between the data and the central theory. Auxiliary hypotheses constitute, indeed, lower level theories, which define and support the core theory. On the other hand, the various data, which are discussed in various sciences, support the auxiliary hypotheses.

Some of the auxiliary hypotheses are of a higher level and some of a lower level. The higher-level hypotheses are the ones closer to the core or center and explain the lower level theories. The auxiliary hypotheses, as such, form a protective belt around the central theory, because the potentially falsifying data are explained by making changes in the auxiliary hypotheses rather than in the core theory. In fact, in case of observing or encountering potentially falsifying data, some of the auxiliary hypotheses will be changed and thereby the central theory will be protected. Thus, some scholars say, "It would thus be more accurate to say that a research program is a temporal series of networks of theory, along with supporting data, since the hard core stays the same but the belt of auxiliary hypotheses changes over the time to account for new data" (Murphy and Ellis, 1996, 11). The hard core will be abandoned only if, in comparison to rival research programs, it cannot explain the observed phenomena.

By defining the concepts of *positive heuristic* and *negative heuristic*, Lakatos distinguishes between mature and non-mature sciences. The negative heuristic is a program for protecting the central theory from falsification. It requires the basic characteristic of the research program or its core theory not to be abandoned and/or adjusted but be kept away from falsification. On the other hand, the positive heuristic is a plan, which includes approximate guides for making possible the expansion of the research program.

Therefore, the positive heuristic includes a set of proposals or indications mentioned in the research program that prove the manner of change and expansion in the *cancelable variable* of a research program and, in other words, show the manner of adaptation and adjustment and/or expansion of the protective belt. On this basis and as an instance, it is to be noted that the central core of the Newtonian research program was formed from the three laws of motion and the law of gravity. The auxiliary hypotheses of this program, also, included the preliminary conditions and application of laws appropriate to special cases. The positive heuristic included items such as a plan to find a solution to very complicated issues about the circuits of the planets.

2. The Explanatory Methodology for Theological Systems

After this brief survey of the methodology of scientific research from the viewpoint of Lakatos, we can explain our view on the methodology of theological explanation. Although the method presented here for theological explanation is similar to that proposed by Lakatos for scientific research programs, we will see that there are significant differences between the two methodologies.

In every theology, firstly, there are a series of doctrines considered as the main hard core (hard core I), which is central to that theology.

More accurately, this hard core is not itself a part of the theology but consists of the primary doctrines of the religion, which, in the case of Islam, are expressed in the Quran and hadiths of the Prophet as the sources for theological speculation. These sources are considered to be unquestionable sources for all scholars of divinity and therefore protected as hard core I in all theological doctrines.

The starting point for the establishment of a theological system occurs when we want to have a systematic understanding of a religion. Once we want to present a systematic concept of a religion and to take doctrines from it, we start establishing and forming a theological system. Therefore, reasoning or intellectualization is always inseparable from theologizing; and, thus, reason always helps the theologian. Sometimes theologizing shows a theologian's attachment to a certain philosophical school. Kh^wajah Nasir al-Din Tusi is one of the most outstanding Shiite theologians, whose attachment to Aristotelian philosophy is an example of this point. In his works, we can see how he relates philosophy to theology. Philosophy is present in all steps of theologizing (which will be explained more below) as an assistant and helper for the theologian. In the first steps of theologizing or establishing a theological explanatory system, the founder of a theological system or a particular theological explanation usually selects one or several basic doctrines as criteria or as a source for all other doctrines. Thus, the hard core II is formed, and the auxiliary hypotheses are placed after it. This is the first difference between the methodology of a theological system or explanation and the method of Lakatosian scientific research programs, because, according to Lakatos, in the major scientific theories, firstly there is a hard core, and secondly this hard core is a part of the scientific research program and a part of the scientific theory. However, in an Islamic theological system or explanation program, there are two hard cores: (1) the main hard core,

or hard core I, which is given by the Quran and/or hadiths of the Prophet, and (2) hard core II, which includes the initial doctrines of the founder of the theological system.

Around hard core I, there is a protective wall. Here we find another difference, because, according to Lakatos, there is only one hard core in scientific theories and, after the hard core, there are the auxiliary hypotheses, which are changeable and adjustable at any time. However, we hold that there are two hard cores in a theological explanation program or system, and there is a protective wall after hard core I. This protective wall consists of the interpretation, given by the Imams (in Shiism) or by the Companions (in Sunnism), of the doctrines of the religion. Since the Imams are not considered to be the “lawgivers” but rather the interpreters of the divine law, their words and teachings may be regarded as theologizing. However, since, in the Shiite view, they are infallible, this protective wall, contrary to auxiliary theories, never falls and is secured as an unchangeable part of any theological school. Therefore, hard core I (the religious texts and the essentials of religion) and also some other doctrines will be secured in all theologies. So, the believers will retain their beliefs, reject doctrinal relativism, and uphold the truthfulness of their religious system, because it is impossible to develop a theological system that meets the proposed criteria while challenging the main hard core of the religion. This point illustrates another difference between our methodology and Lakatosian scientific research methodology.

Hard core II is beyond the protective wall, and the auxiliary hypotheses are beyond the second hard core. Auxiliary hypotheses include various factors of the theological explanation program, and one of the most important auxiliary hypotheses is the presupposition that

the founder of a theological school has an intellectual treasure. They include, also, doctrines that founders of theological systems present in order to explain and illustrate the second hard core, as well as systems by secondary thinkers in a given theological school. In addition, auxiliary hypotheses include the results of the arguments presented by the founder and advocates of the theological school to prove hard core II.

The auxiliary hypotheses of a theological school are divided into two general groups: (1) High-level hypotheses that are initial auxiliary hypotheses. These are immediately proximate to the second hard core and explain, demonstrate, or defend it against challenges. (2) Lower-level hypotheses that are auxiliary hypotheses formed at the second level. They explore, explain, demonstrate, or defend the high-level auxiliary hypotheses.

Finally, the auxiliary hypotheses of a theological program explain phenomena by referring to the second hard core. Thus, auxiliary hypotheses themselves have several levels and each higher level explains the auxiliary hypotheses of the lower levels. This procedure continues until the second hard core is reached. In the second hard core too one or more main doctrines are considered as final explanations. The complete explanation of a given explanandum will be accepted if it can be based on or supported by these final explanations. For example, the existence of God is the final explanation of the existence of the world, and the wisdom and intention of God is the final explanation of some of the phenomena in it.

It must be noted that the auxiliary hypotheses are at first few and probably in a relatively raw state. They will be subject to dispute and will be developed gradually along with the progress of the theological school; they may be reformed in view of challenges or otherwise elaborated.

According to the Lacatosian view of scientific research programs, if challenges are so strong that the auxiliary hypotheses fail to resist them, then the hard core is broken suddenly and the whole theory and scientific system falls and is replaced by another scientific system (as in the shift from classical cosmology to Copernican cosmology or the shift from Newton's system to Einstein's system). In our theological program, however, this can happen only to the second hard core. Thus, if the challenges were so strong that the auxiliary hypotheses fail to resolve them, then the whole theological school formed by the protective wall and the second hard core would collapse and the explanation program would be regarded as obsolete and would be abandoned; however, if the proponents of the school can reply and handle the challenges, then their explanatory program will be regarded as progressive and will survive.

How can we evaluate competing theological systems and choose among them? This will be discussed in the following section.

3. Criteria for the Evaluation of Theological Systems

Criteria for evaluating competing theological systems are divided into two general groups: (a) special theological standards and (b) standards that are presented in the philosophy of science to evaluate scientific hypotheses and theories.

3.1 Special Theological Criteria

A progressive theological explanatory program is a program that possesses the following properties:

1. **The ability to reply to intra and inter-religious challenges:** When new theological schools of thought are first establishing themselves in a religion, it is natural for them to challenge the dominant

interpretations of religious doctrines and practices of the same or other religions. These challenges result in a development from the raw state of the original teachings toward sophisticated elaborations. Theological explanatory programs must be able to reply to these challenges through the employment of their initial auxiliary hypotheses or by inventing new auxiliary hypotheses that are defensible to a greater extent.

2. **The ability to reply to intra and inter-theological challenges:**

These challenges arise from within a given denomination when there seem to be discrepancies among its theological teachings. Clearly, if we observe that there are inconsistencies in our beliefs, we have to remove them. A theological school usually tries to remove such inconsistencies by inventing auxiliary hypotheses, by removing some auxiliary hypotheses of its theological explanatory program, or by inventing other auxiliary hypotheses as supplementary hypotheses. Fayd Kashani's *Kalimat maknunah* (which is a collection of the views of select philosophers and mystics on different religious topics) is a sample of the attempt to resolve apparent contradictions among auxiliary hypotheses in theology; for example, in the first chapter of that book entitled "A Word by Which It Is Possible to Resolve the Contradiction between the Impossibility and Possibility of Knowing and Observing God," Kashani tries to resolve the apparent contradiction between two auxiliary hypotheses: (A) an auxiliary hypothesis that implies the impossibility of knowing and observing God and (B) an auxiliary hypothesis that implies the possibility of knowing and observing God. He replies to this inter-theological challenge, explores the conflicting auxiliary hypotheses, and adds other auxiliary hypotheses. He performs this task by introducing two lower level hypotheses, one related to the auxiliary hypothesis A and the other

related to the auxiliary hypothesis B. Thus, these two new auxiliary hypotheses are clarifications of the auxiliary hypotheses A and B. The auxiliary hypothesis which clarifies A refers to the fact that human beings cannot grasp the divine essence: “There is no way to the essence of God, because God encompasses all things and thus cannot be encompassed by anything. And knowing something does not occur except by encompassing it in one’s knowledge: ‘They cannot comprehend Him in their knowledge’ [Quran 20:110]” (Fayd Kashani 1386 Sh, 22). The auxiliary hypothesis that clarifies B is the following: while human beings cannot reach the divine essence and substance, they may recognize God to the extent that He has become manifest in His names and creatures: “[S]o whichever way you turn, there is the face of Allah!” (2:115).

3. **Replying to challenges from outside religion and theology:** These challenges arise from non-religious and non-theological realms. For example, it is possible that a doctrine or several doctrines, which have been put forward by a theological school or have been based on a philosophical principle, conflict with observational or scientific data. In this situation, the theological school will most likely reply by a reexamination of some of its auxiliary hypotheses or by inventing new auxiliary hypotheses. In this regard, some instances of conflict between religion and science may be mentioned.
4. **More explanatory ability:** If a new explanatory school fails to explain more explananda than the previous explanatory schools, it cannot be regarded as progressive. So, in addition to explaining those explananda explained by the previous schools, a progressive theological explanatory program should explain new explananda that the previous explanatory schools were unable to explain.

5. **Better coordination and conformity with the first hard core the and protective wall:** A theological system will be better if, in contrast with its rivals, it has better coordination with the first hard core and protective wall.
6. **More insights into religious issues that arise with regard to hard core I and hard core II:** A theological system will have an advantage over its rivals if it appears to open the way to further insights into the issues pertaining to the hard core I and II. If, in contrast, a rival system appears to be a dead end in this respect, it will be at a disadvantage and may eventually be disregarded.

3.2 Standards in the Philosophy of Science

In addition to the above criteria, there are other criteria discussed in the philosophy of science, the most important of which are simplicity and the scope of the explanatory domain.

As to simplicity, some writers, such as Peter Lipton (2004), hold that simplicity is the first characteristic of an attractive explanation. Simpler explanations allow for more understanding, because simple explanations include fewer propositions and thus have less complexity. However, simplicity signifies truth when it is accepted that fewer assumptions and references lead to less mistakes. However, this is a controversial issue, and some scholars, such as van Fraassen, reject it.

As to the explanatory domain, it is said that it is more reasonable to accept a theory that explains more phenomena. Hence, since justification is enabled through explanation, an attractive explanation is ideally able to justify more phenomena. There are other criteria discussed in the philosophy of science as well.

A theological explanatory program meeting the above conditions is progressive. This idea of a theological explanatory program is

consistent with the history of religions and theological schools. Indeed, if we look briefly at the history of religions, we see various theological schools among the proponents of every religion. The question is why all these various theological schools have emerged in all religions. The answer will be clear if we note the above-mentioned pressure to explain and respond to challenges. Indeed, at the beginning, each theological school presents a few doctrines as its second hard core, beyond the protective wall, and then develops them by presenting auxiliary hypothesis. If the doctrines and auxiliary hypotheses of a theological school can resolve the problems and challenges, it will survive; otherwise it will be discarded. For example, consider the Jahmiyya school in Islamic theology, which seems to have been the first deterministic school in Islam. It was founded by Jahm ibn Safwan (742 CE), who believed in pure determinism. The second hard-core in this school consisted of the initial ideas of Jahm that clearly confirmed absolute determinism, according to which human beings had no power, no free will, and no volition, and God was the only creator and doer of all works. Jahm drew this doctrine from the first hard core—from such verses as “And ye will not, unless (it be) that Allah will” (Quran 81:29)—that apparently signifies determinism. Certainly, he had auxiliary hypotheses about this doctrine, such as the hypothesis that any kind of causality for a human being is inconsistent with monotheism.

Clearly, this theological explanatory program faced various challenges. For example, one of the inter-religious challenges to it was the Quranic verses that confirmed free will for human beings (e.g., “Verily, Allah will not change the good and the bestowed condition of a people until they change what is in themselves” [13:11], and “Let whoever wills believe and let whoever wishes disbelieve” [18:29]). An external-religious challenge to this doctrine was its inconsistency with

human inner knowledge that punishing a person who was forced to commit a sin is wrong. So, Jahm invented a new auxiliary hypothesis to resolve this inter-religious challenge: he stated that, given the doctrine of monotheism in Islam, any verse or narration attributing an action to a human being or anyone other than God must not be taken literally. This auxiliary hypothesis, in turn, was challenged by the question “How could one ascertain that such verses were all metaphorical?” Moreover, this auxiliary hypothesis would result in further unacceptable consequences. Therefore, to resolve these challenges to his theology, Jahm introduced another auxiliary hypothesis that, in its turn, faced a further inter-religious challenge—namely, its inconsistency with the mission of the prophets: if God has absolute sovereignty and man has no free will, why did God send prophets to mankind to call them to religion? Since the Jahmiyya could not respond to these challenges—e.g., by inventing new auxiliary hypotheses or expanding the existing auxiliary hypothesis—this theological explanatory program declined and was eventually replaced by other theological schools.

After the Jahmiyya, the Mu‘tazila emerged, whose second hard core was exactly contrary to that of the Jahmiyya. The proposed Mu‘tazili second hard core was the absolute human free will. They put forward this hard core within the framework of a doctrine of *delegation* (*tafwid*). According to this doctrine, after creating the world and human beings, God delegated all acts to human beings and abandoned any type of intrusion or interference in the world. The Mu‘tazila extracted their second hard core from elements of the first hard core, such as the verses that insist on human free will in The Quran (e.g., the two verses that we mentioned above as challenges to the Jahmiyya).

The Mu‘tazila, then, put forward auxiliary hypotheses concerning this second hard core, among which were the following: (1) God is fair or just; (2) anyone whose actions are forced or coerced shall not be punished by God for them; (3) the mission of prophets is to command good and prohibit evil and to teach human beings the way to salvation; and (4) the doctrine of *rational goodness and evilness*—that human intellect is capable of discerning at least some instances of good and evil.

The maximum independence of reason was another doctrine within the second hard core of Mu‘tazilite theology. According to this doctrine, reason could solve all issues in relation to beliefs. The Mu‘tazila showed their loyalty to this doctrine in all their discussions.

One challenge against the Mu‘tazili doctrine of the absolute freedom of human beings was that this doctrine would undermine God’s absolute sovereignty. The auxiliary hypothesis that the Mu‘tazila used to solve this challenge required a special interpretation of God’s absolute sovereignty, according to which divine sovereignty did not include human actions. This solution was soon challenged by other Muslims as being inconsistent with elements of the first hard core that indicated that God’s absolute sovereignty was unlimited. Appealing to verses of the Quran and hadiths of the Prophet that insisted on absolute human free will, the Mu‘tazila parried the challenge and thus saved their school from decline. Another challenge that was very important had to do with a famous debate between Abu l-Hasan al-Ash‘ari (the founder of the Ash‘ari school of theology, but initially a Mu‘tazili) and his master Abu ‘Ali al-Jubba‘i concerning the necessity for God to consider the welfare of His servants and the implications of this for a human being’s fate in the afterlife. “Do you think it is necessary for

God to observe what is best for His servants?” al-Ash‘ari asked al-Jubba‘i. The latter’s reply to the question was positive. Clearly, his positive answer was based on the second hard core of Mu‘tazilism. Al-Ash‘ari then asked: “What do you think about the fates of three brothers, one of whom died as a pious believer, the other as an impious pagan, and the third as an immature child?” Al-Jubba‘i replied that the first brother would be rewarded in heaven, the second would go to hell, and the third would be at peace. “Does God allow the third one to go to heaven where the first one resides?” al-Ash‘ari asked. “No! God tells him that he is not allowed there, because he did not perform the righteous deeds that his brother had performed,” al-Jubba‘i replied. Al-Ash‘ari asked: “What if the youngest brother says to God: ‘It was not my fault, because You did not allow me to live long enough to perform acts of obedience?’” “God will say to him: ‘I knew that if you lived longer, you would sin and be destined to great punishment, so I considered your welfare in taking your life at an early age,’” al-Jubba‘i replied. In response, al-Ash‘ari said, “Then the sinful brother may say to God: ‘Why didn’t you consider my welfare and take my life at an early age?’” At this point, al-Jubba‘i was no longer able to reply by presenting any other assumptions, and this was the point where al-Ash‘ari separated from al-Jubba‘i and established his own school of theology.

The main point that occupied al-Ash‘ari’s mind was to preserve God’s absolute sovereignty in all areas. Thus, he invented a new second hard core for his own theological school to avoid one of the most important shortcomings of Mu‘tazilism. According to this new hard core, all works and events (even human actions) are created by God. He extracted this hard core from the first hard core—i.e., the verses of the Quran that emphasize that God is “the Creator of everything” (6:102) and that “God created you and what you act” (37:95-96) and other verses that attribute

human actions to the God. However, his new hard core was challenged severely as well, since the very challenges facing the Jahmiyya could emerge here as well. Al-Ash‘ari was aware of this, so he put forward a number of auxiliary hypotheses. His first auxiliary hypothesis was an addition to his new hard core: God is the creator of human actions, and humans acquire (*kasb*) them. By this auxiliary hypothesis, he tried to retain the doctrine of God’s absolute sovereignty and to find a new way to avoid the charge that he had reverted to determinism.

Various challenges from outside religion and theology also arose against this theory. Therefore, adherents of the Ash‘arite school developed new auxiliary hypotheses in order to explain the theory and respond to the new challenges. However, these new auxiliary hypotheses were inconsistent (see Sobhani 1414 AH, 2:125-40), and this inconsistency posed a new challenge to Ash‘arite theology. Therefore, not only the Ash‘arites failed to eliminate the previous challenges but also they were faced with a new challenge. Although this challenge did not result in the complete elimination of Ash‘arism, it led many Ash‘arite thinkers to abandon it, among whom were Imam al-Haramayn al-Juwayni (fl. 5th century), Shaykh Muhammad ‘Abduh (d. 1905), and Shaykh Shaltut (d. 1963).

However, a question that arises here is why Ash‘arism failed to replace Mu‘tazilism completely. The answer is that although al-Ash‘ari challenged one of the most important hard cores of Mu‘tazilism, his school came to be challenged along several fronts. In other words, each theological school that attempts to replace another theological school should meet all the above-mentioned required conditions, and the Ash‘ari school failed to meet them, especially the first, third, and fourth conditions.

A point not to be ignored is that it is possible that a declining theological explanatory program may emerge again by developing new auxiliary hypotheses. In this regard, we agree with Popper that no theory will be falsified completely and definitely.

In any case, progressive theological schools should meet all the conditions mentioned above; otherwise, their second hard cores would break and their theological programs would be replaced by a new program.

Given the above model, it is clear that our approach in explanation is a unity-oriented approach: theological explanation is such that it ultimately refers all explanations to a limited explanatory principle; in other words, it ultimately explains all explananda by one or a limited number of basic explanatory principles. On the other hand, explanation occurring at any level shall relate to the hard core. Therefore, lower-level auxiliary hypotheses are proposed to respond to challenges by explaining higher-level auxiliary hypotheses. On the other hand, as mentioned above, higher-level auxiliary hypotheses are around the second hard core, and the second hard core is formed on the basis of and around the protective wall and the first hard core. Therefore, all theological explanations are, in fact, unity-oriented explanations.

The process of developing a theological explanation is like the process of developing scientific theories, which is based on data acquired through experiment; based on these data, the theory is formed, and then it will be examined through the experimental method based on observations and experiments. The most important difference between the development of theories in empirical sciences and in theology is that in theology, instead of experimental and observational data, sacred texts are central. Since the understanding of these source texts changes over the course of time, the theologies based on them should be expected to

change. So, in order to develop theological explanation, theologians put the first hard core as a base for their data. As we saw, in the first step, a second hard core would be founded after the protective wall. In a second step, theologians present higher-level auxiliary hypotheses and in subsequent steps, low-level auxiliary hypotheses will be established. Usually, theologians modify their auxiliary hypotheses, but sometimes during the theological explanation process even some elements of the second hard core or some of the doctrines of the protective wall will be modified, and thus the theological system itself will be modified. Clearly, no theological doctrine will discard its protective wall or first hard core completely. For example, when theologians reject a hadith for some reasons (e.g., its contradiction with reason or the weakness of its chain of narrators), they act similarly to scientists when they reject a theory in light of experimental evidence.

4. Conclusion

Firstly, using the model we tried to construct would protect religion against decline and distortion. Secondly, the conflict between science and religion and between reason and religion and the conflict among theological schools can be resolved through this model. Thirdly, any theology that is able to fulfill the above criteria would be able to respond to challenges from alternative religious viewpoints as well as challenges from non-religious viewpoints; this gives the model a great advantage over its competitors. Fourthly, by following this methodology, theology finds a way to explain and resolve its problems in a manner analogous to that of sciences.

Generally, theological explanations are given in the domain of boundary questions, which may be divided into two broad kinds: (1) boundary questions concerning causal explanations for beings and (2)

boundary questions concerning other universal phenomena. Boundary questions refer to issues that are beyond the domains of other sciences (including natural sciences and humanities) and hence cannot be answered or explained within them. Theology develops a worldview, and in so doing it seeks to explain these questions through an integrative and unified model.

References

- Fayd Kashani, Muhsin. 1386 Sh. *Kalimat maknuna*. Edited by Sadegh Hassanzadeh. Qom: Eshragh.
- Lakatos, Imre. 1970. "Falsification and the Methodology of Scientific Programmes." In *Criticism and the Growth of knowledge*, edited by Imre Lakatos and Alan Musgrave. Cambridge: Cambridge University Press.
- Lakatos, Imre. 1976. *Proofs and Refutation: The Logic of Mathematical Discovery*. Edited by John Worrall and Elie Zahar. Cambridge: Cambridge University Press.
- Lakatos, Imre. 1978. *The Methodology of Scientific Research Programmes*. Edited by John Worrall and Gregory Currie. Cambridge: Cambridge University Press.
- Lipton, Peter. 2004. *Inference to the Best Explanation*. London: Routledge.
- Murphy, Nancey, and George F. R. Ellis. 1996. *On the Moral Nature of the Universe*. New York: Fortress Press.
- Sobhani, Ja'far. 1414 AH. *Buhūth fi l-milal wa-l-nihāl*. Qom: Intisharat Islami.