INTELLIGENT DESIGN IN ARABIC: FROM SCIENTIFIC KNOWLEDGE TO RELIGIOUS WORLDVIEWS

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ABSTRACT: While modern science adopts an evolutionary worldview in the study of life on earth, competing religious systems adopt variations of the creationist worldview in line with their respective brands of culturally embedded knowledge. Nonetheless, these religious systems inevitably interact with science in order to exchange information and interpretations. This paper views the knowledge exchange between science and religion as a form of epistemic translation that involves reframing biological evolution through adaptation and transformation. First, the claims of the creation science and intelligent design movements in the United States are conceptualised as translations of the scientific knowledge produced in evolutionary biology. Afterwards, paratexts accompanying the earliest translations of intelligent design literature into Arabic are analysed to reveal how this conservative Christian literature is adapted to a Muslim context. Epistemic translation arises in both cases as a factor influencing dynamic discourses sensitive to knowledge transfer from other epistemic systems.
KEYWORDS: Epistemic Translation, Intelligent Design, Science and Religion, Islamic Creationism, Paratextual Analysis

1. Introduction

This article traces a case in which scientific knowledge is transferred from science to religion. The scientific knowledge in this case is produced in the discipline of evolutionary biology, then adapted as pseudoscience by Christian movements in the United States, before the adapted pseudoscience finally reaches readers of Arabic through translation after further adaptation by Islamic organisations. In order to facilitate the study of this instance of knowledge transfer, science and religion(s) are depicted as epistemic systems concerned with different types of knowledge in line with their different purposes and worldviews. Understanding the motion of knowledge between these systems requires translational processes capable of addressing the differences between knowledge systems. Robinson (2017, p. 200) suggests "interepistemic translation" as a label for the translation between epistemic systems, a process that involves the adaptation and transformation of knowledge as it is reframed in another epistemic system. Bennett (2024, p. 2), changing the label slightly to "epistemic translation", predicts that the examination of transformations taking place while translating from one epistemic system to another may reveal the cultural frameworks and semiotic mechanisms involved. (Inter-)epistemic translation is, therefore, a concept that facilitates understanding the recontextualisation of knowledge in transit and the factors influencing this process.

Unpacking the adaptation and transformation aspects of epistemic translation, the article traces how scientific knowledge pertaining to biological evolution is utilized directly by conservative Christians in the United States and indirectly by conservative Muslims in

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the Arab world. The article shows how biological evolution is transformed into antievolutionary rhetoric by the creation science and intelligent design movements in the United States to serve their religious purposes, and then how intelligent design is 'Islamicized' in publishers' paratexts when translated into Arabic for Muslim consumption. In both cases, the translation process is arguably shaping and being shaped by dynamic discourses of science and religion in the United States and the Arab world.

The paratext is proposed in this article as an adequate site for the study of epistemic translation. Batchelor (2018, p. 142) defines a paratext as "a consciously crafted threshold for a text which has the potential to influence the way(s) in which the text is received". In other words, paratexts are elements shaping how a text is read in a given context (Genette, 1991, p. 266). Paratexts, particularly those accompanying the text, are sites where the agents involved in the production of the text are liable to reveal their intentions. In the case of translation, Batchelor (2018, p. 25) suggests that these paratexts are where "adaptation of the text to its new environment" is commonly declared, explained and justified. Hermans (2014, p. 33) adds that the agent(s) involved in translation may avail themselves of these paratexts to "signal their agenda", which may or may not conform to that of the author(s). Moreover, paratexts are not only influenced by their new context, but also capable of exerting their own influence on it (Batchelor, 2018, pp. 170–171). Paratextual analysis is thus capable of bringing to light the transformations and adaptations involved in epistemic translation and the motives behind them.

In the next section, science and religion are conceptualised as systems producing knowledge of a different nature using different means. Although both systems are epistemically diverse, science is united by the application of methodological materialism while religions have in common an appeal to the supernatural. Section 3 interprets the increasing reliance of creationist movements in the United States on scientific knowledge as a form of epistemic translation where science is transformed into pseudoscience. Section 4 analyses paratexts of the earliest Arabic translations of intelligent design (the most recent American creationist movement) to answer why this body of literature attracted Islamic organizations and how the discourse was adapted to make translation possible. Finally, the article concludes by illustrating the theoretical value of epistemic translation to the understanding of communication between the discourses of science and religion.

2. Science and religion as epistemic systems

Modern science as an epistemic system is relatively coherent. Modern science is broadly concerned with "the testing of explanations of the natural world against nature itself" (Scott, 2009, p. 3). Put another way, it is concerned with inquiry into aspects of the world using empirical methods (Bennett, 2023, p. 445). What sets modern science apart from other approaches to knowledge is the adherence to methodological materialism, also known as methodological naturalism, according to which explanations of natural phenomena are restricted to natural causes (Scott, 1997, p. 272). Nonetheless, it should be

noted that modern science under methodological materialism is still epistemically diverse. Depending on the state of research within a discipline, scientific research may accumulate based on past scientific achievements as normal science or offer novel ways to view nature leading to a new paradigm (Kuhn, 2012). The episteme of normal science, where scientific research is carried out within an established paradigm, is relatively conservative compared to the more open-minded research that leads to a new paradigm (Robinson, 2017, p. 100). Having said that, paradigm-establishing revolutionary science is still dependent on normal science, which means the two epistemes can be difficult to demarcate (Casadevall and Fang, 2016). Furthermore, there are social and cultural understandings of modern science, such as the understanding of science as practice (Olohan, 2018), that challenge the conception of science as singular or unitary. According to such understandings, different branches of science and different scientific institutions may have different 'epistemic cultures' under which knowledge construction is influenced by the frameworks in place (ibid., 2018, p. 504). Although modern science as a knowledge system is relatively coherent due to its adherence to methodological materialism, it can still be divided into smaller epistemic systems in various ways.

Religion, on the other hand, is a less coherent epistemic system compared to modern science. While the varieties of modern science arguably have commensurable worldviews, religions espouse different worldviews that are often incommensurable. As religions often adhere to competing worldviews, dialogue between them usually takes the form of polemics. Nonetheless, they seem to have in common "a belief in something beyond the material world" (Scott, 2009, p. 53). Bennett (2023, p. 445) situates religious knowledge among "Science's Others" as a kind of understanding that is "culturally embedded, embodied or performative" in which meaning is susceptible to linguistic and cultural influences. These influences encourage adherents of various religions to claim that their sacred texts, and the religious knowledge they hold, are untranslatable due to the divine nature of the language in which these texts are written (Israel, 2023, p. 7). The cultural embeddedness of religious knowledge is seen, for example, in a wide range of beliefs explaining the origin of the natural world by supernatural means. Creationism, broadly understood as "creation by a supernatural force" (Scott, 2009, p. 57), is an umbrella term for these beliefs. But since explanations of the natural world fall within the domain of science, creationist beliefs inevitably intersect with scientific knowledge. This is where translational processes between science and religion may take place.

3.From evolutionary biology to American creationism

Biological evolution is the current scientific explanation for the origin and diversity of life on Earth. Biological evolution refers to a process that causes "inherited change in the properties of groups of organisms over the course of generations" (Futuyma and Kirkpatrick, 2017, p. 7). It is an open-ended, unpredictable process that results in adaptation to the environment (Bowler, 2009, p. 10). This kind of adaptation happens gradually through natural selection, a mechanism postulating that individuals with

favourable characteristics have better chances of survival and leave behind more offspring inheriting their characteristics (Futuyma and Kirkpatrick, 2017, p. 60).

Biological evolution is the object of study of evolutionary biology, a discipline that aims to explain the ultimate causes of biological phenomena by studying the history of biological diversity (Futuyma and Kirkpatrick, 2017, pp. 6-7). The discipline emerged when the biological sciences in general were undergoing a movement of unification in the wake of what is usually called the evolutionary synthesis or the modern synthesis (Smocovitis, 1992, p. 3). An extended evolutionary synthesis is proposed in contemporary evolutionary biology to account for an ecological-developmental perspective that requires a new conceptual framework (Laland et al., 2015), although this proposal has been criticized as unnecessary and even "affected by extrascientific values" (Futuyma, 2017, p. 9). The debate on the extended evolutionary synthesis is a debate on the significance of developmental processes to evolutionary explanations, not on the validity of these explanations (Baedke, Fábregas-Tejeda and Vergara-Silva, 2020). Evolution, therefore, remains "the consensus view of the scientific community" (Scott, 2009, p. 165).

Although the concept of biological evolution is firmly established as one of the cornerstones of modern science, the idea of evolution is doubted or even denied for religious and other reasons (Futuyma and Kirkpatrick, 2017, p. 577) and is capable of provoking public controversies in various cultures around the world (Thompson and Walsh, 2014, p. 3). Nonetheless, Scott (2009, p. 63) notes that apart from small movements in Islamic countries and Israel, antievolutionism is rooted in conservative Christianity in North America, particularly in the United States. Scott (1997) places this religious brand of evolution denial along a continuum of positions ranging from special creationism to deism, depending on how literally the Bible is interpreted and how much of modern science is accepted. The more conservative views embrace young-earth creationism, the belief that the earth was created by God around 6,000 to 10,000 years ago. Less conservative views embracing old-earth creationism accept the idea of an ancient earth as established in modern science while rejecting aspects of modern evolutionary theory. Around the turn of the 21st century, American antievolutionist discourse was starting to gain global exposure through translation and other means of communication (Numbers, 2006, pp. 399-401). The particular nature of this discourse that arises in an American Christian context raises questions of adaptation when translated into other contexts.

Around the early 1960s, evolution denial in the United States started to shift from a dogmatic to an epistemic rejection of evolution. Scott (1997, p. 268; see also 2009, p. 68) sees this shift as marked by the 1961 publication of *The Genesis Flood*, a book that influenced fundamentalist Christians to argue that evolution is "not only religiously objectionable but also scientifically flawed". The shift resulted in what came to be called creation science, a movement that adopts young-earth creationism in its blending of theology and science. But rather than providing scientific evidence for creation and a young earth, creation science literature is predominantly directed toward finding flaws in the evolutionary worldview (Scott, 2009, pp. 106-107). This epistemic shift inevitably required

more engagement with science, and therefore more need of translating scientific knowledge epistemically in order to achieve the aims of creation science. For example, creation science relies on transforming uncontextualized data pulled from scientific literature, such as research on the Cambrian explosion, into evidence against evolution. Creation science also adapted the distinction between microevolution and macroevolution in evolutionary biology into 'horizontal' and 'vertical' change in its rejection of speciation. Consequently, the nature of the claims against evolution resulting from this translation process requires more engagement from scientists with specialized knowledge in order to refute it (Scott, 1997).

The rise of creation science in the United States triggered a wave of Arabic publications in the 1980s that adapted the tendency towards an epistemic rejection of evolution for an Islamic context. The influence of creation science on these publications is evident in the arguments they advanced as well as in the works they cited, although it seems that none of the works of creation science literature were translated into Arabic (Shavit, 2015). The lack of interlingual translation of these works is likely due to the insistence of creation science on a young earth worldview in line with a literal interpretation of the Bible. Conservative Christian and Islamic narratives of creation diverge in relation to the age of the earth because, unlike the Bible, the Qur'an does not postulate a young earth (Malik, 2021, p. 100). The age of the earth even informs a popular Muslim critique of the Bible in Muslim-Christian polemics (Kojonen, 2023, pp. 667-668). Although creation science was translated epistemically into an Islamic context, the epistemic divide was perhaps too wide for interlingual translation to take place.

Around the late 1980s, the failure of the proponents of creation science to convince American courts of its scientific status channelled antievolutionist efforts into a more sophisticated scientific alternative to evolution in the form of intelligent design (Scott, 1997; 2009). Unlike creation science, the intelligent design movement predominantly accepts an ancient earth in accordance with modern geology, although there are some exceptions (Scott, 2009, p. 133). Most intelligent design proponents insist on the insignificance of specifying a natural or supernatural agent responsible for the design in order to avoid the religious implications of a supernatural intelligent designer, again with some exceptions (Sober, 2007). Intelligent design literature is generally considered more scholarly in its focus on "areas in evolutionary theory that are not yet well understood" (Scott, 1997, p. 280), although it rarely offers empirical studies and, instead, settles for commenting on the research of evolutionary biologists (Scott, 2009, p. 132). The closer engagement of intelligent design with evolutionary biology requires more sophisticated translational processes in order to adapt scientific knowledge into a creationist worldview. An example of this adaptation is Behe's (2006) portrayal of biochemical structures, such as the bacterial flagellum and the blood clotting cascade, as irreducibly complex structures that cannot be explained through evolutionary processes. By introducing the concept of irreducible complexity, Behe translated competing evolutionary explanations of complex biochemical phenomena into transcendental design for the purpose of introducing an

intelligent designer responsible for these phenomena. Even though the religious motivations of intelligent design are still discernible, they are promulgated under a more scientific guise.

Despite the conservative Christian roots of the intelligent design movement, its proponents are more pronounced in their claim to science. This is not to say intelligent design claims to operate under methodological materialism, but that proponents of intelligent design demand that science should be radically changed in order to accommodate the possibility of intelligent intervention in explanations of origins (Scott, 2009, p. 130). As such, intelligent design is depicted as a revolutionary scientific paradigm rivalling materialism (Numbers, 2006, pp. 379-383). The argument for bestowing a scientific status on intelligent design by extending science beyond the boundaries of methodological materialism rests on claims such as the presumed fruitfulness of design arguments in biology and the possibility of missing deliberate design if it actually occurs in nature because of its having been ruled out methodologically (Ratzsch, 2010). On the other hand, intelligent design is considered non-scientific or pseudoscientific because, as a reincarnation of the argument from design, it cannot be tested by observation and experiment (Ayala, 2010) and fails to provide substantive claims that are free from theological implications (Sarkar, 2011).

4. Islamicizing intelligent design

In the 2010s, the rise of intelligent design in the United States started to attract the attention of Muslim antievolutionists in Arab countries, resulting in another wave of Arabic publications adapting this new reincarnation of American creationism into an Islamic context. Obiedat (2022) places this wave of publications in the context of an Islamic reaction to a resurgence of atheism in the Arab world. But unlike the 1980s wave of creation science adaptation analysed in Shavit (2015), this wave of publications includes numerous interlingual translations of American creationist literature promulgating intelligent design. Although the adaptation of intelligent design discourse into an Islamic context is still fraught with epistemic difficulties, the narrower epistemic divide between intelligent design and Islamic creationism as compared to creation science seems to have made it possible for interlingual translation into Arabic to materialise. This section captures the nuances of reframing intelligent design in the earliest Arabic translations by means of an analysis of the paratexts accompanying these translations.

4.1 The advent of intelligent design to Arabic discourse

The interest of Islamic organizations in the intelligent design movement became evident in 2014 when the first book-length translations of intelligent design texts appeared in Arabic. The initial phase of the Arabic translations of intelligent design literature consists of four translations published simultaneously by the same Islamic publishers. These are the translations of I*cons of Evolution: Science or Myth? Why Much of What We Teach about Evolution is Wrong* by Jonathan Wells (2002, first published 2000), *The Design of Life*:

Discovering Signs of Intelligence in Biological Systems by William A. Dembski and Jonathan Wells (2008, a sequel to the 1989 creationist textbook *Of Pandas and People*), *Darwin's Black Box: The Biochemical Challenge to Evolution* by Michael J. Behe (2006, first published 1996) and *Science and Human Origins* by Ann Gauger, Douglas Axe and Casey Luskin (2012). The last book is the only one published directly by Discovery Institute, the conservative think tank acting as the hub of the intelligent design movement in the United States (Scott, 2009, p. 131). However, Wells, Dembski and Behe, the authors of the other three books, have been closely associated with the think tank since 1996 when they were appointed as research fellows in Discovery Institute's Center for the Renewal of Science and Culture (Numbers, 2006, pp. 382-383).

The four translations were published in Egypt by Elkateb for Publishing and Distribution, with Braheen Center for Research and Studies, an organization based in the United Kingdom, credited as co-publisher. According to Obiedat (2022, p. 3), Braheen is a think tank funded by civil societies based in the Arabian Gulf region with the express purpose of countering atheism. New impressions of the first edition of these translations were released almost immediately with new covers listing Takween for Studies and Research (another organization based in the United Kingdom) as an additional co-publisher. Both sets of impressions carry the same publication date, December 2014, and introduce the translations as the first edition. But out of the three publishers involved, it seems that Braheen was the agent responsible for selection and translation. In both impressions, paratexts introducing these translations to Arabic readers feature only individuals affiliated with Braheen, while Takween is acknowledged as a sponsor of the new impressions, and Elkateb (the publisher holding the translation copyrights and handling the registration and printing of both sets of impressions in Egypt) is absent beyond the covers and copyright pages.

Both Braheen and Takween were keen to introduce themselves to their target audience by means of page-long descriptions located at the end of the four translations, immediately before the back covers. In these paratexts, Braheen describes itself as an independent research centre specializing in the study of atheism and the analysis of belief crises. It has a vision of '*ālam bilā īlḥād*'[1] (a world without atheism) and aims to pursue this vision through the deconstruction of atheist discourse in accordance with Islamic scriptures and the fundamentals of Islamic law. In contrast, Takween offers a more specific premise and narrower scope for its operations. The organization describes itself as a research centre whose aim is the production of contemporary intellectual discourse representing the Sunni Muslim way of thinking. It plans to achieve this aim through the production of revelation-abiding intellectual works, the development of scientific potential, the monitoring of current debates and the criticism of intellectual deviations. Although both organizations adopt an explicit Islamic agenda, Braheen sounds more confrontational in its approach.

[1] All transliterations of names and phrases from Arabic follow the American Library Association – Library of Congress (ALA-LC) romanization standards.

Braheen was keen on situating the translations in their new context using publisher paratexts. Each of the four translations features an introductory paratext written by ʻAbd Allāh ibn Saʿīd al-Shihrī (the head of Braheen at the time of publication) to justify why each respective source text was selected for translation. Al-Shihrī's introductions are generally promoting intelligent design as an understanding of life's origins that can bring Islam closer to science, although at this initial phase he is also critical of intelligent design from an Islamic perspective. Al-Shihrī is also credited as a reviser of three of the four translations, marking his heavy involvement in the translation process. In addition to al-Shihrī's introductions, three of the translations feature an additional introduction by Aḥmad Yaḥyá, who is introduced to readers as head of the biology research department and member of the scientific committee at Braheen.

The four books were translated by a total number of six acknowledged translators, with one translation (Behe, 2014) acknowledging unnamed translators in addition to a team of three named ones. Each book was translated by a team of at least two translators. The voice of the translators, introduced only by name, is noticeably missing from the paratexts. Except for their names, translators are mentioned only towards the end of each introductory paratext, where the translation teams are acknowledged collectively as experts in biology and appreciated for working under what is described as challenging circumstances and tight deadlines. The names of all translators are preceded by the Arabic equivalent of the designation 'Dr', but since they are only introduced by name in the paratexts, it is not clear what this designation signifies for each translator, bearing in mind that it is commonly used in Arabic not just for holders of a doctorate degree but also for medical practitioners such as physicians, dentists and pharmacists.

The publishers of the translations are quite specific about the audience they are targeting and their motives for targeting them. The identical text appearing on all the back covers of the translations speaks directly to the Arab Muslim reader. In the introduction to Wells (2014), al-Shihrī describes in detail his perception of the needs of the Muslim individual that the translation aims to satisfy. In the introduction to Dembski and Wells (2014), al-Shihrī states the motive for translating the text into Arabic as meeting the need of many researchers, seekers of knowledge and critics of atheist theses for authentic (as opposed to abridged or summarized) resources. Al-Shihrī expresses a similar motive for Braheen in his introduction to Behe (2014), namely the provision of adequate scientific material to researchers interested in critiquing or evaluating the theory of evolution.

4.2 Intelligent design as science

Free from the religious connotations of intelligent design in the American context, the publishers of the Arabic translations aptly stressed the scientific status of the translated texts in their efforts to bolster the position of intelligent design in the new target context. The translations are introduced to Arabic readers as scientific works starting from the covers. Unlike the source publications, the names of the authors on three of the translations are preceded by the designation 'Dr'. Behe (2014) is even introduced by his full

title as professor of biochemistry at the University of Pennsylvania on the cover of the first impression. As mentioned above, the names of all the translators are also preceded by the same designation, most likely to highlight their competence to translate these 'scientific' works. The title of Yaḥyá as head of the biology research department, appearing under his name in the introductions, suggests that these are translations of biology texts.

The publishers' introductions also depict these works as scientific. In the two introductions by the translation's publisher to Gauger, Axe and Luskin (2014), al-Shihrī in his introduction commends the authors as 'knowledgeable experts, not amateurs ignorant of the subject matter they are criticizing' while Yaḥyá describes them as 'an elite group of specialist scientists'. In the introduction to Behe (2014), al-Shihrī stresses the importance of making what he describes as scientific materials available in Arabic to researchers interested in evolution theory. He also advises potential readers to brace themselves for he describes as specialized terminology familiar to experts in this branch of science for the sake of the 'scientific benefits' they are bound to gain by reading the translation. In the introduction to Dembski and Wells (2014), al-Shihrī situates the translation as an example of the testimonies of specialists against evolution and stresses the importance of being aware of the debates taking place between scientists in scientific institutions.

But the science the publishers of the translations are targeting is intelligent design, introduced to the target audience as a viable scientific theory that rivals the Darwinian theory of evolution. The back covers of the four translations introduce the books as representative voices of the 'oppressed' proponents of intelligent design in their ongoing debate with 'Neo-Darwinists' over formulating the most plausible explanation for the origin and diversity of life. Yaḥyá, in his introduction to Behe (2014), hails the book as a reconstruction of the design argument, while al-Shihrī offers a discussion of the concept of intelligent design supplemented with a definition translated from one of Behe's published articles. In addition to 'design' and 'intelligence' both featuring in the title of Dembski and Wells (2014), al-Shihrī's introduction also offers a terminological critique of al-taṣmīm al-dhakī, the Arabic equivalent of intelligent design adopted by the publishers, from an Islamic perspective.

The insistence on intelligent design is most apparent in the translation of *Icons of Evolution* (Wells, 2014). The idea that the book is a voice of intelligent design is reiterated in al-Shihrī's introduction. The translation of the author's biography from the source text features an added phrase stressing his status as "one of the most well-known theorists … of the 'intelligent design' theory". But unlike the claims made in the translation paratexts, the source text does not deal with intelligent design in any meaningful way. Instead, Wells attempts to undermine evolution "without specifically mentioning intelligent design" (Scott, 2009, p. 139). In fact, intelligent design is mentioned in the source text only twice, in the context of a story about a high-school teacher being prevented from introducing the concept to his students (Wells, 2002, p. 238). This insistence on constructing the translated discourse around intelligent design regardless of its status in the source text suggests that

intelligent design is the focal point of the discourse as far as the publishers of the translations are concerned.

4.3 Epistemic qualms

In the introduction to Wells (2014), al-Shihrī seems to anticipate heavy criticism from the conservative circles the translations are targeting for the initiative of translating intelligent design discourse. In order to allay these anticipated objections, he follows a strategy of justifying the position of Braheen while undermining expected counter-arguments. First, al-Shihrī stresses that a policy of complete avoidance of certain strands of knowledge is neither practical nor realistic for Muslims in this age of information availability. Instead of avoidance, he suggests that one must actively influence knowledge by participating in its production in order to minimize being negatively influenced by it. Second, al-Shihrī applies this inference to what he describes as the sensitive issue of evolutionary theory as an example of the intersection between science and religion. He then grounds the initiative of launching a series of translation projects addressing this issue within Braheen's efforts to equip Muslims with the necessary knowledge that would enable them to contribute to the debate. Third, al-Shihrī defends Braheen's initiative from a religious perspective by stating that it neither transgresses nor opposes the objectives of Islamic law, citing the 14th century theologian Ibn Taymīyah to support the permissibility of reading the books of other nations and translating them into Arabic. He bolsters this defence with an attack on those who may think otherwise, describing them as weak in mind and short in sight. The detailed nature of these anticipatory arguments indicates that the translation of intelligent design discourse was a deliberate, albeit difficult, decision.

Although the translations are presented to potential readers as strictly scientific, the publishers were nonetheless aware of the theological context of the source texts. This point is pronounced more directly in al-Shihrī's introduction to Dembski and Wells (2014), in which he draws the reader's attention to the direct influence of one's religious background and spiritual experience on their conceptualization of issues such as evolution. He then proceeds to enumerate aspects of the problematic nature of what he describes as the Judeo-Christian heritage in relation to evolution, including the conception of God and the creation narrative in scriptures. Later in the introduction, he raises some issues related to what he calls "*īḥā'āt 'aqadīyah*" (dogmatic connotations) in the term 'intelligent design', which encourages him to suggest using the Sharia-compliant, Quran-inspired term "*al-ṣun' al-mutqan*" (precise or perfect fabrication) as a solution to this problem. Although the term was not used in this translation and may not have been used anywhere else, this attempt to tailor the term for the new epistemic context signals awareness of the theological dimension of intelligent design discourse.

4.4 Impact of intelligent design on Islamic discourse

The publication of the four translations discussed above seems to have succeeded in establishing a position for intelligent design literature in the Arabic discourse of Islam and

science. Both Braheen and Takween continued publishing Arabic translations of intelligent design literature, as well as non-translated treatments of the same topic. Eventually, other Islamic organizations and publishers joined them in publishing both translations and non-translations. These include Tabsir Center for Publishing and Distribution, an Islamic publisher based in Egypt; Markaz al-Fikr al-Mu'āsir, an Islamic think tank based in Saudi Arabia; Rawasekh Center, an Islamic organization headquartered in Kuwait; and Imam Hussein Holy Shrine, one of the most prominent Shi'ite religious authorities in Iraq. The contributions of the latter organization in particular may have introduced a Sunni-Shi'ite splintering of the intelligent design discourse in Arabic. Imam Hussein Holy Shrine published four relevant translations in the period from 2017 to 2020. New translations of the same texts by different translators were subsequently published by the UK-based Sunni organization Takween under slightly different Arabic titles with no acknowledgment of the previous translations. An analysis of this set of translations and their retranslations may reveal fine-grained differences in evolution denial between Sunni and Shi'ite creationist discourses.

The adaptation of intelligent design to an Islamic context paved the way towards new religious discourses of biological evolution in Arabic. Shavit (2015) notes that the influence of creation science in the 1980s never resulted in Arab equivalents of creation science activists and that evolution denial in conservative Islamic circles remained socio-religiously inclined. The proliferation of translated and non-translated intelligent design publications in Arabic since 2014 suggests deeper engagement with knowledge produced in evolutionary biology and its pseudoscientific alternative.

The impact of the 'Islamicized' intelligent design is also noticeable in the academic discourse of texts published in Arabic since 2014. For example, 'Amrānī (2022) posits intelligent design as a full-fledged scientific theory rivalling the theory of evolution. But unlike most intelligent design literature, 'Amrānī is vocal on the divine plan of God, the intelligent designer. The Islamic studies article published in Algeria cites three of the four translations discussed above as well as other translated and non-translated creationist literature. The level of engagement with this body of literature in 'Amrānī's study is indicative of its wide influence in Arabic religious discourses.

5. Conclusion

Epistemic translation emerges in the analysis as a reflection of the increasing communication between epistemic systems. The birth of creation science took place when the dogmatic denial of evolution, a position that requires little interaction with science, was no longer serving the purposes of conservative Christians in the United States. As a pseudoscience, creation science selectively borrows information and concepts from evolutionary biology and other disciplines in order to justify a religious worldview based on scriptures. When creation science started to lose ground, a more sophisticated descendent that requires more communication with scientific knowledge appeared in the form of intelligent design. Although the Christian worldview of intelligent design is still intact, the

deeper interaction with scientific knowledge made its translation into a Muslim context a feasible endeavour. Nonetheless, the interlingual translation of intelligent design into Arabic was possible only through an adaptation process that requires increased communication between the Christian and Islamic brands of creationism. Epistemic translation is, thus, indicative of converging discourses in different epistemic systems.

The analysis suggests that epistemic translation is productive in the study of knowledge in motion between epistemic systems. As knowledge is recontextualised, epistemic translation is capable of revealing the mechanisms of the transformations and adaptations taking place, the state of the frameworks shaping the recontextualisation process, and how these frameworks are in turn affected by the assimilation of the translated knowledge. Perhaps epistemic translation may have a role in demarcating science against its pseudoscientific others, a problem that is more complicated than it may seem (Hirvonen and Karisto, 2022). In summary, ignoring translational processes taking place on the epistemic level may prove detrimental to the understanding of how and why knowledge exchanges hands in disparate discourses.

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