Nina Nikki / Kirsi Valkama (eds.)

Magic in the Ancient Eastern Mediterranean

Cognitive, Historical, and Material Perspectives on the Bible and Its Contexts



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What is magic? Does magic occur in the Bible? What kind of reactions does magic provoke in the biblical authors? Is magic practiced only by outsiders and deviants? The articles in this volume address these and other questions related to magic and the Bible. Some of the articles focus on the theoretical understanding of magic and others offer case studies on biblical and related texts in the ancient Near Eastern and Greco-Roman worlds. The examples range from occurrences of magic in the ancient Israelite religion to early Judaism and from early Christianity to the Byzantine period.

This book continues the discussions begun in a seminar on the Bible and magic organized by the Finnish Exegetical Society in February 2014. The seminar was followed in 2016 by a collection of articles in Finnish entitled *Raamattu ja magia* [The Bible and Magic]. The volume was intended for wider audience and especially for students of theology. The current book furthers the discussion with mainly the same authors.[1] All articles are in some way inspired by István Czachesz's contribution, which argues for the usefulness of the category of magic in academic discussion by claiming that magical beliefs and practices are hardwired in the universal human cognition. The volume begins with contributions focusing on modern theoretical perspectives and ancient views on magic. Protecting oneself from harm and destructive elements is one of the major goals of magical practices in ancient sources. This is the focus of the second part of the volume while the third part focuses on spiritual beings and material – especially iconographical – dimensions of magic.

We want to thank all the contributors, Dr. Rick Bonnie (University of Helsinki), Prof. István Czachesz (University of Tromsø), Dr. Izaak de Hulster (University of Helsinki), Dr. Vojtěch Kaše (Aarhus University), Assoc. Prof. Nils H. Korsvoll (University of Agder), Prof. Martti Nissinen (University of Helsinki), Dr. Mika S. Pajunen (University of Helsinki), Dr. Marika Rauhala (University of Helsinki), MTh. Sanna Saari (University of Helsinki), Assoc. Prof. Hanna Tervanotko (McMaster University, Ontario), MTh. Anna-Liisa Rafael (University of Helsinki), Assoc. Prof. Elisa

1 All the articles, except the one by M. Rauhala, are based on the ones published in Finnish in Valkama, K., H. von Weissenberg & N. Nikki. Raamattu ja magia (Suomen Eksegeettisen Seuran julkaisuja 110, Helsinki: Finnish Exegetical Society).

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In Helsinki
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Nina Nikki and Kirsi Valkama

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Nina Nikki/Kirsi Valkama

Introduction

The role of magic in the biblical world has intrigued scholars for over a century, with various endeavors made to approach relevant source material from different perspectives and to redefine the concept of magic meaningfully.[2] Traditionally, magic has been considered in both scholarly and popular discourse to be questionable, obscure, and potentially subversive. Scientific opinion has deemed magical beliefs as arising from a misunderstanding of the causal laws of nature, while the religiously minded have classified magic as something diametrically opposed to religion. This general position has been validated by the historical application of the term: the term *magos* was associated with either exotic otherness or deviant behavior from its earliest appearances in Greco-Roman writers, such as Herodotus. The specific meaning of the term, however, is not static even in the classical sources. Religious scholars of the 19th century also distinguished magic from religion, viewing them as separate categories. Influential scholars such as E. B. Tylor and James Frazer ascribed magical beliefs and practices to the primitive stage of human evolution, associating magic with manipulative and coercive behavior, lacking the supposedly submissive and respectful attitude of religion. Their evolutionary approach was pursued in the first scholarly study of magic in the Hebrew Bible and neighboring areas by T. Witton Davies (1898), who judged

2 Several articles in this volume provide research historical surveys on specific topics. Some of the recently published volumes on magic in the ancient world include Mirecki, Paul & Meyer, Marvin (eds.), *Magic and Ritual in the Ancient World* (Religions in the Graeco-Roman World 141; Leiden: Brill, 2002); Dolansky, Shawna, *Now You See It, Now You Don't: Biblical Perspectives on the Relationship between Magic and Religion* (Winona Lake, Ind.: Eisenbrauns, 2008); Schmidt, Brian B.: *The Materiality of Power: Explorations in the Social History of Early Israelite Magic* (Forschungen zum Alten Testament 105. Tübingen: Mohr Siebeck, 2016); Kamlah, Jens, Schäfer, Rolf & Witte, Markus (eds.), *Zauber und Magie im antiken Palästina und in seiner Umwelt* (Abhadlungen des Deutschen Palästina-Vereins 46; Wiesbaden: Harrassowitz Verlag, 2017); Swartz, M. D., *The Mechanics of Providence: The Workings of Ancient Jewish Magic and Mysticism* (TSAJ 172; Tübingen: Mohr Siebeck, 2018). On material dated beyond the focus of the current volume, see Salzer D., *Magie Der Anspielung: Form und Funktion der biblischen Anspielung in den magischen Texten der Kairoer Geniza* (TSAJ 134. Tübingen: Mohr Siebeck, 2010).

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magic as part of the polytheistic stage of Israel's religion, which he considered primitive compared to the monotheistic stage.[3]

Modern anthropological and religious scholarship has, understandably, problematized these dichotomies for their Western bias and ethnocentrism. In contrast, recent discussion on magic has centered on the concept as an othering device in polemical discourse, as utilized especially by the religious elite in their attempts to suppress independent religious entrepreneurship.[4] This shift in focus, together with the confusion surrounding the modern definitions, has led some to suggest that the term should be completely abandoned as a classification for ancient practices.[5]

The articles in the current volume advance from the general conviction that, despite its history of misuse, the category of magic remains useful in religious studies. While the concept cannot and should not be applied to differentiate deviant beliefs and practices from legitimate ones, it can be a helpful analytical tool for understanding particular thought-forms and practices *within* religious life. The classification has been defended especially by scholars of the cognitive science of religion (CSR), who find it useful for delineating a set of beliefs and practices fundamental to religion. In addition to discussing the application of the concept in both ancient literature and modern scholarship, the articles provide individual examples of how literature and material culture attest to the existence of magical beliefs and practices from the Ancient Near East to the Byzantine Period. The discussion focuses on biblical literature and other evidence more loosely related to its historical context.

The volume is divided into three parts. In the first part, the contributions approach magic from the theoretical perspective of cognitive studies, ritual studies, and cultural evolution, while contributions in the other parts focus on how magic or magicians might be defined in ancient sources. In the second part, a specific set of textual material is dealt with – namely, blessings and curses. While the idea of magical formulae often conjure up ideas about spells and incantations, blessings and curses pose an interesting question in the realm of magic, as they underlie a continuous desire to protect oneself from evil and secure the blessing of the divine. Can a prayer, for instance, be used as a magical formula? Would that be a matter of definition or would it depend on the intention of the prayer? Protective texts were often carried in amulets which are thus important sources. What was then the evil one from which one needed to be protected? The contributions in the third part of the volume introduce us to the world of such destructive celestial beings, from which one and one's loved ones had to be defended, as well as to the world of protective beings such as angels. We next present the main focus of each contribution.

3 Davies, T. Witton, *Magic, Divination, and Demonology among the Hebrews and Their Neighbours* (London: Clarke, 1891).

4 E.g., Kahlos, Maijastina, "Artis heu magicis – The Label of Magic in the Fourth-Century Disputes and Conflicts," in M. R. Salzman, M. Sághy, and R. Lizzi Testa (eds.), *Pagans and Christians in Late Antique Rome* (Cambridge: Cambridge University Press 2015) 162–177.

5 Horsley, Richard, *Jesus and Magic: Freeing the Gospel Stories from Modern Misconceptions* (Cambridge, England: James Clarke & Co, 2015).

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Part I

Recently, the discussion on magic has taken a new turn due to the advances in the field of the cognitive science of religion. The cognitive science of religion approaches magic from the viewpoint of ritual theory, treating magical beliefs as products of universal human cognitive properties. This discussion offers a new perspective on magic, since it does not solely rely on the conceptual formulations of scholars but brings into play empirical evidence from the fields of neuroscience and cognitive science. The volume begins with Prof. **István Czachesz**'s article "Magical Minds: Why We Need to Study Magic and Why It is Relevant to Biblical Studies," which offers a framework for understanding magic following the cognitive science of religion. Czachesz echoes support for the continued use of the term as an etic and analytical category, offering a heuristic definition of magic as something that (1) is connected to the use of rituals to produce some effect (ritual efficacy), (2) involves theories of why and how it works, and (3) is falsifiable by modern scientific methods. Czachesz also discusses the universal cognitive mechanisms that give birth to magical beliefs, such as the phenomenon of superstitious conditioning and intuitions about agency and contagion. Czachesz also claims that magical beliefs in early Christianity lived in dynamic interaction with miracle stories. The latter helped to spread magical beliefs through memorable characteristics such as counterintuitivity and emotional ladenness and suggested to the audience a repertoire of magical procedures.

Prof. **Martti Nissinen** begins his article "Magic in the Hebrew Bible" by focusing on changes in the definition of magic in the research history of the Hebrew Bible. The division between religion and magic has strong roots in the study of the Hebrew Bible, and it has taken time for scholars to understand that magic is, in fact, one manifestation of religious actions. Nissinen follows the definition by Rüdiger Schmitt, that "Magie ist eine ritualsymbolische Handlung, die durchgeführt in einer adäquaten Situation, durch Nutzung bestimmter göttlich enthüllter Medien (Symbol, Wort und Handlung) und kosmischen wissens, ein bestimmtes Ergebnis vermittels symbolischer Antizipation der göttlichen Intervention erzieht."[6] According to this definition, an individual actively participates in the actions of the divine forces. Nissinen discusses differences between the definition of magic and divination, noting that the aim of divination is to gain divine knowledge and pass it on, while the aim of magic is to effect change either for the better or the worse. A divinator receives knowledge and passes it on, while a *magos* uses the knowledge actively. Nissinen notes that magic includes a verbal symbolic element (like a blessing, curse, or prayer) as well as a material element (a body part, liquid, or an object like an amulet). Magical ritual thus comprises a human, divine, and material component. In his article, Nissinen surveys different forms of magic in the Hebrew Bible. Some magical actions, including actions like healing and resurrection, are approved of in these texts, while actions that are condemned by the texts' authors, including enchantment and augury (Lev 19:26), occur especially in legal texts.

6 Schmitt, Rüdiger, *Magie im Alten Testament* (AOAT 313; Münster: Ugarit-Verlag, 2004) 92–93.

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In the third article, "Magi(cians) in the Hebrew Bible and Ancient Greek Literature," Assoc. Prof. **Hanna Tervanotko** continues with the themes of magic and divination by comparing the *magoi* of ancient Greek texts to the enchanters of the Hebrew Bible. The term *magos* (μάγος), which appears frequently in the Ancient Greek texts, can be translated in many ways. It may refer to an individual from an ethnic group who seeks to determine god's will – i. e., practice divination. Other times, the term may point to characters that practice magic more distinctly. Figures who practice magic and divination also appear in the Hebrew Bible. These include the magicians at Pharaoh's court mentioned in the first chapters of Exodus (Exod 7–8) as well as those referred to in Daniel (Dan 1:20) as the enchanters (*khartom*/חרטם). Tervanotko begins by analyzing texts by Herodotus, Sophocles, Plato, and Euripides in which the word *magos* appears. She then turns to the points in the Hebrew Bible at which *khartom* are mentioned, investigating the extent to which the activities of these individuals include magic. She concludes the article with a comparison of the characters in these Jewish and Greek writings, showing how phenomena described in texts which arose in neighboring cultures can be similar and, at the same time, clearly different from one another. This comparison makes it possible to highlight the unique characteristics of the two cultures. While the study focuses on two terms that can be translated in similar manners in some texts, it also illuminates attitudes towards characters that held some magical powers in different ancient Eastern Mediterranean cultural contexts.

In her article, "Dissecting and Constructing Magic in Greco-Roman Literature," Dr. **Marika Rauhala** outlines the development of magic as a concept in Greco-Roman literature and in scholarship discussing ancient magic. Instead of trying to objectively describe magical practices, the article focuses on ancient and modern discourses on magic. First, Rauhala considers the elements that Greco-Roman literati employed when stitching up their definition of magic, drawing attention to the tendency in this discourse towards othering and contesting authority. She discusses the frequent association of women with magic in Greco-Roman literature and how magic was treated in Greek and Roman legislation. The article also discusses the long-lived dichotomy of magic and science and shows that it is already rooted in the literature of the fifth century BCE. Second, Rauhala explores how the ancient concept of magic has been reconstructed in modern scholarship and how this reconstruction may have affected modern understanding of the phenomenon.

In the fifth article, "Magic, Miracles, and the Cultural Evolution of Pauline Christianity," Dr. **Nina Nikki** discusses magical elements and miracle stories in Pauline literature, from the authentic letters of Paul to the canonical Acts and the apocryphal Acts of Paul and Thecla. The article advances from the observation that stories of magic and miracles tend to increase over time. This magical enrichment is explained with the help of cognitive theories of magic and cultural evolutionary theory. Nikki argues that magic and miracle are cognitively appealing to the human mind, because they include elements such as counterintuitivity and emotionally arousing content, both of which enhance memorability. Memorability is in turn directly related to cultural evolution, since (along with other more contextual factors) it enhances the survival and dissemi-

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nation of cultural representations. Consequently, the article suggests that the increase in the number of magic and miracle stories had a positive impact on the survival and dissemination of Pauline Christianity in the first centuries of the Common Era.

Dr. **Vojtěch Kaše**'s article, "Ritualization of Early Christian Meals and the Tradition of the Lord's Supper: A Cognitive Approach," offers a discussion on magical beliefs related to early Christian meal practices. The article draws on recent cognitive theories of ritual to counterbalance trends in scholarship that have tended to overestimate the social functions of the meals while overlooking some of their formal aspects. This trend in scholarship is demonstrated by surveying claims from the scholarly discussion concerning Pauline institution of the Lord's Supper. Cognitive theories of ritual are then used to analyze the available evidence for early Christian meal practices in Corinth and elsewhere, illustrating how much can be understood about them without needing to consider the social functions of those meals. Kaše argues that, while Paul himself offered both Christological and ecclesiological conceptualizations of the bread and wine consumed during these meals, from the cognitive perspective, the Christological understanding was, at an intuitive level, more appealing for those who were confronted with it than the alternative. This appeal became even more important as these meals became more and more ritualized over time. The article thus concludes that this conceptualization formed a basis for subsequently evolving beliefs about the magical efficacy of the Eucharist.

Part II

Prayers and blessings have been and are central elements in Jewish and Christian rituals. In early scholarship, prayers were placed in the realm of religion, while curses where connected with magic. This division has been challenged by studies focusing on the thought-forms behind these actions. In her article, "Blessings and Curses in the Biblical World," Assoc. Prof. **Elisa Uusimäki** investigates whether blessings and curses belong in the realm of magic. In the 20th century, some scholars associated the blessings and curses of the Hebrew Bible with the ritual activity of primitive religions, having observed cultic and spell-like elements in the latter. The magical character of these biblical acts was considered to belong to the pre-Israelite religious world, an aspect which lost its significance after the supposed rise of monotheism. Other scholars have proposed that biblical blessings and curses mostly do not belong to the sphere of magic. This division seems to be based on the conviction that a blessing or a curse represents magical activity only if the utterance is effective on its own – i. e., without resorting to a higher religious authority. Thus, a curse performed by God, or by a human agent in collaboration with the divine, would not belong to the sphere of magic but rather to that of prophetic tradition. The blessing, a rite of signaling and receiving favor, is one of the most common ritual acts found in different religions. Blessings are thought to establish a connection between a person and a superhuman authority. Cursing, a similarly universal speech act, is the negative counterpart to the act of blessing. While the purpose of blessing is to share and increase goodness,

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a curse serves an opposite goal; such an utterance is meant to bring evil, bad luck, or other harm to its object. The performance of a curse may involve invoking a divinity or other higher power; alternatively, the curser and the object of the curse may regard the curse efficacious in and of itself.

Uusimäki explores blessings and curses in selected ancient Jewish and early Christian literary texts. In these writings, blessing and cursing typically pertain to individual and family crises, decision-making, cult, or such cosmic events as creation. She begins by examining the content of blessings and curses, as well as their relation to magic. Why, for instance, have these ritual acts been either associated with or separated from the phenomenon of magic? Are there valid reasons for distinguishing one phenomenon from the other? She argues that blessing and cursing can be approached from different angles but that there is no need to deny their magical dimension.

Dr. **Kirsi Valkama** treats, in her article, "Blessings and Curses in Iron Age Judean Burial Caves," specific examples of blessings and curses in Iron Age II mortuary contexts in Judah, discussing the funerary inscriptions and amulets found in Judean burial caves. Even though the inscriptions, dated to 8th–6th centuries BCE, are few in number, they reflect certain common features. First, they prove that survivors of the deceased thought it necessary to protect the deceased from grave robbers and probably also from demonic forces. Written blessings and curses on the walls of burial caves were considered to be effective in this respect and were thus added to burials to protect the deceased on their way to the netherworld. Two silver lamellae with inscriptions including versions of the Priestly Blessing were found in a repository of a burial cave at Ketef Hinnom. They were tightly rolled objects, not to be opened once sealed shut. The blessings inside the scrolls were considered powerful texts operating as the protective component of the amulet. As such, they were considered to function through contagious magic. The amulets were probably thought to protect their owners while alive, but this need did not cease to be the case even after the owners' deaths. Such objects belong to the lively amulet tradition of Iron Age II. Amulets, seals, figurines, and rattles are interpreted as apotropaic, for example, in mortuary contexts. While the Hebrew Bible only sporadically records information about how evil-intentioned spirits and demons were treated and imagined, it is clear from the surviving inscriptions, drawings, and objects with apotropaic function that there was a perceived need to protect the deceased from evil people but also from evil spirits.

Around the turn of the era, exorcising demons with ritual acts was a normal and appropriate part of many peoples' lives. Exorcisms were practiced throughout the ancient Mediterranean cultures, in both ancient Near Eastern and Greek societies. Most descriptions of the actual act of exorcism from this period are preserved in New Testament texts. Nevertheless, exorcism has firm roots in Judaism well before this, and evidence from other ancient Near Eastern cultures extends even further back in time. Most of the evidence, deriving from different times and cultures, does not, however, deal with the actual practice of exorcism but rather takes the form of texts that were probably used as part of such rituals or in protective amulets.

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In his article, "Fighting Evil with Psalms and Prayers: Incantations and Apotropaic Prayers as a Response to the Changing Worldview of the Late Second Temple Period," Dr. **Mika S. Pajunen** analyzes the prominence of exorcism in the late Second Temple (c. 300 BCE–70 CE) Jewish milieu. In light of the preserved evidence, specific rites meant to influence evil spirits increased markedly in this period. The article begins with a sketch of this development and a discussion concerning some of the possible reasons for it. After this more general discussion, concrete examples are given concerning how and with what kinds of liturgical arms this war against evil spirits was waged. Influence over evil spirits seem to have been thought to be enabled in this period particularly by special psalms and prayers, typically written directly for this purpose. After dealing with the diachronic developments and the use of exorcism in Judaism, Pajunen ends the article with a brief discussion of the emic evidence from the Second Temple period about how exorcism was perceived by the contemporary literary elite to help understand whether or not the practice was treated as some form of magic.

Prayer is a ritual action seldom discussed in the realm of magic except as a symbolic act, considered to be a ritual action where a request or praise is addressed to the divine being who cannot be forced to react. Is it possible, on the other hand, for prayer, with specific wording and ritual actions, to be expected to be effective on its own and produce desired outcomes? How would that then differ from incantations? In her article, "Prayer in 2 Maccabees: Steering Heavenly Authorities," **Anna-Liisa Rafael**, MTh., discusses the role of prayer in the historical narrative of 2 Maccabees. First, she discusses the composition of 2 Maccabees and the sense of history it carries, adding to this investigation examples of prayer acts which are, in the book, claimed to have had a historical impact, most notably those around the story of Heliodorus's attempt to rob the treasury of the temple (3:1–4:6). Rafael also investigates the interplay between the divine intervention called forth by prayer and worldly politics. She argues that prayer in 2 Maccabees is considered a repeatable, efficacious ritual that has had a strong historical and political impact.

The use of amulets has a long history in the biblical world, especially in Egypt but also in the Levant. They are found in different Iron Age and later contexts in archaeological excavations. In his article, "Scripture – What is it Good for? Biblical Quotations and References in Ancient Amulets," Assoc. Prof. **Nils H. Korsvoll** introduces the world of late antique Jewish and Christian amulets and apotropaic practices, discussing how biblical texts in particular are featured in amulets. Korsvoll gives three examples that demonstrate different ways biblical texts could be used: Jewish incantation bowls, the application of Matt 4:23 in Greek Christian amulets, and The Prayer of Mary in Coptic amulets.

Part III

When biblical literature speaks of God and of other spiritual beings, the word "spirit" is used to denote angels and demons, as well as spiritual qualities in human beings. The information from the ancient sources does not, however, form a fully coherent pic-

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ture, because their authors did not intend to draw systematic expositions or treatises on the topic. Assoc. Prof. **Elisa Uusimäki** and Dr. **Hanne von Weissenberg**, in their article, "Angels and Demons: Spiritual Beings in the Bible and the Dead Sea Scrolls," examine the angelic and demonic figures mentioned in the Bible and the Dead Sea Scrolls. Some of the latter texts were composed outside the Qumran movement, while others originated with its members. The restless political and societal conditions of the late Second Temple era gave birth to a future-oriented literature, the contemporary world thought to being divided into two camps, resulting in the distinction of the good from the evil, categories that describe both human and supernatural beings. In these texts, angels are thought to transmit divine messages between supernatural and human worlds, as well as to perform tasks assigned by God, while evil spirts are thought to cause illness and trouble, thus threatening the wellbeing and safety of human life. These spiritual powers were, in turn, thought to be affected and governed by such practices as ritual purity, magic, exorcisms, and apotropaic prayers.

Those unfamiliar with Near Eastern iconography might be confused as to what the different winged beings that appear in amulets and reliefs are and why they are so often depicted on amulets. Dr. **Izaak de Hulster** and **Sanna Saari**, MTh., in their article, "Of Winged Beings on Amulets: How Psalmists Cover God's Image with Wings and How an Israelite Prophet Turns Ancient Magic Upside Down," offer a general introduction to winged beings in the Ancient Near East and their appearance on apotropaic objects like amulets. Winged beings appear also in the Hebrew Bible. De Hulster and Saari introduce two cases from the Hebrew Bible, analyzing the texts using iconographic exegesis, a method that applies research on ancient Near Eastern iconography to biblical texts, thus widening the typical literary approach to biblical depictions. In their first example, de Hulster and Saari discuss YHWH's winged form(s) in Psalms. In the second case, they assess what kind of winged figure the prophet must reportedly have seen in Isaiah 6. The authors conclude that presentation of seraphim in Isaiah betrays a subtle critique of idols and amulets.

Other confusing figures from the ancient world are the sun god Helios and the zodiac signs on the mosaic floors in Palestinian synagogues from the Byzantine period. That is, why are there images of a pagan god in several Byzantine synagogues, and what could be the function of Helios and the zodiac signs in a synagogue context? Dr. **Rick Bonnie** discusses these images in his article "The Helios-and-Zodiac Motif in Late Antique Synagogues." The question of why such blatantly "non-Jewish" elements were placed in synagogues in regions with a strong Jewish population has perplexed scholars for at least a hundred years. Scholars have struggled to understand the images in relation to the hegemonic rabbinic Judaism, either proposing that they must represent a magical type of Judaism unrelated to rabbinic orthodoxy or suggesting that rabbinic Judaism was more tolerant of "non-Jewish" elements than previously thought. Bonnie offers an overview of the archaeological findings, a discussion and evaluation of previous theories, and finally an evaluation of remaining challenges around the topic.

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Part I

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István Czachesz

Magical Minds

Why We Need to Study Magic and Why It is Relevant to Biblical Studies

Do We Need Magic?

The word "magic" has had a troubled history. We owe the term to pre-classical and classical Greek words *(magos, mageia),* which descended to European languages especially through their Latin variants *(magicus, magia).* The Greeks themselves borrowed the word from Persia and according to Jan Bremmer's interpretation of the Derveni papyrus they used it first to denote wandering religious specialists.[1] By and large, the early Greek connotations of the word magic, ranging from private rituals and weather control to fraudulent religious business, have been preserved throughout Western history.

The typical approach to magic in biblical studies can be summarized as follows. Ancient Jewish and Christian miracle stories show that God granted miracles to God's people out of God's mercy, whereas their pagan contemporaries resorted to coercive magical manipulations. Such a distinction can be found already in early Christian sources, such as the *Acts of Peter,* which promoted the idea that Christians performed genuine miracles in God's name while their adversaries were charlatans. The theological appraisal of magic bears resemblance to the distinction made by James G. Frazer, who saw the fundamental difference between magic and religion in their respective treatments of superhuman agents.[2] Magic, on the one hand, "constrains or coerces" spirits; religion, on the other, "conciliates and propitiates" them.[3] As we will see, however, Graeco-Roman magical practice involved a complex relationship between the magician and the magician's superhuman helper, which can also be used to make sense of early Christian texts.

Both Frazer (1854–1941) and Edward B. Tylor (1832–1917) associated "magic" with an earlier, primitive stage of human thought, whereas religion with a later, more developed stage. Once established by these scholars, the dichotomy of religion and magic has underlain the work of generations of theorists in religious studies, such as W. Wundt, G. van der Leeuw, É. Durkheim, M. Mauss, M. Weber, and W. J. Goode – although the exact meaning of the terms changed from time to time.[4] In subsequent

1 Bremmer 2000.
2 Frazer 1920, 220–243.
3 Frazer 1920, 225.
4 Stevens 1996; Middleton 2005.

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theorizing about religion, however, the distinction between magic and religion has become a suspicious principle. For example, Claude Lévi-Strauss argued that it serves to mark off (assumedly inferior) outsiders from ones' (assumedly superior) own culture: for example, the Zande people (living in South-Western Sudan and thoroughly studied by E. E. Evans-Pritchard) claim that surrounding people are more involved in magic than themselves, similarly as Westerners call other cultures superstitious.[5] The condemnation of the distinction made between religion and magic has become especially widespread under the influence of the postmodern.[6] According to this view, "magic" is an ethnocentric and pejorative term, a Western projection about non-Westerners, an invention of the Victorian middle-class to the purpose of self-definition against colonial subjects and domestic peasants, and a tool that serves for social discrimination. After decades of post-modern theorizing on magic, some scholars started to argue that the colonial and ethnocentric misuse of the term "magic" does not mean that it is altogether inadequate as a category in the study of culture.[7]

The post-modern criticism of the concept of magic exerted an influence on biblical studies, as well. For example, Richard A. Horsley revisited ancient and modern conceptualizations of magic and magicians and their use in the study of the Jesus tradition. He concluded that the concept of ancient magic is a Western construct that should be abandoned.[8] Horsley's study reflected on a tradition of New Testament scholarship that has grown out of Morton Smith's polemical characterization of Jesus as a magician.[9] Since the publication of Smith's controversial statement, scholars have taken a variety of positions with respect to the magical elements of Jesus' portrait in the gospels.[10] A parallel development took place in the study of ancient Judaism, with a growing number of publications addressing the textual and archeological evidence on ancient Jewish magical practices.[11]

These and other recent contributions highlighted the need for a new understanding of magic in the ancient world. There has been little progress, however, on the problem of what magic is and how one could study it effectively. Most of the work undertaken so far followed one of two pathways. First, some scholars adopted the post-modern understanding of magic as a sociological phenomenon and focused either on the modern misconceptions about ancient magicians or on the perception of magic in antiquity. Second, other scholars tried to understand magical practices and the conceptual world surrounding them in *emic* categories (see below). In this chapter, I take a route that is distinct from both above-mentioned approaches, turning to evolutionary science and cognitive science to understand the mental and

5 Lévi-Strauss 1966, 220–228.
6 Kuklick 1991; Smith 1995; Kapferer 1997; Graf et al. 2005, 283–286.
7 Braarvig 1999; Thomassen 1999; Pyysiäinen 2004; Bremmer 2008: 347–352; Czachesz 2007, 2011; Uro 2011.
8 Horsley 2015, 99.
9 Smith 1978.
10 E. g., Aune 1980; Craffert 2008; Kollmann 2011; 2013.
11 E. g., Nigosian 2008; Jacobus et al. 2013; Schmidt 2016; and several contributions to this volume.

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behavioral patterns behind magical practices in biblical literature, thus choosing a decidedly *etic* perspective.

Many of the problems traditionally connected with the academic study of magic can be largely understood in terms of the classical discussion of studying religion from an *emic* or *etic* perspective. To put it simply, an *emic* perspective means that the scholar tries to use the concepts and categories of a given culture when analyzing it; an *etic* approach, in contrast, means that the scholar uses the categories and concepts of his or her own culture – the two words originally derived from the linguistic concepts of phon*emic* and phon*etic,* respectively. Shall we understand ancient Jews and Christians in terms of their own language, concepts, and categories, or shall we apply modern analytical categories to their texts, beliefs, habits, and artifacts? By using modern concepts when reading ancient texts, do we not simply subject them to our prejudices and limited, ethnocentric perspectives?

The nature of scientific discourse is such that scientists create categories and concepts as it seems best in order to provide explanations of the phenomena they observe. Expressing another culture's thoughts in terms that are foreign to them might indeed feel as an act of colonialism. However, insofar as the goal of scholarship is to contribute to science as practiced in Western types of educational and research institutions, this is an unavoidable step. When it comes to religion, the problems multiply further. Now the same kind of tension that we observed between different cultures appears within the same culture. For many religiously inspired people, it is not acceptable that their beliefs are analyzed in the context of a scientific discourse that aims to explain them without including an element of the supernatural. The usual arguments about cultural studies being an interpretative rather than explanatory endeavor supply arguments for the maybe well-intended but (also from a theological perspective) misconceived defense of a religious worldview. As we have noted above, biblical scholars often assume that others practiced magic, but ancient Jews and Christians did not.[12]

Let us consider some familiar examples that illustrate why we need magic as an analytical tool. When baptism is performed, every participant agrees that some significant change occurs to the baptized person (and possibly other participants). Most participants, however, would not attribute a comparable effect to singing a hymn or a responsory. Something we will call *ritual efficacy* is at play in the case of baptism. Still the very important effect of baptism is not visible, at least according to the majority of the participants. In contrast, a healing ritual performed in a charismatic congregation must have clearly visible consequences if it is to be deemed successful. But it is not only visibility that matters. For example, an ordination ceremony makes the ordained person a minister of the Church instantly and the same can be said about becoming a head-of-the-state by a swearing-in ceremony. Is there any difference between these two ceremonies? A scientific theory of magic has to address such issues.

12 E. g., Klauck 2000; Luz 2001, 118.

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A Cognitive Approach

In his *Magic, Miracles and Religion* (2004), Ilkka Pyysiäinen made a case for a cognitive scientific approach to magic.[13] Pyysiäinen drew on Frazer's theory of sympathetic magic, which states that magical thinking follows one of two principles: the law of similarity and the law of contagion.[14] In terms of these "laws," the magician can produce the desired effect either by imitating it (so-called homeopathic magic) or by manipulating an object that has been in contact with the body of a person to be influenced by magic (so-called contagion magic). Pyysiäinen argued that in spite of the long-standing effort to dismiss early theorizing on magic (see above), Frazer's notions still seem to highlight important elements of what is going on in magical practice. He suggested, in particular, that sympathetic magical reasoning is based on essentialist thinking; that is, in the minds of the practitioners, patients, and observers of magic, the magical effects are mediated by imperceptible essences.[15] While reflecting on the relation of magic to religion, Pyysiäinen argued that magic is about effects in known reality, while in religion natural actions affect supernatural reality.[16] Furthermore, magic and religion support each other: on one hand, magic is easier to falsify (its results are visible), and therefore it needs the support of religious explanations; on the other hand, magic supports religion by offering individual motivation.

A comprehensive, cognitive theory of magic has been put forward by Jesper Sørensen.[17] Sørensen revisited the existing social-scientific theories of magic and used G. Fauconnier and M. Turner's theory of cognitive blending to examine how people reason about rituals.[18] He distinguished two types of magic.[19] In "transformative magical action," essential qualities are transferred from elements belonging to one domain to elements belonging to another domain (e. g., the bread becomes the body of Christ). In "manipulative magical action," magical practices change the state of affairs inside a domain by manipulating elements in another domain (e. g., sunset is delayed by placing a stone on a tree). Here the relation between elements is changed, whereas essential qualities remain the same. With the help of blending theory, Sørensen explained how people establish a link between two domains (spaces), relying on either part-whole structures or conventional and perceptual likeness. According to Sørensen, magic is embedded in most religious rituals and is one of the major forces that cause religious innovation.[20]

The use of blending theory enables us to give a formal account of the kind of analogical reasoning that already Tylor and Frazer uncovered in magic as well as to make

13 Pyysiäinen 2004, 90–112.
14 Frazer 1920, 52–54.
15 Pyysiäinen 2004, 104.
16 Pyysiäinen 2004, 96–97.
17 Sørensen 2007; cf. Sørensen 2002; 2008; 2013.
18 Sørensen 2007, 9–30; Fauconnier and Turner 2002.
19 Sørensen 2007, 95–139.
20 Sørensen 2007, 186–191.

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new predictions, such as about the centrality of elements used in magic and its connection to the efficacy of magic or the role of ritual agents and their ascribed magical agency.[21] Yet the question arises whether analogical reasoning provides a sufficient explanation for magic. In many cases analogies (mappings across domains) seem to constitute retrospective interpretations of magic rather than its underlying mechanisms. For example, healing blindness with saliva and mud (Mark 8:23; John 9:6; Tacitus, *Hist.* 4.81) does not obviously involve analogical reasoning. With reference to other sources (Tob 2:10; Acts 9:18), however, we can surmise that people in antiquity imagined blindness as the formation of "scales" on the surface of the eyes, which one could then attempt to "remove" by the above-mentioned method. As with cognitive blending theory in general, it is often difficult to anchor the "blends" in empirical evidence, and the creativity of the interpreter (rather than formal rules) plays an important role in establishing the "mental spaces" involved in the blend. Moreover, there is a variety of ways to use connections with superhuman agents to bring about changes in both visible and invisible realities through prayers, offerings, and sacrifices. Although analogy may appear in such cases, as well (e. g., as analogy between particular goals and the things being offered or sacrificed), this is not at all necessary.

In a series of articles I put forward an explanation of magic that proceeds from more elementary, subconscious, pre-cognitive forms of learning.[22] Whereas in Sørensen's theory of magic, theories of ritual and magical agency need to be established before one can start to explain magic, in my explanation these levels are added to an underlying, elementary pattern of magical behavior. My own approach has been influenced by Stuart A. Vyse's work on magic, which considered the implications of F. B. Skinner's work on superstitious conditioning in animals and related human experiments.[23] Whereas Vyse has identified, in my view, the proper starting point for an explanation of magic, his book actually did not move beyond "superstition" and failed to explain how magic differs from it. In the present chapter I offer an updated, cognitive theory of magic.

With these preliminary considerations in mind, let us give a heuristic definition of magic as follows. (1) First, magic is connected to the use of rituals to produce some effect *(ritual efficacy),* instead of simply expressing social or psychological realities.[24] However, not all magic necessarily appears as ritual, and arguably not all rituals with an efficacious aspects count as magic. (2) Second, magic involves putative mechanisms and results. In other words, magic involves theories of why and how it works.[25] These expectations are further supported by cognitive structures that make them persistent in the face of negative evidence (see below). In this respect, magic is different from superstitions or ritualized behavior that involve no such (naïve) theorizing. (3) Third,

21 Sørensen 2007, 128–133.
22 Czachesz 2007; 2011; 2013; 2017.
23 Vyse 1997.
24 Cf. Sørensen 2006; Uro 2011.
25 Cf. Sørensen 2007.

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the putative mechanisms and results of magic are (often) falsifiable by modern scientific methods. This aspect of magic distinguishes it from many efficacious rituals that produce effects, for example, in heavenly realities and are therefore not potentially falsifiable.

Often the same practice can invite various interpretations, both magical and non-magical. For example, baptism has had a number of different interpretations in the history of theology. It has been understood, among others, as moral cleansing, spiritual rebirth, or the integration of a person into God's people. Baptism is thus an efficacious ritual beyond doubt. Since its result cannot be confirmed or rejected by an empirical test, however, it does not count as magic, in our definition. Yet we cannot exclude a strictly magical understanding of baptism, such as a protective measure against evil spiritual influence, illness, or misfortune. In the Book of Acts, the strong connection made between the "baptism of the Spirit," on one hand, and the ability to prophesize, speak in tongues, and work miracles, on the other hand (e. g., Acts 8:14–24; 19:1–8), indicates a magical interpretation of the ritual.

Magic as Conditioned Behavior

The roots of magic can be traced back to deep evolutionary history. The behavioral pattern of superstitious conditioning was first described by B. F. Skinner.[26] Skinner placed a hungry pigeon in a cage equipped with an automatic feeder. A clock was set to give the bird access to the food for five seconds at regular intervals. Instead of just waiting passively for the next appearance of the food, most of the birds started to perform various kinds of repetitive behaviors: one was turning counterclockwise two or three times between two feedings, another was thrusting its head into one of the upper corners, a third was moving its head as if tossing an invisible bar, two displayed a pendulum motion of the head and body, yet another bird made pecking and brushing movements toward the floor. Skinner called this behavior "superstitious conditioning." He suggested that "superstitious conditioning" developed because the birds happened to execute some movement just as the food appeared, and as a result they repeated it. If the subsequent presentation of food occurred before a not too long interval, the response was strengthened further. Skinner observed that fifteen seconds was a particularly favorable interval of feeding for the development of the response. Skinner suggested that the behavior he observed with pigeons is analogous to the mechanism of some human superstitions, such as rituals performed to change one's luck with cards or movements of the arm after a bowler released the ball.

Skinner's suggestions about human analogies inspired further experimentation. In the late 1980s, Gregory A. Wagner and Edward K. Morris designed a mechanical

26 Morse and Skinner 1957; Skinner 1948.

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clown, Bobo, which dispensed a marble from its mouth at regular intervals.[27] They promised pre-school children they would receive a toy (which they actually received anyway) if they collected enough marbles in an eight-minute session. The session was repeated once a day for six days. Children developed responses similar to those of Skinner's pigeons: they grimaced before Bobo, touched its face, wriggled, smiled at him, or kissed his nose. Koichi Ono experimented with twenty Japanese university students.[28] The students were asked to take a seat in a booth that was equipped with a counter, a signal lamp (with three colors), and three levers. They were not required to do anything specific but were told they may earn scores on the counter if they do something. Scores appeared on the counter either at regular or random intervals, but without any consistence with the light signals and anything students did. Three of the twenty students developed "superstitious behavior": one student pulled a lever several times and then held it, consistently repeating this pattern for thirty minutes; another student developed a different pattern of pulling the levers; the third student performed a complex sequence of movements that gradually changed during the session.

The two above-mentioned human experiments were designed to match the animal studies as closely as possible, which was an improvement on some earlier, less convincing attempts. By emphasizing the analogy between human learning and the animal models, they demonstrated the deep-seated biological roots of the behavioral patterns that showed up in both experiments. Superstitious conditioning, in its original version, is a special case of operant conditioning, a phenomenon exhaustively studied by Skinner and his followers. In operant conditioning, the animal learns about the relationship of a stimulus and the animal's own behavior.[29] For example, Skinner placed a hungry rat in a small box containing a lever. When the rat pressed the lever, a food pellet appeared. The rat slowly learned that food could be obtained by pressing the lever, and pressed it more and more often. In terms of the law of reinforcement, the probability of the rat's response (pulling the lever) increases if it is followed by a positive reinforcer (presentation of food). Superstitious conditioning presents a special case of operant conditioning, inasmuch as the subjects' action does not influence the presentation of the reinforcer. Both superstitious conditioning and operant conditioning are forms of associative learning, which is one of the most fundamental ways of learning in biological systems. As Kevin Foster and Hanna Kokko argued, superstitious conditioning (or its psychological foundation) might be an adaptation to situations where some recurrent danger or other salient event seems to be connected to some other event by causality.[30] In some cases it might be beneficial systematically to overestimate causality, even if it does not exist, rather than underestimating it. We have to note that Foster and Kokko's argument extends the notion of superstitious conditioning beyond operative conditioning, to associative learning in general.

27 Wagner and Morris 1987.
28 Ono 1987.
29 Skinner 1938, 19–21; Schwartz et al. 2002, 131–245.
30 Foster and Kokko 2009.

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While the name given to the phenomenon by Skinner is suggestive, seeing the extent to which the observed behavioral patterns explain actual superstitions and magic in humans requires further examination. For example, there seem to be substantial differences between individuals in the proclivity for superstitious conditioning in the human subjects: it was observed in 3 out of 20 adults and 7 out of 12 pre-schoolers in the respective experiments. Furthermore, the instructions given to the subjects in both experiments were kept vague intentionally and the studies did not consider the influence of cultural information. In recent years, there has been renewed interest in the phenomenon and experiments addressed a variety of factors involved in superstitious conditioning, some of which seem to be directly relevant to the study of magic.

(1) The respective effects of positive and negative stimuli were compared.[31] Note that the experiments discussed above employed positive stimuli, such as receiving food, marbles, or scores. It turned out that the combined task to prevent a negative stimulus (the appearance of the word "BAD" on the computer screen) and to make it disappear once it was presented resulted in the highest rate of superstitious conditioning. These findings seem to correspond to the emphasis on avoiding and removing harmful stimuli in magical practices, and thus support the idea that superstitious conditioning underlies magical behavior. Furthermore, the salience of superstitious response to preventing and removing negative stimuli suggests a link between superstitious conditioning, on one hand, and obsessive-compulsive disorder, on the other hand, with possible links to the understanding of rituals in terms of hazard precaution.[32]

(2) As in associative learning in general, the schedule of the reinforcement influences the emergence of superstitious conditioning. First, less frequent reinforcement (6-minute intervals) turned out to be more effective than a rich schedule (6-second intervals).[33] Furthermore, a random schedule was observed to lead to more superstitious behavior than a fixed schedule.[34] These findings match the insights from previous work of operant conditioning: continuous reinforcement leads to the lowest rate of responding, whereas the variable ratio schedule to the fastest rates of responding.[35] Variable ratio means that every nth (e. g., fifth or tenth) response is rewarded on the average, but the gap between two rewards can be very short or very large. In real life, the latter type of rewarding schedule is found in fishing and gambling, for example, which might be an important factor in people getting so easily addicted to these activities.[36] Elsewhere I pointed out that rainfall follows a variable schedule and we can think of cross-culturally widespread rainmaking rituals as responses to a variable reinforcer.[37] Controlling rain is a recurrent theme in biblical traditions. According to 1 Kings 17, Elijah was able to stop and start rain at will, which is cited as an exam-

31 Aeschleman et al. 2003; Bloom et al. 2007.
32 Boyer and Liénard 2006.
33 Aeschleman et al. 2003; Bloom et al. 2007.
34 Heltzer and Vyse 1994.
35 Ferster and Skinner 1957; Schwartz et al. 2002, 217–224.
36 Eysenck 2004 267.
37 Czachesz 2007; 2017, 126–127.

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ple of faith in James 5:18. Choni the Circle-Drawer was a famous rainmaker in the first century BCE (Mishnah Taanit 3:8) and praying for rain was established in post-Talmudic Judaism.[38] From Tertullian (c.160–c.220) we learn that Christians were able to obtain rain through prayer (*Apol.* 5). In Greco-Roman antiquity, the official and private practice of rainmaking is attested since archaic times and continues beyond the Christianization of the empire.[39] I made similar observations about earthquakes, which are distributed like rainfall both in terms of temporal schedule and strength. Destroying pagan temples and prisons, sometimes with explicit reference to earthquakes, was another focus of early Christian magic.[40]

(3) The role of verbal behavior[41] takes us beyond animal analogues and provides connections to some of the cognitive and cultural aspects of magic to be discussed later in this article. (a) First, some experiments evaluated the verbal report of the participants about their confidence about the conditioned behavioral response (keystrokes to manipulate words on the screen).[42] Verbal reports are also used in various kinds of experimental studies measuring illusions of control.[43] Within the behaviorist paradigm, verbal reports in these contexts can be considered as conditioned behaviors, which can be evaluated independently of the manipulations they are referring to.[44] Stepping outside the behaviorist paradigm, we can say that verbal reports in the above-mentioned experiments expressed implicit and explicit beliefs about magical agency, which we are going to discuss below. Furthermore, magical utterances can be seen as conditioned verbal responses, that become established by the same associative learning mechanism that is at work in superstitious conditioning in general. (b) Second, verbal elements themselves can serve as stimuli, such as in the visual presentation of the words "good" and "bad." Although these stimuli are rather simple, they are very different from the stimuli used in animal experiments (such as the presentation of food) and are complex cultural items that activate language processing and cognitive evaluation. (c) Another experiment with children showed that information given to the participants on whether the stimulus is response-dependent (in other words, information on whether participants can control the stimulus) influenced the emergence of a conditioned behavior.[45] Of course, social inputs themselves can be based on conditioned verbal responses (that is, verbal expressions of the confidence in one's conditioned behavior). Below we will consider the role of reports of miracles in maintaining magic as a cultural phenomenon.

38 Lasker and Lasker 1984.
39 Graf 2005, 298.
40 Czachesz 2007; 2017, 127–128.
41 Marques and Benvenuti 2017.
42 Aeschleman et al. 2003; Bloom et al. 2007.
43 E. g., Matute et al. 2007.
44 Marques and Benvenuti 2017, 1401.
45 Higgins et al. 1989.

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How People Think about Magic

In terms of our definition, there is no magic without explanations and theories of why and how it works. We will especially deal with two types of explanations and theories. *Intuitions* about the mechanisms and effects of magic belong to the first category. Such intuitions seem to be largely consistent across cultures and can be called "universal" (a category which we will eventually replace by the more nuanced concept of *maturationally natural*). The other type of thinking about magic involves explicit and often more culture-specific theorizing. In different cultural contexts, explicit theories of magic can assume radically different forms, while the intuitions that underlie first-hand reactions remain the same. For example, a fanatic UFO believer can explain changes in his or her mental or physical condition by abduction by aliens, whereas the same changes would be attributed to favorable response to a sacrifice, demonic attack, or the influence of evil eye (depending on the positive or negative nature of the experience) in an ancient Mediterranean context.

From the experiments discussed in the previous section, it has become clear that superstitious conditioning can appear in a single session. But why would such behavior become ingrained in one's behavioral repertoire? Why do people not realize that their actions have in fact no influence on the state of affairs? It has been argued that superstitious conditioning (or its psychological foundation) might be an adaptation to situations where some recurrent danger or other salient event seems to be connected to some other event by causality (see above). Such "hypersensitivity" in dealing with environmental stimuli also underlies the detection of agency, which presents a more obvious case of evolutionary adaptation. When dealing with stimuli in the environment, it is a crucial skill to identify self-propelling, intentional agents, that perceive what is going on around them, react to those events, have goals and form plans.[46] The needs of both social life and predation might have contributed to the development of cognitive systems that focus on agents in the environment.[47] In our evolutionary past, the dangers of not detecting an agent were much more serious than mistakenly detecting one that was not there. Consequently, humans' oversensitive reaction to the (potential) presence of agency in the environment has contributed to the emergence of belief in gods and spirits.[48]

In an experiment conducted by Emily Pronin, Daniel M. Wegner, and their collaborators, participants were instructed to perform a "voodoo ritual" with a doll.[49] They were introduced to a confederate who behaved either offensively or neutrally, and who later played the role of the "victim" of magic. Then participants were asked to generate "vivid and concrete thoughts" about the victim (who was in the neigh-

46 Leslie 1994, 1995.
47 Barton 2000; Boyer and C. Barrett 2005.
48 Guthrie 1993; J. L. Barrett and Keil 1996; Burkert 1996; J. L. Barrett 2000; Pyysiäinen 2009.
49 Pronin et al. 2006.

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boring room) and prick the doll in particular ways. Finally, the victim came back and reported having a slight headache. It turned out that participants who had ill thoughts about their victims (because of the victims' offensive behavior) were likely to think that they caused the victims' headache, whereas participants meeting neutral victims were less likely to think so. In sum, university students, especially ones who were motivated to have evil thoughts about their victims, were easily made to believe they could curse victims by performing magic. What can we conclude from this experiment for our discussion of magic? Why did students believe they caused harm from a distance? One can argue that such a belief is related to hypersensitive agent-detection (see above). In this case it is more precise to speak of "agentive reasoning," that is, the use of concepts of agents to make sense of various kinds of information (not only direct sensory inputs). Although we do not call them "demons" any longer, we find it easy to accept that there are different agencies acting in us, such as illnesses, emotions, desires, will, Jungian agents populating our psyche, and so on. Without thinking about it, the students in Pronin and collaborators' experiment seem to believe that a similar agency (possibly connected to their strong emotions) may act invisibly and cause damage in other people.

Another important underlying mechanism of magic is reasoning about contagion. In a series of experiments conducted by Carol Nemeroff, Paul Rozin, and their collaborators, participants avoided contact with objects that were previously in contact with disgusting insects or substances, even after the objects were carefully sterilized.[50] An even more surprising finding of Nemeroff and Rozin's was that objects that were in contact with morally condemned people elicited the same response.[51] The famous example is "Hitler's sweater": people strongly reject the idea of wearing a sweater that the experimenter tells them once belonged to Hitler, even if the sweater has been thoroughly cleaned. Theories about the origins of "contagion avoidance" assume that it has contributed an evolutionary benefit, although the precise explanation remains unclear.[52] There exists a parallel tendency to prefer contact with objects that belonged to morally valued people (although the response is somewhat less pronounced),[53] which seems to be one of the underlying causes of the collection of memorabilia and the veneration of relics.[54] In sum, there is a cross-culturally attested human intuition that positive and negative qualities (including abstract, moral features) can be transmitted by contact.

The cross-culturally attested intuitions about agency, contagion, and probably other, hitherto less explored, cognitive mechanisms provide a cognitive framework that helps people make sense of the "success" of superstitious behavior. In addition to such intuitive or "naïve" appraisals of magical acts, religious traditions develop more

50 Rozin et al. 1986; Nemeroff and Rozin 2000.
51 Rozin et al. 1986; Nemeroff and Rozin 1994; cf. Lenfesty 2011.
52 Boyer 2002, 232–261; McCorkle 2010.
53 Lenfesty 2011.
54 Uro 2013.

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formalized theories of magical efficacy (that is, theories of why magic works). In the New Testament, an important point in case is the power of God as communicated by the Holy Spirit, the name of Jesus, and other means. In the ancient theory of magic, the mediation of divine assistance was captured by the concept of the *parhedros*. The parhedros (Greek, literally meaning "one that sits nearby") was a figure of a supernatural assistant who collaborated with the magician.[55] To acquire a parhedros, one had to undergo specific initiatory rituals. The parhedros could assume one of four different forms: it might be (temporarily) materialized in human shape; assimilated to a deity, for example, "Eros as assistant"; identified with an object, such as an iron lamella inscribed with Homeric verses; or represented by a demon.[56] After his initiation, the magician could mediate between the divine and human realms, but only in so far as the parhedros helped him, for example, by calling its name.[57] This attitude to magic is different from the coercive approach when the magician tries to persuade the divinity to assist him in reaching his own ends. The magician often calls the supernatural assistant "lord" or "ruler" and himself "servant." According to one of the Greek Magical Papyri, the parhedros might be used for the following purposes: to bring on dreams, to couple women and men, to kill enemies, to open closed doors and free people in chains, to stop attacks of demons and wild animals, to break the teeth of snakes, to put dogs to sleep.[58]

Yet another important cognitive mechanism that supports magic is the biased interpretation of evidence. "Confirmation bias" means a tendency to seek evidence that is consistent with one's hypothesis and avoid seeking falsificatory evidence.[59] In Peter Wason's classical experiment, subjects had to discover a simple relational rule between three numbers (2–4–6) by generating other sets of three numbers that the experimenter checked against the rule.[60] It was discovered that subjects insisted on an initial hypothesis and chose only sets of numbers that matched it. Subsequent experimental work has confirmed Wason's findings. Recently Martin Jones and Robert Sugden have shown that information interpreted as confirming a hypothesis increases subjects' confidence in the truth of the hypothesis, even if that information has no value in terms of formal logic.[61] Finally, experiments have shown how confirmation bias works in a social context: supporters have seen more fouls with players of the opponent team than with their own players.[62] In sum, information that may be seen as confirming one's hypothesis (or prejudice) is sought for and interpreted as such, whereas information falsifying it is avoided and ignored. It is easy to see that

55 Graf 1996, 2002; Graf et al. 2005, 85–89, 289–290.
56 Pachoumi 2011; Scibilia 2002, 76–79.
57 Scibilia 2002, 72–75.
58 Greek Magical Papyri I.96–130; Betz 1992; Preisendanz 2001.
59 Eysenck and Keane 2005, 470–480.
60 Wason 1960, 1968.
61 Jones and Sugden 2001.
62 Eysenck 2004, 328.

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this universal cognitive attitude plays an important role in collecting "evidence" for the effectiveness of magic.

Not only are people biased toward confirming evidence, but they are also extremely good at downplaying counterevidence. Magical practices are not vulnerable to unsuccessful performances, because there is a wealth of explanatory strategies to deal with such situations. As Pascal Boyer pointed out, "rituals can never fail, but people can fail to perform them correctly."[63] Evans-Pritchard recorded a number of ready-made explanations among the Zande that can be used to account for the failure of an oracle: "(1) the wrong variety of poison having been gathered, (2) breach of a taboo, (3) witchcraft, (4) anger of the owners of the forest where the creeper grows, (5) age of the poison, (6) anger of the ghosts, (7) sorcery, (8) use."[64] In other words, the efficiency of magic is protected by the irrefutable circular reasoning that magic succeeds only when all necessary conditions are fulfilled, and we know that all conditions have been fulfilled only if the magic succeeds.

Magic and Culture

Above we have discussed the role of explicit, culturally transmitted theories of magic in the persistence of magical practices. In this section, we look further into the cultural matrix of magic, focusing especially on imitative learning, miracle stories, and the problem of coercion.

(1) Long before they are capable of verbal communication, children engage in cultural learning by imitating actions and action sequences, although the ability to imitate right after birth has been called into question recently.[65] A much-discussed aspect of imitation is the degree to which the goal of the actions to be imitated is taken into consideration by the imitating individual. It seems that until the age of 12 months, children imitate only those elements of an action sequence that are relevant for achieving the observed goal (e. g., opening a box), whereas they start imitating both relevant and irrelevant elements (e. g., knocking on the lid) after that age, changing back and forth between both types of imitation during development.[66] The jury is still out on what causes children to imitate either exactly (also known as overimitation) or selectively (also known as goal-directed imitation). It is reasonable to hypothesize that action sequences without clearly understood goals are imitated exactly. Elaborating on this hypothesis, scholars suggested that rituals and magical

63 Boyer 1994a, 208.
64 Evans-Pritchard 1937, 330.
65 Meltzoff 2002; Meltzoff et al. 2018; Oostenbroek et al. 2019; Oostenbroek et al. 2016.
66 Óturai, Kolling, and Knopf 2017.

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behavior involve the exact imitation of causally opaque action sequences.[67] One can object, however, that the exact imitation of action sequences without fully transparent causal links is likely to be found in other cognitive domains, as well. For example, this seems to be the case at the imitation of many technological and medical procedures, especially when the imitator is a non-expert and where exact imitation is the safer option. In such cases, strictly physical or bio-chemical causation might be tacitly assumed but not (fully) understood. We can surmise that in pre-industrial contexts and populations without sufficient levels of science literacy, exact imitation is an overwhelmingly safer choice in learning and performing such procedures. Exact imitation seems to be a human universal, although variation has been observed in the kinds of behaviors that children imitate exactly in different cultures.[68] Cultural variation, the back-and-forth shifts during child development, and the occurrence of exact imitation across various domains suggest that (a) the phenomenon of exact imitation cannot be fully explained by the presence or absence of an understanding of the goals and sub-goals of the imitated actions and action sequences; and (b) exact imitation does not provide a robust explanation of ritual and magic.

Among other factors, explicit and implicit social clues have been found to play an important role in deciding whether one imitates exactly.[69] Looking at the broader picture of cultural transmission, we find that various contextual biases give social clues for copying behaviors without (necessarily) scrutinizing their causal structures and actual benefits.[70] For example, people often copy the language, gestures, appearance, consumption habits, and lifestyle choices of celebrities more or less blindly. It is quite likely that the behavioral models provided by successful individuals (so-called prestige-bias) or behaviors accompanied by so-called credibility-enhancing signals (CREDs) invite exact imitation more readily than do other models.[71]

In previous parts of this chapter, we argued that magic is supported by a variety of implicit and explicit theories, and identified the presence of such theories as a constitutive element of magic. In principle, nothing prevents the practitioner of magic from inventing new procedures based on available intuitive and culturally learned patterns. For example, one could transfer invisible essences in a variety of ways and with the help of different parhedroi, in combination with appropriate technical elements. *Emulation* is a type of social learning in which one attempts to recreate the result of a behavior, rather than imitating the behavior itself.[72] Still, it seems to be usual for magical procedures to be clad in an aura of permanence, and to be connected to some source of authority. While the exact imitation of action sequences does not provide a sufficient explanation of magic, it is likely that the connection of magical procedures to some authoritative source (e. g., ancient tradition, sacred text,

67 Kapitány and Nielsen 2016; Legare and Nielsen 2015; Kaše 2019.
68 Stengelin, Hepach, and Haun 2020.
69 Óturai, Kolling, and Knopf 2017, 2.
70 Richerson and Boyd 2005, 68–72.
71 Henrich 2009; Jiménez and Mesoudi 2019.
72 Tennie, Call, and Tomasello 2010.

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