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INTUITIVE AND REFLECTIVE COGNITION, OPTIMAL AND COSTLY RELIGION

Cognitive Avenues in the Study of Israelite Religion

This book is about minds and religion – ancient Israelite minds and religion, to be more precise. In the past thirty years or so, a wave of research in the cognitive science of religion (CSR) has yielded deep insights into the cognitive foundations of religious belief and behavior.¹ This body of research suggests that religion is not *sui generis*, but is instead rooted in ordinary features of human cognitive architecture. That is, religion tends to rely upon evolved cognitive mechanisms and, as a result, emerges as an outgrowth of the way human minds operate in general.² In this sense, religion is therefore “natural.”³ This book extends these insights by employing current cognitive approaches in order to explore expressions of religious thought and behavior in ancient Iron Age Israel. Although scholarship on Israelite religion has become increasingly interdisciplinary in recent years – insofar as it makes use of both textual and archaeological data, as well as various social science methodologies – cognitive tools have

¹ For overviews, see Ilkka Pyysiäinen, “Cognitive Science of Religion: State-of-the-Art,” *Journal for the Cognitive Science of Religion* 1 (2012): 5–28; Justin L. Barrett, “Cognitive Science of Religion: Looking Back, Looking Forward,” *Journal for the Scientific Study of Religion* 50 (2011): 229–39; Jesper Sørensen, “Religion in Mind: A Review Article of the Cognitive Science of Religion,” *Numen* 52 (2005): 465–94; Pascal Boyer and Brian Bergstrom, “Evolutionary Perspectives on Religion,” *Annual Review of Anthropology* 37 (2008): 111–30.

² Pascal Boyer, “Religious Thought and Behavior as By-products of Brain Function,” *Trends in Cognitive Sciences* 7 (2003): 119–24. See also Pascal Boyer, *Religion Explained: The Evolutionary Origins of Religious Thought* (New York: Basic Books, 2001).

³ Robert N. McCauley, *Why Religion Is Natural and Science is Not* (Oxford: Oxford University Press, 2011); Justin L. Barrett, “Exploring the Natural Foundations of Religion,” *Trends in Cognitive Sciences* 4 (2000): 29–34; Pascal Boyer, *The Naturalness of Religious Ideas: A Cognitive Theory of Religion* (Berkeley, CA: University of California Press, 1994); Paul Bloom, “Religion Is Natural,” *Developmental Science* 10 (2007): 147–51.

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been conspicuously underutilized or lacking altogether.⁴ The timing is right, then, for redressing this imbalance and demonstrating the value of the cognitive and brain sciences for illuminating ancient Israelite religious cognition.

The cognitive science of religion was developed, in part, by anthropologists and religion scholars who wanted to apply scientific principles to the study of religion and culture. As with the cognitive sciences more broadly, the umbrella field of CSR is a multidisciplinary enterprise that draws upon findings and research methods from a variety of fields, including cognitive, developmental, and evolutionary psychology, cognitive and cultural anthropology, and neuroscience, among others. Instead of interpreting local, culturally specific religious traditions, CSR has mostly been interested in investigating cross-cultural and recurrent patterns of religious thought and behavior, and the mental systems that shape and constrain them. In contrast to the traditional hermeneutical methods within biblical scholarship and the study of religion, cognitive approaches produce theoretical paradigms for explaining the universality of religious phenomena. Interpretive and explanatory endeavors need not be in tension, however, and can play mutually reinforcing roles in what Lawson and McCauley propose as a kind of “explanatory pluralism.”⁵ Thus, in addition to the careful reading and interpretation of texts, which has always been the *sine qua non* of biblical studies, general cognitive theorizing offers a new set of tools for studying the religious phenomena reflected in those texts.

As the twenty-first century pushes on, cognitive approaches to religion have started to catch on and become popular tools among not just anthropologists but also historians.⁶ Notwithstanding claims

⁴ For recent application and assessment of social-scientific theories in the study of Israelite religion, see Saul M. Olyan, ed., *Social Theory and the Study of Israelite Religion: Essays in Retrospect and Prospect* (Atlanta, GA: Society of Biblical Literature, 2012). The emerging cognitive turn within biblical studies was signaled by István Czachesz and Risto Uro, *Mind, Morality and Magic: Cognitive Science Approaches in Biblical Studies* (Durham, NC: Acumen, 2013). The majority of cognitive work within biblical studies so far, however, relates to the New Testament and early Christian origins, whereas the Hebrew Bible and ancient Israel have received little to no extended treatment.

⁵ E. Thomas Lawson and Robert N. McCauley, *Rethinking Religion: Connecting Cognition and Culture* (Cambridge: Cambridge University Press, 1990).

⁶ See, for example, Harvey Whitehouse and James Laidlaw, eds., *Religion, Anthropology, and Cognitive Science* (Durham, NC: Carolina Academic Press, 2007); Harvey Whitehouse and James Laidlaw, eds., *Ritual and Memory: Toward a Comparative Anthropology of Religion* (Walnut Creek, CA: AltaMira Press, 2004); Harvey

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that social scientists and historians of religion “missed” the cognitive and evolutionary revolution,⁷ current work under the rubric of “cognitive historiography” signals an auspicious swelling of the tide.⁸ Because historians, and perhaps especially historians of religion, are arguably in the business of studying human minds – via their ideas – an informed understanding of how the mind works is indispensable to this task. As the historian Chester Starr observed, in order to understand “any era of the past, one must be able to penetrate into the minds of its inhabitants.”⁹ Of course, this undertaking is easier said than done, not least because many scholars of ancient Near Eastern and Israelite religion have argued (or more often assumed) that ancient and modern cognition are fundamentally different in nature.¹⁰ The great Assyriologist A. Leo Oppenheim, for example, went so far as to declare that an account of ancient Mesopotamian religion cannot and should not be written, due in large part to the insuperable “conceptual barrier” involved in understanding a religion so far removed both geographically and temporally: “It is open to serious doubt whether we will ever be able to cross the gap caused by the differences in ‘dimensions’.”¹¹ A similar sentiment is echoed by John Collins, who writes of the need to acknowledge the degree to which the biblical texts are

Whitehouse and Luther H. Martin, *Theorizing Religions Past: Archaeology, History, and Cognition* (Walnut Creek, CA: AltaMira Press, 2004); Jennifer Larson, *Understanding Greek Religion: A Cognitive Approach* (New York: Routledge, 2016).

⁷ Jerome H. Barkow, ed., *Missing the Revolution: Darwinism for Social Scientists* (Oxford: Oxford University Press, 2005).

⁸ See Luther H. Martin and Jesper Sørensen, *Past Minds: Studies in Cognitive Historiography* (London: Equinox, 2011); Luther H. Martin, “The Future of the Past: The History of Religions and Cognitive Historiography,” *Religio* 20 (2012): 155–71; Dimitris Xygalatas, “On the Way towards a Cognitive Historiography: Are We There Yet?” *Journal of Cognitive Historiography* 1 (2014): 193–200.

⁹ Chester G. Starr, *A History of the Ancient World* (Oxford: Oxford University Press, 1965), 27.

¹⁰ Such an assumption informs the essays in Henri Frankfort, H. A. Frankfort, John A. Wilson, Thorkild Jacobsen, and William A. Irwin, *The Intellectual Adventures of Ancient Man: An Essay on Speculative Thought in the Ancient Near East* (Chicago: University of Chicago Press, 1946). The introductory and concluding essays, in particular, claim that ancient thought was characterized by a unique “mode of cognition” referred to as “mythopoeic thought,” a mentality common to ancient and “modern savages” alike according to which they lacked any notion of an inanimate world. The authors, for example, endorse the following quote (p. 5), “Primitive man has only one mode of thought, one mode of expression, one part of speech – the personal.”

¹¹ A. Leo Oppenheim, *Ancient Mesopotamia: Portrait of a Dead Civilization* (rev. ed. by Erica Reiner; Chicago: University of Chicago Press, 1977), 172–83 (182).

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“informed by the assumptions of an ancient culture remote from our own,” adding that to understand the Bible “is first of all to appreciate what an alien book it is.”¹² Without dismissing the prudence of these observations, scholars are slowly starting to realize that CSR may offer a fruitful path forward. For instance, if we step back and consider the course of human history and evolution, the past few thousand years is too short a time for human cognitive architecture to have undergone substantial change, and therefore contemporary cognitive findings and theoretical insights offer not just cross-cultural but also transhistorical relevance.¹³ An up-to-date view of the mind may, then, help bridge the gap between ancient and modern minds and thus render ancient religious texts and phenomena a little less distant, a little less alien.

There are at least two notable ways in which cognitive perspectives are potentially valuable to historians and biblical scholars. First, CSR research methods and tools can illuminate historical data in general and enhance our understanding of Israelite religion in particular. New methodological lenses shed fresh light on old issues, prompt new questions and avenues of inquiry, help reassess conventional assumptions, and even resolve long-standing problems in the study of Israelite religion. Despite CSR’s focus on religion as a general human phenomenon, biblical scholars can contribute to ongoing research at the intersection of cognition and culture by, for example, investigating the ways in which pancultural cognitive proclivities shaped local expressions of Israelite religion and culture in unique ways, and conversely how Israelite cultural factors exploited, modified, or outweighed natural cognitive tendencies. In this way, cognitive approaches can illuminate the general cognitive

¹² John J. Collins, *Introduction to the Hebrew Bible* (Minneapolis, MN: Fortress Press, 2004), 20.

¹³ See Leda Cosmides, John Tooby, and Jerome H. Barkow, “Introduction: Evolutionary Psychology and Conceptual Integration,” in *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (ed. J. H. Barkow, L. Cosmides, and J. Tooby; New York: Oxford University Press), 3–15: “The few thousand years since the scattered appearance of agriculture is only a small stretch in evolutionary terms, less than 1% of the two million years our ancestors spent as Pleistocene hunter-gatherers. For this reason, it is unlikely that new complex designs – ones requiring the coordinated assembly of many novel, functionally integrated features – could evolve in so few generations.” For extensive discussion see John Tooby and Leda Cosmides, “The Psychological Foundations of Culture,” in *The Adapted Mind*, 19–136. Cf. Jaime C. Confer et al., “Evolutionary Psychology: Controversies, Questions, Prospects, and Limitations,” *American Psychologist* 65 (2010): 110–26.

mechanisms underlying ancient religious belief, while also helping to understand the specific cultural differences across different groups.

But the relationship between cognitive science and biblical studies can flow in the other direction as well: just as our understanding of ancient religious life can be enriched by scientific insights, so historical data are needed to “test” or evaluate the theoretical proposals of cognitive researchers.¹⁴ Much like anthropologists and historians, biblical scholars possess expertise in particular sets of data – whether textual, archaeological, or iconographic – that can serve as valuable “fact checks” on cognitive theories. To date, CSR has primarily turned to ethnographic and experimental methods to examine its hypotheses and predictions. Historical materials, however, also provide a valuable body of evidence that can be used to critically assess leading CSR theories. The relationship between biblical studies and CSR is therefore a two-way avenue, with ample opportunity for genuine interdisciplinary dialogue. Rather than leaving the theory testing to the scientists, biblical scholars are invited to contribute their own unique expertise to this part of the dialogue. In the chapters that follow, both of these approaches – the illumination of Israelite religion by means of cognitive approaches, and the testing of cognitive theories by means of historical data – are pursued in various ways in the course of each analysis.

Theoretical musings about the benefit of CSR to biblical scholarship, and vice versa, have limitations, however, and eventually one must roll up one’s sleeves and get down to the business of actually applying these new methods to concrete historical issues and problems. As the old saying goes, “By their fruits ye shall know them,” and this is ultimately how CSR will earn a seat at the methodological table in biblical studies. To this end, the subsequent chapters of this study consist of five distinct case studies, or intellectual probes, that utilize different cognitive science approaches to explore specific issues in the study of ancient Israelite religion. More specifically, these case studies all center on a key distinction in the cognitive sciences between intuitive and reflective mental processes, which in turn give rise to what may be called cognitively optimal and costly

¹⁴ See, for example, the essays in Whitehouse and Martin, *Theorizing Religions Past*. Note also the University of British Columbia’s project, The Database of Religious History (DRH): <https://religiondatabase.org>. It is described as the “world’s first comprehensive online quantitative and qualitative encyclopedia of religious cultural history.”

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types of religion. These selective case studies are not intended to be comprehensive; there are of course many other areas of Israelite religion worthy of future study. Rather, they aim to show that although we cannot access the mental lives of ancient Israelites by scanning their brains with fMRI machines or by inviting them into the lab for clever psychological experiments, CSR approaches – in conjunction with contemporary textual and archaeological data – nevertheless offer a fruitful avenue for penetrating the ancient religious imagination.

Dual-Processing Models of Human Cognition

A wealth of research from different areas of cognitive and social psychology suggests that two distinct cognitive mechanisms, or processing modes, underlie human thinking and reasoning. Schneider and Shiffrin first distinguished between “controlled” and “automatic” modes of human perception, and since then researchers have studied dual-processing systems with regard to logic, reasoning, decision making, and moral and social judgments.¹⁵ In each of these areas, humans appear to possess “two minds in one brain.”¹⁶ So-called dual-processing theories of human cognition thus distinguish two different modes of thought: (1) implicit, intuitive, and nonconscious cognition on the one hand and (2) explicit, reflective, and conscious cognition on the other.¹⁷ These processing modes are

¹⁵ See Walter Schneider and Richard M. Shiffrin, “Controlled and Automatic Human Information Processing I: Detection, Search, and Attention,” *Psychological Review* 84 (1977): 1–66; and Richard M. Shiffrin and Walter Schneider, “Controlled and Automatic Human Information Processing II: Perceptual Learning, Automatic Attending, and a General Theory,” *Psychological Review* 84 (1977): 127–90.

¹⁶ J. St. B. T. Evans, “In Two Minds: Dual Process Accounts of Reasoning,” *Trends in Cognitive Sciences* 7 (2003): 454–9 (454).

¹⁷ The literature on this subject is vast but see Jonathan St. B. T. Evans, “Dual-Processing Accounts of Reasoning, Judgment and Social Cognition,” *Annual Review of Psychology* 59 (2008): 255–78; “Intuition and Reasoning: A Dual-Process Perspective,” *Psychological Inquiry* 21 (2010): 313–26; “In Two Minds,” J. St. B. T. Evans and K. Frankish, eds., *In Two Minds: Dual Processes and Beyond* (Oxford: Oxford University Press, 2009); Gideon Keren and Yaacov Schul, “Two Is Not Always Better than One: A Critical Evaluation of Two-Systems Theories,” *Perspectives on Psychological Science* 4 (2009): 533–50; Arie W. Kruglanski and Gerd Gigerenzer, “Intuitive and Deliberate Judgments Are Based on Common Principles,” *Psychological Review* 118 (2011): 97–109; Dan Sperber, “Intuitive and Reflective Beliefs,” *Mind & Language* 12 (1997): 67–83; Dan Sperber and Hugo Mercier, “Intuitive and Reflective Inferences,” in *In Two Minds: Dual Processes and Beyond* (ed. Jonathan St. B. T. Evans and Keith Frankish; Oxford: Oxford University Press, 2009), 149–70. For a recent defense

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	System 1	System 2
<i>Computation/Processing</i>	Fast Reflexive Nonconscious/automatic Low effort	Slow Reflective Conscious High effort
<i>Representation</i>	Implicit Intuitive Inferentially rich Cognitively optimal	Explicit Analytical Abstract Cognitively costly

Figure 1.1 Dual-processing systems contrasted

sometimes described in terms of implicit and explicit systems, respectively, or alternatively using the more neutral terms System 1 and System 2.¹⁸ Intuitive System 1 cognition is fast and automatic, akin to instincts and includes basic emotions and emotional processing, while reflective System 2 cognitive activity involves slow, deliberate thinking. This is a distinction neatly captured in the title of Daniel Kahneman's book, *Thinking, Fast and Slow* (see Figure 1.1).¹⁹

Each processing system is believed to have its own unique evolutionary history. System 1 is thought to be evolutionarily old and represent a universal cognitive ability common to humans and some nonhuman animals, whereas System 2 cognition developed more recently and allows for unique human capacities such as abstract thought, hypothetical mental simulation about future scenarios, and conscious decision making. Regardless of their origins, however, the key idea is that thinking and reasoning are governed by distinct types of mental processing, or what can be thought of as alternate modes of reasoning or computational strategies.²⁰ Although our intuitive

of dual-processing accounts, broadly speaking, consult Jonathan St. B. T. Evans and Keith E. Stanovich, "Dual-Process Theories of Higher Cognition: Advancing the Debate," *Perspectives on Psychological Science* 8 (2013): 223–41.

¹⁸ See Keith E. Stanovich and Richard F. West, "Individual Differences in Reasoning: Implications for the Rationality Debate," *Behavioral and Brain Sciences* 23 (2000): 645–726; Daniel Kahneman and Shane Frederick, "A Model of Heuristic Judgment," in *The Cambridge Handbook of Thinking and Reasoning* (ed. Keith J. Holyoak and Robert G. Morrison; Cambridge: Cambridge University Press, 2005), 267–94. For a list of different terms used to describe these systems see Evans, "Dual-Processing Accounts," 257.

¹⁹ Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Strauss and Giroux, 2011).

²⁰ It is preferable to speak about different types or modes of mental processing, rather than two systems, because in fact each type or mode of processing relies on

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mode of thinking is fast and generally good at dealing with familiar situations, it is also prone to biases and errors, which can only be corrected through reflective reasoning. According to Kahneman, however, overall the mental “division of labor” between the two systems is highly efficient insofar as it “minimizes effort and optimizes performance.”²¹

For our purposes, one crucial difference between intuitive and reflective processing concerns not just the speed, but also the differential amount of cognitive effort or ease required by each mode.²² Intuitive cognitive processes are automatic and operate outside of our conscious awareness, and yet are responsible for guiding a significant portion of our behavior and mental life.²³ As a result, it does not require controlled attention and does not place a heavy load on working memory or central processing capacity; this mode of thinking comes naturally and automatically, since it comes free of charge as a result of our species-specific cognitive endowment. Reflective thinking and reasoning, by contrast, is a deliberate activity that is more costly in terms of the mental effort and resources entailed. Therefore, the more intuitive a given belief or concept, the more natural, effortless, and optimal from the perspective of the mind. The more reflective a belief, the more effort it entails as a result, rendering it costly in terms of cognitive resources needed to process, sustain, remember, and transmit.

many distinct domain-specific systems. The terminology of “dual-processing” systems is therefore potentially misleading, since it implies only two systems (fast and slow), when in reality each type is comprised of numerous autonomous systems. As Evans and Stanovich (“Dual-Process Theories,” 226) clarify, dual systems indicate “qualitatively distinct forms of processing but allow that multiple cognitive or neural systems may underlie them.”

²¹ Kahneman, *Thinking, Fast and Slow*, 25.

²² Kahneman writes about the degree of “cognitive ease” and a range of processing between “easy” and “strained,” according to which certain ideas or situations place relatively different amounts of strain on cognitive processing.

²³ See Evans (“Dual-Processing Accounts,” 258): “Many researchers have emphasized the fact that unconscious processes may control our behavior without us being aware of them doing so, and that conscious reasoning in System 2 is often used for the confabulation of explanations for these behaviors.” On this general point, see also Timothy D. Wilson, *Strangers to Ourselves: Discovering the Adaptive Unconscious* (Cambridge, MA: Harvard University Press, 2002); and Leonard Mlodinow, *Subliminal: How Your Unconscious Mind Rules Your Behavior* (New York: Pantheon, 2012). On the role of intuitions in moral reasoning, see Jonathan Haidt, “The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment,” *Psychological Review* 108 (2001): 814–34.

Building on these proposals, McCauley distinguishes between natural and unnatural cognition (corresponding to intuitive and reflective cognition, respectively), but further proposes two types of natural cognition: (1) maturationally natural cognition, which emerges in the course of normal maturation and (2) practiced naturalness, which is achieved through practice, experience, and expertise in a particular domain.²⁴ According to McCauley, maturationally natural cognition emerges early in the course of normal childhood development, does not rely on specific artifacts, explicit instruction and teaching, or particular cultural inputs.²⁵ This type of cognition includes actions like walking or chewing. Yet, with enough practice and training, certain cultural ideas and activities may become natural in much the same sense described above.²⁶ In contrast to the maturational naturalness of walking and chewing, for example, practiced naturalness includes familiar learned activities such as writing, reading, driving a car, or riding a horse. Practiced naturalness can also extend, in varying degrees, to more complex areas of professional experience such as theological and scientific thinking. With intensive study and sufficient practice, such endeavors can become “second nature” to their practitioners. The notion of practiced naturalness thus offers a useful category for analyzing complex writings and systems of thought produced by specialized elites in ancient Israel.²⁷

It is important to clarify, however, that the difference in processing types is not tantamount to a difference in intelligence; instead, each processing strategy is available to any individual at different times depending on the task and context at hand. As Ilkka Pyysiäinen notes, “the distinction between intuitive and reflective reasoning does not reduce to a difference in intelligence or between types of minds; it

²⁴ McCauley, *Why Religion Is Natural*, 11–30.

²⁵ McCauley, *Why Religion Is Natural*, 22.

²⁶ McCauley, *Why Religion Is Natural*, 29: “With cognition and perception as with skilled actions, cultural materials can come to feel natural after repeated practice and intensive study, but the maturational naturalness (of action, cognition, and perception) is the more fundamental form, because maturational knowledge arises in human minds regardless of the peculiarities of cultures.”

²⁷ Yet I would add that even the practiced naturalness of experts may be imperfect and subject to lapses, depending on the task in question and its accompanying context. The naturalness of writing and mastering theological doctrine are qualitatively different, being acquired at different life stages and requiring different cognitive demands. Moreover, as we will see below, the situation or context in which a particular idea or action is deployed is crucially relevant.

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is instead a difference in contexts and motivations.”²⁸ Consider a simple example: although the sun’s movement through the sky appears intuitive to us in everyday life, and in the way we speak colloquially about it “rising” and “setting,” we are capable of overriding this powerful but mistaken intuition through sober reflective consideration. Context matters, of course, and certain situations are bound to exert greater cognitive demands and thus require fast “online” processing, reasoning, or decision making, while others may instead allow for more careful, slow “offline” deliberation. (In this context, “online” processing is a metaphor to describe the usual default mode of thinking in response to immediate inputs from the world around us, in contrast to the slower, more careful thinking that results when one disconnects from this default mode through “offline” processing.) Thus, an individual will move through life switching back and forth between intuitive and reflective types of thinking, depending on their context and motivations. In ancient Israel, for example, the reflective act of composing theological texts represents a process that enlists slow deliberate mental processing, as opposed to, say, ritual contexts that may involve quick online interaction with superhuman agents in real time.

Now, when it comes to religious concepts in particular, Boyer and Baumard propose a modified dual-processing model. They argue, in short, that “religious representations lie in post hoc explicit elaborations on common intuitions.”²⁹ According to this view, religious concepts are explicit statements that build on the intuitive knowledge provided by our evolved cognitive architecture. As we will see in more detail in Chapter 2, supernatural agent concepts like ghosts and gods, for example, are rooted in our intuitive assumptions about social agents more generally. Similarly, cultural notions about “impurity” and “pollution” are based in the biological experience of disgust and associated intuitions about contact-contagion.³⁰ In

²⁸ Ilkka Pyysiäinen, *Supernatural Agents: Why We Believe in Souls, Gods, and Buddhas* (Oxford: Oxford University Press, 2009), 7.

²⁹ Nicolas Baumard and Pascal Boyer, “Religious Beliefs as Reflective Elaborations on Intuitions: A Modified Dual-Process Model,” *Current Directions in Psychological Science* 22 (2013): 295–300. See also Ilkka Pyysiäinen, “Intuitive and Explicit in Religious Thought” *Journal of Cognition and Culture* 4 (2004): 123–50. Dual-processing accounts are also discussed from a CSR perspective in Todd Tremlin, *Minds and Gods: The Cognitive Foundations of Religion* (New York: Oxford University Press, 2006), 172–82.

³⁰ For the role of the emotion of disgust in biblical impurity laws, see Thomas Kazen, *Emotions in Biblical Law: A Cognitive Science Approach* (Sheffield: Sheffield Phoenix Press, 2011), 9–94.