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ANCIENT SOURCES, MODERN PROBLEMS: A METHODOLOGICAL ANALYSIS OF RASHI'S POSITION ON BRAINSTEM DEATH

In June 2010, the Halakha Committee (*Va'ad Halacha*) of the Rabbinical Council of America released an educational paper¹ regarding the halakhic recognition of brainstem death, bringing the long-simmering debate over this issue to a boil once again. The paper is most directly a belated response to the RCA's acceptance in 1991 of the Health Care Proxy authored by R. Moshe Dovid Tendler, a move that was opposed by a majority of its *Va'ad Halacha* at the time. But the debate over the halakhic status of brainstem death stretches back more than two decades earlier, when the first successful human heart transplant in Cape Town, South Africa brought the question of how to define death to international attention. The issue, then, has been the subject of halakhic dispute for over forty years, yet it continues to occupy a central place in the public consciousness, as the *Va'ad Halacha's* paper—weighing in at over a hundred pages of dense analysis—amply demonstrates.

To the layperson, it may seem frustrating that the rabbinate cannot reach a consensus about a basic issue such as when life ends, but it's only appropriate that a matter of this gravity be subject to a prolonged and intense evaluation. Witness how even within the medical community, a steady stream of new data about brainstem death has forced doctors to revise clinical procedures, and in some cases even question long-accepted standards. Yet amidst the release of the *Va'ad Halacha's* paper and the flurry of responses, there

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¹ "Halachic Issues in the Determination of Death and in Organ Transplantation," Rabbinical Council of America (June 2010), accessible at http://www.rabbis.org/pdfs/Halachi_%20Issues_the_Determination.pdf.

TRADITION

was a sense that the initial stage of the debate had run its course. Despite its impressive length and scope, the paper offers little halakhic information or analysis that had not already been published elsewhere, most of it well over fifteen years ago.² At the same time, many of those who reacted to the paper focused on issues other than the *Va'ad Halacha's* technical arguments, suggesting that the brainstem death debate has raised a set of broader concerns that have not been sufficiently addressed.

This paper seeks to forward the halakhic discussion of brainstem death on two fronts. First, while space does not permit a full response to the *Va'ad Halacha's* position, I will argue against its analysis of several key sources. Over the years that I have taught Jewish medical ethics, my research has gradually convinced me that one can make a compelling case for a halakhic standard of brainstem death in contrast to the position of the *Va'ad Halacha's* paper.³

At the same time, there is little to be gained by merely revisiting the same points that have been reviewed countless times. Thus, a second goal of this paper is to bring a more methodologically conscious perspective to the debate, to consider the implicit hermeneutical assumptions behind established interpretations, and to challenge the certitude with which they have been advanced. To be sure, some scholars have reflected on the most overt hermeneutical difficulty that this issue presents: the fact that pre-modern sources often reflect antiquated conceptions of the human body. Yet a close examination of the secondary halakhic literature on brainstem death suggests that this is only one of many complexities that arise when we apply halakhic texts formulated in a context very different than our own. We perceive the way pre-modern authorities' scientific knowledge is limited by their historical circumstances, yet are often blind to the way our own intellectual horizons shape and restrict our understanding.

The Importance of Historical Context

Virtually all halakhic authorities concur that the *sugya* (Talmudic passage) most relevant to the question of how death is defined in halakha is found in *Yoma* (85a). The *mishna* (*Yoma* 8:7) addresses a case in which

² Virtually all the halakhic sources that the paper cites from after 1995 are oral communications from halakhic authorities confirming or clarifying previously stated positions.

³ It should be noted that, following the completion of an advanced draft of this paper, the RCA issued a press release clarifying that the organization does not take an official stand on this matter, in recognition of the contrary positions taken by different halakhic authorities.

people may be trapped beneath the rubble of a fallen building on Shabbat, and rules that we continue digging only as long as there is any chance of finding a live victim. The Talmud Bavli discusses how we determine whether a victim is alive once he is found. The text from the standard Vilna edition reads as follows:

Our Rabbis taught: How far does one examine? Until [one reaches] his nose. Some say: Until his heart...

Let us say that these Tannaim dispute in the same way as the following Tannaim, for it was taught: From where is the embryo formed? From its head, as it is said, “In the womb of my mother, You were my support [*gozi*]” [Psalms 71:6], and it is also says: “Shear [*gozi*] your locks and cast them away” [Jeremiah 7:29]. Abba Sha’ul says: From the navel, and it sends out its limbs into every direction. You may say that even [the opinion that we examine until the nose is in agreement with] Abba Sha’ul, for Abba Sha’ul holds his view only with regard to the formation [of the fetus], because everything is formed from its middle, but regarding saving a life, even Abba Sha’ul would agree that the essential life force [manifests itself] through the nostrils, as it is written, “All in whose nostrils was the merest breath of life” [Genesis 7:22].

Rav Papa said: The dispute is only [if the victim is uncovered] from below upwards [i.e., feet first], but if [he was uncovered] from above downwards, once one has checked up to his nostrils, one need not check any further, as it is written: “All in whose nostrils was the spirit of the breath of life.”

In the context of the contemporary debate whether death is determined by cessation of respiration or heart function, it seems natural to assume that the initial debate in the Talmud relates to this very issue. According to this interpretation, the opinion that one must examine the victim *ad libbo* (“until his heart”) holds that one must check to see if his heart is still beating, while the opinion that states that one must examine him only *ad hotamo* (“until his nose”) believes that one must check to see if he’s breathing. Indeed, virtually all scholars who discuss this *sugya*—even those who support the use of brainstem death criteria—take for granted that the opinion that holds that we uncover the victim *ad libbo* requires that we ascertain that the victim’s heartbeat has stopped before declaring him to be dead.⁴ The debate between those who support the

⁴ For example, see Avraham Steinberg (“*Kevi’at Rega ha-Mavet ve-Hashtalat ha-Lev*,” *Or ha-Mizrah* 36 (1987), 56-57), who dismisses the implications of the phrase *ad libbo* by noting the factors cited below rather than questioning whether it refers to

TRADITION

use of brainstem death criteria and those who oppose it focuses not on the meaning of the phrase *ad libbo*, but on whether this opinion has any consequence for halakhic practice. The most obvious reason it would be inconsequential is that Rav Pappa—the final voice in the *sugya*—rules that all opinions agree that the absence of nasal respiration is a fully sufficient indicator of death. In addition, while the Vilna edition text cited above follows Rashi’s variant, almost all other medieval commentators cite a variant of the Talmud text which reads *ad tiburro* (“until his navel”) instead of *ad libbo*.⁵

The difficulties with understanding the phrase *ad libbo* as a reference to the heart begin to emerge when we consider the contextual implications of this interpretation. Whereas the phrase *ad hotamo* can be taken to mean that we check the nose directly, the phrase *ad libbo* cannot be reasonably be taken to mean that we check the heart organ directly; it’s obviously referring to an external examination of the chest area above the heart. A more precise translation, then, would translate the term *ad libbo* as *idiomatic*: we uncover “until his chest” rather than “until his heart.” Once we acknowledge that the term *libbo* cannot be taken completely literally, the purpose of uncovering the victim to the chest becomes less clear: it is just as—if not more—likely that we are checking for the rise and fall of the chest during respiration. (This interpretation fits also with the variant of *ad tiburro*, since the most likely reason for examining the navel is to reveal whether the diaphragm is moving.)

One might reasonably argue that the choice of the term *libbo* indicates not only the extent of uncovering the victim but also its purpose: we uncover the victim until the ‘heart area’ (i.e., the chest) in order to verify heart function. But a survey of instances of the term *libbo* in Tannaitic sources shows that in virtually every other context in which it refers to a part of the body (as opposed to a state of mind), it cannot plausibly be explained as having such a dual connotation: *libbo* is consistently used idiomatically to refer simply to the external chest area, with no connection to the heart organ that lies beneath. Hence, the Talmud in *Moed Katan* (26b) cites a *baraita* as to whether one in mourning for a parent must rend his clothes *ad tiburro*—“until his navel”—or only *ad libbo*—“until his chest.” In a similar vein, the Talmud in *Berakhot* (24b-25a)

the heart. Likewise, Edward Reichman (“The Halakhic Definition of Death in Light of Medical History,” *Torah U-Madda Journal* 4 [1993], 154) writes: “It is clearly the heartbeat that is either being palpitated or listened for.”

⁵ For a thorough analysis of the textual variants to this *sugya*, see Alex Tal, “Nos-trils, Navel or Heart? Significant Textual Talmudic Variations Concerning Signs of Life” (Hebrew), *Sidra* 26 (2011): 8-17.

cites the following *baraita* regarding the degree to which one must be clothed in order to pray: “If his garment, whether of cloth or of leather or of sackcloth, is girded round his waist, he may recite the *Shema*, but he may not say the *Amida* until he covers his chest (*ad she-yekhaseh et libbo*).” In the *mishna Sanhedrin* 6:4, the phrase *nehpakh al libbo* means simply “[if] he turned face-down [i.e., on his chest].” The *mishna Eruvin* 5:4 uses the phrase *ke-neged libbo* to mean “at chest height.”⁶ Since there is nothing else in the *sugya* in *Yoma* (85a) to suggest that heart function is a significant factor, it is far more likely that the Tannaim agree that we assess death based on cessation of respiration and disagree only about how thoroughly we examine the victim to confirm that he really is not breathing.

Given the weight of contrary evidence, it is hard to account for the way scholars have unanimously taken *ad libbo* to reflect a concern with cardiac activity, except as a result of the too-perfect parallel between the language of the Tannaitic debate and the modern-day controversy. As such, this *sugya* serves as a cautionary example, reminding us that the psychological dominance of our own historical context can lead us to neglect vital aspects of the text’s original context, in this case, the normative use of *libbo* in Mishnaic Hebrew.

However, we should note that the *sugya* in *Yoma* is unusual in the way that considering its original historical context helps clarify—rather than complicate—its implications for contemporary practice. As we will see, this is not true of the medieval and early modern sources that feature in the debate over brainstem death. With these sources, the discrepancy between the historical milieu of the text and its modern application raises profound questions about the nature of meaning and the process of interpretation.

Two Models of Meaning

In truth, the more contentious issue in the *sugya* in *Yoma* is not the meaning of the Talmud text itself, but that of Rashi’s commentary thereon.⁷ Rashi expounds on the final stage of the *sugya* as follows:

⁶ One instance in which the term *lev* does seem to refer to the heart organ itself is the proof cited by R. Yitshak that the *tefillin shel yad* should be positioned on the bicep rather than on the hand: “...’And you shall place these words of Mine upon your heart[...] and you shall bind [them...]’ [Deut. 11:18]—that they should be placed opposite the heart [*ke-neged ha-lev*]” (*Menahot* [37b]; cf. *Berakhot* [13b], *Mekhilta Bo* 17, *Sifre* Deut. 35).

⁷ For example, Rabbi J. David Bleich acknowledges that from the Talmud itself it seems that all opinions regard cessation of respiration as a reliable indicator of death,

TRADITION

This is how the text should read: “The dispute is only [if the victim is uncovered] from below upwards”: The dispute between these Tannaim—in which one says [that we examine] “until his heart,” and the other says “until his nose”—[applies only if the victim is uncovered] from below upwards, that they find his feet first and continue examining in the direction of the head. For one says: in his heart one can discern if there is life, since his *neshama*⁸ beats there; and the other says: [we examine] until his nose, for sometimes life is not discernible at the heart, but is discernible at the nose.

Rashi explains that both positions recognize that heart activity could potentially serve as an indicator of life, and differ only as to whether examination of the nose is more reliable, such that examination of the heart alone would not suffice. This formulation has been understood to mean that Rashi recognizes cardiac activity as a definitive indicator of life, and the only reason for requiring examination of the nose is that respiration is more easily detected than the heartbeat. According to this line of reasoning, were there a situation in which we knew the heart was beating, absence of respiration at the nose (or, presumably, any other physiological symptom) would be insufficient to declare the victim dead.⁹

Given our conclusion above, that within the Talmud the term *ad libbo* means simply “until the chest,” what would cause us to explain the term *be-libbo* in Rashi to mean “within the heart organ”? First, Rashi’s use of the term *libbo* is less obviously idiomatic than the Talmud’s. Whereas in the Talmud the primary meaning of *libbo* must be the external heart area, i.e. the chest, one can legitimately explain that Rashi is referring to signs of life that are found within the actual heart organ. This explanation is obviously not decisive—one could still translate *be-libbo* as meaning “within the chest” and explain that Rashi, too, is referring to respiration rather than heartbeat. But the shift in context creates enough ambiguity to make either interpretation plausible.

but then continues: “This analysis, as attractive as it may be as a literal reading of the Gemara, is contradicted by Rashi in two separate comments” (“Of Cerebral, Respiratory and Cardiac Death,” *Tradition* 24:3 [1989], 55).

⁸ I have deliberately left the term *neshama* untranslated because its precise meaning in this context is unclear. While it is often translated as “soul” or “life force,” it could also be understood as “breath” (reflected in the Biblical use of the term). Nor does the word “beats” (*dofeket*) help clarify the meaning of *neshama*, since it could be understood as a reference to the heartbeat (reflected in the Modern Hebrew use of the term *dofek* for “pulse”) or the rhythmic rise and fall of the chest during breathing.

⁹ Bleich (“Establishing Criteria of Death,” *Tradition* 13:3 [1973], 95-96) was the first to articulate this interpretation.

In this case, however, scholars have taken note of the historical context of Rashi's commentary and used that context to challenge the notion that his commentary supports a cardiac definition of death. Even if we assume that the term *libbo* in Rashi refers to the heart organ itself, scholars have observed that Rashi's understanding of heart function is significantly different than the function ascribed to it by modern medicine. Based on the regnant medical theories of his time, Rashi assumed that the purpose of the heart was to process the air that was drawn into the body. Thus, when Rashi refers to heart function as an indicator of life, he is not referring to cardiac function as we understand it—the force behind the circulatory system—but rather to a process associated with breathing. According to this, Rashi's statement that heart function is an indicator of life merely affirms the Talmud's conclusion that we determine whether the victim is alive or dead based on the presence or absence of respiration.

This objection has been articulated most comprehensively by Edward Reichman,¹⁰ a leading scholar of the history of medical halakha. Based on Rashi's comments elsewhere in the Talmud, Reichman conclusively demonstrates that Rashi shared most of the medical assumptions of his time regarding the structure of the body and the functioning of its organs. Yet, for all his careful reconstruction of Rashi's conception of the body, Reichman does not consider the full set of issues that complicate our application of earlier halakhic texts to contemporary reality. He is undoubtedly correct that Rashi could not have had in mind anything remotely resembling modern medicine's conception of heart function; however, as we shall see, it is also problematic to attribute to Rashi a conception of the heart as a respiratory organ. This is not solely a matter of history of medicine, but also of hermeneutics: how do words and texts acquire meaning, and to what extent does that meaning shift over time?

A full survey of the relevant theories of language is obviously beyond the scope of this paper. Rather, we will describe two general schools of thought regarding the invariability of meaning across shifts in scientific understanding and consider how they impact the debate over Rashi's commentary on *Yoma* (85a).

Within the school of analytic philosophy, meaning is typically analyzed as an issue of *reference*: scholars differ somewhat as to the nature of the relationship between a word and the actual object (or class of objects) to which it refers, but they agree that this relationship between a word and its referent is the fundamental aspect of what we mean by "meaning." A logical corollary of this approach is that advances in scientific knowledge

¹⁰ "Medical History," 155-162.

TRADITION

regarding a certain object do not change the meaning of the word used to describe that object: since the object itself has not changed, the fact that we think about it differently is ancillary to the word's essential meaning. Saul Kripke famously offers the example of the word "whale": even though we now consider whales to be mammals, Kripke insists that the contemporary meaning of "whale" is the same as when whales were considered to be fish.¹¹ (Kripke refers to such terms as "rigid designators.") This would seem to be the logic behind the position that Reichman rejects, that Rashi's use of the term "heart" necessarily refers to the same organ that *we* refer to as a heart. The referent—and hence the meaning—of the term "heart" remains constant even as advances in physiology have changed our understanding of what the heart does.

A very different approach to the interpretation of pre-modern scientific texts was proposed by Thomas Kuhn in his landmark work, *The Structure of Scientific Revolutions*.¹² Kuhn posits that scientific progress is structured as a series of paradigms—the networks of terms, theories, and applications which allow scientists to formulate and then solve new problems about the workings of nature. Each of the elements within a paradigm is defined only in relation to the other elements in that paradigm, and scientific progress is the process of refining the paradigm—adding new elements whose presence further sharpens the meaning of the existing elements. A scientific revolution constitutes the rejection of the regnant paradigm in favor of a new paradigm that is better able to resolve the problems that scientists have formulated.¹³

The upshot of Kuhn's model is that meaning is fundamentally context-dependent, a function not only of reference but also of *differences*—or, more precisely, patterns of synonymy and difference—between terms and concepts within the structure of a given paradigm. A paradigm is defined by the way it partitions the shapeless mass of semantic space into different terms and categories. Within this model, the meaning of a term is best conceived of as its semantic *range*, as determined by the presence of other terms which restrict that range. To return to Kripke's example,

¹¹ "Note that, on the present view, scientific discoveries of species essence do not constitute a 'change of meaning': the possibility of such discoveries was part of the original enterprise. We need not even assume that the biologist's denial that whales are fish shows his 'concept of fishhood' to be different from that of the layman; he simply corrects the layman, discovering that 'whales are mammals, not fish' is a necessary truth." (*Naming and Necessity* [Oxford: Blackwell, 1981], 138)

¹² Chicago & London: University of Chicago Press, 1962. Subsequent citations are from the third edition (1996).

¹³ *Ibid.* 136-143.

within the paradigm of modern biology, the term “marine mammal” restricts the semantic range of “fish” by excluding whales, dolphins, and the like; the meaning of “fish” is determined in part by the difference that biologists posit between fish and mammals. Because the meaning of a word is determined only in relation to other words, then as those relationships change—as in the case of a paradigm shift—the meaning of the word will change as well. Kuhn emphasizes this point in discussing the way contemporary scientists often misunderstand the terminology of ancient or medieval scientific treatises—texts which reflect earlier paradigms.¹⁴

Kuhn’s model of meaning is clearly the basis of Reichman’s objection. Because Rashi’s reference to the heart must be understood within the paradigm of human physiology that Rashi was using, we need to *translate* Rashi’s medieval conception of heart function into modern terminology in order to understand its relevance to a contemporary medical debate. According to Reichman, we need to find a contemporary term that captures what Rashi thought the heart was doing, a term like “respiratory organ.”

The controversy that greeted Kuhn’s theory when it was first published has gradually been replaced by widespread acceptance. Although various aspects and implications of Kuhn’s work remain the subject of debate, overall its impact within philosophy of science and beyond can hardly be overstated. Certainly for the purposes of the present study, Kuhn’s insights into the meaning of pre-modern scientific texts are difficult to ignore. Hence we will accept Reichman’s basic assertion that a purely referential model of meaning, like the one proposed by Kripke, is insufficient for understanding Rashi’s words. In order to understand the implications of Rashi’s commentary for contemporary medical issues, we must first consider its meaning within the paradigm of medieval medicine.

Yet Reichman’s otherwise excellent analysis is marred by the fact that he does not follow Kuhn’s logic through to the end. Reichman labels Rashi’s conception of the heart’s function “respiratory” because in one sense respiratory means simply “involved in the inhalation and exhalation of air,” a definition that correlates with the function medieval physicians ascribed to the heart. But it is clear that Reichman uses the term “respiratory” not only for its positive meaning, but also for that which it stands

¹⁴ “What Are Scientific Revolutions?”, in *The Road Since Structure*, eds. James Conant & John Haugeland (Chicago & London: University of Chicago Press, 2000), 13-32.

TRADITION

in opposition to: he maintains that Rashi uses the term “heart” in reference to respiration *as opposed to* circulation. On this point, Reichman’s interpretation is as anachronistic as the one he critiques. The notion of respiration as a discrete process is a product of the way modern medicine divides up the body’s functioning into a number of distinct ‘systems.’ As Reichman himself explains, medieval medicine followed a wholly different convention of how to divide the body’s functioning into discrete processes, correlative to the fact that they conceived of those processes very differently. So to speak of respiration and circulation within medieval physiology is to superimpose modern categories on a system that does not conform to those categories. It is no more accurate to say that medieval physicians thought of the heart as an organ of respiration than to say that they considered it an organ of circulation.

Kuhn warns against exactly this sort of error when he states that different scientific paradigms are *incommensurable*, by which he means that there cannot be a strictly precise translation of vocabulary from one paradigm to another.¹⁵ Without reference to the specific terms and concepts that define heart function in the medieval paradigm of physiology, such as ‘innate heat’ and ‘vital spirit,’ *any* translation that we choose will convey only an approximate sense of what medieval physicians thought the heart was doing. This does not, of course, prevent us from trying to explain how medieval physiology might relate to our modern conceptions of the body. But it does mean that any interpretation we offer will capture only some of the aspects of what Rashi had in mind when he wrote these words. That is to say, even if we assume that the intent of the author is vital to the meaning of a halakhic text (since it is only the personal status of the *posek* that imbues the text with authority), appeals to authorial intent necessarily fail when used to explain how texts written within one scientific paradigm should be understood within another. Kuhn’s thesis dictates that, from the perspective of history of science, there are *multiple* viable interpretations as to what Rashi’s comments should mean for contemporary medicine.

Science and Law

Given this incommensurability between scientific paradigms, I would suggest that Reichman’s attempt to use history of science to prove what

¹⁵ *Structure*, 148-150; and “Reflections on My Critics,” in *The Road Since Structure*, 163-5. We have presented a fairly conservative version of Kuhn’s incommensurability thesis. Kuhn himself continued to struggle with the more controversial implications of this idea, such as its ramifications for an objective standard of scientific progress. A full discussion of these issues is beyond the scope of this study.

Rashi should be taken to mean is misplaced. For, as much as Rashi's commentary does reflect certain scientific assumptions, its real significance is as a *halakhic* text. Hence, to understand the significance of Rashi's comments for the contemporary issue of brainstem death, we need to consider the mechanisms that determine the meaning of texts within legal systems such as halakha. To what extent is the model of meaning that Kuhn develops for the sciences applicable to law?

There are, of course, significant differences between the dynamics of law and of science, which stem from the very different functions that these two disciplines serve. The purpose of science is to describe the workings of nature. Hence, when a scientific paradigm is no longer useful in accounting for the phenomena we observe, the texts and principles that constitute that paradigm cease to be authoritative; they remain of interest only to historians of science. The purpose of law, on the other hand, is fundamentally *prescriptive*: to mandate or prohibit certain actions. The normativity of law—the ability of law to fulfill its function of maintaining order and stability, or, in the case of religious law, of representing the immutable will of the divine—depend on its having a stable framework, a set of characteristics that inhere in the system *even as* our perceptions and perspectives change over time. Hence, legal paradigms are rarely rejected and replaced without a change of the legal order (e.g., a political revolution)—an anathema for a religious legal system such as halakha. There is a similarly conservative dynamic *within* a given legal paradigm: once a legal text becomes accepted as authoritative, it remains part of the binding legal canon unless nullified by a legal mechanism specifically designed for that purpose (e.g., a constitutional amendment). This notion of a legal canon—a body of texts invested with enduring authority to dictate various aspects of human behavior—is axiomatic to the very concept of a text-based legal system.¹⁶ Its relevance for the issue at

¹⁶ This use of the term “canon” is different that the way it used when referring to a literary or artistic canon—a body of works considered valuable in relation to a broader corpus of comparable works. (Contemporary legal scholars also frequently speak of a “legal canon” in this sense—a body of cases, statutes and other texts that are most often cited or studied in legal contexts; for example, see *Legal Canons*, eds. Jack Balkin and Sanford Levinson [New York: NYU Press, 2000].) Rather, by canonicity, I am referring to something close to Sid Leiman's definition in his study on the process of Biblical canonization: “A canonical book is a book accepted by Jews as authoritative for religious practice and/or doctrine, and whose authority is binding upon the Jewish people for all generations” (*The Canonization of Hebrew Scripture: The Talmudic and Midrashic Evidence* [New Haven: Connecticut Academy of Arts and Sciences, 1976], 14). In other words, canonicity is the characteristic that makes legal texts functionally distinct from literary and scientific texts, which possess no

hand is that legal texts and principles, once integrated into the legal canon, remain authoritative far beyond the cultural circumstances and intellectual milieu in which they were composed.

Yet there is also an important sense in which Kuhn's model of the paradigm accurately describes the nature of legal hermeneutics. The canonicity of a given text ensures only the preservation of its *form*; the *meaning* of the text reflects a confluence of factors, the most fundamental of which is its relationship to other texts within the legal canon of which it is a part. The canon of legal texts thus functions as a paradigm, in which the meaning of a given text is determined not only referentially—based on the case or set of cases to which it refers—but also differentially—based on patterns of synonymy and difference with other texts within the system. A simple demonstration of this idea is the effect of the alternate variant *tibburo* on the meaning of Rashi's words. If we could establish that Rashi's use of the variant *libbo* was based on an active choice on his part to reject *tibburo*,¹⁷ it would indicate that *libbo* should be defined in *opposition* to *tibburo*, and would strengthen the notion that Rashi is referring specifically to the heart organ rather than the general chest area. As it is, we do not have evidence as to why Rashi cited this variant; hence the question of whether *libbo* should be interpreted in opposition to *tibburo* or as synonymous with it (i.e., both terms referring to the torso, and defined by their shared contrast with the term *hotamo*) cannot be resolved on the basis of contemporaneous sources.¹⁸

However, the relative durability of legal paradigms—the fact that they are rarely subject to the kind of shifts that Kuhn describes within science—means that they tend to accrue more and more texts over time. With the addition of each new text, the landscape of the canon as a whole is altered, such that the meaning of older sources must constantly be reassessed

comparable authority to dictate practice because they are descriptive rather than prescriptive.

¹⁷ As one might infer, had Rashi introduced the words *ad libbo* with the preface *hakhfi garsinan* (“this is how [the text] should read”).

¹⁸ The only medieval commentator who acknowledges both variants, the Meiri, presents them as essentially interchangeable: he paraphrases the second opinion in the *baraita* as *ad tibburo o ad libbo*—“to either his navel or his heart.” R. Bleich (“*Be-Inyan Mavet Mubi u-Kevi'at Zeman ha-Mavet be-Halakha*,” *Or ha-Mizrah* 36 [1987], 78-79) duly notes this fact; however, whereas he sees it as proof that even the variant of *tibburo* could be referring to heart function (since, in theory, one can test for a pulse at the abdomen), the evidence we cited above regarding the use of the term *libbo* in Tannaitic literature suggests the opposite—that even the variant of *libbo* does not indicate that the Talmud is referring to the actual heart.

in relation to the newer texts that are integrated into the corpus of binding law. The fact that these newer texts are considered authoritative means that the manner in which they cite—or, conversely, omit reference to—earlier sources significantly impacts the meaning we attach to those sources. The debate over brainstem death demonstrates this point well: close attention to the arguments of those who cite Rashi against the use of brainstem death criteria shows that these scholars not only relate to the text of Rashi itself, but also attempt to situate it within an interpretive *chain* of texts which supports their understanding. They intuitively understand that, in the context of a halakhic debate, an innovative explanation of a source—however well supported it may be from the text itself—is significantly less convincing than one that reflects an established *pattern* of interpretation within the halakhic canon.

However, establishing a pattern of interpretation for Rashi's commentary on *Yoma* (85a) is not straightforward, since his comments are not referenced by *any* other Rishon or early Aharon. This is true even of those halakhic works, like the *Beit Yosef* (*Orah Hayyim* §329), which typically cite Rashi's commentary on the Talmud almost reflexively. Normally this would be surprising, given Rashi's prominence as a commentator, but in this case it is understandable since, as we noted above, almost no other Rishonim even acknowledge the existence of *ad libbo* as a variant text. The upshot, however, is that the textual record through the seventeenth century offers little basis on which to assess the significance of Rashi's comments within halakha: instead of constructing a chain of interpretation, we are left with the far less decisive process of constructing an argument from silence. In the absence of contradictory evidence, we might conclude, as some scholars do, that other Rishonim would accept Rashi's explanation that cessation of breathing is significant because it indicates cessation of heart function.¹⁹ Yet an equally (if not more) compelling conclusion is that other Rishonim simply consider cessation of respiration to be an independently significant indicator of death.

The single source that has been critical to scholars' use of Rashi as an argument against brainstem death is an eighteenth-century responsum of R. Tsevi Ashkenazi, presumably because this is the first halakhic source to cite Rashi's comments. The responsum in question (*She'elot u-Teshuvot Hakham Tsevi*, 77) concerns a case in which the heart of a slaughtered chicken could not be located. The Hakham Tsevi categorically rejects the

¹⁹ For instance, R. Bleich writes, "It must be emphasized that among both early-day and latter-day authorities there is not to be found a single commentator who contradicts Rashi's exposition in any way" ("Cerebral," 65).

possibility that the heart was excised before the chicken was slaughtered, which would have rendered it non-kosher (as a *safek terefa*), since it would be impossible for the chicken to survive without a heart. He then cites Rashi's commentary on *Yoma* (85a) in support of the notion that "the seat of the soul is in the heart." From this point on, anyone who contended that Rashi should not be read as referring to the heart would have to disavow a central component of Hakham Tsevi's responsum. Thus, to the extent that the Hakham Tsevi's responsum and the arguments therein are accepted as authoritative (and that extent would need to be determined), they effectively fix the meaning Rashi's words as referring to the actual heart organ, not merely the chest.

However, the Hakham Tsevi's responsum still leaves several questions regarding the application of Rashi's comments to the issue of brainstem death unanswered. First, as Reichman and others point out, it is clear from the Hakham Tsevi's words that he retained the medieval understanding of heart function as processing the air that entered the body; thus, he cannot resolve how to translate Rashi's conception of the heart into modern medical terms.²⁰ More importantly, due to the context of the case he is addressing, the Hakham Tsevi posits only that heart activity is a *necessary* condition of life, but does not address whether it is also a *sufficient* condition for life.²¹

Hence, a far more consequential source for determining the implications of Rashi's commentary is the responsum of R. Moshe Sofer (*She'elot u-Teshuvot Hatam Sofer, Yoreh Deah*, 338). Unlike the Hakham Tsevi, the Hatam Sofer directly addresses the question of how to determine death and hence establishes what conditions are sufficient for life. Moreover, in contrast to earlier halakhic sources on this topic, the Hatam Sofer's responsum explicitly refers to the use of pulse in determining death. At one point in the responsum he writes: "...But in any case that the deceased is immobile like a stone and has no pulse, if afterward respiration ceases, we have only the words of our holy Torah [to rely on and determine] that he is dead..." Obviously this passage has important implications for the Hatam Sofer's own position on this issue; however, it also figures prominently in the debate over Rashi's position. R. J. David Bleich, one of the most vocal opponents of brainstem death, repeatedly

²⁰ Reichman, "Medical History," 160-162.

²¹ While space constraints preclude a detailed analysis of the Hakham Tsevi's position and its place in the brainstem death debate, I feel that this generalization is amply supported by language of his responsum. Cf. Rabbi Ahron Soloveichik, "Death According to the Halacha," *Journal of Halacha and Contemporary Society* 17 (1989), 43-44; and Bleich, *Time of Death in Jewish Law* (New York: Z. Berman Publishing Co., 1991), 174-175.

implies or asserts a connection between Rashi's comments and this statement of the Hatam Sofer, at one point stating explicitly that Hatam Sofer's reference to pulse is derived from his understanding of Rashi.²²

However, whereas the Hakham Tsevi cites Rashi explicitly and prominently, the Hatam Sofer does not mention Rashi's commentary on *Yoma* (85a) at all. Indeed, the absence of Rashi's comments from the Hatam Sofer's analysis is so conspicuous that it effectively discredits R. Bleich's assertion: although the *sugya* on *Yoma* (85a) features as the Hatam Sofer's primary source, he makes no mention of Rashi's commentary on *Yoma* (85a), nor of the Hakham Tsevi's responsum which cites it, nor even of the opinion in the *baraita* (*ad libbo*) that serves as the basis for Rashi's explanation. On one level, this absence simply reinforces the pattern exhibited by the Rishonim and early Aharonim, and establishes the Hakham Tsevi as an outlier in his citation of Rashi. However, the Hatam Sofer's omission of Rashi is also more conclusive than these earlier sources precisely because he himself mentions heart function as a factor in determining death, yet chooses to derive this notion from halakhic sources other than Rashi. Hence, whatever significance heart function has in the Hatam Sofer's view (an issue we will address in a forthcoming article that builds upon this one), there is no indication that he would agree with Rashi's implication that cessation of breathing serves only as a sign that heart function has ceased.

In sum, rather than confirming the importance of Rashi's comments on *Yoma* (85a) to the question of brainstem death, the Hatam Sofer's responsum severely challenges the notion that it constitutes a decisive source on this issue.

²² "The Hatam Sofer clearly understood Rashi as accepting the discernible beating of the heart as an absolute indicator of life" (*Time of Death*, 170). In his earlier publications on this topic, R. Bleich tends to be more circumspect about a connection between Rashi's commentary and the Hatam Sofer's responsum. For instance, in one article he writes that "it is certain that the source of *Hatam Sofer's* position is Rashi's elucidation of [*Yoma* (85a)]" ("Survey of Recent Halakhic Periodical Literature," *Tradition* 22:2 [1986], 79), but only with regard to the Hatam Sofer's requirement of the absence of bodily movement, not the absence of pulse. (See also "*Be-Inyan*," 80.) Elsewhere, he states that the Hatam Sofer's requirement of the absence of a pulse "is readily *deducible* [emphasis mine] from the comments of Rashi, *Yoma* 85a..." ("Survey of Recent Halakhic Periodical Literature," *Tradition* 16:4 [1977], 136), but stops short of saying that the Hatam Sofer actually *made* this deduction. In yet another article, he writes that "[Hatam Sofer's] definition of death is *compatible* [emphasis mine] with the previously cited view supported by *Yoma* 85a that death is to be identified with absence of respiration coupled with prior cessation of cardiac activity" ("Establishing," 103). While his desire to establish a connection between Rashi and the Hatam Sofer is clear, at no point does R. Bleich provide any evidence that the Hatam Sofer drew on Rashi's commentary on *Yoma* (85a).

