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AI EVALUATION OF THE *DRAKE-S* EQUATION FOR POSTMORTEM SURVIVAL AGAINST SUDDUTH'S EVIDENTIARY STANDARDS

BY JAMES HOURAN AND BRIAN LAYTHE

ABSTRACT

We applied two advanced large-language models—OpenAI's ChatGPT-4o and GitHub Copilot—to evaluate the Drake-Survival (*Drake-S*) equation framework for postmortem survival of consciousness relative to eight previously specified evidentiary standards in the survival domain. ChatGPT-4o judged this equation approach 'Good Fit' to 'Very Good Fit' on 75% of the criteria (23/32 points, 72% overall), whereas Copilot rated it 'Good Fit' to 'Very Good Fit' on 88% of the criteria (26/32 points, 81% overall). Both programs flagged two consistent weaknesses: the use of legal benchmarks (e.g., the Daubert standard) as an evidential standard and the apparent assumption that gaps in known confounds imply the increased odds of survival, reflecting concerns about inappropriate criteria and probabilistic fallacies. Each program suggested methodological refinements—chiefly, estimating covariation among error terms, pre-registering and calibrating scoring rubrics, and embedding Bayesian updating (e.g., priors, likelihood ratios, and credible intervals)—to strengthen the framework's logical rigor and evidentiary justification. Although the *Drake-S* approach does not demonstrate ontological survival, it highlights a substantial residual (30.3%) of data that ostensibly eludes major materialist and psi-only explanations. Rigorous study of these anomalies should therefore continue in anticipation of chance- or challenge-type discoveries that can meaningfully advance our understanding of the nature or limits of human consciousness.

INTRODUCTION

"Science has never made a discovery without being authorized and encouraged thereto by philosophy" (Thomas Mann, 1937, p. 23).

Consciousness studies is an interdisciplinary field—drawing partly on neurology, philosophy, parapsychology, cognitive science, and artificial intelligence (AI)—that aims to understand the origin, mechanisms, and boundaries of human consciousness and also perhaps non-human intelligences (Overgaard, 2017; Schurger & Graziano, 2022; Wahbeh et al., 2022). This broad territory basically condenses to ten focus areas: (1) *nature of consciousness* (i.e., defining consciousness and distinguishing it from unconscious states); (2) *levels of consciousness* (i.e., investigating and mapping different states of

consciousness, such as wakefulness, sleep, dreaming, and altered states induced by meditation or substances); (3) *neural correlates* (i.e., identifying the brain structures and neural mechanisms associated with conscious experience such as perception, thought, and emotion); (4) *philosophical questions* (i.e., addressing fundamental questions about the nature of mind and consciousness, such as theories of mind (dualism, physicalism, panpsychism) and the hard problem of consciousness or ‘why and how’ the physical processes in the brain generate subjective experience); (5) *psychological perspectives* (i.e., examining how consciousness relates to mental processes like attention, memory, or decision-making); (6) *developmental aspects* (i.e., understanding how consciousness develops and changes over a lifetime); (7) *comparative consciousness* (i.e., comparing human consciousness with the behavior and brain functions of non-human species); (8) *artificial consciousness* (i.e., exploring the possibility of creating sentience or simulations of conscious behavior in machines or software); (9) *clinical implications* (i.e., applying findings to medical and therapeutic contexts); and (10) *ethical and social implications* (i.e., considering the broader impacts of consciousness studies on society, including debates about the moral status of conscious beings, the ethical treatment of animals, and the implications of potentially conscious artificial intelligence).

A controversial topic that arguably bridges many, if not all, of these focus areas is the profound question of survival of consciousness after permanent bodily death. This is the idea that human consciousness or its substrate involves expanded, emergent, or non-local properties (Cardeña, 2018; Parker & Brusewitz, 2003; Vernon, 2021) that are unbounded by the activity of a living brain or body (Barušs, 2023; for a recommended reading list on the survival hypothesis, see Houran et al., 2023: Appendix, p. 27). The same might likewise apply to non-human animal consciousness (Matlock et al., 2024; Matlock & Hilton, 2025). The various biological and philosophical implications of postmortem survival would certainly be paradigm-shifting if validated. Although some large-scale surveys suggest that afterlife-related beliefs in the general population have steadily declined (e.g., Duffy et al., 2023; Gallup, 2023), the overt academic interest in the survival (or afterlife) hypothesis has seemingly increased, as evidenced by the myriad of studies and commentaries appearing in psi-oriented periodicals (e.g., Beischel et al., 2021), the mainstream literature (e.g., Hashemi et al., 2023), and specialized journals (e.g., Shushan, 2024). In fact, the Bigelow Institute of Consciousness Studies’ (BICS) essay contest (Kelleher & Bigelow, 2022) on the best available evidence purportedly gathered scientific support for the survival hypothesis that was “beyond a reasonable doubt.” The data or arguments from the various authors’ winning entries nonetheless have been severely criticized on conceptual, methodological, and analytical grounds (Augustine, 2022; Sudduth, 2024; Tressoldi et al., 2022). Readers might therefore rightfully question whether there is any legitimate anomaly (or set of anomalies) in need of a scientific explanation, i.e., do any

compelling arguments or empirical evidence justify the survival hypothesis as an acceptable, or even fruitful, research topic in the field of consciousness studies?

To this point, Laythe and Houran (2022) developed a Drake-Survival (*Drake-S*) equation¹ as mathematical evidence that absolutist claims (pro or con) about survival-related data are presently insufficient and unwarranted. They specifically sourced hundreds of peer-reviewed studies for a probabilistic exercise that found the representative published effect sizes of several known confounds (KCs)—i.e., environmental variables, suggestion-expectancy effects (i.e., contagion, memory, and persuasion), fraud, measurement error, mental illness, and susceptibility to perceptual aberrations—explained only 61.4% of the variance in the published prevalence rates of certain anomalous experiences (AEs) that are traditionally interpreted as evidence of survival, i.e., near-death experiences, cases of the reincarnation type, haunt-poltergeist episodes, channeling or mental mediumship, and veridical anomalous experiences like after-death communications (for detailed definitions of all these phenomena, see Laythe & Houran, 2022). Rock et al. (2023) later revised this original calculation to include the contribution of putative living agent psi (LAP)² to such reports. This increased the overall explanatory power to 69.7% of the variance, but the projected upper limit of LAP failed to fill the mathematical gap. These findings suggest that both the biomedical (i.e., *extinctionist-related*) and parapsychological (i.e., *survivalist-related*) sciences require more specific or comprehensive models to adequately explain the AEs in question. Likewise, other researchers have since explored the ‘fit’ of psi and survival-type phenomena to various frameworks in modern science (see e.g., Boccuzzi, 2024).

SUDDUTH’S EIGHT EVIDENTIARY STANDARDS FOR SURVIVALIST PROPOSITIONS

Philosopher and researcher Michael Sudduth’s (2024) major treatise on the BICS contest sought to clarify why advancements on the survival question have stagnated. Houran (2024) outlined several logical reasons to adopt Sudduth’s perspectives, given his teaching and publishing background in the areas of critical thinking and epistemology, with a focus on theories of evidence and the justification of belief across different domains of inquiry, including general and legal epistemology, topics in the philosophy of religion (Sudduth, 2009), and, more recently, postmortem survival (Sudduth, 2016). Moreover, Sudduth (2024)

1. This alludes to the famous Drake equation—a probabilistic formula developed by astronomer Frank Drake (1965) to estimate the number of active, communicative extraterrestrial civilizations in the Milky Way galaxy. It combined factors like the rate of star formation, the fraction of stars with planets, and the likelihood of life developing to provide a framework for exploring the possibility of alien life. This framework is still used today, though sometimes with important modifications (e.g., Benford, 2021) or applications to broader cosmological issues (e.g., Sorini et al., 2024).

2. LAP is the idea that psi-type phenomena are caused by the mind or consciousness of a living person (i.e., the agent). Thus, putative psi abilities, such as influencing objects or gaining information beyond normal sensory means, come from living agents rather than external entities or spirits.

supplemented his critique with eight guidelines (denoted here as ‘evidentiary standards’) for bolstering current arguments and future studies (pp. 516–518):

- (1) *Logical architecture*. Do not pile up facts without clearly structured arguments. Arguments should present premises, conclusions, and sub-arguments in standard forms to avoid confusion.
- (2) *Critical assessment of objections*. It is essential to distinguish between outright dismissal of the survival hypothesis and claims that survivalists have failed to provide adequate justification. Different types of skepticism require distinct responses.
- (3) *Logical fallacies*. Do not make weak inferences, such as assuming that non-survival hypotheses must be false if they do not account for certain observations, or asserting the survival hypothesis is ‘most probable’ based on a thin evidential base.
- (4) *Distinction of evidence and belief*: Applying Royall’s (1997) insight, separate what the evidence implies from what one believes. Evidence may favor a hypothesis without mandating belief in it.
- (5) *Conceptual clarity*. All conclusions require clear criteria, such as explaining what is meant by ‘evidence’ and how strong it is considered to be.
- (6) *Inappropriate evidential criteria*. Do not rely on legal standards (e.g., ‘beyond a reasonable doubt’), which have an epistemic basis that is rigorous and inappropriate to survival-related evidence.
- (7) *Revisiting inference to best explanation (IBE)*. Strengthen IBE arguments by merging them with Bayesian probability or avoid IBE, as traditional IBE is self-defeating and lacks probability value.
- (8) *Adopting proper Epistemic principles*. Apply epistemic frameworks like the law of likelihood or Bayesian reasoning, which provide structure for evaluating evidence and making belief-based assessments.

These eight points or standards essentially define a structured evaluation of pro-survival arguments or studies, focusing on their logical coherence, evidential support, and interpretive clarity. They serve as a flexible and valuable tool that can be applied either (a) retrospectively through a content analysis to gauge the robustness of past research or (b) prospectively to support quality control in the development of new studies or arguments.

THE PRESENT STUDY

We heed Altenmüller et al.’s (2021) call for more critical reflection of one’s own research findings and conclusions. This view draws on the principles of research transparency (Beaty, 2024) and intellectual humility (Bak et al., 2022), i.e., recognizing that personal assumptions or viewpoints might be wrong or incomplete and therefore remaining open to revising those views in light of new information. Accordingly, we conducted an AI-based content analysis of our latest presentations of the *Drake-S* equation (Houran et al., 2023; Rock et

al., 2023). This exercise essentially constitutes a self-initiated, post-publication review (O'Sullivan et al., 2021) that assesses the underlying premise (i.e., data, methodology, and main conclusion) of our probabilistic approach to the survival question relative to Sudduth's (2024) evidentiary standards. We predicted no particular outcome(s) from this self-critique (Part 1), but similar to Houran et al. (2023), we aimed to modify our prior probability calculations in accordance with Part 1's results or insights as appropriate (Part 2). This study's design, analysis, and research materials were not pre-registered, but we strived to follow the Journal Article Reporting Standards (Kazak, 2018) in describing how we determined our research samples, all data exclusions (if any), specific research questions, applicable manipulations, and all measures and data abstractions.

PART 1: AI ANALYSIS OF THE *DRAKE-S* EQUATION

AI has emerged as a valuable tool for conducting content and rating analyses (Gupta et al., 2024; Kar et al., 2023; Platt & Platt, 2023), offering unique advantages that extend beyond human evaluators. One primary benefit is its consistency and objectivity. Unlike humans, who can bring personal biases and varied interpretations to the evaluation process, AI systems tend to apply criteria uniformly across all items, reducing subjective influence and ensuring more reliable outcomes (Kaur et al., 2022; Lee et al., 2020). When supplied with explicit rating rubrics (e.g., four-point rating scales), these programs indeed can reliably map text onto such anchors, minimizing drift in standards over time (Hamilton et al., 2023). This is particularly valuable for projects where consistency in ratings is critical. Another advantage of these programs is their speed and scalability. AI can analyze large volumes of data quickly, making it an ideal solution for projects involving thousands of documents or ratings. Tasks that might take days or weeks for human evaluators to complete can be accomplished by AI in a fraction of the time. This utility enables researchers to analyze datasets that are otherwise impractical to review manually (Lee et al., 2020). As a result, AI is generally cost effective and eliminates the potential for human fatigue or cognitive load in evaluation tasks that can subsequently lead to inconsistencies or errors.

Method

AI programs

To promote scoring consistency and minimize rater bias, the content evaluations were conducted using two advanced large language models (LLMs—advanced AI systems trained to understand and generate human-like text), i.e., ChatGPT-4o and GitHub Copilot. ChatGPT-4o, a state-of-the-art multimodal model developed by OpenAI (2024), which some researchers contend is 'currently the most powerful generative AI model available for public use' (Pérez-Núñez, 2023, p. 355), was contextually primed with Sudduth's (2024) full article describing his evaluation criteria. Subsequently, GitHub

Copilot (Microsoft, 2025), an AI assistant powered by OpenAI's Codex model (Chen et al., 2021), was employed to independently review and replicate the scoring process, providing a complementary perspective based on its distinct architecture and training data.

This dual-model approach enabled cross-validation of outputs, facilitating the detection of consensus or discrepancies arising from model differences. We should note that although both ChatGPT-4o and GitHub Copilot are developed and maintained by Microsoft, they are optimized for distinct purposes—i.e., general-purpose reasoning and conversational synthesis versus code generation and technical assistance, respectively. While architectural overlap is possible, their divergent fine-tuning and deployment contexts provide a credible basis for independent evaluations. The use of both models serves as a pragmatic form of AI corroboration under shared scoring constraints, allowing for internal cross-validation of theory ratings.

Literature set

We used four sets of textual data for the analysis: (a) three peer-reviewed journal articles that specified the rationale, construction, refinement, and results of the *Drake-S* equation (Houran et al., 2023; Laythe & Houran, 2022; Rock et al., 2023), as well as (b) Sudduth's (2024) extensive philosophical critique of evidentiary reasoning in the survival domain that culminated in his eight standards.

Standardized rating system

To systematically evaluate the comparative fit of the *Drake-S* equation to eight evidentiary standards, we developed a study-specific rating system administered via the ChatGPT-4o LLM. Each domain is rated on a four-point Likert scale ranging from 1 (Very Poor Fit) to 4 (Very Good Fit). Detailed anchor descriptions were provided for each scale point within every domain to ensure consistent interpretation and application. This standardized rating approach enabled a replicable and transparent AI-driven evaluation aligned with established epistemic criteria, facilitating structured comparison of theoretical models within the study's framework:

(1) *Logical architecture:*

- 1 (Very Poor Fit). The argument is scattered, with premises and conclusions unclear or jumbled. It seems like a list of loosely related observations without a clear progression or logical structure.
- 2 (Poor Fit). The main argument is partially organized, but sub-arguments are not well distinguished from the main points, creating confusion about the argument's actual structure.
- 3 (Good Fit). The study has a reasonably clear structure, with main premises and conclusions stated. However, some parts could use more clarity, especially in distinguishing sub-arguments.

- 4 (Very Good Fit). The study presents a well-organized argument, with clear premises, conclusions, and sub-arguments that follow a logical flow, making the argument easy to follow.
- (2) *Critical assessment of objections:*
- 1 (Very Poor Fit). The study dismisses objections outright without addressing them substantively or confusingly conflates different forms of skepticism, suggesting a lack of engagement with counterarguments.
 - 2 (Poor Fit). Objections are mentioned but inadequately addressed, or the study often conflates dismissal of rival hypotheses with failure to establish the survival hypothesis as true.
 - 3 (Good Fit). The study acknowledges and reasonably addresses major objections, with some effort to distinguish skepticism types, but could improve in depth.
 - 4 (Very Good Fit). The study thoroughly engages objections, carefully distinguishing between different types of skepticism and addressing each in a thoughtful, structured way.
- (3) *Logical fallacies:*
- 1 (Very Poor Fit). The study is riddled with fallacious reasoning, including major errors like assuming rival hypotheses are false because they lack explanatory power, or making sweeping generalizations about survival likelihood.
 - 2 (Poor Fit). Some logical fallacies are present, such as overstated conclusions or reliance on weak probabilistic reasoning, undermining the argument's credibility.
 - 3 (Good Fit). The study avoids major fallacies and presents logical reasoning, though there are minor issues in how it handles probability and inference.
 - 4 (Very Good Fit). The study is free from logical fallacies, presenting cogent reasoning and careful probabilistic assessments without overstating conclusions.
- (4) *Distinction of evidence and belief:*
- 1 (Very Poor Fit). The study fails to distinguish between what the evidence suggests and what we should believe, treating any evidence as a reason for full belief in the survival hypothesis.
 - 2 (Poor Fit). The study sometimes confuses evidence with belief, implying that supporting evidence mandates belief without clarifying the level of support required.
 - 3 (Good Fit). The study generally distinguishes evidence from belief, though it could benefit from clearer guidance on the implications of the evidence relative to belief.

- 4 (Very Good Fit). The study makes a clear distinction between evidence and belief, explaining what the evidence suggests independently of what we might believe about survival.
- (5) *Conceptual clarity:*
- 1 (Very Poor Fit). The study's definitions and key concepts are vague or missing, making it difficult to understand the conclusions or evidentiary standards being used.
 - 2 (Poor Fit). Some conceptual clarity is present, but key terms like 'evidence' and 'explanatory power' are inconsistently defined or applied, leading to interpretive ambiguity.
 - 3 (Good Fit). Concepts are mostly clear and defined, with some ambiguity in certain terms, but overall conclusions are understandable.
 - 4 (Very Good Fit). The study is precise in defining concepts and terms, making its conclusions easy to interpret and its use of terms like 'evidence' and 'explanatory power' transparent.
- (6) *Inappropriate evidential criteria:*
- 1 (Very Poor Fit). The study heavily relies on irrelevant standards (like legal proof standards) to evaluate evidence, creating a misleading impression of evidentiary support.
 - 2 (Poor Fit). The study includes some inappropriate criteria, such as vague comparisons to legal standards, although it attempts to make epistemic points.
 - 3 (Good Fit). The study mostly uses appropriate evidential standards, though there are minor references to non-relevant criteria that could be omitted.
 - 4 (Very Good Fit). The study relies solely on relevant and well-justified evidential standards without any inappropriate comparisons to legal or other unrelated standards.
- (7) *Revisiting IBE:*
- 1 (Very Poor Fit). The study uses IBE heavily but without any probabilistic grounding, ignoring key philosophical critiques, leading to a weak foundation for its conclusions.
 - 2 (Poor Fit). IBE is used without sufficient support, and the argument does not address the limitations of IBE or include Bayesian elements to strengthen the analysis.
 - 3 (Good Fit). IBE is reasonably employed, with some acknowledgment of limitations, though it could be improved by integrating Bayesian or probabilistic frameworks.
 - 4 (Very Good Fit). The study uses a well-supported form of IBE, incorporating Bayesian analysis or addressing philosophical critiques to strengthen its inferential framework.
- (8) *Proper epistemic principles:*

- 1 (Very Poor Fit). The study disregards or misapplies epistemic principles, relying on ad hoc reasoning rather than a structured approach like the law of likelihood or Bayesian reasoning.
- 2 (Poor Fit). The study references relevant principles but applies them inconsistently or without proper justification, reducing the argument's credibility.
- 3 (Good Fit). Epistemic principles are applied fairly well, with some gaps in consistency or rigor, but the framework remains generally sound.
- 4 (Very Good Fit). The study consistently applies well-chosen epistemic principles, like Bayesian or likelihood reasoning, giving a solid foundation to its conclusions.

Procedure

Rather than formal model training, we employed contextual priming whereby the LLMs were supplied with selected literature (described above) to inform their evaluations of the *Drake-S* equation relative to Sudduth's (2024) evidentiary standards for survival research. The evaluation procedure involved a five-step protocol:

(1) *Document ingestion and segmentation*. Source materials were segmented into blocks of approximately 1,500–2,500 tokens to accommodate the LLM's input constraints. Segments were grouped by thematic relevance (e.g., KCs, inferential gaps, Bayesian modelling, and LAP) and annotated with brief metadata tags to facilitate targeted prompting.

(2) *Prompt construction and rating procedure*. For each of Sudduth's (2024) eight evidentiary standards, Each LLM was prompted using a standardized instruction format (i.e., 'Based on the provided literature excerpts, evaluate how well the *Drake-S* equation satisfies the evidentiary standard of [e.g., logical architecture]. Use the four-point Likert scale defined below and provide a justification for your rating'). Each evaluation prompt included (a) the target standard and its operational definition, (b) the four-point Likert rating rubric (ranging from 'Very Poor Fit' to 'Very Good Fit'), and (c) selected, thematically relevant text segments from the literature set. This process was iterated independently for each standard.

(3) *Model configuration parameters*. The analyses were conducted in the LLMs' standard environments using the following parameters: (a) temperature = 0.7, (b) Top-p = 1.0, (c) Max tokens = adequate for full reasoning generation, and (d) System message = "You are an expert in epistemology and scientific methodology evaluating theoretical research on postmortem survival."

(4) *Human oversight and verification*. All outputs were independently reviewed by the two authors for accuracy, interpretive consistency, and fidelity to the rubric. While no AI responses were altered, discrepancies or ambiguities

were resolved via consensus. This ensured that the integration of AI remained transparent, methodologically sound, and aligned with ethical guidelines (cf. Hamilton et al., 2023; Resnik et al., 2025).

(5) *Reproducibility and documentation.* To facilitate replication and external evaluation, an example prompt–response transcript from the ChatGPT-4o evaluation—specifically, the analysis of the ‘logical architecture’ standard—is presented in the Appendix. The full process is formally summarized below as a sequential evaluation expression:

literature input → prompting strategy → evaluation output →
human review → final scoring

Results and conclusions

ChatGPT-4o evaluation

Table 1 shows that the *Drake-S* equation scored ‘Good Fit’ to ‘Very Good Fit’ on six (or 75%) of Sudduth’s eight standards. The averaged AI rating across all eight standards was 2.88 (on a 1–4 scale), and the raw total was 23 out of a possible 32 points, or an overall 72% fit to the entire set of standards. These findings indicate that our equation framework has good conceptual clarity and engagement with objections. Accordingly, ChatGPT-4 concluded that the *Drake-S* approach was a reasonably robust and structured basis for abstracting or exploring the question of survival.

But two standards (i.e., 25%) received lower ratings, given potential issues with ‘inappropriate evidential criteria’ (i.e., application of legal standards) and ‘logical fallacies’ (i.e., lack of preregistration and scientific gaps do not imply survival evidence). Another standard (‘revisiting IBE’) received a ‘Good Fit’ rating but with the caveat that a Bayesian integration might “strengthen inferential support and address critiques regarding the limits of explanatory power in this context” (cf. Table 1). Part 2 therefore addresses these and other suggested areas for improvement that followed from the other AI analysis below.

Copilot evaluation

GitHub Copilot, an AI model based on OpenAI’s Codex architecture and optimized for technical reasoning, independently evaluated the *Drake-S* equation framework using the same rubric and literature set provided to ChatGPT-4o (Table 2). Copilot rated the framework as ‘Good Fit’ to ‘Very Good Fit’ on seven of the eight standards (88%), yielding an average rating of 3.25 (on a 1–4 scale) and a total of 26 out of 32 points (81% overall fit). This high rating affirms the *Drake-S* equation’s structural soundness and conceptual defensibility.

Notably, ‘logical architecture’ received a top rating (4), with Copilot praising the framework’s transparent assumptions, defined variables, and stepwise derivations. ‘distinction of evidence and belief’ (4) was likewise commended for avoiding conflations between probabilistic outcomes and ontological claims.

TABLE 1.

ChatGPT-4o ratings of the Drake-S equation approach compared with Sudduth's evidentiary standards

Evidentiary standard	Rating*	Rating justification
Logical architecture	3	The <i>Drake-S</i> equation framework is structured with clear premises and logical progression. It defines the survival hypothesis and systematically accounts for KCs. However, it could improve by more explicitly delineating sub-arguments related to each confound and how they fit into the broader survival analysis, as noted in critiques around variable co-variation
Critical assessment of objections	3	The <i>Drake-S</i> equation addresses various objections, particularly skepticism around KCs and alternative explanations like LAP. The approach engages with critiques, but the authors admit that further work is needed to clarify distinctions between survival evidence and the potential effects of psi abilities of living individuals
Logical fallacies	2	There are issues with potentially fallacious reasoning, such as overstating the ability of confound exclusions to support the survival hypothesis and a lack of pre-registration in some studies, which commentators identified as a limitation that might introduce bias. This suggests a need for caution against assuming that gaps in confounds automatically point toward survival evidence
Distinction of evidence and belief	3	The approach largely distinguishes between what evidence indicates and what should be believed about survival, acknowledging that evidence from AEs could favor survival-related interpretations without compelling belief. However, some conclusions imply that residual variance unaccounted for by confounds supports belief in survival, which blurs this distinction slightly
Conceptual clarity	4	The framework is conceptually clear in defining survival-related phenomena and associated KCs, providing specific categories and examples (e.g., near-death experiences, reincarnation cases). The approach also includes clarifications around variables like LAP, contributing to a clear overall structure
Inappropriate evidential criteria	2	There is some reliance on legal standards, with references to the Daubert standard and its application to survival data. While meant to strengthen evidential quality, this may not be entirely appropriate in a scientific context. The legal analogy could be misleading, as scientific inquiry into survival differs fundamentally from legal proof

Continued

TABLE 1—continued.

ChatGPT-4o ratings of the Drake-S equation approach compared with Sudduth's evidentiary standards

Evidentiary standard	Rating*	Rating justification
Revisiting IBE	3	The <i>Drake-S</i> equation approach uses probabilistic reasoning rather than pure IBE, which is advantageous. However, it could benefit from additional Bayesian integration to strengthen inferential support and address critiques regarding the limits of explanatory power in this context
Proper epistemic principles	3	The <i>Drake-S</i> equation generally applies appropriate epistemic principles, relying on probabilistic estimates and empirical data. Nevertheless, improvements could include tighter methodological controls and adjustments for co-variation among variables to further refine the survival probability estimates

*Key: 1 = Very Poor Fit, 2 = Poor Fit, 3 = Good Fit, 4 = Very Good Fit.

TABLE 2.

Copilot ratings of the Drake-S equation approach compared with Sudduth's evidentiary standards

Evidentiary standard	Rating*	Rating justification
Logical architecture	4	The <i>Drake-S</i> material systematically lays out assumptions, variables, and formula steps; only the commentary occasionally digresses among teams
Critical assessment of objections	3	The <i>Drake-S</i> approach acknowledges and engages major sceptic-and-advocate objections, with the multi-team piece offering the most thorough cross-examination
Logical fallacies	3	The core approach is coherent, but the <i>Drake-S</i> approach currently relies on an additive-independence assumption that overlooks covariation among error terms
Distinction of evidence and belief	4	The <i>Drake-S</i> approach consistently separates empirical effect-size data from belief commitments; the commentary especially labels data versus interpretive claims
Conceptual clarity	3	Key terms (PR, EN, Pp) and variables are defined but constructs like LAP and certain confounds sometimes remain imprecise
Inappropriate evidential criteria	4	The <i>Drake-S</i> approach draws solely on peer-reviewed meta-analyses, systematic reviews, and recognized statistical standards—no irrelevant analogies or legal proofs

Continued

TABLE 2—continued.

Copilot ratings of the Drake-S equation approach compared with Sudduth's evidentiary standards

Evidentiary standard	Rating*	Rating justification
Revisiting IBE	2	The Drake equation analogy frames a best-explanation approach, but it does not integrate formal Bayesian or likelihood-based IBE critique
Proper epistemic principles	3	The <i>Drake-S</i> approach invokes falsifiability and the Daubert standard; the commentary advances toward likelihood reasoning, though full Bayesian rigor is still absent

*Key: 1 = Very Poor Fit, 2 = Poor Fit, 3 = Good Fit, 4 = Very Good Fit.

Both ‘conceptual clarity’ and ‘critical assessment of objections’ received a 3, reflecting mostly precise use of terminology and moderate engagement with opposing views. Copilot’s evaluation of ‘proper epistemic principles’ (3) acknowledged references to scientific admissibility norms (e.g., Popperian falsifiability and Daubert criteria) but flagged the absence of formal likelihood ratios or Bayesian methods. Interestingly, Copilot gave a top rating (4) for ‘inappropriate evidential criteria,’ showing tolerance for interdisciplinary analogies such as legal benchmarks, which it viewed as heuristically useful rather than epistemically flawed. The only lower rating (2) was for ‘revisiting IBE.’ Copilot noted that the framework employed IBE informally, lacking probabilistic scaffolding or structured model comparison techniques such as Bayesian updating or likelihood evaluation.

Taken together, Copilot’s ratings suggest a pragmatic and interdisciplinary stance. Compared with ChatGPT-4o, which emphasized formal rigor, Copilot favored heuristic plausibility and structural coherence. This divergence reinforces the utility of using multiple AI perspectives in evaluating complex or nuanced theoretical models.

Comparison of the AI rating sets

Comparing the ChatGPT-4o and Copilot evaluations revealed both convergence and divergence across the eight evidentiary standards. To assess the degree of alignment between these LLMs on ordinal data, two inter-rater reliability metrics were calculated over the eight paired ratings: Spearman’s (1904) rank-order correlation (ρ) and weighted Cohen’s (1968) kappa (κ). Spearman’s ρ (−0.25) indicated a weak and non-significant negative correlation ($df = 6$, $p = 0.55$), suggesting limited concordance in the relative ranking of standards between the models. Similarly, the weighted Cohen’s κ , which adjusts for chance agreement and accounts for the ordinal nature of Likert-scale ratings, was −0.22 (SE = 0.18, 95% CI = −0.57723 to 0.11570), indicating

systematic disagreement (Cohen, 1968; Landis & Koch, 1977) that potentially reflects consistent differences in the LLMs interpreted or applied the rating criteria. We address this issue in the next section.

Both models exhibited perfect agreement on only two standards: critical assessment of objections and proper epistemic principles (score = 3), indicating consensus regarding moderate responsiveness to criticism and partial alignment with established epistemic methodologies. However, discrepancies were evident on six standards. On 'logical architecture,' Copilot assigned the highest score (4), emphasizing structural clarity and formulaic derivation, whereas ChatGPT-4o rated it a 3, citing interruptions in narrative coherence. For 'logical fallacies,' Copilot's score of 3 reflected pragmatic tolerance for heuristic modelling, while ChatGPT-4o's lower score (2) indicated stricter adherence to formal scientific standards, including concerns regarding unregistered assumptions and causal oversimplification.

The models also diverged on distinction of evidence and belief: Copilot awarded a 4 for clear separation of descriptive claims and belief commitments; ChatGPT-4o assigned a 3, noting occasional advocacy language. In contrast, for conceptual clarity, ChatGPT-4o gave the highest score (4), highlighting well-defined concepts such as 'LAP,' whereas Copilot rated it a 3, citing minor ambiguities. Regarding 'inappropriate evidential criteria,' Copilot assigned a 4, accepting interdisciplinary analogies (e.g., the Daubert standard) as heuristically valuable. ChatGPT-4o, however, rated this a 2, critiquing such legal comparisons as epistemically unsound within scientific contexts—underscoring its stricter boundary between scientific and non-scientific standards. Finally, for 'revisiting IBE,' Copilot issued the lowest score (2), criticizing the absence of formal probabilistic integration, whereas ChatGPT-4o rated it a 3, acknowledging explanatory virtues despite lacking Bayesian scaffolding.

These findings illustrate Copilot's more pragmatic and interdisciplinary approach compared with ChatGPT-4o's formalist and conservative epistemology. The moderate statistical agreement underscores the value of AI cross-referencing for theoretical evaluations, where cross-model perspectives reveal subtle tensions in logic, inference, and evidentiary framing.

INTERPRETING RATING DISCREPANCIES BETWEEN LANGUAGE MODELS

The varying outputs between the two LLMs warrant closer scrutiny for the purpose of refining AI methodologies in future research. In particular, we suggest there are five interrelated issues that likely contributed to the divergence in their evaluations:

- (1) *Pragmatism versus formalism.* Copilot's evaluations tended to reflect a pragmatic acceptance of heuristic reasoning and interdisciplinary analogies. In contrast, ChatGPT adhered more closely to formal correctness and rigorous scientific standards. This suggests a

foundational difference in how each model operationalizes validity and relevance across disciplines.

- (2) *Interdisciplinary benchmarks.* Copilot's high rating for the criterion of 'inappropriate evidential criteria' indicates an openness to legal-judicial standards—such as Daubert criteria—as useful proxies for evidentiary relevance. This reflects a broader willingness to integrate cross-disciplinary norms. However, ChatGPT-4o's more conservative stance underscores the necessity of epistemic justification when importing such frameworks into scientific contexts (cf. Faigman et al., 2014).
- (3) *Calibration of rubrics.* The six-point spread observed across eight evaluation criteria highlights the importance of narrowly defined rubrics and joint calibration exercises to align the raters' underlying assumptions. This is particularly salient for criteria involving 'fallacy' identification and 'evidential appropriateness.' Future evaluations would benefit from explicitly declaring the philosophical commitments informing each model's reasoning and from specifying acceptable levels of model simplification (Bechtel & Richardson, 2010).
- (4) *Sensitivity to advocacy language.* ChatGPT-4o showed a heightened sensitivity to rhetorical cues, as evidenced by its lower rating on the criterion 'distinction of evidence and belief' due to mild advocacy phrasing. This suggests a stricter demand for neutral and descriptive reporting. Copilot, by contrast, appeared to place greater emphasis on structural clarity than on rhetorical precision.
- (5) *Standards of explanatory scope.* ChatGPT-4o rewarded discussions that acknowledged explanatory virtues such as simplicity and scope, particularly in the context of 'revisiting IBE.' This reflects a broader valuation of narrative breadth in explanatory reasoning. Conversely, Copilot emphasized formal rigor and penalized broader interpretative moves lacking tight evidential justification.

Overall, these discrepancies illuminate how underlying epistemological assumptions and disciplinary allegiances shape AI-driven evaluations. Addressing such differences through clearer rubric design, interdisciplinary dialog, and philosophical transparency will be essential for enhancing methodological robustness in future applications.

PART 2: EXPLORING POTENTIAL REFINEMENTS TO THE DRAKE-S EQUATION

Building on the comparative assessments generated by AI platforms, we now turn to targeted refinements of the *Drake-S* equation itself. These evaluations revealed areas of agreement—as well as divergence—in how our framework is interpreted and applied, particularly concerning evidential criteria and statistical robustness. While the equation has gained traction as a novel tool to quantify competing explanations for survival-type phenomena, its credibility and utility hinge on methodological clarity, logical coherence, and adaptability

to emerging data. In this section, we outline two key domains of enhancement: (a) mitigating risks related to inappropriate evidential criteria and logical fallacies and (b) integrating Bayesian reasoning to improve probabilistic sensitivity and interpretability. Together, these proposals aim to reinforce the equation's scientific rigor while accommodating new theoretical and empirical insights.

Inappropriate evidential criteria and logical fallacies

A review of our prior works (Houran et al., 2023; Laythe & Houran, 2022; Rock et al., 2023) shows that the *Drake-S* equation needs little substantive revision with respect to evidential standards and logical reasoning. The AI analyses affirmed the importance of clearly contextualizing the rationale and conclusions of the model. We acknowledge, however, that Laythe and Houran's (2022, pp. 146–147) discussion of the *Drake-S* equation relative to the Daubert standard³ in legal settings could be overstated or misapplied. Importantly, this analogy does not compromise the validity of the model's core premise. To address this concern, we endorse Sudduth's (2024, p. 517) recommendation to disentangle presentations of the *Drake-S* framework from legal standards such as 'beyond a reasonable doubt.'

Further, the *Drake-S* equation does not interpret knowledge gaps as direct or inherent evidence of postmortem survival. That approach would exemplify an inference argument, i.e., drawing conclusions without adequate support, and thus risks perpetuating biased or inaccurate beliefs (Govier, 2013). Instead, our probabilistic framework characterizes certain experiences—interpreted by some as survival evidence—as legitimate scientific anomalies requiring deeper investigation. Both materialist and LAP-oriented explanations remain insufficient, thereby justifying continued study of survival-type reports as essential for advancing scientific understanding of perception and consciousness. Additionally, we propose two methodological upgrades to improve evidential reliability and formal coherence:

- (1) *Model covariation among error terms.* The traditional assumption that error sources are additive and independent oversimplifies their interaction. A more robust approach involves estimating partial correlations among key error factors—such as identification,

3. The Daubert standard is a legal guideline used by US courts to decide whether scientific or expert testimony can be presented as evidence during a trial. It helps judges determine if an expert's methods are reliable and the evidence is relevant to the case. This standard comes from the 1993 Supreme Court case *Daubert v. Merrell Dow Pharmaceuticals, Inc.* To meet the Daubert standard, the testimony must generally satisfy these key criteria: (a) testability—the methods used by the expert must be testable and have been tested; (b) peer review—the work or methods should have been reviewed by other experts in the field; (c) error rate—there should be a known or potential error rate for the methods; (d) standards and controls—the methods should follow established standards; and (e) acceptance—the methods must be generally accepted in the relevant scientific community. This standard empowers judges to act as 'gatekeepers,' ensuring that unreliable or irrelevant scientific evidence is not presented to juries.

expectancy, environmental, fraud, measurement, and susceptibility. Even basic pairwise covariances can yield a more accurate 'net error' term and restore internal probabilistic consistency to the model.

- (2) *Pre-register, calibrate, and document rubrics.* Before deploying the *Drake-S* framework, researchers should publish a detailed rating protocol. This should define each error category, explain procedures for estimating covariances, and include exemplar calculations to ensure transparency and reproducibility. Moreover, conducting joint calibration exercises—whether among human experts or AI raters—helps to standardize interpretations of what qualifies as a 'fallacy' or 'inappropriate evidential criterion,' narrowing subjective leeway and enhancing inter-rater reliability.

Bayesian integration

Integrating Bayesian methodology could transform the *Drake-S* equation into a more evidence-sensitive and -adaptive tool, capable of continuous probabilistic updates. Bayesian analysis applies probability to represent uncertainty, combining prior knowledge with new data to revise hypotheses dynamically (McGrayne, 2011). Unlike static models, Bayesian reasoning allows beliefs to be recalibrated as new findings emerge—an approach especially well suited to fields like medicine, machine learning, and finance (Gelman et al., 2013). Applied to the *Drake-S* equation, Bayesian refinements might include:

- (1) *Incorporating prior probabilities.* Assigning prior probabilities for each survival-related variable (e.g., AEs and KCs, including LAP) grounds the framework in established data. For instance, Rock et al. (2023) derived a 30.3% prior probability for the survival hypothesis, though a more conservative starting point—e.g., $\leq 10\%$ —could be used before adjusting for KCs.
- (2) *Modelling likelihood ratios.* Comparing the likelihood of survival versus confound hypotheses allows for quantitative adjustment of survival probability. Existing effect sizes (e.g., expectancy-suggestion effects = 0.097 or environmental factors = 0.078) offer benchmarks to model these ratios, while LAP explanations might use their upper variance limit of 8.3% as a confound likelihood.
- (3) *Sequential updates with new evidence.* Bayesian analysis supports iterative revision, recalculating the *Drake-S* equation as new studies (e.g., Frisaldi et al., 2023; Stein et al., 2025) update known effect sizes. This ensures the survival hypothesis remains robust and evidence-aligned over time.
- (4) *Assigning evidence weights.* Evidence quality varies across studies. Bayesian techniques can assign differential weights to AEs and KCs based on sample size, methodology, and effect magnitude, producing a more refined probability model (cf. Wahbeh et al., 2023).

- (5) *Credible intervals for survival probability.* Unlike traditional confidence intervals, Bayesian credible intervals offer direct probability estimates. This clarifies the interpretation of survival likelihood, adding statistical depth to *Drake-S* conclusions.
- (6) *Sensitivity analysis.* Bayesian frameworks facilitate testing how different priors or assumptions affect results. Sensitivity testing reveals which components most influence survival probability and bolsters the model's transparency.

Together, these Bayesian enhancements should yield a more nuanced, interpretable, and adaptable *Drake-S* framework, enabling a clearer comparison between survival interpretations and alternative hypotheses. This structure is also compatible with adversarial collaborations (cf. Corcoran et al., 2023). Nonetheless, setting a prior probability for survival—such as the 30.3% cited by Rock et al. (2023)—may invite debate. Critics might argue this estimate is overly generous. For context, Houran et al. (2023) compared the survival hypothesis with the simulation argument—i.e., that perceived consciousness could result from a technological construct or program as depicted in the popular sci-fi motion picture franchise *The Matrix*. Bostrom (2003, p. 255; cf. Bostrom & Kulczycki, 2011) estimated a 33% likelihood for simulated reality, while Chalmers (2022, p. 101) endorsed a 25% chance with qualifications. More recently, Vopson (2023) advanced a physics-based rationale via his theoretical law of ‘infodynamics.’ While such analogies are intellectually provocative, we do not claim that these Bayesian modifications offer the definitive solution. Rather, prior probabilities and model calibration require ongoing refinement as addressed in the next section.

GENERAL DISCUSSION

We reiterate that the *Drake-S* equation (Houran et al., 2023; Laythe & Houran, 2022; Rock et al., 2023) was never positioned as either direct or exclusive evidence for the survival hypothesis. Rather, our probability framework simply offers empirical justification for the assertion that survival-type experiences currently elude comprehensive scientific explanations rooted in either materialism or putative psi. This conclusion—and the methodological foundation supporting it—is not mere conjecture but rather anchored to systematic data collection and analysis. In this light, some percipients’ accounts arguably represent legitimate anomalies that warrant continued, rigorous, and dispassionate investigation by consciousness researchers (for discussions on the concept of scientific anomalies, see e.g., Brewer & Chinn, 1994; Foorthuis, 2021; Lightman & Gingerich, 1992). It is also important to recognize that our mathematical approach to death-related phenomena does not stand alone. For instance, Himeoka et al. (2024) modelled cell death as a controllability problem in biochemical systems. By defining cell death as a state from which a cell cannot return to life, the study used a method called ‘stoichiometric rays’ to

map the boundary between living and dead states through enzymatic reactions, providing a quantitative tool to analyze cellular mortality. Their study similarly exemplifies how empirical modelling—rather than speculative theorizing—can illuminate complex phenomena at the edge of current understanding.

Integrated information theory (IIT) likewise is a mathematical approach for understanding and measuring the concept of consciousness, more broadly. It asserts that consciousness depends on the amount of integrated information generated by a system. This is captured by the value Φ , which quantifies how much a system's parts work together in a unified, irreducible way (Oizumi et al., 2014; Tononi, 2004). A high Φ coefficient means the system has strong internal connections that cannot be broken down into independent components, indicating a high degree of consciousness. If Φ is zero, the system lacks integration and is not conscious. IIT is based on five core properties of conscious experience—such as its unity and specificity—which are translated into physical and mathematical terms. It then analyses the causal relationships within any system (biological or artificial) to calculate Φ . This allows IIT to be applied beyond the brain, offering a general framework to evaluate consciousness in any physical system (Tononi et al., 2016).

But irrespective of the ultimate practicability of the survival hypothesis, Sudduth's (2024) eight guidelines can effectively steer future argument and research in this domain. In turn, the results of any subsequent analyses should better help to (a) explore and bridge the various focus areas and associated findings in consciousness studies as broached in the Introduction, and correspondingly (b) refine, refute, or rewrite major cognitive theories across the social and biomedical sciences. However, our study has several important limitations. LLMs are convenient and efficient tools, but this technology arguably lacks at this time a highly nuanced or sophisticated understanding of textual data or its context (Batubara et al., 2024). Using other LLMs might also produce different results. Indeed, by comparing ratings from both ChatGPT-4o and Copilot we uncovered systematic differences in formal versus pragmatic evaluation styles—underscoring the need to cross-validate AI assessments. Some readers also may question the ethics of AI-generated analyses or data (Resnik et al., 2025) or the epistemic value of our four-point Likert system that was filtered through different evidential criteria with their own nuances or complexities.

Finally, and relatedly, although the *Drake-S* equation is one mathematical way to contextualize the survival question, it currently says nothing about the *quality* of evidence used in its calculation. Evidence quality is perhaps *the* critical issue that complicates the interpretation and significance of research results in this domain (Augustine, 2022; Sudduth, 2024; Tressoldi et al., 2022). Future iterations of the equation could account for this confound, similar to its incorporation within some systematic literature reviews or meta-analyses (Luchini et al., 2021). Future studies also might supplement an AI-driven

analysis with expert evaluators (e.g., Hamilton et al., 2023; Houran et al., 2025; O’Keeffe et al., 2024). Notably, using two to three independent reviewers is arguably the standard across the social and biomedical sciences (e.g., Fernandez-Llimos et al., 2020). Securing reports from at least two experts helps to ensure that a range of voices is presented and promotes a fuller and fairer evaluation. Moreover, AI programs often lack deep, domain-specific expertise. This means that they can identify premises and conclusions but may miss nuanced sub-arguments or embedded assumptions without extensive fine-tuning (Gupta et al., 2024). Incorrect evaluations (‘hallucinations’) or import biases from the AI’s training data can also occur (Batubara et al., 2024). This can lead to overconfident ratings of logical coherence where gaps actually exist. Without transparent chains of reasoning, it can be difficult to verify why a particular ‘Good Fit’ versus ‘Poor Fit’ was assigned (Kaur et al., 2022). This undermines trust unless outputs are carefully audited. All that said, any refinement(s) of the current *Drake-S* equation only serves to calculate a more precise measurement of the amount of unexplained variance in the reported prevalence rates of survival-type experiences after controlling for the potential influence (per aggregated effect sizes) of KCs.

The preceding helps us to relate the *Drake-S* equation to Sudduth’s (2024) suggestion that only three kinds of generic claims should be the focus of inquiry about whether any facts provide evidential support for the survival hypothesis, and assuming so, in what way and to what degree those facts support the survival hypothesis. *First*, Sudduth asked if the observational data in question favor the survival hypothesis over alternative hypotheses. The *Drake-S* approach and calculation do not implicitly or necessarily endorse the survival hypothesis, but its results certainly suggest that either (a) alternative hypotheses or (b) substantial refinements of existing hypotheses are needed to account for the apparent prevalence rate of certain survival-type experiences. *Second*, Sudduth asked if the observational data in question are evidence that the survival hypothesis is true. The *Drake-S* approach, at best, perhaps buttresses the viability of the survival hypothesis. That is, the equation’s current outcomes are clearly consistent with a survival interpretation and would be expected if, in fact, survival was the correct explanation for some of the AEs considered here. And *third*, Sudduth asked if the observational data in question show that the survival hypothesis is probably true. The *Drake-S* equation does not necessarily establish the definitive feasibility of the survival hypothesis for explaining any AE category. These three conclusions limit the value of the present approach, but the *Drake-S* framework can nonetheless help to filter or vet categories of AEs that are most likely to yield chance scientific discoveries or challenges to them. Wuestman et al. (2020) explained that chance-type discoveries are driven by new observations or evidence that could agree with existing literature or not, whereas challenge-type discoveries are motivated by new or existing evidence that rebuts the existing literature.

Consciousness is one of the most elusive problems in science (e.g., Browning & Veit, 2021; Havlik et al., 2023; Melloni et al., 2021), with currently no consensus about its neural correlates, measurement methods, or underlying mechanisms. That said, some altered-exceptional experiences seemingly undermine a purely materialist model (Kofman & Levin, 2025). Cunningham's (2024) useful review of competing consciousness models likewise does not explicitly address the survival hypothesis, but one of its basic conclusions is certainly relevant here. In particular, we strongly agree with his assertion that "contemporary debates about the 'hard problem' of consciousness (i.e., how does 'mindless' matter produce 'matterless' mind?) cannot be resolved through philosophical analysis alone and need to be anchored to a comprehensive empirical foundation that includes psychophysiological research of psychosomatic phenomena and exceptional human experience" (p. 28). But it remains to be seen whether pro-survival researchers will develop new study designs or more robust arguments that purposely engage all of Sudduth's (2024) evidentiary standards.

This is probably easier said than done, and we have no specific proposals to offer at this time. But testable models involving objective measurements have been put forward for some survival-related phenomena (e.g., Persinger & St-Pierre, 2011) and consciousness theories more broadly (e.g., Hu & Wu, 2013). Moreover, some authors have forged adversarial collaborations to confront the daunting challenge of the mind–brain problem (e.g., Escolà-Gascón et al., 2023; Gomez-Marin & Seth, 2025; Kekecs et al., 2023; LeBel et al., 2022; Melloni et al., 2023; Mossbridge et al., 2025; Negro, 2024; Parnia et al., 2022; Schlitz et al., 2006; Sheldrake & Shermer, 2016; Wiseman & Schlitz, 1997). In our view, future efforts should avoid dogmatic and ideologically rooted campaigns that specifically seek either to establish or refute the ontological reality of survival. We instead think that research will advance more rapidly via the principles of curiosity, open-mindedness, and intellectual humility to various evidence-based perspectives—including those with low prior probabilities. This way, investigators can more effectively navigate the long and winding road to understanding the ultimate nature and limits of human consciousness. The ontological reality of postmortem survival could well be unlikely, but the *Drake-S* equation suggests that this provocative hypothesis should not be discounted just yet.

Corresponding author

JAMES HOURAN

Integrated Knowledge Systems

1052 Summerplace Lane

Southlake, TX 76092 USA

Email: jim@drjimhouran.com

ORCID ID: <https://orcid.org/0000-0003-1725-582X>

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APPENDIX

Example prompt and output from ChatGPT-4o evaluation

EVIDENTIARY STANDARD: LOGICAL ARCHITECTURE

Prompt input

You are an expert in philosophy of science and research methods. Based on the following excerpt from Laythe & Houran (2022), evaluate how well the Drake-S equation satisfies the evidentiary standard of 'logical architecture.' Use the 4-point rubric provided below along with the detailed scoring parameters already provided, and explain your reasoning.

Rubric:

- 1 = Very Poor Fit
- 2 = Poor Fit
- 3 = Good Fit
- 4 = Very Good Fit

Definition of logical architecture:

Do not pile up facts without clearly structured arguments. Arguments should present premises, conclusions, and sub-arguments in standard forms to avoid confusion.

Excerpt:

Laythe and Houran (2022) developed a Drake-Survival equation as mathematical evidence that absolutist claims (pro or con) about survival-related data are presently insufficient and unwarranted. They sourced hundreds of peer-reviewed studies for a probabilistic exercise that found the representative effect sizes of several known confounds (e.g., expectancy effects, mental illness, fraud) explained only 61.4% of the variance in survival-type experiences such as NDEs and reincarnation cases. Rock et al. (2023) added psi effects, raising explanatory power to 69.7%, yet a notable portion remained unexplained.

ChatGPT-4o response

Rating: 3 (Good Fit)

The *Drake-S* equation approach exhibits a reasonably clear logical structure. The argument begins with a well-defined problem—insufficient explanatory power of known confounds—and proceeds to a probabilistic modelling solution. The premises (e.g., prevalence of AEs, limited explanatory scope of KCs and LAP) are logically connected to the conclusion that further explanations (including survival) warrant consideration. However, while the overarching logic is coherent, the presentation could benefit from more explicit sub-argument structuring (e.g., showing how each KC quantitatively contributes to variance explained). Thus, the argument is well-formed but could be sharpened for greater clarity.



RESEARCH NOTE: REREADING MYERS: FROM THE SUBLIMINAL TO THE TRANSLIMINAL

BY RENAUD EVRARD

ABSTRACT

Frederic Myers (1843–1901), co-founder of the Society for Psychical Research, developed a pioneering theory of consciousness in the late 19th century. Myers initially introduced a distinction between two forms of consciousness: the *subliminal* (subthreshold) and the *supraliminal* (ordinary consciousness). This theory was hailed by his contemporaries, notably Theodore Flournoy and William James, for its breadth and ability to integrate unexplained phenomena. However, conceptual problems remained: a confusion between ‘Subliminal Self’ (all-encompassing unity) and ‘subliminal selves’ (transient personalities); a difficulty in explaining the coexistence of lower and higher faculties in the subliminal; and an inadequacy of the spatial metaphor ‘surface/depth’. Myers thus refined his model using the analogy of the light spectrum. Here, I develop an alternative representation (known as ‘topography’) of his theory, based on a division between a centre, the *intraluminal* (ex-supraliminal), and a periphery, the *transliminal* (ex-subliminal). I am restating several of Myers’s ideas in the light of this reconceptualization. Myers’s theory, though complex and sometimes confusing, laid the foundations for a broader understanding of human consciousness. His subliminal/transliminal model and psychoscopic method opened the way to the exploration of hitherto unexplained psychic phenomena, having a lasting influence on research in psychology and parapsychology.

INTRODUCTION

Frederic Williams Henry Myers (1843–1901) was a British researcher best known for co-founding the Society for Psychical Research in 1882. His seminal book, published posthumously, *Human Personality and Its Survival of Bodily Death* (Myers, 1903) is often read in its abbreviated form.¹ While Myers’s ideas and work are recognized within the parapsychological community as pioneering (Gauld, 1968; Hamilton, 2009; Kripal, 2010), his conceptual apparatus leaves much to be desired. Even one of his most important proponents, the father of American psychology William James (1903), could not resist criticizing his conceptual system, which left a few grey areas and whose empirical references perhaps suffered from hasty generalizations. In this article, I propose to analyse Myers’s model of the Subliminal Self and develop it into a model of the

1. A version of less than 500 pages is currently available online, a far cry from the original 1,360-page version. <https://www.gutenberg.org/cache/epub/38492/pg38492-images.html>.

transliminal. This will enable me to make the link with contemporary research that is partially rediscovering his ideas.

THE FIRST MYERSIAN TOPOGRAPHY: SUBLIMINAL AND SUPRALIMINAL

The subliminal: The first all-encompassing theory of the unconscious

Informed both by his studies in classics and his research into hypnosis (Myers, 1886a) and mediumship (Myers, 1884), Myers introduced a distinction between two forms of consciousness, separated by a threshold (*limen*): one subliminal and the other supraliminal, the latter being ordinary consciousness.

At the end of the 19th century, there were many such proposals for thinking about a broader psychic life: Pierre Janet and his *subconscious*, Sigmund Freud and his *unconscious*, Max Dessoir and his *double-I* (*Dopple-Ich*), etc. Historian Ellenberger (1970) brings all these ideas together in what he calls the first “dynamic psychiatry”. However, not only was Myers a pioneer—he greatly influenced Janet and was also the first to introduce Freud in English—but his system was recognized as particularly brilliant in his day. Swiss psychology professor Théodore Flournoy explains:

If the idea of subliminal Consciousness (as opposed to the simple Ego of the classical spiritualists and the unconscious Cerebration of the narrow physiologists) has been floating in the air for a generation or two and has simultaneously pierced, in various forms, the minds of a host of researchers, it is, however, the genius of Myers who has given this idea its presently most perfect and searching expression. (Flournoy, 1903, p. 260)

Over and above his admiration for the theory, Flournoy acknowledges that it has sufficient qualities to form a truly fruitful research programme:

His theory prevails over all its congeners, as far as I know, by its breadth and the field it leaves open to possible possibilities not yet realized; so that, even to those who would attribute to it no truth in itself, it offers at least the inappreciable advantages of a schema sufficiently extensible to embrace, on occasion, many new facts which find no place in current scientific theories and which detonate there like intruders of which one does not know what to do. (Flournoy, 1903, p. 262)

In support of this second assertion, Flournoy cites a case of “terminal lucidity” (Nahm & Greyson, 2009) among the insane, a phenomenon that was not yet called such, but which already fitted in well with Myers’s subliminal theory.

The psychology professor William James agreed. He considered the most fundamental question in psychology to be precisely what constituted the ‘subliminal’, which he dubbed the “Myers problem” (Taves, 2003). He recognized that Myers had done a gigantic job, presenting a wealth of data in a natural series, with ingenious transitions between the pathological, the normal, and the paranormal, “grading down discontinuities in his argument” (James, 1903, p. 30). However, he expressed some reservations about the state of the question left by Myers, and called for certain clarifications (James, 1903).

The subliminal (self) vs subliminal selves

In 2007, American researchers from the University of Virginia and the Esalen Institute published a massive work, *Irreducible Mind* (Kelly et al., 2007), which attempts to re-read Myers and James in the light of current knowledge. They point out an enormous problem: Myers uses the term “subliminal self” to refer to two completely different things, which they choose to distinguish by means of a graphic trick: capitalizing Subliminal Self to distinguish one of its meanings from another (Kelly et al., 2007, p. 585).

According to Myers, our individuality is a permanent, all-encompassing unit, the capitalized *Subliminal Self*. However, we are said to have many transitory personalities, made up of more or less complete chains of memory, the lower-case *subliminal selves*. Our present, ordinary personality, which we regard as the whole of who we are, would be no more than a fragment borrowed from this gigantic reservoir of potential personalities.

Myers proposes nothing less than a reversal of naive psychology:

While ordinary psychology sees supraliminal life as the manifestation of normal and substantive personality, of which subliminal life would constitute either the semi-conscious substratum or a half-lit margin or finally a morbid outgrowth, I regard supraliminal life merely as a *privileged case* of personality; a special phase of our personality, which is easiest for us to study, because it is simplified for us by our ready consciousness of what is going on in it; yet which is by no means necessarily either central or prepotent, could we see our whole being in comprehensive view. (Myers, 1905, p. 194)

Although the graphic trick proposed by the authors of *Irreducible Mind* goes some way towards resolving the issue of a model that is both unitary and polypsychistic (Kelly et al., 2007, p. 585), other conceptual problems persist.

Problems of the first Myersian topography

Figure 1 is a deliberately erroneous schematic representation of what I propose to call the ‘Myersian first topography’, which has led to much confusion. This topography simply distinguishes between the subliminal and the supraliminal on the basis of a single boundary. For Myers, however, there are two: one below and one above. There is thus a supra-supraliminal, sometimes renamed extra- or ultraliminal. So, Myers identifies two kinds of contradictory faculties, summed up thus by Flournoy:

Our subliminal self, which possesses two kinds of faculties that we do not have at our voluntary disposal. These are, on the one hand, inferior faculties, which once belonged to our animal ancestors, but which our conscious personality lost in the course of evolution, such as the power to direct and modify physiological functions at will. And on the other hand, superior faculties, pertaining to an extraterrestrial environment or mode of existence, and which our present body does not allow us to exercise freely, but which occasionally appear, in flashes, in the ‘supranormal’ phenomena of clairvoyance, lucidity, prophecy, etc. (Flournoy, 1903, p. 247)

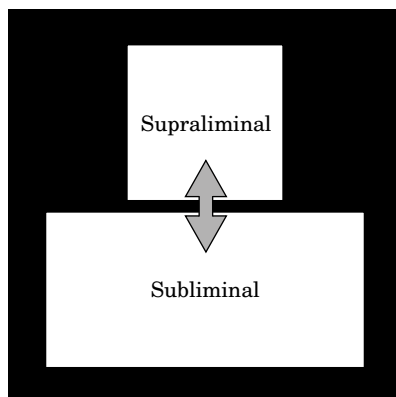


Figure 1. Myersian first topography.

For James, most troubling is Myers's inability to explain to his satisfaction how the subliminal region can serve equally as "rubbish-heap" and "treasure-house" (Myers, 1903, p. 72), "so impartially the home of both evolutive and of dissolutive phenomena" (James, 1903, p. 32). Myers wanted his model to reflect both the hysterical and genius. How can this bivalence be explained if the whole subliminal is one and the same?

Myers himself is unhappy with the 'surface/depth' spatial metaphor introduced by the term 'subliminal', which gives the impression that this zone is below and inferior to the other, which does not correspond to his idea. This type of hierarchical scheme can be found in Hughlings Jackson, Wundt, Janet, Grasset, and Freud's iceberg or Jung's depth psychology. But there's no question of superiority or inferiority here. The subliminal and supraliminal are merely states of consciousness, currents that not only cooperate, but alternate: "so that what was once below the surface may for a time, or permanently, rise above it" (Myers, 1903, p. 15).

Instead, Myers asserts that supraliminal consciousness reflects only selected psychological elements and processes in the subliminal selves in adaptation to the needs of our present environment; the biological organism, rather than producing consciousness, is the adaptive mechanism that limits and shapes ordinary waking consciousness from this larger latent Self.

From this point onwards, Myers complexified his own model to better reflect his thinking, while unfortunately retaining the same vocabulary of subliminal and supraliminal.

THE SECOND MYERSIAN TOPOGRAPHY: TRANSLIMINAL AND INTRALIMINAL

The dynamics of consciousness

Myers proposed a very simple redefinition of consciousness that allows one not to restrict it to the supraliminal: what is potentially memorable must be

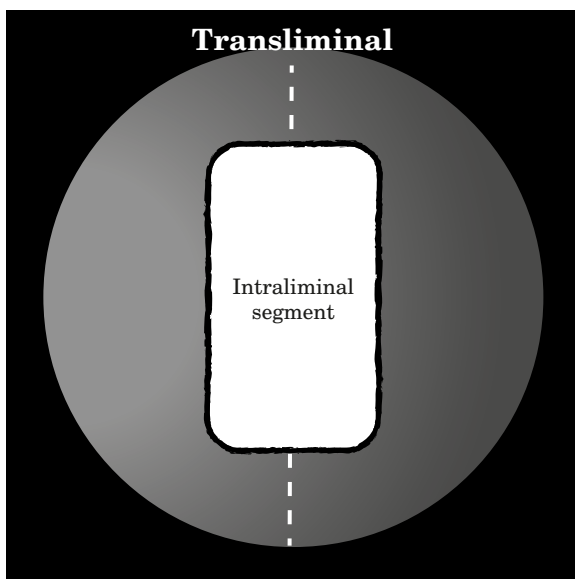


Figure 2. Myersian second topography.

regarded as conscious (Myers, 1903, pp. 36–37). It is not complexity that defines consciousness.

Therefore, to speak of the subliminal with notions such as ‘subconscious’ or ‘unconscious’ is nonsense: the subliminal is only transiently ‘outside the field’ of vigilant attention, but it involves processes that are both complex and potentially memorable (Myers, 1892a, p. 305).

Hence, Myers describes the mind as a complex, fluctuating and ever-changing interplay between subliminal and supraliminal elements and processes. In doing so, he builds on the Jacksonian model of the dynamic hierarchy of functions, which becomes the basis of his personality model.

The spectrum of light: Centre and periphery

To convey his ideas, Myers chose another spatial image from physics: that of a ray of light passing through a prism to present the entire light spectrum. In this model, the supraliminal, which was likely to be interpreted as a higher region, is now reduced to a segment of the light spectrum, with a boundary with the ‘infrared region’ on its left and a boundary with the ‘ultraviolet region’ on its right (Myers, 1885a, p. 234).

On the basis of this analogy, the previous ‘surface/depth’ division is replaced by a ‘centre/periphery’ division. We can therefore correct Myers’s terminology by referring to the ‘transliminal’ (ex-subliminal) and the ‘intraliminal’ (ex-supraliminal), depending on whether we are outside or inside this segment (Figure 2).

Properties of the transliminal

Myers notes in particular that the transliminal uses more symbolic than linguistic material (Myers, 1903), and has closer control over the psychosomatic and the spiritual. Entry into the transliminal allows access to greater internal plasticity:

The somnambulant state does indeed appear to involve two completely different faculties, the self-curative faculty and the telesthetic faculty, i.e. a more complete bodily recovery and a more independent spiritual activity. The spirit thus becomes more capable either of attracting meta-etheric energy to the organism, or of acting independently of the organism. (Myers, 1905, p. 189)

These properties of the transliminal suggest that it has a closer proximity to an ontologically primordial substance at the heart of reality, that of living and inert matter. This can be compared with the psychophysically neutral or *unus mundus* domain developed in generalized quantum theory (Atmanspacher & Rickles, 2022).

Subdivisions of the transliminal

Myers now expresses more clearly his polarized identification of both ‘dissolving’ and ‘evolving’ processes within the transliminal. The infrared region refers to dissolving processes where “consciousness disappears among organic processes” (Myers, 1894–1895, p. 197).

The ultraviolet region refers to evolutionary processes where “mental capacities which remain latent because they have not yet emerged to a supraliminal level by adaptive evolutionary processes” (Myers, 1894–1895, p. 197). These new modes of operation appear rarely, fleetingly and briefly. They are “super-conscious operations” that are “above the higher horizon of consciousness” (Myers, 1886b, p. 285). These latent, ‘ultraviolet’ abilities include telepathy, inspirations of creative genius, mystical perceptions and so on.

Myers distinguishes between lower, middle and upper centres:

- the *autonomic*, which deals with unconscious physiological processes
- the *hypnotic*, a powerful stratum that responds positively or negatively to suggestions from external sources or from the workings of its own imaginative faculty
- the *higher subliminal*, a source of inspiration, creativity and spirituality.

It remains difficult, however, to place the ‘middle’ hypnotic centre anywhere but on the side of dissolving functions.

AUTOMATISMS AND PSYCHOSCOPES

The notion of psychoscope

In 1885, in one of his first essays on automatic writing, Myers (1885a) introduced the notion of *autoscope* (proposed by fellow physicist William

Barrett) or *psychoscope* to designate any instrument that reveals a motor impulse or a subliminal sensory impulse, i.e., any device that allows motor or sensory automatisms to emerge (Evrard & Frigaux, 2021).

He went further, defending what he called the *psychoscopic method* as the ultimate experimental approach to human personality (Myers, 1885b). He proposed that hypnosis, automatic writing, crystal vision, drugs, and other psychoscopes should be to psychology what the spectroscope is to the analysis of light, i.e., the means of studying the different layers and properties of the psyche.

In addition to ‘artificial’ psychoscopes, Myers invited psychologists to take an interest in sleep and dreams. Years before Freud, Myers emphasized their importance as a method of accessing the unconscious, a source of creativity, personal introspection, and telepathic content. In his view, dreams should be the subject of much more in-depth analysis of their language and their real and symbolic content than they had been in the past.

Myers (1892b) asserted that orthodox physiological psychology was imposing methods alien to its object, instead of gradually developing original methods adapted to the specific problems posed by the human mind. In his view, neurology could only photograph the psychic fortress from the outside, without being able to collect direct evidence of what was going on inside (Myers, 1892b, pp. 442–443). He compared his fellow psychologists to “surface miners”, whereas “psychists” undertook the more difficult task of mining at depth (Myers, 1898, p. 147).

Surface research ran the risk of not being sufficiently intimate to lead to real discoveries about the workings of the mind. Today, this opposition can be seen in neuroscientific studies, or simply questionnaire-based studies of personality and psychopathology, set against projective methods that claim to be able to analyse otherwise inaccessible intrapsychic functioning (Evrard & Frigaux, 2021).

The dynamics of automatisms

Myers defines automatisms as:

messages from the subliminal to the supraliminal self; endeavours-conscious or unconscious-of submerged tracts of our personality to present to ordinary waking thought fragments of a knowledge which no ordinary waking thought could attain. (Myers, 1903, p. 169)

Automatisms thus correspond to all exchanges or communications of material between these two zones, regardless of the subdivisions of the transliminal (Kelly et al., 2007, p. 87). They could therefore be interpreted as *thrusts from the transliminal that penetrate the intraliminal*.

There are two types: motor automatisms and sensory automatisms. The latter are the products of the senses, externalized in such a way as to take on the character of quasi-perceptions. Similarly, motor automatisms show that

intelligent actions can be organized without the aid of waking consciousness. These include dreams, second personalities, hypnosis, automatic writing, trance-like speech, spurts of inspiration translated into supraliminal expressions, and so on. Myers stressed that these automatisms were not necessarily pathological, clearly opposing Janet on this point (Evrard et al., 2018; Myers, 1889). On the contrary, the messages they contained could be useful to the conscious mind in the form of advice or warnings (monitions).

Psychic permeability and trances

These automatisms are processes over which the intraliminal exerts little control, particularly psychosomatic and paranormal processes (which Myers terms *supernormal*).

If the transliminal resides on the periphery, then dissociation could correspond to a *centripetal process* channelling material toward the intraliminal. Conversely, conscious attention becomes a *centrifugal process* illuminating areas of the transliminal through extension, contraction, or displacement—as seen in memory recall.

In all cases, this implies that the boundaries between the two realms are *permeable*, with a lability that enables adaptation to shifting circumstances. Flournoy (1911, p. 248) summarizes: “there are perpetual exchanges and fluctuating borders—the separation level is not fixed, the partition is not impermeable, the threshold is not insurmountable between these two parts of our being”. Not only is there constant material exchange between these regions (i.e., ongoing dissociation and attention) but on the individual level “the personality of each of us is in a state of constantly shifting equilibrium” (Myers, 1893, p. 9). Such formulations were remarkably ahead of the cybernetic models of personality that would emerge half a century later. They challenge our conventional view of ‘altered states of consciousness’, which assume a ‘static’ baseline consciousness rather than the fluidity James advocated.

All modifications of consciousness thus stem from instability or ‘permeability’ in the psychological boundaries between intraliminal and transliminal processes. This aligns with body–mind models proposing that the brain’s role is not to *produce* the mind but to *enable* its adaptive intervention (Bergson, 1896; Kelly et al., 2007).

For Flournoy (1911, p. 261), the value of Myers’s model lies in its generative imagery (Figure 3):

- *hysteria* is “an undue permeability of the psychical diaphragm”
- *genius* is “a subliminal uprush of helpful faculty”
- *suggestion* is “a successful appeal to the subliminal self”.

POSTERITY OF THE TRANSLIMINAL

In his *Varieties of Religious Experiences*, James (1902, p. 242) employs Myers’s model to conceptualize “porous or perforated” boundaries and

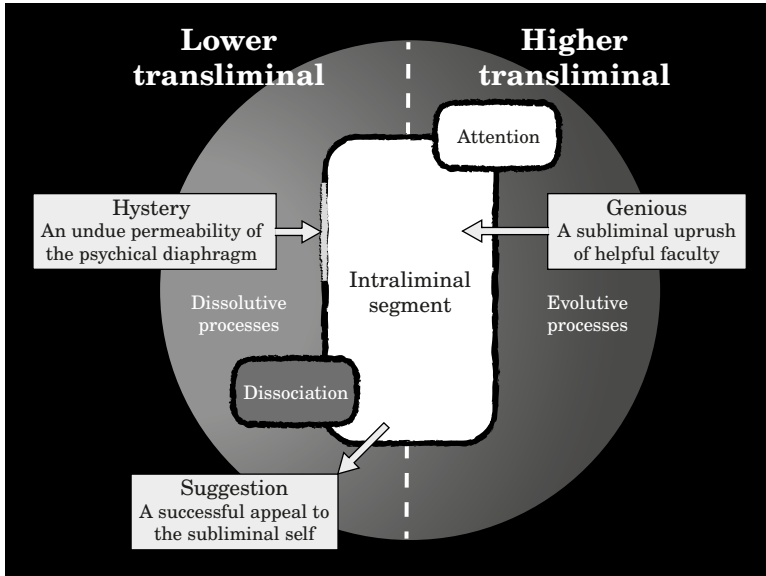


Figure 3. Dynamics of automatisms between transliminal and intraliminal.

individual differences regarding “leaks” of data situated below the threshold. He overcomes the terminological issue by proposing to call the fully illuminated level of consciousness Region A and the rest Region B, “the domain of everything latent and the reservoir of everything that passes unregistered or unobserved”.

The notion of ‘transliminal leakage’ was evoked in parapsychological research as early as 1909 to explain how telepathy connects two subliminal selves (Usher & Burt, 1909). Subsequently, this term was forgotten before being reemployed in a different context more than 80 years later.

Psychometric measures of the transliminal

Starting in 1991, without reference to Myers, psychometric proposals emerged to measure ‘psychic boundaries’. First, Hartmann’s (1991) psychic permeability questionnaire identifies thin or thick boundaries (see Simmonds-Moore, 2010a, 2010b). Then, Australian psychologist Michael Thalbourne (1991) discovered, somewhat by chance, a unique factor associating different dimensions of psychic life, which he termed “transliminality”.

Thalbourne’s transliminality scale underwent several refinements and now describes a remarkable aspect of psychic life. Thalbourne et al. (1997, p. 305) redefined transliminality as “susceptibility to, and awareness of, large volumes of imagery, ideation and affect—these phenomena being generated by subliminal, supraliminal and/or external input”. A simpler definition was later proposed:

Transliminality is a hypersensitivity to psychological material originating in (a) the unconscious, and/or (b) the external environment. 'Psychological material' is taken to cover ideation, imagery, affect and perception, and thus is a rather broad concept. (Thalbourne & Maltby, 2008, p. 1617)

This definition intertwines concepts different from those of Myers that Thalbourne had theorized himself. Since its establishment, the concept of transliminality (Thalbourne, 2010) has been highly successful in its ability to connect disparate processes, certain psychological and psychopathological traits, openness to paranormal beliefs and experiences, and parapsychological performances. Recent work on hypersensitivity and psi further reinforces this view (Roxburgh et al., 2024). It would be interesting to strengthen the connections between contemporary measurement tools and the observations made by Myers and his colleagues in their time.

Clinical aspects of the transliminal

Psychologist Gordon Claridge (1997, 2010) revisited the notion of the transliminal to better describe 'schizotypy', characterized by a tendency to have paranormal beliefs and experiences, in a less stigmatizing way than with common psychiatric vocabulary. Psychologist Isabel Clarke (2014) expanded on this idea by developing a transpersonal psychotherapy approach to this 'transliminal' zone that blends psychosis, spirituality, and paranormality. The process of 'crossing thresholds' into or out of consciousness seems to have broad potential applications to a large number of psychological phenomena, which can thus be described more parsimoniously as the consequence of a highly transliminal mind. However, the current connotations of 'transliminal' are more restricted than those envisaged by Myers for his 'subliminal'.

CONCLUSION

Myers's name is inseparable from the concept of the subliminal. However, I am suggesting abandoning this term, as it fails to account for the complexity of his model. While there is indeed a boundary between two forms of psychic life, there is no hierarchy between these two consciousnesses, but rather a relationship of continuous collaboration and symbiosis.

It seems clearer to identify a segment of intraliminal consciousness responding to certain properties, largely studied by cognitive psychology; and beyond this a segment that refers to a broad field still too little explored. Myers proposed an initial mapping of this space, with subdivisions reflecting a hierarchy of functions inherited from Hughlings Jackson (who happened to be the physician of his brother Arthur, a severe epileptic). However, his posthumously published work invites us to think that Myers himself did not fully resolve the problem to which James gave his name. We must therefore continue to explore the transliminal and its relationships with intraliminal consciousness.

Corresponding author

RENAUD EVRARD

University of Lorraine, Nancy, France

Email: renaud.evrard@univ-lorraine.fr

ORCID ID: <https://orcid.org/0000-0003-3717-666X>

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BOOK REVIEWS

WHAT LIES BEYOND: CONSCIOUSNESS, SCIENCE, THE PARANORMAL, AND THE POST-MATERIAL FUTURE

By Matt Colborn. Essentia Books. 2025. 223 pp. £14.99.

ISBN 9781803418292

This book's biographical information indicates that Matt Colborn "is an author, lecturer, broadcaster, and artist" who "currently teaches consciousness studies on the Alef Trust Master's programme" (p. 221). Judging from its website, the Alef Trust is a non-profit organization that provides online graduate education programmes and 'open learning courses' in New Age areas such as transpersonal psychology. Colborn has an MSc in cognitive science from the University of Birmingham, and a DPhil in biology from the University of Sussex. Driven by a lifelong fascination with the paranormal, he joined the Society for Psychical Research in 1998.

What Lies Beyond offers a thoughtful critique of the metaphysical belief known as *materialism*, which holds that the fundamental components of reality are matter and energy. In good part, materialism is based on classical physics, which embraces determinism, the view that things influence one another in a set way, like clockwork, and that, in principle, future events can be predicted precisely. According to classical physics, the physical world is objectively real, and its workings aren't dependent on whether it's being observed.

For many within the mainstream scientific establishment, materialism is the default position, with consciousness being regarded as a by-product of electro-chemical processes in the nervous system. According to this notion, which has been called *epiphenomenalism*, consciousness has no independent existence, and no causal properties of its own; and our feeling of having free will is illusory.

There's evidence supporting epiphenomenalism. For example, along with colleagues, the neuroscientist John-Dylan Haynes has conducted experiments in which people undergoing brain scanning have been asked to press a button with either their left or right hand. By observing subjects' brain activity, the researchers have often been able to predict, accurately, *several seconds in*

1. Haynes (2014) gave an interesting talk.

advance, which hand they will choose to use (Soon et al., 2008).¹ But, some of our social institutions, such as the criminal justice system, take it for granted that free will exists. For example, if I were caught robbing a bank, a court would be unlikely to accept a plea that I wasn't to blame, because my actions were wholly determined by impersonal physical processes in my brain!

There are numerous other strands of evidence that seem to support the view that mental activity is a reflection of what's happening in the brain. For example, the memory deterioration seen in Alzheimer's disease is associated with physical changes in the brain, and brain injury can affect mental functioning, as can the ingestion of drugs. Arguing the other way, Colborn refers to a researcher, John Lorber, who investigated a person with hydrocephalus. This was a maths student with an IQ of 140; yet, judging from X-rays, he had very little brain. Colborn adds that this case "was by no means isolated" (p. 35).

Colborn notes that the findings from psychical research also pose a challenge to the materialist view of the world, since they demonstrate the existence of mental faculties that seem to transcend normal physical constraints. In Chapter 5, he cites experimental evidence for such manifestations.

In Chapter 6, Colborn casts an eye on scepticism about the paranormal. He identifies two strategies that sceptics have used to cast doubt on findings from psychical research. The first one, which might be labelled 'informed critique', offers criticisms of experiments and tries to find normal explanations for seemingly paranormal events. Such criticism can be helpful. The second strategy is more destructive—it consists of mockery and dismissing parapsychology as inherently flawed pseudoscience. People adopting this approach may refuse to examine the evidence for psi, because their presuppositions tell them that such phenomena can't possibly occur. It's hardly a scientific stance.

Unless we're to suppose that people's brains can somehow be reconstituted after they've died, materialism seems to rule out life after death. However, many psychical researchers have argued in favour of survival. Take, for example, David Fontana, who died in 2010. He believed that there was good evidence (e.g., from studies of mediumship) for the notion that consciousness survives bodily death. He noted that spirit communicators have claimed that in conditions such as Alzheimer's disease, the person's consciousness has very largely detached itself from the body (Fontana, 2005). From that perspective, a person with an impaired brain would be like a healthy driver with a damaged car.

In Chapter 7, Colborn contends that mystical experiences and those evoked by psychedelic drugs suggest that there's more to consciousness than brain activity. Arguably, though, mystical and psychedelic experiences could be wholly attributed to altered brain activity, unless they're accompanied by clear-cut psi functioning (e.g., clairvoyance or precognition).

The word 'materialism' is sometimes used to refer to an excessive preoccupation with accumulating wealth and riches. This is, of course, different from the metaphysical materialism discussed above. However, to some extent, the two

types of materialism may go hand in hand. Colborn recognizes this (see Chapters 9 and 10) and, rightly in my view, advocates a more spiritual approach to life.

Excellent though it is in many respects, there are a few minor problems with the book. For example, Colborn mentions someone giving a “TED talk” (p. 9), but he doesn’t say what TED refers to. He refers to “the *Daily Mail*’s psychiatrist Dr Michael Mosley” (p. 64). However, my understanding is that despite graduating in medicine, the late Michael Mosley never worked as a doctor. Colborn equates a probability of 0.05 with “1 in 25” (pp. 74–75), which should be 1 in 20.

The book contains endnotes and an extensive bibliography. But, disappointingly, there’s no index, which a book like this really needs. To me, it’s like giving someone gin and tonic without ice and lemon!

peter.mccue@virginmedia.com

PETER A. McCUE

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UNDER THE PARANORMAL CURVE: COMPARING PSYCHOLOGY
RESEARCH METHODS TO PARAPSYCHOLOGICAL POPULAR
'SCIENCE'

By Eric Charles Prichard. Nova. 2022. 90 pp. £60.10.
ISBN 9798886972436

The author of this slim (but expensive) volume speculates in the brief preface that potential readers might be students on a research methods course or else individuals who are simply curious about the topic. However, the main content of the book appears to be squarely aimed at the former. Although the book would certainly have something to offer the curious general reader, the discussion of topics within its pages is generally too superficial to be satisfying. I suspect that the author's aim was to produce an introductory text on research methods that was a bit more interesting than the average book on this topic. Let's face it, although research methodology is undoubtedly a really important topic, most books on the topic are not exactly page-turners. In contrast, this book is generally an easy and enjoyable read (with the exception of Chapter 6, "An optional recap of statistics").

The author's approach to paranormal topics is very similar to my own. Although he is now a sceptic regarding such claims, as a teenager he was very much a believer, largely as a result of watching sensationalistic and uncritical TV programmes about ghost hunters and aliens. Through science, he learned to ask the crucial question that is at the heart of scepticism: 'What is the actual evidence for these alleged phenomena?' His aim in this book is to explore the relationship between science and belief.

Throughout the book, the author adopts a respectful approach towards paranormal claims. Each chapter begins with a short vignette featuring Bill and Stan. Bill and Stan are both bright chaps with an interest in paranormal claims, but their attitudes differ. Bill, based upon William James, represents the thoughtful believer, in contrast to the more sceptical approach of Stan, based upon G. Stanley Hall. The first chapter opens with a general discussion of the nature of science, followed by further exploration of the approaches to the paranormal taken by James and Hall.

One of the main reasons that I feel this book is aimed more at students doing a research methods course rather than the general reader is that each chapter (except the final one) concludes with a suggestion for a "lab-based activity" to

provide the reader with some hands-on experience. For Chapter 1, this is a small-scale investigation of horoscopes and confirmation bias (no stats required!).

Chapter 2 discusses the nature of evidence, contrasting the importance of observation and measurement in psychology with the reliance on anecdotal evidence often seen with respect to paranormal claims. This criticism has some validity when levelled against the popular ‘science’ featured in TV programmes dealing with ghost hunters, as discussed by the author. However, it certainly would not apply to laboratory-based parapsychology. Nevertheless, the chapter does raise some interesting issues regarding the nature of truly scientific evidence. The lab-based activity suggested at the end of this chapter is based upon the unreliability of eyewitness testimony using the post-event misinformation technique. This technique, pioneered by Elizabeth Loftus, demonstrates that memory for witnessed events can be distorted by the presentation of misinformation after that event has taken place.

Chapter 3 focuses on the concept of correlation as well as describing our tendency to sometimes perceive correlations that are not really there. This tendency is discussed with respect to outbreaks of mass hysteria and UFO flaps. The suggested lab-based activity at the end of this chapter is to test for a correlation between paranormal belief and another variable of psychological interest, such as magical thinking.

Chapter 4 moves on to discuss experimental methods that, when properly applied, allow one to go beyond mere correlation and towards the establishment of causal relationships. The importance of proper controls is emphasized in order to minimize the chances of drawing faulty conclusions from one’s data. Two examples of the poor application of controls are described: the investigation of Uri Geller’s alleged psychic powers by Targ and Puthoff (1974) at Stanford Research Institute and Bem’s (2011) controversial series of studies investigating precognition. Importantly, the author also includes some discussion of the replication crisis in psychology and its implications for parapsychology. The lab-based activity at the end of this chapter is a demonstration of just how easy it can be to obtain spuriously significant results if one engages in questionable research practices.

The penultimate chapter of the book is a brief discussion of the ethics of watching paranormal programmes. The author admits that such programmes can indeed be entertaining, but also contain a great deal of misinformation. He suggests that training in scientific scepticism might help viewers to enjoy such programmes as entertainment whilst appreciating that they may leave a lot to be desired in terms of their veracity. The lab-based activity suggested at the end of this chapter is to critically evaluate one such programme. The final chapter, “An optional recap of statistics”, is, in the author’s words, “a somewhat dense chapter”. I suspect many readers would choose to skip it.

Although I enjoyed reading this book, I do not think that, on its own, it would provide a thorough enough grounding in research methodology to students

studying this important topic. Similarly, it is generally too superficial to provide a thorough critique of parapsychology, given its focus on ‘popular’ paranormal science as opposed to the more rigorous laboratory-based approach. Although it might be useful as a background text for students on a research methods course, at almost a dollar per page, I doubt many of them would be able to afford it.

c.french@gold.ac.uk

CHRISTOPHER C. FRENCH

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CONSCIOUSNESS BEYOND DEATH: NEW AND OLD LIGHT ON NEAR-DEATH EXPERIENCE

By Michael Tymn. White Crow Books. 2025. 172 pp. £12.99.

ISBN 9781786772848

Michael Tymn, a long-standing supporter of survival research, has collected 23 articles from his blog, examining both historical and contemporary reports of near-death experiences (NDEs). Gathered within the book are writings and interviews which aim to show that NDEs point to more than unusual brain activity, instead offering evidence for the persistence of consciousness beyond bodily death. Consistent with his earlier books, such as *The Afterlife Revealed* (2011) and *Dead Men Talking* (2013), Tymn explores this view through a mix of personal accounts and historical sources.

Tymn's argument is clear—NDEs are not hallucinations, fabrications, or cultural projections. Rather, they represent authentic encounters with another dimension of existence, made clear during moments when the soul temporarily separates from the body. His evidence is drawn from a wide range of sources, both past and present, with particular attention to recurring themes such as out-of-body experiences, tunnel passages, encounters with luminous beings, and life reviews. Tymn suggests that these patterns have persisted across centuries, and offers strong support for the survival of consciousness.

STRENGTHS

One of the book's strengths is its recovery of historical material. Tymn reminds us that such reports stretch back far earlier, with several chapters documenting 19th- and early 20th-century testimonies that closely resemble modern accounts, offering continuity for researchers interested in long-term patterns. This broad perspective challenges the idea that NDEs are purely modern phenomena shaped by media or medical culture.

Another strength lies in Tymn's approachable writing style. Free of technical jargon and written in a conversational tone, the book is accessible to general readers while still being of interest to specialists. Tymn's respect for experiencers is evident throughout—he listens to their voices rather than reducing their reports to medical or psychological explanations. This gives the book a personal quality that many readers will find both engaging and respectful.

Tymn also offers a level of criticism aimed at what he sees as the “materialist paradigm” influencing modern science. He argues that many scientists dismiss views that the mind or soul carries on after the body, not because of lack of evidence but because of their underlying beliefs that shape how they explain the world. In doing so, he sees himself as someone with a broader belief in the movement that consciousness is more than just brain activity, which encourages more open and inclusive ways of understanding mind and body experience.

Even with his acknowledged limitations as not being a researcher, scientist, academic, or having had an NDE himself (p. 2), a reader can see how Tymn’s book can make a relevant contribution to psychical research. It places experiencers’ voices at the forefront, when often these can be overlooked or reduced within mainstream discussions. By drawing attention to the recurring experiences of NDEs, Tymn encourages researchers to consider these accounts not only as psychological expressions but also as possible indicators of a deeper level of reality that goes beyond the physical world.

The recovery of historical material is another important note. By linking modern NDE reports with earlier testimony from the history of the Society for Psychical Research and spiritualist traditions, Tymn broadens the timespan of survival research. This perspective invites renewed attention to archived sources and forgotten accounts, where genuine details and different recurring generational patterns could be explored further.

Of equal note is Tymn’s emphasis on the ethical and life-changing characteristics of NDEs. Many who undergo such experiences describe lasting shifts in values, worldview, and sense of meaning. Highlighting this ‘after-effect’ can be valuable not only for psychical research but also for fields such as transpersonal psychology, studies of transformative experiences, and end-of-life care, where the integration of such has real practical importance.

WEAKNESSES

While the scope and clarity of Tymn’s arguments are admirable, some aspects of the book will appeal more strongly to certain readers than others. The narrative style, while readable, does not provide the kind of methodological detail or structured criteria that some researchers might expect. For example, cases are not always evaluated in terms of reliability, selection process, or compared across different cultures. For readers seeking such research with more analytical depth, this may feel less rigorous; however, for those drawn to reading more into individual experiences and also with a historical perspective, it enhances the flow and accessibility of the book.

Tymn gives some attention to sceptical views such as oxygen deprivation or neurochemical explanations, but does not develop these further. This means that the book cannot serve as a comprehensive survey of all perspectives; its strength lies in presenting a robust mind survival explanation, leaving readers to pursue alternative viewpoints elsewhere. In addition, most of the

cases featured come from Western, predominantly Christian or spiritualist traditions. While this focus offers depth and familiarity, it leaves less room for exploring how NDEs appear in other cultural or religious contexts, such as Hindu, Buddhist, or Islamic traditions, which sometimes reveal very different themes. Including such perspectives could have broadened the book's universal appeal.

CONCLUSION

Consciousness Beyond Death may not have the methodological detail of formal academic studies, but it does offer a wholehearted and wide-ranging exploration and a level of comfort to the reader of whether there is any type of life after death. The book's narrative style may feel less rigorous to those seeking strict empirical analysis, yet its historical scope, subjective understanding, and willingness to challenge current beliefs ensure it has a place as another valuable contribution to survival literature.

Tymn does not claim to provide final answers about life after death. Instead, he argues clearly and with a strong stance that the testimonies of those who come close to dying deserve careful and serious attention. This book is both a thoughtful overview and an invitation to revisit the NDE and to consider what it may be telling us—not only about death, but about the nature of consciousness itself.

beth@accessparanormal.com

BETH DARLINGTON-BAILEY

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WHAT COMES NEXT? AN INVESTIGATIVE REPORTER UNCOVERS QUANTUM PHYSICS' HIDDEN AFTERLIFE HYPOTHESIS

By Michael Schmicker. Palladino Books. 2024. 199 pp. £7.39.
ISBN 9798325288746

“Nineteenth-century Newtonian science closed the door on an afterlife”, writes Michael Schmicker at the start of his new book. “Twenty-first century quantum physics reopens it” (p. 12).

What Comes Next? might be described as an entry-level book on the subject of postmortem survival and its possible connection to quantum physics. The book is aimed at readers with little or no background in either area, who are looking for a breezy, informative, uncomplicated overview. It’s well written and probably will offer reassurance to people hoping for a non-religious reason to believe in an afterlife.

That said, the book isn’t perfect. Its simplicity can veer into oversimplification at times. And not all the information provided is reliable.

Schmicker introduces himself as a reporter who has “written books about scientific anomalies, including near-death experiences, deathbed visions, and reincarnation claims” (p. 12). He is perhaps most well-known for his first book, *Best Evidence*, published in 2000, about the evidence for psi phenomena, survival after bodily death, and more.

In *What Comes Next?*, he has two main purposes: first, to establish that materialism, as an ontological position, is not only unnecessary to modern science but effectively disproven; and second, to relate specific quantum phenomena to the possibility of consciousness operating outside the brain.

Part I, “The investigation”, addresses the first issue. After providing an overview of near-death experiences (NDEs) as evidence for extracerebral consciousness, Schmicker goes on to engage in a broad critique of materialism (or physicalism), arguing that Newtonian physics does not describe physical reality at its deepest level. He writes:

Nineteenth-century Newtonian classical physics is grounded on the philosophy of Materialism. The only thing real is the physical world of measurable, tangible objects, knowable through our five senses. It’s a universe created by blind chance, following impersonal, mechanical laws. There’s no grand purpose to our universe. There’s nothing special about us. We’re simply a temporary collection of chemicals

and atoms. Cut humans open, put them under a microscope, and you won't find such a thing as a soul. Consciousness is created by the brain, by the firing of neurons. (p. 17)

But physicalism, he says, is invalidated as a total explanation of reality because physical structures ultimately consist of subatomic particles that behave more like bits of information than like solid, material things.

As Werner Heisenberg ... explained: "The atoms or elementary particles themselves are not real; they form a world of potentialities or possibilities rather than one of things or facts."

Physical matter is fundamentally an illusion of our five senses. ...

At the most fundamental level of reality, you don't find a world of tiny, hard, discrete particles obeying the laws of Newtonian physics. Matter—as understood by 19th-century science—disappears.

What doesn't disappear when reality turns out not to be made of matter? What continues to exist, unchanged, operating as usual?

Consciousness. Mind, observing this astonishing disappearance of matter.

Consciousness is fundamental, not matter. (pp. 40–41)

On this basis, Schmicker concludes:

If consciousness is not made of Newtonian matter, then the death and dissolution of the material brain does not affect a non-material consciousness. Thus, the survival of consciousness is scientifically both logical and possible. This is quantum physics' hidden afterlife hypothesis". (p. 122)

I found most of Part I well-presented and interesting, but Schmicker makes a mistake when describing Pam Reynolds's famous NDE. He writes:

Flatlined EKG and EEG monitors verified her state of clinical death. During this state of death, the woman found herself fully conscious, out of her body, floating above the operating table ...

The records confirmed Reynolds had no electrical activity in the brain (no neurons firing) during the time she said she was conscious and floating above the operating table observing the bone saw operation. (pp. 23–24)

It is true that, at a certain point in the procedure, Reynolds was placed in a condition called 'standstill', in which her heart and brain activity shut down. This phase of the operation, however, took place after the point at which she reported leaving her body and was observing her surroundings. The veridical part of her NDE occurred when the surgeon was opening her skull with a bone saw, a detail she observed and remembered, but the standstill phase commenced only after her skull had been opened. As Kelly et al. (1999–2000, p. 517) note in a write-up of the case:

In addition to this out-of-body experience, which occurred early in the surgical procedure, Ms. Reynolds also reported experiencing many other features frequently reported in connection with near-death experiences ... These [later] features of her

experience seem to have occurred at about the time the aneurysm was removed, when complete cardiac arrest and suppression of the EEG activity had occurred.

Part II, “The scientific evidence,” goes into more detail about NDEs, quantum physics, and consciousness. Schmicker says that it “is aimed at skeptics (like me) who require evidence: blue-chip scholarly experts; credible, vetted citations; and step-by-step deductive reasoning. They’ll find them here” (p. 14).

This part is divided into chapters. They are not numbered, but the titles give a good idea of their content. First up is “NDE research says consciousness survives death”. In a brisk but thorough survey, we are whisked from Plato’s myth of Er in *The Republic* to today’s researchers, including Raymond Moody, Bruce Greyson, Peter Fenwick, Pim van Lommel, Michael Persinger, and Sam Parnia. Eben Alexander’s best-selling *Proof of Heaven* and Jeffrey Long’s Near-Death Experience Research Foundation (NDERF) online database are also cited.

Next is “Neuroscience can’t solve the ‘hard problem’”. This refers, of course, to David Chalmers’s ‘hard problem’ of neuroscience—the difficulty of determining just how consciousness could arise as an emergent property of matter. Schmicker quotes Donald Hoffman, University of California professor emeritus of cognitive sciences:

Despite centuries of effort by the most brilliant of minds, there is as yet no physicalist theory of consciousness, no theory that explains how mindless matter or energy or fields could be, or cause, conscious experience. There are, of course, many proposals for where to find such a theory – perhaps in information, complexity, neurobiology, neural Darwinism, discriminative mechanisms, quantum effects, or functional organization. But no proposal remotely approaches the minimal standards for a scientific theory: quantitative precision and novel prediction. (p. 96)

The third chapter, in Part II, is “Reality isn’t made of Newtonian matter”, which, if true, means that materialism cannot fully explain it.

“Newtonian scientific materialism is false” further develops this argument. It is followed by “Does consciousness create the universe?” I’ll return to this chapter in a moment.

The remaining three chapters cover mainstream science’s reluctance to abandon materialism; physicists who showed an interest in paranormal phenomena; and brief discussions of ancillary issues such as the paradox of Schrödinger’s cat, the possibility of retrocausality at the quantum level, and the enigma of quantum entanglement.

As I noted, there are times when Schmicker’s reader-friendly, gee-whiz approach, “Whew! OK, end of science lesson” (p. 54), can become overly simplistic. I found the discussion in “Does consciousness create the universe?” to be the principal offender in this regard.

“I was fascinated by Max Planck’s explanation of how consciousness creates the universe ...” (p. 46) Schmicker writes.

According to the ‘consciousness causes collapse’ variation of the current, leading interpretation of quantum physics (Copenhagen interpretation), our consciousness helps create the physical world we experience with our five senses. By the very act of our observing and measuring the subatomic objects existing in a state of superposition, our consciousness collapses them into material “things” with size, weight, and location in physical space-time.

In other words, reality doesn’t exist until consciousness observes it.

Wow. You might want to read that sentence again. (p. 49)

The Copenhagen interpretation certainly was the leading interpretation from about 1930 until the late 20th century. Today, however, things are different. A recent survey of 1,100 physicists by the journal *Nature* showed that while a plurality, 36%, subscribed to the Copenhagen interpretation, the other 64% were divided among several alternatives. The same survey showed that “only 24% of respondents thought their favoured interpretation was correct; others considered it merely adequate or a useful tool in some circumstances” (Gibney, 2025).

Unfortunately, nowhere in *What Comes Next?* do we learn much about rival interpretations. The unwary reader is likely to conclude that Copenhagen is the standard, consensus view, when actually there is no single standard and no consensus.

The Copenhagen interpretation involves two principles: wave–particle duality and the observer effect. Wave–particle duality holds that subatomic particles like electrons can behave as both corpuscles and waves. Under certain conditions, an electron does not occupy a single, definite location but instead exists in a ‘superposition’—a state described by a probability wave, representing many possible positions. When a measurement is made, this wave appears to collapse to a single outcome, a process known as ‘wave function collapse’. Although augmented by the newer concept of quantum decoherence, wave function collapse remains a standard part of quantum physics, accepted by most physicists.

The observer effect proposes that this collapse occurs only when a conscious mind observes the system. Unlike the idea of collapse, the observer effect has run into considerable opposition in recent decades. Even the original Copenhagen formulation includes ‘measurement’ along with conscious observation as a trigger of collapse. Today, most physicists view observation as a subcategory of measurement, since an observation can be made only with measuring instruments. In other words, they see collapse as occurring because of a physical, not mental, interaction. Any entanglement of a subatomic particle with its environment is likely to lead to decoherence and thus to collapse. And this happens whether or not anyone is watching.

As a result, large systems adhere to the classical rules, even when they are not under observation. The sheer complexity of interactions taking place within the system is enough to break the superposition and force the system into a definite, classical state.

But haven't laboratory experiments demonstrated superposition in relatively large systems? Yes, as Schmicker points out:

In 2023, *New Scientist* magazine reported that researchers had succeeded in putting a sapphire crystal into a superposition of quantum states, bringing quantum effects into the macroscopic world. The implications of this experiment are huge: quantum physics applies to all reality, further pressuring us to abandon our old 19th-century Newtonian science worldview. (p. 63)

Well ... not exactly. What such experiments demonstrate is that when quantum systems are 'isolated' under rigorously controlled conditions, superposition can persist temporarily. But such conditions are seldom found in the real world. Outside the lab, subatomic particles involved in a system normally will be sufficiently disturbed to 'collapse' without an observer. At least, this is the viewpoint of those who understand wave function collapse in physical terms.

The observer effect still has its adherents, who hold that even very large systems—perhaps the entire universe—can remain in superposition until observed by a conscious mind. They say we cannot know that a collapse has taken place until we have observed it, and therefore the observer is still the final link in the causal chain. But how would we test such a claim? We would have to remove all observers at all stages of the process; and if that were done, no observations could be made and no conclusions could be drawn. The idea is unfalsifiable. It may be true, but it's essentially an epistemological stance, not a scientific theory.

Schmicker acknowledges that the observer effect has come under criticism. He cites a paper by Chalmers and McQueen (2021), which refutes three arguments against the hypothesis. But he doesn't give us those arguments or their refutations.

He goes on to ask:

Can Nature by itself, or an inanimate detection machine, replace human consciousness in terms of performing the act of observation/measurement, as some Materialist-minded physicists believe?

Stanford University physicist Andrei Linde argues no ... Linde says conscious observers are an essential component of the universe and cannot be replaced as observers by inanimate objects. 'The universe and the observer exist as a pair,' Linde contends. "You can say that the universe is there only when there is an observer who can say, Yes, I see the universe there ... I do not know any sense in which I could claim that the universe is here in the absence of observers". (pp. 144–145)

It is indeed true that 'I' cannot claim anything about the universe if 'I' am not there to observe it. But it does not follow that the universe exists only when it is observed.

Schmicker also paraphrases physicist Henry Stapp as arguing "that the logic is irrefutable: the output of a detector only becomes known when it is

consciously observed” (p. 146). Again, true. The output ‘becomes known’ when it is observed. And again, this is not the issue. The issue is whether or not the output exists even if it is unknown.

While it may be the case that material phenomena manifest only in the presence of consciousness, it is not a conclusion forced on us by quantum physics. The most we can say is that it is compatible with one interpretation. Other interpretations are possible. Some, like the many-worlds theory, don’t posit wave function collapse at all.

Despite the book’s occasional missteps, I believe it will prove useful for the audience it aims at—people who want a relatively uncomplicated reassurance that science does not rule out postmortem survival and, according to some interpretations, may even favour it.

The non-technical reader will find much to like in Michael Schmicker’s book, and may even learn to stop worrying about *What Comes Next?*

michaelprescott2011@gmail.com

MICHAEL PRESCOTT

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CORRESPONDENCE

To the Editor:

A response to Kennedy's (2025) reviews

With enthusiasm but mild trepidation, I read James Kennedy's (2025) combined review of my two books *A New Approach to Psi* (Storm, 2025a) and *A New Approach to Synchronicity* (Storm, 2025b). I must say I appreciate the effort Kennedy took in reviewing not one but two rather lengthy books. I found it overall supportive, though it's not a deep dive—which other reviewers also refrained from doing (e.g., Daw, 2025; Mörck, 2025). Of course, I realize that readers may not wish for *density*, and perhaps a review is not the place for serious theoretical probing. However, I do wish to respond to a few of Kennedy's criticisms, though he makes reasonable points that I do acknowledge, or have no need to challenge, as is the case with the two Society for Psychical Research website reviews just listed.

Labelled as “Book 1”, the first major issue Kennedy tackles in *A New Approach to Psi* is my approach to experimenter effect in psi research (aka ‘E-psi’). My point here is that I don't *generally* propose “that concern about experimenter effects in psi research is not justified” (p. 157). Fortunately, Kennedy corrects himself in a subsequent paragraph, noting that I *do* feel concern is justified in the case of *within-study* E-psi, of which there is ample evidence. And he also correctly points out that I do claim *between-study* E-psi is overblown, and indeed I do use the meta-analyses to back up my claim: But Kennedy points out that there have been those who contradict such a claim: J. B. Rhine may well have “had no doubt that experimenters have differing [psi] abilities” (p. 157), but we have come a long way since the 1930s, and one man's experiences and assumptions, or those of a few, are surely outweighed by the meta-analytic findings which show there are no marked (significant) differences. The same goes for Rosenthal (1986; as cited in Kennedy, 2025); his finding of significant effect size differences between *ganzfeld* investigators is nearly *40 years old*. My claim was based on the most *recent data*, from a number of different meta-analyses covering a range of experimental paradigms, not just *ganzfeld* (Storm, 2025a, Chapter 2).

Here we come to the real issue for Kennedy—the general problem some in academia have with meta-analysis. On the one hand, I do not think the resistance to, and criticisms of, meta-analysis are entirely justified to the

degree that we can't depend on it, but on the other hand, I wouldn't say I only have "*excessive optimism about retrospective meta-analyses* (EORMA)" (p. 157). To me, the more serious problem is that some critics of meta-analysis (e.g., R. Hyman and R. Wiseman), as well as those Kennedy lists, and those who make a big deal over questionable research practices (see especially Storm, 2025a, pp. 80–84), seem almost hell bent on seeing to it that parapsychology is recognised as suffering the same 'replication crisis' as many of the mainstream disciplines—something Stokes (2015, as cited in Storm, 2025a) also tried to argue, but not satisfactorily to my way of thinking.

Furthermore, some meta-analyses have been *prospective* (I quoted Roger Nelson saying it is needed; Storm, 2025a, p. 71), though I didn't cover that issue as well as I'd have liked to (but see Storm et al., 2010)—my point being that meta-analysis is not entirely *retrospective*. Kennedy agrees with Green et al. (2003, as cited in Kennedy, 2025, p. 158) that "one large well-conducted trial" would be superior to a meta-analysis, but, ultimately, isn't the latter the tail end of the former? Everyone wants a general picture, and individual studies (with many trials) will not exist in a vacuum for very long—one study's success (or a string of them) will compete with another's failure (or a string of them). The role of meta-analysis is to disambiguate—something many consider it does well (Allen, 2020; Jennions et al., 2013), despite its flaws and our grievances. It will be a meta-analytic technique, hopefully with any needed improvements, that will paint a bigger picture that cannot be rivalled by "a representative amount of research findings", even if they do use "post-replication-crisis methodology" (p. 161). But let's not mince words—what is meta-analysis if it is not *representative* of research findings?

Kennedy's second major criticism concerns the Trickster archetype. In fact, I'd say Kennedy (and also Ritchie, 2020, as cited in Kennedy, 2025) does not quite have the right handle on my views about the Trickster, by arguing that Storm

does not discuss alternative explanations that may be more parsimonious and testable than the Trickster archetype. Other factors that may produce persistent researcher mistakes include groupthink, resistance to change, and lack of knowledge about research biases. (Ritchie, 2020, as cited in Kennedy, 2025, pp. 158–159)

However, the Trickster is a global or superordinate category and the three ('testable?') factors Kennedy lists (on behalf of Ritchie) come under Trickster phenomenology typified as "psychosociological aberrations" (Storm 2023, p. 665)—researchers who go along with a (possibly distorted) consensus view ("groupthink"), and their stubbornness ("resistance to change") and/or "lack of knowledge about research biases", are all open doors that allow the Trickster to fly in.

I note, favourably, other remarks Kennedy makes indicating his interpretations of my words are in the manner I meant them to be taken, and

I was pleased to see he recognised at least one “practically valuable section in the book” (p. 159), namely a revised approach to research.

Then we come to “Book 2”, which goes into greater detail about synchronicity. Readers should note that there is much cross-referencing between the two books, as Kennedy rightly points out (p. 160), though not as a fault. By way of explanation, the idea of two companion volumes came out of the fact that the original single manuscript had to be split in two due to the insistence of the publisher (Routledge), which found the original typescript too big, and wouldn’t publish otherwise. This was the case with other publishers I approached.

On archetypes, while I did say they are “far too numerous to count” (Storm, 2025b, p. 4)—a “conspicuous challenge” (p. 160) to research—I concede other researchers seem to be bringing the count down to a less humbling, more manageable, level: Aarne and Thompson (1961), for example (whom I did not cite), suggest that we can easily get by with one hundred archetypal themes, and Booker (2004, as cited in Storm, 2025b) argues that all storylines can be reduced to seven basic plots, which are in themselves archetypal scenarios. Between those numbers are the sixty-four hexagram readings in the Chinese divinatory system known as the I Ching, which “presupposes that there is a synchronistic correspondence between the psychic state of the questioner and the answering hexagram” (Jung, 1951/1969, para. 986). So, we have practical launch points not entirely weighed down by some indeterminable upper limit, as even suggested by Jung himself. Also, archetypal meanings are not purely or “highly subjective” (p. 160)—another scientific bottleneck—for, as I have pointed out (pp. 33–34), there is a huge level of objectivity in the interpretations insofar as archetypes are human-wide.

In conclusion, Kennedy’s treatment of Book 2 is largely on point (especially Chapters 3, 4, and 5). Of both books, one of Kennedy’s summations conveys one of my main messages: “primary practical recommendation from these books is that parapsychological researchers should pay much greater attention to archetypes and meaning” (p. 161). Of course, I can only agree with Kennedy that “more information is needed about the many archetypes and how they manifest” (p. 161). With that, we may better understand synchronicity. And while I agree archetypes may *generally* be “uncontrollable” (p. 161), I also argue that the motivational element is key. Yet we must avoid “the inflation of emphasising personal agency” (Main, 2025), so that we come to understand that so-called ‘psi’ is more to do with who we are and less about what we think we can do.

lance.storm@adelaide.edu.au

LANCE STORM

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To the Editor:

Response to Lance Storm's letter

Lance Storm's response to my review (Kennedy, 2025) of his two books (Storm 2025a, 2025b) about synchronicity and psi provides useful clarifications but also continues to underestimate the implications of the replication crisis. Significant clarifications include why he wrote two books rather than one and why the number of proposed archetypes may not be as unmanageable as suggested by some comments in the books.

Writing this review was something of a dilemma for me because I agree with the need to change the working assumptions for psi experiments, but I also think the comments about the Trickster archetype and associated evidence from meta-analyses are not justifiable. Fortunately, the discussion of the Trickster and meta-analyses is peripheral and does not impact the main points in the books. I hope that was clear in the review. In my opinion, the books would have been much stronger if those topics had been left out.

Storm's response expresses a common assumption among those who do not have experience with preregistered, well-powered confirmatory research. This assumption is that retrospective meta-analyses are needed to combine studies with inconsistent results to determine whether there is evidence for an effect. However, if researchers have a useful understanding of a true effect and conduct research with a power of 0.90 (preferably 0.95), about 90% (or 95%) of the studies will produce evidence for the effect. Similarly, if the effect is not true and previous exploratory research was false-positive, about 95% of the confirmatory studies will be consistent with no effect. Retrospective meta-analysis will not be needed to evaluate whether the effect occurs.

The preregistered confirmatory studies for Bem's precognition research demonstrate the expected consistency. Four preregistered, well-powered studies all found no evidence for psi with the planned analyses (Kekecs et al., 2023; Maier et al., 2020; Schlitz et al., 2021).

Inconsistent results for confirmatory studies would indicate that researchers do not have an adequate understanding to make reliable predictions, or that some of the studies had unrecognized biases. Either way, the research remains at the exploratory, speculative stage. If a retrospective meta-analysis is needed to evaluate whether an effect occurs, the research remains exploratory.

Studies that are preregistered as exploratory or are unregistered should be

excluded from the primary evaluation of whether an effect occurs because they are prone to bias and distort the findings, but they may be useful for exploratory analyses. Underpowered preregistered confirmatory studies can contribute to evidence with a prospective meta-analysis (Watt & Kennedy, 2017). The methods for planning and analysing well-powered confirmatory research are described in Kennedy (2024).

This is a fundamentally different strategy and standards of evidence than pre-replication-crisis methodology. The low standards of evidence with pre-replication-crisis methodology allow bias and are unfalsifiable (Kennedy, 2024), and, thus, tend to produce prolonged wasted efforts on unproductive lines of research, endless controversy, and low credibility.

Those who have an established career based on pre-replication crisis research and retrospective meta-analysis probably cannot be expected to welcome a methodological paradigm shift that raises doubts about their previous work. However, those with less vested interests will likely recognize that the emerging findings with preregistered confirmatory studies provide strong evidence that does not bode well for the traditional assumptions in experimental parapsychology about meta-analyses and about the nature of psi.

A couple of Storm's comments about experimenter effects deserve a response. Storm dismisses J. B. Rhine's belief that experimenters have differing abilities to obtain psi effects as one man's assumption in the 1930s. However, Rhine's view was expressed in 1976 after 45 years of conducting, managing, and observing psi experiments. Rhine's prolonged, intensely focused attention to psi experiments and experimenters is probably unmatched to this day. His experience managing a large number of diverse experimenters over the decades (ranging from Chuck Honorton to sceptic Chuck Akers) cannot be dismissed. Storm considers the claims from correlational analyses in meta-analyses as stronger evidence than the observations of Rhine and others and the results of experiments designed to investigate experimenter effects. However, an alternative interpretation is that this case demonstrates the methodological point that post hoc correlational analyses in retrospective meta-analyses can distort evidence to the point of appearing to support claims that are clearly not true.

Also, Storm sidesteps my point about Rosenthal finding evidence for experimenter differences in an early ganzfeld meta-analysis. Storm argues that Rosenthal's comment does not counteract later meta-analyses. However, my point was that the inconsistent conclusions by analysts with different expectations is an example of the post hoc flexibility that is common in retrospective meta-analysis. This is a point about the limitations of the methods, not a claim about the comparative evidence with later meta-analyses.

In his letter, Storm also clarifies that his hypothesis that the Trickster archetype causes researchers to make mistakes is a global factor encompassing all situations in which researcher mistakes occur. This appears to move the

hypothesis outside the possibility of empirical investigation and science. As yet, Storm has not presented any evidence that the Trickster archetype has a role in researcher errors or suggested a way that it could be scientifically investigated.

I'll conclude by reiterating that I think Storm's ideas about the need to revise the assumptions for experimental research are useful, but I think he gets off track with unnecessary and unjustifiable speculations about the Trickster archetype causing researcher mistakes and the evidential value of correlational analyses in retrospective meta-analyses.

jek@jeksite.org

JAMES E. KENNEDY

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NOTICES

Invitation for Proposals **Yew-Kwang Ng (黄有光) Fund For Survival Research**

The Society for Psychical Research (SPR) Yew-Kwang Ng (黄有光) Fund for Survival Research supports scientific research into the fundamental question of whether some aspect of consciousness or personality survives the death of the body. It supports projects that aim to generate new evidence for survival, that collate, analyse, and/or disseminate relevant evidence, that draw on such evidence for theory development, or that generate frameworks for relevant theory building. Of particular interest are projects that stimulate thinking and debate about the kinds of research that could potentially shed light on the survival question. With a focus on the truth (or otherwise) of survival claims, the fund is unlikely to support research into psychological or sociological aspects of belief in survival.

The Survival Research Committee would like to invite proposals for projects that address the priorities of the fund. Typical awards are of the order of £5,000 to £10,000 and are unlikely to exceed £15,000. The annual submission deadline is 1 June, except for applications for less than £1,000, which may be considered at any time. Proposals should be no more than three pages, outlining the project's tasks, cost breakdown, outputs, strategic premise, and relevance to the aims of the fund. The proposer should demonstrate familiarity with relevant methods in survival research and should place the proposed work in the context of prior research. Investigators' CVs and the names of two referees should be included. Proposals should be addressed to the Chairman of the SRC at the Society's address. More details are available at <https://www.spr.ac.uk/research/funding-research>.

Successful applicants are encouraged to publish their findings in the Society's journal (i.e., *JSPR*) and, where possible, make their research data available to the public. Ideally, the SPR's repository Psi Open Data (<https://open-data.spr.ac.uk>) should be used for this purpose. Additionally, the SPR encourages researchers to preregister their study. We recommend using the KPU Study Registry (<https://koestlerunit.wordpress.com/study-registry/>).

Research Grants

The Society for Psychical Research (SPR) possesses a modest research fund, the proceeds of which are available to support research in any generally recognized area of psychical research, except those specifically related to survival. Survival-related applications should be directed to the Yew-Kwang Ng (黃有光) Fund for Survival Research. Applications are considered and grants awarded by the Society's Research Grants Committee (RGC), and applications should be sent to the RGC, c/o the Society's Secretary. Applications will be considered on an annual basis, with the deadline for receipt of proposals being 1 June of each year. Application forms can be obtained from the SPR Secretary or online via the Society's website.

Applications should include a description of the proposed research, including its rationale and hypotheses/anticipated outcomes; a general description of the methodology; costing of the research (i.e., the amount being requested should be itemised against specific costs); a short CV; and the names of two referees. Normally, grants do not exceed £8,000. If the research is being funded by multiple sources, specific information should be provided about the source of other funding, the amount being received and information about what aspects of the proposed research other funding is covering. Details of the research being proposed, its rationale and methodology should ideally not exceed 1,500 words.

Usually, an applicant/co-applicant will only be awarded funding for one research project per annum. It is also a condition of the grants that a report of the completed research is sent to the RGC, c/o the Society's secretary. No further awards will be made to an individual until reports have been received for any previous grants obtained from the RGC.

Successful applicants are encouraged to publish their findings in the Society's journal (i.e., *JSPR*) and, where possible, make their research data available to the public. Ideally, the SPR's repository Psi Open Data (<https://open-data.spr.ac.uk>) should be used for this purpose. Additionally, the SPR encourages researchers to preregister their study. We recommend using the KPU Study Registry (<https://koestlerunit.wordpress.com/study-registry/>).

NOTES FOR AUTHORS

The *Journal of the Society for Psychical Research (JSPR)* provides a peer-reviewed forum for communication and critical debate for the community of scholars and interested parties involved and/or interested in the field of psychic, parapsychological or anomalous effects.

TYPES OF PAPER

The journal publishes empirical research, research notes and short letters to the editor. All submissions need to be in English. Research-based submissions to the *JSPR* for publication need to be *original* (i.e., not published or submitted for publication elsewhere), provide a *significant* contribution to the field, and be underpinned by a highly *rigorous* methodology.

Empirical Research (6,000 to 8,000 max.)

The journal welcomes a range of empirical work including (though not restricted to): experimental research (quantitative and qualitative); field investigations; case collections; theoretical contributions; review articles; historical perspectives.

Research Notes (4,000 to 6,000 words max.)

Research notes refer to short reports of interesting and important issues and/or relate to specific or current research carried out in the field.

Letters to the Editor (1,000 words max.)

The journal welcomes letters to the editor that comment on or otherwise develop ideas introduced by the material published in the journal.

MANUSCRIPT PREPARATION

As noted above the major criteria for the acceptance of a research article will be its originality, significance, and rigour. Detailed guidance on the preparation of empirical research articles, research notes, and letters to the editor can be found on the SPR website at: <https://jspr.spr.ac.uk/index.php/jspr/information/authors>.

SUBMISSION PROCESS

Submissions to *JSPR* ought not have been published elsewhere and must follow standards of expected ethical behaviour (see <https://www.spr.ac.uk/publication-ethics-publication-malpractice-statement>). All submissions need to be in English and submitted online at <https://jspr.spr.ac.uk/index.php/jspr/about/submissions>. Authors need to register with the journal prior to submitting or, if already registered, can simply log in and begin the process.

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