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Psi-entific Approach to Post-Mortem Survival: Employing the Multiple Sources of Psi (MSoP) and Discarnate Psi Hypotheses in the Calculation of a *Drake-S* Equation

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The continued investigations of the paranormal facilitated the development of novel theories and methodologies. Psi functioning of the living and the deceased in survival phenomena suggested the living agent psi (LAP) and discarnate psi hypotheses, but neither has demonstrated sufficient explanatory power to claim superiority in explaining survival data. Mediumship studies cannot determine whether paranormal information is sourced by means of discarnate psi or LAP, presenting the source-of-psi problem. Anomalous information can be obtained from joint sources (LAP, survival, or some other source), which supports the multiple sources of psi (MSoP) hypothesis. The maximized explanatory potential of the MSoP hypothesis makes the inclusion of the LAP and discarnate psi factors in the calculation of a *Drake-S* equation for post-mortem survival required and appropriate. This paper concludes that 1) the aggregate effect of skeptical explanations for survival was calculated at 65.6%, leaving 35.4% to paranormal explanations, which contradicts skeptical claims and is inconsistent with the existing laws of conventional science; 2) 16% of paranormal experiences reported among the general population appeared genuine; and 3) the calculated purified probability for all paranormal phenomena equaling 40% can be attributed to paranormal causes. This suggests reasonable plausibility of the survival hypothesis. To refine the existing factors and find new empirical factors related to known confounds and anomalous effects, future research should include more robust procedures and methods of data selection, gathering, and analysis.

Keywords: *Survival hypothesis, Living agent psi hypothesis (LAP), Discarnate psi hypothesis, Multiple sources of psi hypothesis (MSoP), Source-of-psi problem, Drake-S Equation.*

The advancements in paranormal research have facilitated development of new theories and innovative approaches—important cornerstones of scientific inquiry. For over 140 years, the research produced ample meticulously collected and systematically analyzed data related to a variety of paranormal phenomena, including post-mortem survival. The development of theories related to survival resulted in the *survival hypothesis*, which attempts to explain a discarnate individual's purported mental and behavioral manifestations, characteristic of their anti-mortem personality. It also presumes discarnate interactionism, instances of a discarnate's causal interactivity with living persons and the physical world. To explicate a discarnate's

ability to demonstrate potent psychic functioning in some paranormal form necessitates the *discarnate psi hypothesis* (Sudduth, 2009).

Three types of explanations for survival phenomena are most common. The first type includes ordinary causes; the second, explanations based on the notion that some core memories or aspects of personality survive death; and the third rests on the premise that communications in some paranormal phenomena involve psi functioning of the living, fostering the proposal of the *living agent psi (LAP) hypothesis*. With its advancement, the last has undermined the plausibility of the survival hypothesis and contested it as best explanation for post-mortem survival. Although the LAP hypothesis

seems to be more parsimonious and might provide a better explanation for post-mortem survival than the survival hypothesis, its present formulation features some serious explanatory limitations (Berger & Berger, 1991d; Stokes, 1997; cf. Ducasse, 1969; Griffin, 1997; E. F. Kelly, 2007). Since neither hypothesis demonstrated sufficient explanatory power, a more comprehensive and parsimonious hypothesis was needed to account for a broader range of paranormal phenomena. The strengths and weaknesses of each hypothesis fostered different theories for the explanation of survival evidence, leading to seemingly never-ending survival vs. LAP debates. (e.g., Griffin, 1997; E. F. Kelly, 2007; Sudduth, 2016).

Recent mediumship research cannot determine whether paranormal information is sourced by means of discarnate psi or LAP (e.g., Beischel & Rock, 2009; Krippner et al., 2013; Rock, 2014; Rock et al., 2009). This theoretical and empirical difficulty in identifying the source of anomalous information reception (AIR) has been named the *source-of-psi (SoP) problem* (Rock & Storm, 2015). At this time, experimental studies can only confirm the ability of mediums to engage in AIR and convey veridical information. The researchers, however, were unable to offer any solution to the SoP problem, which remains empirically unresolved. At the same time, studies found that mediums can acquire anomalous information from combined data sources, each associated with survival, LAP, and possibly some other source, which provided a reasonable theoretical foundation for the *multiple sources of psi (MSoP) hypothesis*, which postulates integration and co-functioning of all existing sources of psi (Merlin, 2020a, 2020b).

Latest empirically oriented survival research pioneered new approaches to systematically evaluate the probability of such contentious phenomena as post-mortem survival, adopting novel procedures and methods of the source data discovery, collection, and analysis. In this context, Laythe and Houran (2022) introduced, and Rock et al. (2023) adopted and expanded, the original analytical method for using a simplified Drake equation as an empirical research tool (to distinguish the original Drake equation from the version used to calculate survival

phenomena, the designation *Drake-S* is used for the latter). Besides significant merits, both studies displayed some principal conceptual problems, as well as computation flaws directly affecting the calculation results of the *Drake-S* equation. The first study did not account for the presence and impact of psi functioning on survival phenomena, and the second failed to include discarnate psi factor, which directly affected the estimate of the effect size of LAP.

This paper addresses the abovementioned shortcomings of the previous studies and calculates a modified *Drake-S* equation (MD-SE) using updated sets of variables. Specifically, it includes the revised estimate of LAP ($ELAP_R$) as a known confound along with the correct probability measure for the General Paranormal Experience (P_G) and the newly calculated probability measure for the discarnate psi functioning (P_{DP}) as anomalous effects. The paper outlines important assumptions and limitations, critical for the correct interpretation of its findings and proper understanding of the computation results.

Besides the calculations of MD-SE, this paper also provides a solid theoretical background allowing for better understanding a variety of questions related to paranormal phenomena in general, and post-mortem survival in particular. It explains why the MSoP hypothesis is relevant for the inclusion of LAP and discarnate psi variables in the MD-SE and why the paper conclusions are meaningful for future survival research, suggesting conceptual and methodological improvements for future studies.

Survival and Psi—A synopsis

The history of curiosity, fascination, and controversy about paranormal phenomena goes back millennia. Historical accounts of the systematic inquiry into the paranormal are rooted in the spiritual and sacred as well as secular and social experiences of people with observable and invisible expressions of the relationship between them and the world. The *paranormal* “cannot be understood in the context of conventional scientific standards, on the assumption that no scientific rule, or law, or sufficiently proven theory, exists to explain [its]

nature" (Rock et al., 2013, p. 401). Applied in a broader sense, the word paranormal is often used interchangeably with *psychic*, *psi-related*, and even *miraculous*, albeit without a religious connotation (Zingrone, 2010). *Psi*, as a general comprehensive concept, identifies "ostensible paranormal processes and purported paranormal causation . . . that in principle are physically impossible and outside the realm of human or animal capabilities as presently conceived by conventional scientists" (p. 217; cf. Berger & Berger, 1991a; Bem & Honorton, 1994; Thalbourne, 2003). *Psi* is often used interchangeably with *anomalous mental phenomena*. Progress in investigations of the paranormal facilitated the development of novel theories and advanced methodologies that laid the foundation of modern-day scientific inquiry (Zingrone & Alvarado, 2015). *Psi* phenomena have shown their essential role in uncovering people's mental and behavioral abilities that defy explanations currently afforded by the natural sciences, including psychology, biology, neuroscience, or classical physics (E. F. Kelly, 2015a).

Since the end of the 19th century, early psychical research and later parapsychological studies produced an extraordinary amount of methodically gathered and thoroughly analyzed data related to a variety of paranormal phenomena, providing an important empirical basis for all *psi*-related research and a solid foundation for theorizing, including about post-mortem survival. The first comprehensive effort to systematically gather and scientifically examine alleged evidence for post-mortem survival came with the establishing of the British Society for Psychical Research (SPR) in 1882 and its American partner (American Society for Psychical Research; ASPR) in 1884 (Gauld, 1983). Research on post-mortem survival "interested the majority of the members more than any other branch of our [SPR's] enquiries, because of the far-reaching consequences its solution would carry with it" (Sidgwick, 1917, p. 254). The persistence of personality (or some significant aspect of it) after biological death may occasionally resemble a totality of mind, or self, that can carry over some earlier informative knowledge from explicit or long-term memory, create memories of new experiences, or manifest other cognitive and perceptive capacities,

along with the sustained awareness of personified individuality. Survival may also involve the ability to reincarnate (E. F. Kelly, 2015b).

Interest in post-mortem survival gave rise to wide-ranging investigations around the turn of the 20th century (e.g., Balfour, 1917; Hyslop, 1918; James, 1886; Lodge, 1909; Myers, 1903/1920; Sidgwick, 1917) and has not lost relevance today (e.g., Almeder, 1992; Braude, 2003; Broad, 1925/1960; Ducasse, 1961; Edge, 1987; Gauld, 1983; Griffin, 1997; Hart, 1959; Lund, 2009; Murphy 1945a, 1945b, 1945c; Paterson, 1995; Price, 1953; Salter, 1961; Sudduth, 2016; Thouless, 1984). The development of theories about, and evidence for, survival led to the formulation of the *survival hypothesis*, which posits "the unceasing post-mortem existence of a person's ante-mortem nonphysical essence in alleged disembodied form" (Merlin, 2020a, p. 400). Acknowledging the wealth of survival evidence, Braude (2014) asserted that "it's epistemically possible that we have at least *prima facie* evidence for postmortem survival, however mysterious that evidence may be to us, both scientifically and philosophically" (p. 38). The essential problem, however, has been a distinct lack of clarity and consensus about what constitutes acceptable evidence for survival (Gauld, 2005).

Historically, denial of the paranormal in general, and survival in particular, has had a strong and broad support base. Some (e.g., Reber & Alcock, 2020) *a priori* reject anything not physicalist in nature. Some (e.g., Martin & Augustine, 2015) principally rebuff the whole concept of survival, and others (e.g., Geach, 1969, 1987; Flew 1996, 1997; Penelhum, 1971; cf. Braude, 1992a, 2005; Edge, 1987) argue that survival is improbable since personal identity is inherent to, and inseparable from, a person's body. Still others (e.g., Edwards, 1997a, 1997b; Rosenberg, 1998; Stokes, 2002, 2007; cf. Moreira-Almeida, 2012; Paterson, 1995) deny survival on the grounds that consciousness derives from the brain (Gauld, 2005).

Some supporters of the survival hypothesis (survivalists, e.g., Fontana, 2003, 2006, 2010) claim that the evidence for survival is absolutely conclusive. And though some (e.g., Churchland, 1988) persistently refuse to admit the very existence

of ample, high-quality evidence for survival (E. F. Kelly, 2015a), Murphy (1961) believed that “it is the biological and the philosophical difficulty with survival that holds us back, not really the unacceptability of the evidence as such” (p. 213). Through the years, academics (e.g., Ducasse, 1961; Hart, 1959; Hyslop, 1918; Murphy, 1945a, 1945b, 1945c; Myers, 1903/1920; Price 1953; Salter, 1961) conducted systematic examinations of the survival evidence that primarily comes from mediumship, cases of reincarnation type (CORTs), near-death experiences (NDEs) with an out-of-body experience component (OBE; NDEs/OBE), and post-mortem apparitions (Sudduth, 2009). *Mediumship* refers to claimed paranormal communication between a living agent and some discarnate entity via the mind and/or body of a living person (e.g., Braude, 2003; Gauld, 1983, 2005; Sudduth, 2016). *CORTs* refers to the investigations of young children who reported memories of ostensible previous lives (e.g., Stevenson, 1974, 1977c, 1983, 1987, 2000a, 2003; Haraldsson, 2000a, 2000b, 2003; Pasricha, 2006, 2008a, 2008b; Tucker, 2005, 2007, 2013). *Reincarnation* proposes that some significant personality properties of a deceased individual may join another physical body upon surviving bodily death (e.g., Irwin & Watt, 2007; Matlock, 1990, 2019; Slavoutski [Merlin], 2012). *NDEs* refers to incidents reported by people who have demonstrated characteristics of death yet regain consciousness afterwards (e.g., Greyson, 2014; Ring, 2006; Van Lommel, 2010; Holden, 2009). *OBE* refers to a mental state in which consciousness and perception seem to come from a location outside the physical body (e.g., Braude, 2001; Griffin, 1997; Sudduth, 2016). OBEs are frequently reported as part of NDEs.

Three types of explanations for survival phenomena are most common and cover a wide variety of human experiences (Merlin, 2020a). The first type includes ordinary sources, in which information is obtained by natural means, such as cryptomnesia (unconscious recall of covertly existing forgotten memories); intentional or unintentional fraud; human errors (e.g., faulty documenting, misperception, misinterpretation of facts, and illusions, delusions, or conscious fantasies); and manifestations of multiple personalities caused by

the dissociative functioning typical for trance-like states (e.g., Braude, 1995, 2009b; Gauld, 2005, 2007; Hilgard, 2009; Krippner, 1997a, 1997b, 1999; Roxburgh & Roe, 2011; Woody & Sadler, 2012). Explanations of this type constitute what can be called a *naturalistic hypothesis*. Although legitimate questions of significance, value, and adequacy (which have arisen in connection with the naturalistic hypothesis) have always contested the quality of survival evidence, explanations based on this hypothesis cannot account for all thoroughly investigated cases (Gauld, 2005, 2007), and for that reason, will not be discussed further. The second type includes explanations based on the notion that some core memories and/or aspects of personality survive death, laying the ground for the survival hypothesis discussed above (Almeder, 1992, 1996, 1997; Ducasse, 1961; Gauld, 1983, 2007; Lund, 2009; Pasricha, 1996, 2006; Stevenson, 1990, 2000b; Tucker, 2005, 2007, 2013).

Explanations of the third type are based on the premise that communications in mediumship, CORTs, and NDEs/OBE involve psi functioning of the living and the deceased, which fostered the *living agent psi (LAP) hypothesis* (e.g., Braude, 2003, 2009a, 2014; Griffin, 1997; Krippner et al., 2013; Sudduth, 2009, 2014, 2016), earlier called the *super-psi* or *super-ESP hypothesis*, referring to an arguably unlimited acquisition or transfer of information by humans irrespective of its nature, source or target, process initiation and manifestation (mental or physical), or temporality (past, present, or future), involving sensory means unknown to modern science (e.g., May & Marwaha, 2015a; Stokes, 2007). The term LAP will be used throughout this paper.

At the dawn of psychical research, investigators knew of mediums' ability to obtain information psychically (e.g., Crabtree, 2007; Braude, 2003, 2014; Krippner et al., 2013; Sudduth, 2009, 2014, 2016). Granted, a medium has psychic abilities, all verification of information, which traditionally relied on access to documents or on testimony based on the memories of living individuals, could be freely available to the medium telepathically, clairvoyantly, retrocognitively, or even precognitively from the future feedback of the sitters (e.g., Crabtree, 2007; Griffin, 1997; Braude,

2003, 2014; Krippner et al., 2013; Sudduth, 2009, 2014, 2016; cf. E. F. Kelly, 2007). *Telepathy* refers to paranormal acquisition of information about another person's mental constructs (memories, and products of imagination), as well as their feelings and behaviors (Broughton, 1992; May, & Marwaha, 2014, 2015b; Thalbourne, 2003; Zingrone, 2010). *Clairvoyance* refers to paranormal acquisition of information about the current existence of a distant object, place, or physical event outside the range of normal vision direct from an external physical source (as opposed to telepathic information from another individual; Broughton, 1992; Melton, 2001a; May, & Marwaha, 2014, 2015b; Thalbourne, 2003; Zingrone, 2010). *Precognition* refers to the acquisition of information representing some random future event, knowledge of which cannot be drawn from inference or reasoning, based on presently available information (Berger & Berger, 1991b; May, & Marwaha, 2014, 2015b; Thalbourne, 2003; Zingrone, 2010). *Retrocognition* refers to the acquisition of non-inferential knowledge of some random or specific past event by paranormal cognitive means (Berger & Berger, 1991c; Cardeña et al., 2015; Melton, 2001b).

A non-survivalist explanation of mediumistic communications represented a legitimate and serious challenge to the survival hypothesis. According to the LAP hypothesis, these communications include a "*Super-ESP Component*"—mediums' sufficient LAP capacity to access and retrieve any information related to the deceased, and a "*Superplasticity Component*"—their unconscious ability to embody and dramatize this paranormal information allowing them to portray effectively and realistically the deceased personality (Crabtree, 2007, p. 360, italics in original). Braude's (1989, 1992a, 2003) "most empirically informed and philosophically sophisticated" investigations into the question of survival allowed him to advance a robust LAP hypothesis (Sudduth, 2016, p. 271). (The LAP hypothesis can be robust if its explanatory power includes some psychological expounding component; Sudduth, 2016; cf. Ducasse, 1961; Hart, 1959; Lund, 2009; Stevenson, 1974). Similar to the concept proposed by Crabtree (2007), the

robust LAP hypothesis accounts for more evidence, including impersonations with demonstrable skills.

The LAP hypothesis suggests that the evidence for survival can be sufficiently explained exclusively "in terms of psychological and paranormal resources of living agents" (Sudduth, 2009, p. 167). Based on that premise, LAP can account for psychic functioning between discarnates and living agents when information is acquired from, and conveyed by, the living. Communication of information by a discarnate to the living represents *survival* or *discarnate psi* (Krippner et al., 2013; Sudduth, 2009, 2014, 2016). These information exchanges are allegedly present in mental mediumship, psychic readings, and some stronger CRTs (e.g., Braude, 2003; Gault, 1983, 2005; Sudduth, 2009, 2016).

LAP may also be responsible for *psychokinesis* (PK), the mind's ability to affect animate and inanimate physical systems without intervention from any recognized physical forces or energy forms (Braude, 2002; 2015; May & Marwaha, 2014, 2015b; Varvoglis & Bancel, 2015). PK purportedly manifests in *physical mediumship* (paranormally facilitated actions, such as raps, table tilting, object movements, and "materializations" with the direct involvement of the medium; e.g., Beischel & Zingrone, 2015; Gault, 1977; Kelly & Arcangel, 2011; May & Marwaha, 2015a) and *poltergeists* (recurrent spontaneous psychokinesis; movement of objects, noise, fires, water inundations, and other physical effects of unknown causal agency; e.g., Gault & Cornell, 1979; Maher, 2015; Roll, 1977, 2003, 2014). Depending on whether a person's brain in NDEs/OBE can sustain conscious experience, the anomalous acquisition of information in these instances may also involve LAP (e.g., Braude, 2003; Gault, 2005; Hasker & Taliaferro, 2019). All paranormal explanations, however, involve persistent philosophical, empirical, and scientific problems with a) the time dynamics of personality and whether personality can sustain its essence after death; b) the tangibility, magnitude, and mechanisms behind LAP and discarnate psi, as well as the relationship between memory and normal brain functioning; and c) paranormal phenomena having been essentially consistent with basic scientific models and principles (Gault, 2005).

The advantages and shortcomings of the survival and LAP hypotheses caused a dichotomy in approaches to explain survival evidence and, consequently, a long-standing rivalry between them, leading to unending survival vs. LAP debates (e.g., Griffin, 1997). Survivalists claim their hypothesis “explain[s] observational data in a way that is superior to some range of explanatory competitors” (Sudduth, 2014, p. 42) and argue that the existing accurate, empirically verifiable information cannot be obtained by normal or psi-based means (e.g., Gault, 2005, 2007; Almeder, 1992, 1996, 1997; E. F. Kelly, 2007; Lund, 2009). Attempting to provide the most solid backing for the survival hypothesis, Lund (2009; cf. Dodds, 1934; Murphy, 1945a, 1945b) advanced a multiple-case argument, claiming that evidence from different areas of survival research has “a cumulative evidential weight sufficient to conclude that the survival hypothesis is probably true” (p. 217). This proposal, of course, can only be viable if individual findings by themselves are reasonably robust. Based on his reasoning, Lund claimed superiority of the survival hypothesis for its alleged explanatory advantages and the seeming shortcomings of the LAP hypothesis.

Sudduth (2013) contested this claim for two reasons. First, the data the survival hypothesis aims to explain are no less implausible than those the LAP hypothesis can satisfactorily explain. He dismissed Lund’s (and other survivalists’) criticisms of the LAP hypothesis as “significantly defective” (p. 283). And second, the survival hypothesis is not “an antecedently credible hypothesis that leads us to expect observational data that are otherwise improbable (relative to our background knowledge)” (p. 42) and, therefore, does not represent the best explanation for the evidence of survival. After critical examination of the reasoning known as “empirical arguments for survival” (Broad, 1925/1960, p. 514), which attempt to substantiate the survival hypothesis based on properties of the empirical world, Sudduth (2016; cf. Hart, 1959; Tyrrell, 1961) determined that these arguments lacked good evidence for survival.

It has been established and widely accepted that it is impossible to deny the possibility of LAP. It appears no less probable to resolve the disagreement between the rival hypotheses: the available evidence

can principally support either. Importantly, both hypotheses have notable shortcomings. For example, despite decades of research, the survival hypothesis cannot reasonably explain what exactly survives bodily death, nor describe its basic features (Grosso, 1979). The LAP hypothesis, on the other hand, “postulates an omniscient and omnipotent capacity that cannot be falsified by the scientific method” (Alvarado & Martinez-Taboas, 1983, p. 58) nor be empirically tested. Furthermore, given that the LAP hypothesis is plausible, allowing psi functioning with no distinguishable limitations, it is obviously unfeasible to design a realistic experimental protocol that excludes all non-survival explanations of mediumistic communications (Krippner et al., 2013).

Survivalists, questioning the ability of the LAP hypothesis to account for mediumship data, emphasized the absence of empirical evidence for psi having power, scope and sophistication beyond that demonstrated in experimental settings (e.g., Alvarado & Martinez-Taboas, 1983; Braude, 1989, 1997, 2003; Gault, 1983, 2005, 2007; E. F. Kelly, 2007). Some (e.g., Almeder, 1992; Lund, 2009) insisted that without that evidence, LAP does not qualify as an alternative to the survival hypothesis. The survival hypothesis, on the other hand, can accommodate the complexity and quantity of veridical information, resulting from multiple distributed sources, by suggesting the deceased as the sole source of a broad spectrum of such information. Granted, the explanatory power of the survival hypothesis, at least in part, is based on the plausibility of mediumship data, the explanatory simplicity of the multiple-sources scenario gives the survival hypothesis an advantage over the LAP hypothesis (Sudduth, 2014).

At the same time, the multiple-source problem gives no more reason “to deny the explanatory merits of the LAP hypothesis than it is to deny the explanatory merits of the survival hypothesis” (Sudduth, 2014, p. 60). Further, Sudduth argued that auxiliary assumptions allowing for sufficient predictive power of the survival hypothesis are unjustified and unverifiable. Also, the potency and refinement of LAP potentially surpasses those exhibited in cases outside of

survival (Braude, 2003; Sudduth, 2009). Therefore, Sudduth (2014) asserted that survivalists do not have reasonable grounds for any demands towards the LAP hypothesis, regardless of the ubiquity of their claims. Furthermore, since the limits of psi are unknown, it is impossible to assert that LAP of the required potency does not exist (Braude, 2001, 2003; Gauld, 1983). According to Lund (2009), “an appeal to it [LAP] is always available as the basis of an alternative explanation of phenomena that would otherwise provide convincing evidence of survival” (p. 212). Gauld (1983) also stated that for survivalists, “this is the central dilemma in the interpretation of ostensible evidence for survival” (p. 15). Besides the main challenge the LAP hypothesis has posed to survivalists, their argument that mediumship strongly evidenced survival has become even more problematic, as some mediums have demonstrated exceptional psychic abilities beyond séance settings, including telepathy and clairvoyance. (e.g., Barrington et al., 2005; Crabtree, 2007; Gauld, 1983; Stevenson, 1977b).

Braude’s (2003) in-depth analyses of the arguments comparing the survival and LAP hypotheses produced a minimally warranted, but moderately supported conclusion that the aggregate strength of the survival evidence affords rational grounds for belief in post-mortem survival. In his view, the best cases of mediumship involving quantitatively and qualitatively rich material along with CORTs containing “early-bird” testimonies and impersonations with distinct characteristics of a previous personality provide the most solid evidence. The survival hypothesis, although maybe not robust, is supported by experimental studies of at least some paranormal phenomena (e.g., Beischel & Zingrone, 2015; Irwin & Watt, 2007; Leary & Butler, 2015; Maher, 2015; Zingrone et al., 2015). Ascertaining that some evidential data might better support the survival hypothesis, Braude (2003) was still convinced that the robust LAP hypothesis possesses considerable merit.

A Source-of-Psi Problem—

A Ubiquitous Challenge for Paranormal Studies

Through decades, investigations of mediumistic communication, involving the medium, ostensible discarnate, and the living agent, termed by

Beischel and Schwartz (2007) anomalous information reception, have produced large body of empirical evidence. While recent studies (e.g., Beischel et al., 2015; Beischel et al., 2017; Beischel et al., 2019; Rock et al., 2014; Rock & Storm, 2015), as well as earlier ones (e.g., Beischel & Schwartz, 2007; Robertson & Roy, 2001, 2004; Roy & Robertson, 2001; Schwartz & Russek, 2001; Schwartz et al., 2003) have been concerned with the accuracy and veridicality of the data, investigations of the underlying mechanisms of AIR have almost been nonexistent (Rock & Storm, 2015). A serious challenge for mediumship researchers is the impossibility to differentiate between the sources of AIR, whether it be survival, LAP, or some other source. This theoretical and practical issue identifying the source of AIR has been recognized as the source-of-psi (SoP) problem (Rock & Storm, 2015).

Because several proof-focused studies on mediumship were unsuccessful in offering a solution for the SoP problem (e.g., Beischel et al., 2015; Rock & Beischel, 2008; Rock et al., 2014), it was suggested that process-focused studies might be more effective regarding the phenomenology of experiences during mediumistic communications and psychic readings (Rock et al., 2009; cf. Beischel & Rock, 2009; Rock & Beischel, 2008). However, regardless of the investigative approach, it is impossible to experimentally identify the SoP (e.g., Beischel, 2012; Beischel et al., 2017; Beischel et al., 2013; Rock et al., 2009). Currently, the SoP problem, remains empirically unresolved (Beischel & Zingrone, 2015).

Since neither the survival nor LAP hypothesis has demonstrated sufficient explanatory power for post-mortem survival, a more comprehensive and parsimonious hypothesis is required (Merlin, 2020a, 2020b). Psi functioning depends on different areas of application and practical forms of psychic abilities, found in experimental studies on ESP and PK, mediumship, remote viewing (RV), psychic readings, and CORTs (e.g., Braude, 1992b; Targ & Harary, 1984). Some (Fontana, 2010) insisted that in mediumship, psychic abilities can only demonstrate either LAP operations or discarnate communications, and “there is no way around these two possibilities” (p. 471). However, analysis of process-focused

mediumship studies showed that similarities found between mediums' experiences with discarnate communications and psychic readings for the living can point to similar or parallel sources of paranormal information. On numerous occasions, mediums reported interactions with various immaterial entities, such as spirit guides, angels, or discarnates (Beischel & Rock, 2009; cf. Roxburgh & Roe, 2013). A recent comparative analysis of mediumistic and psychic experiences found that mediums recounted the presence of multiple sources of incoming information (Beischel et al., 2017). Besides living subjects, the experiences also included "guides/angels, non-specific discarnates, Source/universe, self, and dreams" (p. 82). The multiplicity of psi sources inferentially suggested that all psi-based operations are inextricably connected to the same causal phenomenon (Beischel et al., 2017; cf. Jamieson & Rock, 2014; Storm, 2006). Therefore, the engagement and manifestation of discarnate psi, LAP, or other source may be "quantitatively and qualitatively indistinguishable" (Rock, 2014, p. 12). Such phenomena not denying the plausibility of post-mortem survival, nor contradicting the possibility of discarnate communications, provided a reasonable theoretical foundation for the multiple sources of psi (MSoP) hypothesis, which postulates integration and co-functioning of all existing sources of psi (Merlin, 2020a, 2020b). The MSoP hypothesis capitalizes on the advantages and strengths of each hypothesis, gaining cumulative explanatory power by combining explanatory virtues, such as "simplicity, consilience, conservatism, and coherence" (Sudduth, 2014, p. 42). It is reasonable to expect that MSoP takes on a broader significance beyond mediumship and psychic readings in application to other paranormal phenomena, such as CRTs, NDEs/OBE, RV, recurrent spontaneous PK, and apparitional experiences (Merlin, 2020a, 2020b).

The Drake-S Equation and Post-mortem Survival—Trying to Put the Controversy on Scientific Footing

Recent attempts to address the question of post-mortem survival by employing novel means of empirical research include what, Laythe and Houran (2022) called the "first approximation of a *Drake-Survival (S) Equation*" (p. 131, italics in original).

Their formula and corresponding approach to the question of post-mortem survival are based on the equation introduced by American astrophysicist and astrobiologist Frank Drake. The original equation aimed to provide guidelines and serve as a helpful tool for probabilistic estimation of the number of extraterrestrial civilizations in the Milky Way galaxy that were active and capable of radio communications (e.g., Burchell, 2006; Dick, 2020; Drake, 1961, 1965, 2013; Drake & Sagan, 1973; Golden, 2021; Maccone, 2011, 2012).

In 1960 Drake launched Project Ozma, the first organized effort to detect radio signals that might indicate the existence of extraterrestrial intelligence (Drake, 1961; Golden, 2021). To estimate an utterly unknown number of existing detectable (communication-capable) extraterrestrial civilizations in the Milky Way galaxy, he proposed a formula with a set of parameters reflecting the probabilities of different factors, some of which may have had more precise estimates and some less, if at all (Golden, 2021). The Drake Equation became an important initial step in the development of the Search for ExtraTerrestrial Intelligence (SETI) as a quantitative initiative (e.g., Burchell 2006; Dick, 2015; Drake, 1965; Glade et al., 2012).

Because the equation represents a relatively basic algebraic expression, its straightforward formulation allows for different possible interpretations and variations (e.g., Glade et al., 2012; Golden, 2021; Frank & Sullivan, 2016; Forgan, 2009; Lingam & Loeb, 2019). Parameters in the formula represent six factors relative to astronomy, biology, and engineering, and a seventh factor associated with social evolution. The factors are arranged in descending order based on confidence level, i.e., from a relatively established estimate of the epoch rates of star formation to the totally undetermined factor related to the lifespan of communication-capable extraterrestrial civilizations (Burchell, 2006; Golden, 2021).

Dick (2015) noted that in determining and assigning values to the parameters, it is critical to delineate underlying assumptions: the formula remains valid if the usage of each term is explicitly specified. However, no matter how thoroughly these terms are specified, concealed assumptions

may still exist. While most of the parameters even to this day remain largely undetermined, with time, their potential to obtain refined estimates could be fulfilled. So far, as Dick believes, the epistemic value of the equation is its heuristics (i.e., availability, representativeness, and anchoring and adjustment; van der Pligt, 2015). Therefore, it should not be treated as a scientific principle or fundamental truth. Since its introduction, the equation has demonstrated continuous usefulness, inspiring new ideas, as well as criticisms (e.g., Frank & Sullivan, 2016; Glade et al., 2012; Golden, 2021; Lingam & Loeb, 2019; Maccone, 2011, 2012; Seager, 2018; Seager & Bains, 2015).

The Drake equation has a variety of acknowledged shortcomings (Dick, 2015), including the omission of a time-based framework accounting for different evolutionary processes and the time-independence of its terms (e.g., Cirkovic, 2004; Maccone, 2012); complications caused by changing one or more parameters values; and lack of any error estimates related to measured quantity (e.g., Drake & Sobel, 1991; Glade et al., 2012), among others. Numerous estimates of the factors in the equation have been addressed and discussed, but no consensus exists about the values of these factors, adding to the equation's controversy (Golden, 2021). Surely, certain criticisms are legitimate, but Dick (2015) believes (to paraphrase Mark Twain) that the reports of its death are greatly exaggerated. The chance that in the near future SETI will experience a new beginning and become an essential component of astrobiology is real, and when this happens, the Drake Equation will regain its relevance (Dick, 2015).

An Empirical Quest for Reaching to the Stars in the Post-mortem Universe

Laythe and Houran's (2022) recent project to scrutinize the survival hypothesis by creating "a conservative probability model" (p. 131) based solely on data from experimental studies along with the attempt of controlling for complex factors, such as evident conceptual biases, experimental flaws, design limitations, and experimenter effects, has been challenging but creditable. The goal of the study was to employ a quantifiable approach to assess whether "the maximum average percentage effect that seemingly supports (i.e., *anomalous effects*)

or refutes (i.e., *known confounds*)" the survival hypothesis (p. 130, italics in original). Hypothetically accepting that post-mortem survival is reality, however fuzzy or obscure, its understanding largely relies on maximally accurate and comprehensive interpretation of existing evidence, minimization of known or anticipated errors, and treatment of the findings only as reasonable approximations. Laythe and Houran believe that in survival studies "scientific conclusions deal with probabilities and not possibilities" (p. 131). On this basis, they argued that by employing a probabilistic approach and using the *Drake-S* equation to calculate a net probability for the presumed manifestation of some phenomenon or ostensible experience, it would be easier to meet theoretical and experimental challenges frequent in controversial areas of science and improve the overall quality of research, more specifically, to

(a) structure and contextualize the study of many issues in edge science, given that proposed explanations are limited by their effects sizes and probabilistic strength,

(b) better understand the role of perceptual and cognitive processes within meaning-making of anomalous experiences, and

(c) identify and prioritize areas of investigation with perhaps the strongest evidential value for provocative hypotheses. (p. 149)

Laythe and Houran's (2022) study, based on mathematical analysis, once again demonstrated the complexity and ambiguity of the issues surrounding survival phenomena. The findings affirmed that known confounds could not satisfactorily explain nearly 39% of the full scope of such phenomena, which strongly supports the reality of post-mortem continuity of some significant aspect of human consciousness or personality. They concluded that existing common reasons for refuting the survival hypothesis are partially implausible, and that the explanations usually put forward by its critics and skeptics proved deficient in accounting for a considerable share of ostensible evidence for post-mortem survival.

Laythe and Houran (2022) comprehensively covered obvious and potential issues affecting the

outcome of the calculations using the *Drake-S* equation, reinforcing the integrity and validity of their approach by making appropriate assumptions and imposing important limitations. However, while assuming that the *Drake-S* equation can be reliably used to assess the probability of post-mortem survival, the question remains whether all phenomenal factors pertinent to post-mortem survival, which should be included as variables in the *Drake-S* equation, have been considered. One obvious pitfall in Laythe and Houran's approach has been uncovered and addressed by Rock et al. (2023)—the presence and impact of psi functioning on survival phenomena in general, and on mediumship in particular. The proper form in which the psi factor should be used in the equation presents a separate question, discussed below.

Continuing Mission to Explore New World of LAP (Boldly Going Where no One Has Gone Before)

The idea to account for psi as an influential agent in computing the probability of post-mortem survival and including it as an important and legitimate variable in *Drake-S* equation has been systematically explored and tested by Rock et al. (2023). The goal of their study was to recompute the original *Drake-S* equation (Laythe & Houran, 2022), introducing LAP as a known confound. Since the limits of any form of psi have not been determined experimentally, and even LAP confines remain speculative (e.g., Sudduth, 2014, cf. Braude 2003), the assessment of psi tentative boundaries, required for using LAP for the purpose of the study, is admittedly challenging. To address this issue, Rock et al. (2023) proposed to estimate an aggregated effect size for LAP using two parameters based on the analogy with electrical phenomena: "lightning flashes" and "weak static effects" as characteristics of paranormal phenomena (Tart, 1976/2001, pp. vii–viii).

For their study, Rock et al. (2023) used sources of information that can provide maximum top-quality data according to existing standards of acceptable scientific evidence. The meta-analytic studies used to provide evidence were selected based on effect size criteria by means of systematic analysis of pertinent and qualified publications.

While the methods and outcomes of such studies have been criticized by some (e.g., Bartolucci & Hillegass, 2010; Eysenck, 1995; Gurevitch et al., 2018; Ioannidis, 2016; Rosenthal & DiMatteo, 2001), Rock et al. (2023) argued that their results are "the only foundational material to compute a data-driven upper (or exclusion) limit for LAP" (p. 11). The evidential data from these studies were grouped according to Tart's (1976/2001) analogy described above and represented, respectively, the scope of psi functioning 1) reported in powerful spontaneous cases plus the one demonstrated in experimental studies involving exceptional subjects; and 2) exhibited during laboratory trials with ordinary (non-exceptional) individuals.

To include the psi effect in the recalculation of *Drake-S* equation, Rock et al. (2023) suggested adding a LAP variable "ELAP" (the percentage of the variance of paranormal experiences hypothetically attributable to LAP) to the sum error term (" $\sum E_N$ " in formula 1.2, p. 15) on consideration that "psi in this context serves as a *prima facie* confound to the idea of survival evidence" (p. 15). Based on this assertion, they expanded $\sum E_N$ with the inclusion of ELAP, adding it to other known confounds in the original Laythe and Houran (2022) formula, where the "grand aggregate of the alternative explanations" equaled to 61.4% (p. 146). The ELAP value was estimated by Rock et al. (2023) at approximately 8.3%. The newly calculated adjusted variance that comprised all original known confounds and ELAP totaled 69.7%, leaving 30.3% of survival-related evidential data free from the influence of all considered confounding factors. Therefore, alternative explanations for approximately one-third of all instances of purported survival-related phenomena proved insufficient. Although Rock et al.'s (2023) adjustment to the original calculation of probability for post-mortem survival provided by Laythe and Houran (2022) decreased the percentage effect of paranormal explanations of post-mortem survival, the revised measure (30.3%) did not principally affect Laythe and Houran's findings, which indicated that alternative explanations are inadequate to expound a relatively large share of the ostensible evidence for survival.

Rock et al. (2023) acknowledged that future research may introduce new, or suggest modifications of the existing, variables in the current version of the *Drake-S* equation, leading to changes in its structure, expanding areas of its application, and yielding more accurate and reliable calculation results. At present, though, they believe that their study produced important results, which demonstrated existing constraints in assessment and calculation of known confounds and anomalous experiences, characteristic of the current version of the *Drake-S* equation. Rock et al. (2023) emphasized that they adhered to an unbiased position regarding controversial topics, such as the LAP and survival hypotheses. They admitted that their calculations do not support claims of phenomenological reality of post-mortem survival, but rather point to the need for a pragmatic approach to empirical evaluation of rival explanations for post-mortem survival based on fairness and objectivity. Furthermore, Rock et al. (2023) stated that their study did not aim to critically evaluate the survival hypothesis. Instead, by expanding the existing inquiry and introducing a novel construct, it was intended to provide a comprehensive framework for further scientific investigations into post-mortem survival.

It is important to note, though, that the study has some serious conceptual problems. Rock et al. (2023) stated that psi, with no distinction of its forms and manifestations, operating as an agent in the paranormal experiences under consideration, "*prima facie*" represents a "confound to the idea of survival evidence" (p. 15). This assertion is deemed incorrect and unwarranted for the reasons explained in detail in this paper. Although the overall idea to qualify LAP as an error term is valid, discounting discarnate psi as a legitimate and influential factor of psi functioning in general is an obvious conceptual oversight. This brings up the first problem, which is related to the calculation of the effect size of LAP. Krippner et al. (2013) stated that to this day (and to this author's knowledge, no new developments in the field have challenged this view), no findings in any studies on survival ascertain whether paranormal information is sourced by means of survival (discarnate) psi or LAP. Moreover, discarnate psi has the capacity and refinement of

functioning, which is no different from what LAP needs, to account for the same data (Braude, 2003, 2009a; Sudduth, 2009, 2014, 2016). Therefore, the effect size of LAP influence calculated by Rock et al. (2023) based on the source data from studies on free response and forced-choice clairvoyance along with studies on mental mediumship should pertain to both measures—LAP as a known confound and discarnate psi as an anomalous effect—with equal probability for each.

A second issue is related to two working assumptions Rock et al. (2023) made about the "source of psi" problem," (p. 12). To begin, they referred readers to three sources: Braude (2014), Sudduth (2016), and Lebel et al. (Appendix; 2022) for discussion on the topic. To their surprise, however, readers will not find any reference to the actual source-of-psi problem in the first two. Furthermore, regarding their first assumption,

- 1) It is not clear how the supposition that "death-related AEs from Laythe and Houran's (2022) original *Drake-S* Equation often involve seemingly veridical contents or expressions of an independent personality" (p. 12) is relevant to Rock et al.'s (2023) study;
- 2) If it is accepted that the above AEs can only "often involve seemingly veridical contents or expressions of an independent personality" (Rock et al., 2023, p. 12, emphasis supplied), how can "often" be assessed and the resulting number considered satisfactory to qualify as valid to make the assumption sensible? and
- 3) It is questionable whether the assumption that "death-related AEs from Laythe and Houran's (2022) original *Drake-S* Equation" does necessarily lead to "discarnate consciousness" (p. 12). Besides, it is not clear what exactly Rock et al. (2023) meant by *discarnate consciousness* since this term had neither been defined nor described anywhere in the study.

Rock et al.'s (2023) second assumption states that "the limited capacity interpretation of LAP . . . avoids postulating . . . the existence of entities that are ontologically distinct from embodied minds (i.e., discarnates)" (p. 12). However, since the source data, besides studies on free response and forced-

choice clairvoyance includes studies on mental mediumship, it is not clear why and how LAP functioning (of whatever capacity) allows Rock et al. (2023) to “avoid postulating” (p. 12) or, in other words, to exclude the existence of discarnates. And finally and most important, there is a principal question of how these assumptions are relevant to the source-of-psi problem as it is stated, described, and addressed in the literature. Unfortunately, there is no clear answer to that. It seems Rock et al. (2023) did not quite understand the essence of the source-of-psi problem and just misused the term. Before proceeding with the discussion about the proposed use of the psi factor in *Drake-S* equation for post-mortem survival, it is necessary to consider the following key assumptions made by Laythe and Horan (2022) and Rock et al. (2023) accordingly.

Assumptions Related to Laythe and Horan’s (2022) Original Approach

Although a substantial effort was made to ensure the completeness and representativeness of the data, the task to collect the “most rigorous and comprehensive” (Laythe & Horan, 2022, p. 133) information from all appropriate sources was not feasible. The authors adopted a data collection approach of examining reviews of empirical studies by conducting keyword searches related to the topics of interest in a few suitable online databases, and then performed visual inspection of the search results. With that said, the first assumption is that *the source data used for Laythe and Horan’s study are reasonably accurate and sufficient.*

Real-life covariation of the error term factors may be not as significant as accepted in the study model, which disregards this discrepancy and presumes that the covariation estimate is “fixed and independent” (Laythe & Horan, 2022, p. 146). Also, the model assumes that the covariation of each error term factor is not correlated to the other error terms, which in reality is highly probable. Therefore, the presumption that each covariance for every error estimate is “independent and additive” (p. 146) makes the estimates of the study model exceedingly conservative. Furthermore, when calculating estimated effects of known confounds for the “Susceptibility to Perceptual or Cognitive Aberrations and Errors” (p. 143) category, Laythe

and Horan admitted that they did not adhere to some statistical rules and intentionally accepted flawed assumptions regarding correlations between some of the variables. Thus, the second assumption is that *likely discrepancies in calculations of error estimates based on some key assumptions of Laythe and Horan are acceptable.*

Because of time and effort constraints of data collection and, therefore, some limitations of the sourcing methods and procedures, Laythe and Horan (2022) elected to create a “first approximation” (p. 131) of the original Drake equation (e.g., Drake, 1965, 2013). Also, since for the same reasons as above, the current model lacks the extensive research and comprehensive analyses required for calculations of accurate covariation estimates, it cannot account for covariation factors. The improved computation approach could noticeably affect the estimates of error factors. Therefore, the third assumption is that *the adaptation and interpretation of the Drake-S equation for post-mortem survival is acceptable.*

Due to concerns about applicability of Drake equation to the post-mortem survival in general, this author assented to use the equation in this paper with some reservations. Also, because this author does not consider himself qualified to assess the suitability of the Drake equation in probability calculations for post-mortem survival, he relies on the informed judgement of the earlier researchers (Laythe & Horan, 2022; Rock et al., 2023) about the subject. With that said the fourth assumption is that *the adoption of the original Drake equation for the question of post-mortem survival is appropriate and warranted.*

Assumptions Related to Rock, Houran, Tressoldi, and Laythe’s (2023) Approach

To ensure that the source data meet “moderate-to-high levels of quality” standards, Rock et al. (2023, p. 11) thoroughly reviewed, evaluated, and sorted a large volume of research literature to determine its relevance to the study objectives. Specifically, they focused on peer-reviewed meta-analytical studies on psi effects among the general population and research involving exceptional subjects. They admitted, though, that despite their methodical approach to data collection and analysis,

they may have missed some essential information, which could have an impact on the outcome of the study. Moreover, they did not evaluate the quality of evidential data, nor subject the external validity of any of the error factors to more rigorous scrutiny. Despite some disadvantages and limitations of the studies they sourced, particularly due to the paranormal nature of their research objectives, Rock et al. (2023) argued that these studies were the only source of essential data required for the calculation of the upper (or exclusion) limit for LAP. With that said, the fifth assumption is that *the data used for calculation of the upper limit for LAP is of sufficient quality.*

Rock et al. (2023) assumed that psi in the experimental studies selected to provide evidential data was in some way restricted to the limited capabilities of living people. In other words, the source data they used support the assumption that psi functioning represents LAP with limited power. With that said, the sixth assumption is that *the LAP capacity is presumed correctly, and the source data corroborate this capacity.*

The key methodological structure of the study is based on the introduction of two distinct measures of psi, first, derived from “dramatic spontaneous cases and research with exceptional subjects,” and second, “weak static effects represent[ing] laboratory experiments of psi with ‘normal’ (i.e., non-exceptional) individuals” (Rock et al., 2023, p. 11). Although the concept of these measures is based on Tart’s (1976/2001) analogical classification of psi phenomena, the questions remain: a) whether the underlying analogy is relevant to the calculation of an aggregated effect size for LAP and b) whether the selection of these two categories of psi phenomena is appropriate. Therefore, the seventh assumption is that *the approach based on the use of two adopted measures of psi for the calculation of an aggregated effect size for LAP is correct and warranted.*

Rock et al. (2023) divulged that, similar to Laythe and Horan’s (2022) approach (see second assumption above), they deliberately refrained from taking covariation between error factors into account, making a final probability estimate skewed to skepticism. Although to account appropriately for covariation between all known confounds variables may be a complex task, excluding covariation

factors will most likely lead to inaccurate results in the calculations of the *Drake-S* equation. With that said, the eighth assumption is that *despite the acknowledged importance of accounting for covariations between the error factors, not including these covariations in the calculation is acceptable.*

Assumption Related to This Paper's Approach

No study on survival can establish whether paranormal information is sourced by means of discarnate psi or LAP. Therefore, the effect size of LAP influence calculated by Rock et al. (2023) at 8.3% of the variance of ostensible survival-related phenomena should apply to both LAP and discarnate psi with hypothetically equal probability. Thus, the ninth assumption is that *the revised error factor associated with LAP ($ELAP_R$) and the probability of the anomalous effect related to discarnate psi (P_{DP}) are equal to 0.0415 each.*

No knowledge exists about any of the confounds identified Laythe and Houran (2022), namely: expectancy-suggestion effects, environmental influences, fraud, measurement error, mental illness, and susceptibility factors to be associated with discarnates. Moreover, to the knowledge of this author, no experimental studies have ever conducted any assessment or evaluation of discarnate psi in connection with any paranormal phenomena. Consequently, the values of any effective error factors applied to discarnate psi cannot be calculated and, therefore, considered null for the calculation of the sum error term ($\sum E_N$), i.e., $\sum E_N = 0$. The “purified” (P_p) and “raw” (P_{DP}) probabilities of discarnate psi functioning in this case will be the same. With that said, the tenth assumption is that *the adjustment to the probability of discarnate psi functioning (P_{DP}) to account for any of the error factors does not apply.*

Why the MSOP Hypothesis is Relevant for the Inclusion of LAP and Discarnate Psi Variables in the *Drake-S* Equation

The survival hypothesis aims to explain a discarnate’s ostensible mental processes responsive to the demand conditions in ways representative of the anti-mortem personality. It surmises the occurrence of discarnate interactionism, suggesting that discarnates “causally interact with living persons and the physical world at some

level, communicating with us, acquiring empirical knowledge of happenings in our world, and in some cases bringing about physical effects in our world” (Sudduth, 2009, p. 170). According to discarnate interactionism, discarnates are rational and perceptive entities capable of displaying phenomenal qualities indicative of survival (Sudduth, 2014). Evidential data suggest that discarnates can acquire first-hand factual knowledge about the minds of the living and other deceased entities, as well as about the physical world. The anomalous nature of discarnate interactionism requires the discarnate psi hypothesis, which proposes that “at least some discarnate persons exhibit efficacious psychic functioning in the form of ESP and PK to communicate with the living” (Sudduth, 2009, p. 48; cf. Braude, 2003, 2014; Gauld, 1983; Sudduth, 2014, 2016). Without expanding beyond a pure survivalist explanation and including sources such as discarnate psi, the survival hypothesis cannot comprehensively explain how discarnates obtain any mediumistic information.

The only way the survival hypothesis can address the challenge of discarnate interactionism in the absence of *perspectival awareness*, a corporeal perceptual capacity allowing for the localization or spatial orientation of sensory experience, is by means of clairvoyance. Without physical bodies, discarnates lack perspectival awareness, and, consequently, the ability to gain knowledge of what is happening in the physical world, which “normally can only be observed or experienced from certain points of view in space” (Braude, 2009a, p. 197). It would be reasonable to suggest then, that post-mortem awareness as well as discarnate psi would be products of ESP. Consequently, the survival hypothesis needs to accommodate the operation of discarnate psi in the form of advanced or continuous clairvoyance and telepathy to facilitate information acquisition by the deceased about the physical world. Since the maximized explanatory potential of the MSoP hypothesis incorporates the theoretical platforms of the LAP and survival hypotheses, the inclusion of the LAP and discarnate psi parameters in the calculation of a *Drake-S* equation for post-mortem survival is required and appropriate (see Appendix).

A Short Explanation of the Original *Drake-S* Equation per Laythe and Houran (2022)

In their application of the *Drake-S* equation, Laythe and Houran (2022) proposed to calculate the cumulative effect of all five types of survival-related phenomena (near-death experiences, haunt-poltergeist episodes, mediumship; veridical anomalies, and reincarnation). To do that, they summed the effect sizes of evidential data related to each type and then decreased this aggregate effect in accordance with the assessed influence of known confounds (measurement error, general expectancy effects, environmental effects, fraud, mental illness, susceptibility to perceptual aberrations). Their idea to employ the *Drake-S* equation drew on the notion that any paranormal experience represents an “*interactionist effect*” (p. 145), meaning that any internalized experience is an interactive product of the individual and the environment, influenced by their psychological faculties and behavioral patterns.

Laythe and Houran (2022) adopted a simplified *Drake-S* equation to calculate the “purified” probability of a particular authentic paranormal experience (P_p). For that, they adjusted or “purified” the “raw” probability of such experience (P_r) by subtracting the covariance of the suggested error effects or alternative causes formalized by the following equation:

$$P_p = (P_r * [1 - \sum E_N]) \quad (1.1)$$

Where E_N represents six general categories of alternative explanations for paranormal experience:

- E_M – Measurement Error
- E_E – General Expectancy Effects (Contagion, Memory, Persuasion)
- E_V – Environmental Effects
- E_F – Fraud
- E_{MI} – Mental Illness (Hallucination)
- E_S – Susceptibility to Perceptual Aberrations

Consequently, $\sum E_N$ denotes the covariation represented by these six factors, which particularly disregards covariation between them and considers each factor an independent and summative depreciation of P_r . This allows for a distinctly conservative estimate of error effects. The formula

for the extended sum error term is as follows:

$$\sum E_N = (E_M + E_E + E_V + E_F + E_{MI} + E_S) \quad (1.2)$$

Besides the category “General Paranormal Experience,” the study identified the following five types of paranormal experiences (anomalous effects):

- P_D = Near-Death Experiences
- P_H = Haunt-Poltergeist Episodes
- P_M = Mediumship
- P_A = Veridical Anomalies
- P_N = Reincarnation

These probability measures can be summed after their correction by removing the estimated error term from each of them. To account for all these paranormal experiences, the equation (1.1) can be expanded as follows:

$$P_p = ((P_D * [1 - \sum E_N]) + (P_H * [1 - \sum E_N]) + (P_M * [1 - \sum E_N]) + (P_A * [1 - \sum E_N]) + (P_N * [1 - \sum E_N]))$$

P_p represents combined probability of five types of paranormal phenomena with the adjustment to account for the sum error term.

A Brief Review of the Calculation of the ELAP Measure in Rock, Houran, Tressoldi, and Laythe (2023)

To calculate the effect size of psi functioning using data from the selected studies, Rock et al. (2023) estimated the effect size upper 95% confidence interval. They disregarded data from the studies on micro-PK¹ because, in general, PK represents a “mind over matter” effect as opposed to various forms of paranormal information acquisition, such as telepathy, clairvoyance, precognition, and retrocognition. The resulting value of the targeted effect size, calculated based on 5,000 bootstrapped samples, was .60. This value was close to the median effect sizes typical for non-preregistered studies across the social sciences. After converting the acquired value to variance, Rock et al. (2023) obtained a probability estimate of .083 (p. 16). They concluded that an upper bound estimate of LAP (ELAP) that equals approximately 8.3% of the variance of survival-related phenomena could be principally attributed to LAP.

Multiple Sources of Psi: Response to Rock et al.

Calculating Modified Drake-S Equation (MD-SE)

As noted in the assumptions related to Laythe and Horan’s (2022) original approach and to the approach of Rock et al. (2023), the values of the measures calculated in both studies will be adopted here. The rationale behind the approach to calculating the modified *Drake-S* equation is similar to Laythe and Horan’s (2022). However, the MD-SE and related formulae include updated sets of variables. Moreover, Laythe and Horan did not calculate the sum probability of “purified” reported paranormal experiences ($\sum P_p$ in this paper). Furthermore, their formula for $\sum P_p$ (or P_p as shown in their study) did not show that the General Paranormal Experience variable (P_G in this paper) is included, although the corresponding probability estimates were listed in their Table 7 (p. 146).

Variables and their Values Adopted from Laythe and Horan (2022)

Known confounds:

- E_M (Measurement Error) = 0.067
- E_E (General Expectancy Effects) = 0.097
- E_V (Environmental Effects) = 0.077
- E_F (Fraud) = 0.20
- E_{MI} (Mental Illness) = 0.039
- E_S (Susceptibility to Perceptual Aberrations) = 0.134

Anomalous effects:

- General Paranormal Experience (P_G) = 0.467²
- Near-Death Experiences (P_D) = 0.094
- Hauntings/Poltergeists (P_H) = 0.200
- Mediumship (P_M) = 0.020
- Veridical Anomalous Experiences (P_A) = 0.260
- Reincarnation (P_N) = 0.002

Variable and its Value Adopted from Rock, Houran, Tressoldi, and Laythe (2023)

An estimate of LAP (ELAP) = 0.083

Additional Variables and their Updated Values Used in this Paper

Known confounds:

- Revised estimate of LAP (ELAP_R) = 0.0415

Anomalous effects:

- General Paranormal Experience (P_G) = 0.467
- Discarnate psi functioning (P_{DP}) = 0.0415

The updated formular to calculate the sum error term:

$$\sum E_N = (E_M + E_E + E_V + E_F + E_{MI} + E_S + ELAP_R) \quad (2.1)$$

Accordingly, $\sum E_N = 0.656$.

The updated formular to calculate the sum probability of paranormal experiences:

$$\begin{aligned} \sum P_p = & ((P_D * [1 - \sum E_N]) + (P_H * [1 - \sum E_N]) + \\ & (P_M * [1 - \sum E_N]) + (P_A * [1 - \sum E_N]) + \\ & (P_N * [1 - \sum E_N]) + P_G * [1 - \sum E_N]) + P_{DP}) \quad (2.2) \end{aligned}$$

Accordingly, $\sum P_p = 0.401$

The estimates of general paranormal experience and the sub-types are detailed in Table 1., which has the same design as Laythe and Horan’s, (2022) Table 7, p. 146. The data show that approximately 16% of reported incidents in the General Paranormal Experience category represent genuine (purified) paranormal experiences. Furthermore, the aggregate purified probability rate for all survival-related phenomena indicates that 40% of these phenomena reasonably qualify as paranormal,

which renders skeptics’ claims that it does not exist unfounded.

Methodological and Computational Limitations of this Paper's Approach

The first limitation relates to the fact that the calculations of MD-SE were based on computations in the original studies, whose source data have not been previously verified. The probability estimates of all five original paranormal experiences, both “raw” (P_R) and “purified,” (P_p) and of six error factors (E_M ; E_E ; E_V ; E_F ; E_{MI} ; and E_S) were derived from Laythe and Houran (2022), while the estimate of the error term (ELAP) was derived from Rock et al. (2023). Since the source data for both studies were obtained by scoping instead of systematic reviews of the qualified literature and all the above values were used in this paper without additional analysis or validation of the original source data, the possibility of inaccuracy and discrepancies in calculation of the MD-SE exists.

In addition, since no empirical assessment of LAP or discarnate psi has ever been done for CORTs, NDEs/OBE, or apparitional experiences, corresponding source data from these phenomena are lacking. Therefore, the estimates of the probability of discarnate psi functioning (P_{DP}) and

Table 1. Estimates of General Paranormal Experience

Survival-Related Phenomena	Reported Population Rate	Summed Error Factor	Purified Paranormal Experience Rate
General Paranormal Experience	0.467	0.656	0.161
Near-Death Experience	0.094	0.656	0.032
Haunting / Poltergeist	0.200	0.656	0.069
Mediumship	0.020	0.656	0.007
Veridical Anomalous Experience	0.260	0.656	0.089
Reincarnation	0.002	0.656	0.001
Discarnate psi	0.0415	—	0.0415
Total for All Phenomena			0.401

the sum error term ($\sum E_N$) are deficient. Although CORTs investigations and experimental studies on NDEs/OBE and apparitions of the dead considered LAP as possible explanation (however unconvincing or unlikely), to this author's knowledge, no evaluation of paranormal activity by the subjects attributable or relevant to LAP or discarnate psi has been done in any of these studies. However, besides LAP, discarnate psi may operate as an agent in any of the above paranormal phenomena. In terms of CORTs, Stevenson (1977a, 1987, 1997, 2000a, 2003) when analyzing all possible explanations of spontaneous past-life experiences, did not rule out the plausibility of psi-based interpretations. Some CORTs, specifically those involving replication of the previous person's "cognitive aspects" (Stevenson, 1977b, p. 165), or personality features from a deceased to a newly born person can in principle be explained based on LAP or discarnate psi functioning.

Along with possible LAP, discarnate psi may also be an operational factor in the communications between NDEers and deceased relatives or friends, similar to discarnate psi functioning in mediumship. These encounters during an NDE are common (e.g., Fenwick & Fenwick, 2008; Greyson, 2010; Kelly et al., 2007). In many cases, individuals who experienced clinical death reported "vivid experiences during the event, including . . . meeting deceased relatives and having a review of their life" (Sudduth, 2016, p. 58; cf. Fenwick, 2012; Greyson, 2014; Parnia, 2013). Paranormal awareness of NDEers in cases of veridical NDE/OBEs (where the initially unknown, but later verified identity, or fact of death of the encountered deceased) may indicate operations of discarnate psi, thus implying post-mortem survival. Nevertheless, the possibility of discarnate psi functioning in NDEs/OBE has never been mentioned or considered. At the same time, it may be a result of LAP functioning since an NDEers' brain activity during an episode does not cease permanently, although it might vary from considerably reduced cognition to nearly complete loss of consciousness (Sudduth, 2016). Many NDEers in the state of clinical death, however, have reported effective and even enhanced cognitive functioning (e.g., Kelly et al., 2007; Van Lommel, 2010).

Analysis of the nature of apparitional experiences suggested that conveying accurate information initially unknown to the witness indicates some form of paranormal activity (Griffin, 1997; Lund, 2012). This could have two apparent explanations. One is that apparitions display evidence for post-mortem appearances and communication of the deceased that may also involve discarnate psi, and the other implies LAP functioning, involving some form of ESP (Fontana, 2010). LAP, as well as discarnate psi, may be involved in influencing some apparitions' behavioral patterns, such as their responses and feedback in connection with the behavior of the observers during apparitional experiences. Following this line of reasoning, both survival and LAP manifestations should demonstrate high level of psychic functioning, which for survival would be discarnate psi (Lund, 2009; Sudduth, 2016). If explanations for veridical cases are based on discarnate psi, then for the apparitional theory to be sufficiently plausible, it should include the interactive behavior of the deceased (Griffin, 1997). However, a theory that apparitions' behavior involves some form of psi-based input from the deceased can neither be experimentally confirmed nor rejected (Lester, 2005).

Since LAP and discarnate psi factors presumably operational in the paranormal experiences described above cannot be taken into account due to the lack of empirical data for their independent functioning, calculations of the probability measure of discarnate psi functioning (P_{DP}) and the sum error term ($\sum E_N$) do not include corresponding estimates related to these experiences. Thus, the current computation of the MD-SE is incomplete. Until and unless the future research finds a way to assess LAP and discarnate psi influences in the abovementioned paranormal phenomena, the data used to calculate MD-SE equation will remain partial.

The last limitation relates to the fact that at this time, it is impossible to distinguish between LAP and discarnate psi supposedly operating in any paranormal phenomena. For that reason, it is not feasible to assess the extent of their individual functioning and obtain any related meaningful data. Therefore, the earlier assumption that the effect size

of LAP influence calculated by Rock et al. (2023) applies to both measures $ELAP_R$ and P_{DP} with equal probability (0.0415 each) is arbitrary.

Conclusion

For over a century psychical, and later parapsychological research, have produced volumes of rather compelling empirical data supporting the possibility of post-mortem survival. However, to this day researchers and philosophers from both sides of the ideological spectrum are caught in a post-mortem existential predicament with neither escape, nor reasonable solution in sight. To skeptics, the evidence does not seem credible and conclusive, as much as it is convincing and acceptable to survival proponents. Embarked on the intellectual quest to empirically assess the probability of post-mortem survival, researchers (Laythe & Houran, 2022; Rock et al., 2023) endeavored to collect and analyze plentiful pertinent data for the calculation of a simplified version of the *Drake-Survival* equation. Traveling in the post-mortem universe rather than outer space and boldly going where no one has gone before, the researchers encountered a “tantalizing empirical anomaly” (Laythe & Houran, 2022, p. 147), which unveiled a previously almost inconceivable fact that conventional science presently is incapable of providing a satisfactory explanation for more than one-third of survival-related phenomena. The logical consequence of this discovery leads to an even more baffling conclusion: the phenomena in question require some sort of paranormal explanation. As surprising as the findings of both studies are, the majority of alternative (to paranormal) explanations are grounded in the physicalist paradigm and linked to the conceptual models of non-anomalous nature. At the same time, those findings have important empirical implications for the question of survival, namely, that with death of the physical body, some non-physical personal essence survives and continues to exist in some non-physical form.

Laythe and Houran’s (2022) employment of the *Drake-S* equation to calculate net probability for reported paranormal experiences, apart from being grounded in probability postulates, incorporates authentic principles and standards of commonly

accepted scientific methods. According to these principles, “an alternative hypothesis is not formally disproven until and unless mainstream claims can fully account for the observed phenomenon” (p. 137). Their findings indicated that the sizable portion of alternative explanations is incompatible with computational results of *Drake-S* equation and that the considerable number of reported experiences reveals their anomalous nature. Therefore, Laythe and Houran suggested that, to support their claims, skeptics and debunkers of paranormal phenomena may need to come up with new and stronger arguments backed by comprehensive data with formidable effect sizes, or a large pool of research results unaffected by known confounds.

The results of mediumship studies analyzing alleged discarnate communications and psychic readings presented a SoP problem, indicating that the SoP cannot be conclusively determined. However, the MSoP hypothesis offered a comprehensive solution, suggesting concurrent functioning of all existing SoPs involved in paranormal experiences, including LAP and discarnate psi. Besides, the MSoP hypothesis proposed effective resolution of a long-standing theoretical impasse between the survival and LAP hypotheses. The inclusion of discarnate psi in the MSoP hypothesis as one of the SoPs permitted bypassing the problem with vexed LAP-based explanation of the medium’s choice to impersonate one specific individual. It also met the challenge presented by an *argument of crippling complexity* in LAP.³ Moreover, due to its universality, it was considered reasonable to extend the relevance of the MSoP hypothesis beyond mediumship and psychic readings to other paranormal phenomena.

The power of the MSoP hypothesis created a reasonable theoretical ground for considering LAP and discarnate psi valid and necessary factors in empirical approaches to post-mortem survival and including them in the calculation of MD-SE. The MSoP hypothesis has demonstrated that LAP and discarnate psi functioning are equally important: their impact on the assessment of the probability of survival should be taken into account accordingly. However, research on survival has not yet discerned whether in any paranormal phenomena information was obtained or exchanged via discarnate psi or LAP.

Therefore, their separate functioning is impossible to evaluate. Furthermore, discarnate psi and LAP can demonstrate the same power and sophistication, which would be necessary to explain the same data.

Even if in CORTs, NDEs/OBE, or apparitional experiences the discarnate individual's functioning or at least some part of it can be attributed to discarnate psi or LAP, the resultant data are not available. For that reason, calculations of the probability measure of discarnate psi functioning (P_{DP}) and the sum error term ($\sum E_N$) in MD-SE cannot not include corresponding estimates related to these experiences. Until the assessment of LAP and discarnate psi influences in these phenomena becomes possible, the data used to calculate these measures remains partial, and further calculations of MD-SE will be deficient. To meet this challenge, future studies need to develop in-depth approaches that employ reliable methodologies that allow for more advanced and precise data collection, verification, and usage.

The calculations presented in this paper show that the aggregate effect of known confounds (the sum error term) representing cumulative probable effect of approximately 65.6% for skeptical explanations leaves remaining paranormal explanations at 35.4%. According to the common position maintained by skeptics and debunkers of the paranormal, the latter measure is expected to be close to zero. Surprisingly (or not), the relatively high percentage of paranormal explanations, which obviously contradict skeptical wisdom, demonstrates that either the paranormal phenomena are not natural (does not exist or manifest without human participation), or a significant portion of the natural phenomena does not fit into paradigms of the contemporary natural (and some social) sciences. Specifically, as Laythe and Houran (2022) noted, approximately 16%, or one in six occurrences, of the General Paranormal Experience reported in the general population represent genuine (purified) paranormal experiences, which conventional science cannot explain. More important, the total purified probability rate for all combined paranormal phenomena indicates that a little over 40% of these phenomena can be reasonably attributed to paranormal causes, which makes claims of skeptics

that these phenomena do not occur questionable at best. The very size of this aggregated rate suggests the reasonable plausibility of the survival hypothesis and implies the sustainable viability of survival phenomena.

The advent of studies attempting to analytically assess the probability of such contentious phenomena as post-mortem survival points to increased interest among researchers to have a glimpse behind the "curtain" that separates life and death through the lenses of empirical science. Recent studies on survival with their focus on empirical evaluations mark the first important step in this direction, opening a door to the emergence of more robust procedures and methods of data selection, gathering, and analysis. Furthermore, since these advancements expand the research horizon, future researchers may be able not only to refine the existing work and find new empirical factors related to known confounds, but also to identify and include those relevant to anomalous effects. The present paper makes a modest but important contribution to the advancement of survival research by introducing discarnate psi as a factor in calculation of MD-SE. It may also be seen as encouragement for other researchers to have a more in-depth and detailed look into the paranormal.

Appendix

The MSoP Hypothesis in Perspective.

It is undoubtedly commendable that survival research methodology, one of the foci of survival controversy, finally received constructive critical attention, sparking a new wave of scholarly debates (e.g., Augustine, 2022a, 2022b; Braude, 2021; Braude et al., 2022; Delorme et al., 2021; LeBel et al., 2022; Nahm, 2021). It is even more valuable that the proposal of more rigorous research design comes from the adversarial collaboration of the subject's critics and agnostics (LeBel et al., 2022) and that the idea of such collaboration inspires survival skeptics and proponents to conduct an empirical study based on novel unconventional methodology (Laythe & Houran, 2022). Most would agree that the adherence to commonly adopted, strict scientific standards and practices in studies on survival is

pivotal. This is especially important, considering the challenges and continuing controversy surrounding psychical research and mediumship studies for over 140 years. The approach to the investigations of AIR in the context of post-mortem survival by choosing mediumship as a research domain is based on sound arguments and, therefore, reasonable and warranted (e.g., Braude, 2021; Delorme et al. 2021; LeBel et al., 2022). This can bring researchers on both sides of survival debates closer to getting long-awaited answers, whether the outcome will favor the survival hypothesis or provide strong arguments against it. Nevertheless, to implement such a rigorous and comprehensive approach in mediumship studies, the prospective methodology will require no less comprehensive theoretical support, needing to cover all bases relevant to the broader question of post-mortem survival.

In this regard, it is unfortunate and surprising that LeBel et al. (2022) provided an overview of the SoP problem in the Appendix of their article solely based on Rock and Storm's (2015) article (with a single reference to Jamieson and Rock, 2014). Regrettably, they did not expand the coverage of the SoP problem, which is central in mediumship (e.g., Beischel et al., 2017; Beischel & Rock, 2009; Beischel & Zingrone, 2015; Rock, 2014; Rock et al., 2014) and was systematically examined in some earlier publications (e.g., Jamieson and Rock, 2014; Merlin, 2020b; Rock, 2014). Furthermore, the material in LeBel et al.'s (2022) overview would be more complete should it include the MSoP hypothesis, which proposes a comprehensive conceptual solution to the SoP problem (Merlin, 2020a, 2020b). Bringing up for discussion the core concepts of the MSoP hypothesis and exploring their impact on the approach to addressing the SoP problem would have contributed to solidifying the theoretical platform of the research program proposed by LeBel et al., (2022). The versatility of the MSoP hypothesis holds the promise of helping survival and mediumship researchers broaden their perspectives related to the experimental design and overall direction of future studies.

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Notes

1. Micro-PK refers to directly unobservable (i.e., by the naked human eye) perturbation effects that occur at the sub-atomic level (e.g., psychokinetically influenced random number generators; e.g., Varvoglis & Bancel, 2015). Interestingly, Rock et al. (2023) did not mention studies on macro-PK, the directly observable effects of perturbation on macroscopic objects (e.g., the outcome of dice throwing, metal bending, the behavior of biological organisms; e.g., Rock et al., 2013), probably for the same reasons studies on micro-PK were disregarded.
2. The value of “Reported Population Rate” in Table 7 (Laythe & Horan, 2022, p. 146) for the category “General Paranormal Experience” was indicated incorrectly as 0.415. This number does not correspond the “incidence rate of experiences in the general population that

directly references either non-local mind or survival,” which has a “reasonable estimate of 46.74% of people reporting these occurrences” (p. 134). Therefore, the correct P_R value of 0.467 for General Paranormal Experiences (P_G) will be used in the present study.

3. The argument of crippling complexity implies that ultimately, LAP “may *not* be unlimited and indeed may not even have the required degree of potency and refinement” necessary for acquiring detailed, veridical information about the anti- and post-mortem existence of the deceased (Sudduth, 2014, p. 60, italics in original; cf. Braude 2003).

About the Author

Serge Merlin, PhD, MS, MBA, is the executive director and a healing arts practitioner at the Center for Wellness and Natural Healing (www.cwnh.net), Danville, CA. Since 1992, he has been developing and practicing his own clinical modality Transcognitive Psychoconstructive Therapy, which utilizes an integral transpersonal approach for resolving a variety of psycho-emotional, behavioral, and quality-of-life problems. This technique allows for direct extrasensory access to deep layers of a person’s psyche to facilitate unconscious mental processes enabling otherwise inaccessible resources of the mind to be actualized. Dr. Merlin received his doctorate in Integral and Transpersonal Psychology at the California Institute of Integral Studies, San Francisco, CA. His dissertation research focused on comparative inquiry into anomalous mental phenomena and particularly, the multiple sources of psi (MSoP) hypothesis as a comprehensive solution to the source-of-psi problem. He holds a BS in Civil Engineering, an MS in CAD/CAE Systems, an MBA, and a BA in Nonconventional Psychology obtained from various universities and academies in Moscow, Russia.

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