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Mathematical Calculations for the Finality of Death? The *Drake-S* Equation

Editor's Introduction to the Special Topic Section

Mathematics is much more than the addition and subtraction used to balance a checkbook, or even the algebra used in many kinds of planning and problem solving. Mathematics has imaginary numbers, infinities that can be larger or smaller than other infinities, and strange attractors that determine how chaotic systems such as ocean waves evolve over time. These are good company for the Drake equation, a probabilistic mathematical formula proposed as a way to estimate the number of extraterrestrial civilizations in the Milky Way, our home galaxy. The original equation brought together a set of factors considered necessary for the development of life forms capable of radio communication, and offered values for each factor. Since the equation had to make poorly-informed guesses for some of these factors, it was criticized as being useless for coming to firm estimates. However, since the initial motivation was to stimulate scientific dialogue rather than to reach reliable conclusions, the proliferation of Drake-like equations is evidence that Frank Drake accomplished his goal in fields of study beyond astronomy as well.

The target paper in this Special Topic Section, by Adam Rock, James Houran, Patrizio Tressoldi, and Brian Laythe, is titled, "Is Biological Death Final? Recomputing the *Drake-S* Equation for Postmortem Survival of Consciousness." This paper advances earlier work by Laythe and Houran (2022) that applied a variation of the Drake equation to the question of whether consciousness survives physical

death. As with the original Drake equation, it proposes a set of factors likely necessary to determine how many of the phenomena considered evidence for the survival of consciousness can be explained in other ways. Their recomputation estimates that known confounding variables—factors other than survival of consciousness that could explain certain phenomena offered as evidence for survival—fail to account for about 30% of that evidence. This would suggest that the evidence in favor of the survival of human consciousness beyond death outweighs efforts to explain it away.

Of course, as with Frank Drake's equation that attempted to estimate the number of technologically advanced civilizations in the local galaxy, the challenge is in getting right the factors and estimates for each factor into the equation. Rock and colleagues have relied on scientific studies of unusual death-related and other psi phenomena as the basis for estimating these factors, and their paper provides a detailed description of the various factors as well as a careful, step-by-step description of how their recomputation was calculated. For readers interested in the scientific study of psi, anomalous phenomena, and the question of whether consciousness survives death, this paper is a must-read.

Four scholars were kind enough to offer their thoughtful responses and constructive critiques in response to this paper. First of these is Everton de Oliveira Maraldi, of the Pontifical Catholic University of São Paulo in Brazil. His response, titled, "The Varieties of Afterlife Experience: Epistemological

and Cultural Implications,” asks those interested in the study of afterlife to consider what, exactly, might survive physical death—does an afterlife include personal memories, would a person’s characteristics of personality be preserved, would they be interested in and motivated by the same things as in their bodily existence? Moreover, if survival of consciousness could be demonstrated scientifically, it is important to consider what sociological consequences this might have on certain spiritual traditions and cultures who do not believe this to be possible. These questions urge the discussion of survival toward new and compelling questions that are less often considered in discussions.

Christine Simmonds-Moore raises a number of questions that challenge assumptions underlying various factors in the *Drake-S* equation in her “Comments” paper. The types of events considered as potential evidence for survival of consciousness are themselves considered paranormal—for example, reports of encountering the presence of a loved one, or receiving some form of communication from them, after their death. These are anomalous not so much because of their exceptional rarity, but more likely because the possibility of veridical contact with the deceased is typically disbelieved in Western societies that have shaped much of current scientific culture (Hartelius, 2019). The study of these types of anomalous phenomena—sometimes referred to as *psi*—often assumes that psi phenomena require some sort of signal that passes information to the person having the paranormal experience. Simmonds-Moore raises a thought-provoking challenge to this assumption, namely, what if psi experiences are an emergent property from connected systems, rather than a signal sent from one system to another. This is just one of the five topics on which she has engaged with the target paper.

An extensive response was provided by Serge Merlin, in his paper entitled, “*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.*” Merlin argued in favor of the survival hypothesis, but offered revised conceptualization and estimated values for certain factors in the *Drake-S* equation. Merlin’s proposals endorse the approach of the *Drake-S*

equation, but offer suggestions for conceptual and methodological improvements in its implementation.

A more critical response is voiced by Harris Friedman in his paper titled, “Good, Bad, or Not-Even-Wrong Science and Mathematics in Transpersonal Psychology: Comment on Rock et al.’s ‘Is Biological Death Final?’” Friedman lauds the use of mathematics within transpersonal psychology, but expresses uncertainty about the value of Drake-like equations in general. While Rock et al.’s paper is demonstrably fulfilling the goal that Frank Drake held for his initial equation, namely to stimulate dialogue about a controversial topic, Friedman wonders whether this class of equations may not represent pseudomathematics—calculations that create the illusion that there is a mathematical way to grasp the problem at hand. He goes on to offer various examples of the misuse of mathematics within psychology, pointing specifically to astrology and to Frederickson and Losada’s (2005) critical positivity ratio.

The authors of the *Drake-S* paper conclude the section with their detailed response to each of the authors. Houran et al.’s reply expresses appreciation for some of the points raised in these commentaries, and takes detailed exception to others, providing a lively and worthy conclusion to the consideration of this section’s target paper.

The end of biological life is a powerful subject that carries intimately personal relevance for each and every person, yet the discussion of death-related psi experiences within psychology is even more marginalized than the consideration of death itself. It is doubtless these types of psi events that have inspired various cultures to develop belief that some form of life continues after physical death, indicating that at the very least, such experiences provide rich opportunities for meaning-making and comfort in the face of bereavement and the prospect of one’s own inevitable demise. As such, it is a topic that deserves both attention and creative efforts at engagement through research. To this end, Rock and colleagues have provided a thoughtful exercise worthy of discussion, which we are pleased to share with our readers.

Glenn Hartelius, Editor-in-Chief
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References

- Fredrickson, B. L., & Losada, M. F. (2005). Positive affect and the complex dynamics of human flourishing. *American Psychologist*, 60(7), 678–686. <https://doi.org/10.1037/0003-066X.60.7.678>
- Hartelius, G. (2019). Is diversity possible In an integrative psychology—Transpersonal as a whole person-all person approach. *International Journal of Transpersonal Studies*, 38(2), iii–x. <https://doi.org/10.24972/ijts.2019.38.2.iii>

About the Author

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About the Journal

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