THE RELATIONSHIP BETWEEN DEATH AS MY END AND ITS OUTSIDE: CONNECTING SARTRE TO REPRODUCTIVE BIOLOGY VIA HEIDEGGER

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ABSTRACT: Although philosophy and biology actively interact, the topic of death is not an evident intersection. The difficulty of establishing this topic in biology, a *life* science, reinforces the scholarly positioning regarding death as an inherently philosophical topic. To clarify the potential for meaningful interactions between these disciplines regarding this topic, this study first clarifies Heidegger's conceptualization of death as a unity of certainty and indeterminateness. Second, it reframes Sartre's criticism of Heidegger in terms of the outside, which expands the scope of the philosophy of death to enable a dialogue with biology. Building upon these clarifications, this study focuses on the biological classification of reproduction, demonstrating the potential relationship between Heidegger and reproductive biology. This consideration allows for the interpretation of the outside viewpoint on *my* death in Sartre's argument as that of the child, *my* genuine other. Finally, this study highlights the philosophical significance of the contradiction that the end of life is a continuation of life, which reproductive biology unknowingly demonstrates. Overall, it reveals that an issue traditionally thought to separate science from philosophy is, in fact, a node of both, by elucidating the interdisciplinary nature of the classic existential topic—death.

KEYWORDS: Death; Outside; Other; Child; Conflict; Sexual reproduction; Biology; Sartre; Heidegger

1. INTRODUCTION

Philosophy has traditionally considered death a topic inherently belonging to philosophical discussion, even in an era wherein science encompasses a wide range of subjects.[1] The basic stance of the philosophy of death on science is demonstrated by Martin Heidegger's *Being and Time*, published in 1927.[2] Heidegger, who established the concept of "existence" in 20th-century continental philosophy, conceptually distinguished between the "ontic" and "ontological/existential," assigning death-themed sciences such as biology to the former.[3] Based on this distinction, he conducted an "existential analysis of death."[4] Significantly influenced by his analysis, numerous philosophers have sought to surpass him and develop their own perspectives.[5] However, in

[1] Considerations of one's own death can be traced back to the pre-Socratics. The following words, reportedly uttered by Heraclitus, capture the essence of death, which is closely related to the considerations of this study: "When they are born, they are willing to live and accept their fate (*death*); and they leave behind children to become victims of fate." See Kathleen Freeman, trans. *Ancilla to Pre-Socratic Philosophers: A Complete Translation of the Fragments in Diels,* Cambridge, Harvard University Press, 1948, p. 26.

[2] The significance of the philosophy of death in *Being and Time* is demonstrated by the fact that numerous philosophers have attempted to develop their own philosophies of death after encountering it. See, for example, Jacques Derrida, *Aporias*, trans. Thomas Dutoit, Stanford, Stanford University Press, 1993; Eugen Fink, *Grundphänomene des menschlichen Daseins*, Freiberg, Verlag Karl Alber, 1979; Emmanuel Levinas, *Dieu, la Mort et le Temps,* Paris, Grasset, 1993; and Jean-Paul Sartre, *Being and Nothingness*, trans. Hazel E. Barnes, New York, Washington Square Press, 1992. Moreover, individuals such as Jankélévitch and Jaspers, who were clearly influenced by *Being and Time* but do not mention it in their considerations also indicate the foundational position of this book in the philosophy of death through their deliberate omission: Vladimir Jankélévitch, *La Mort*, Paris, Flammarion, 1966; Karl Jaspers, *Philosophy*, vol. 2, trans. E. B. Ashton, Chicago, University of Chicago Press, 1969.

[3] Martin Heidegger, *Being and Time*, trans. Joan Stambaugh, rev. Dennis J. Schmidt, Albany, SUNY Press, 2010, pp. 237–9. He did not regard biology and other sciences, which pertain to ontic investigation, as being completely irrelevant to the philosophy of death. He states: "The medical and biological inquiry into demising can attain results which can also become significant ontologically if the fundamental orientation is ensured for an existential interpretation of death" (Ibid., p. 238). It is noteworthy that almost a century ago, the possibility of a relationship between philosophy and biology on the topic of death was mentioned. However, he further states: "The existential interpretation of death is prior to any biology and ontology of life" (Ibid., p. 238). In other words, he viewed the relationship between the philosophy of death and biology as one in which the former serves as the latter's foundation; he would not have entertained the possibility of questioning the assumptions of the former from the perspective of the latter and expanding its scope.

[4] Ibid., p. 239.

[5] As an attempt to go beyond Heidegger's philosophy of death, for example, Derrida reframes Heidegger's notion of the imminence of the self through death as "the waiting for *each other,*" which refers to waiting for a self that will arrive as someone completely different from the self. See Derrida, *Aporias*, p.65. This reframing is linked to a criticism of the Heideggerian distinction between the existential analysis of death and scientific studies of death, although Derrida does not address concrete scientific outcomes. Prior to Derrida, Sartre

alignment with Heidegger, these philosophers have not addressed concrete scientific contributions in their philosophies of death.[6] Meanwhile, science implicitly endorses the division of roles with philosophy regarding the topic of death. Biology, for instance, has explored cell division limits, lifespan, and cell death since the mid-20th century, yielding significant discoveries.[7] However, death has not become an explicit topic of discussion in biology, which is typically called a "*life* science."[8] Despite active attempts to make biology and philosophy

challenges Heidegger's focus on the self, introducing his own concept of the outside in considering *my* death. Sartre's criticism of Heidegger is discussed in Section 3. Additionally, Jaspers and Levinas, the former implicitly and the latter explicitly, criticize Heidegger's privileging of my death by highlighting the philosophical significance of the death of those closest to us or of a beloved other. See Jaspers, *Philosophy*; Levinas, *Dieu*. These critics, who address the concept of the other or outside, extend the analysis beyond the limitations set in *Being and Time* to the point at which engagement with science may become necessary. This aspect is further elucidated from the perspective of the outside in Section 4.

[6] To confirm that the philosophy of death is basically unrelated to scientific outcomes, see, for example, Derrida, *Aporias*; Fink, *Grundphänomene*; Jankélévitch, *La Mort*; Jaspers, *Philosophy*; Levinas, *Dieu*; and Sartre, *Being and Nothingness*. The author emphasizes that the detachment of their philosophies of death from science does not imply that their entire philosophical frameworks are unrelated to science.

[7] For example, the following discoveries in this field form the basis of modern biology: (1) cell lifespans or the limits of cell division: Leonard Hayflick and Paul S. Moorhead, 'The Serial Cultivation of Human Diploid Cell Strains', *Experimental Cell Research*, vol. 25, 1961, pp. 585–621; Tracey M. Sonneborn, "The Relation of Autogamy to Senescence and Rejuvenescence in *Paramecium aurelia"*, *Journal of Protozoology*, vol. 1, 1954, pp. 38–53; (2) the mechanisms of lifespans and aging, such as specific genes related to longevity: David B. Friedman and Thomas E. Johnson, "A Mutation in the *age-1* Gene in *Caenorhabditis elegans* Lengthens Life and Reduces Hermaphrodite Fertility", *Genetics*, vol. 118, no. 1, 1988, pp. 75–86; Thomas E. Johnson, 'Increased Life-Span of *age-1* Mutants in *Caenorhabditis elegans* and Lower Gompertz Rate of Aging', *Science*, vol. 249, no. 4971, 1990, pp. 908–12, as well as telomeres and telomerase: Elizabeth H. Blackburn, "Telomerases", *Annual Review of Biochemistry, vol.* 61, no. 1, 1992, pp. 113–29; Calvin B. Harley, A. Bruce Futcher, and Carol W. Greider, "Telomeres Shorten during Ageing of Human Fibroblasts", *Nature*, vol. 345, no. 6274, 1990, pp. 458–60; and (3) the cellular suicide mechanism (i.e., apoptosis), which is crucial for the formation and maintenance of living organisms: Marcia Barinaga, "Forging a Path to Cell Death", *Science*, vol. 273, no. 5276, 1993, pp. 735–7; Hermann Steller, "Mechanisms and Genes of Cellular Suicide", *Science*, vol. 267, no. 5203, 1995, pp. 1445–9.

[8] Standard biology textbooks do not discuss death as a single concept; in fact, the word "death" is rarely used. See, for example, Bruce Alberts, Dennis Bray, Karen Hopkin, Alexander D. Johnson, Julian Lewis, Martin Raff, Keith Roberts, and Peter Walter, *Essential Cell Biology*, 4th ed., New York, Garland Science, 2014; Bruce Alberts, Alexander D. Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, and Peter Walter, *Molecular Biology of the Cell*, 6th ed., New York, Garland Science, 2015; Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, and Robert B. Jackson, *Campbell Biology*, 9th ed., Boston, Pearson, 2011; David E. Sadava, H. Craig Heller, Gordon H. Orians, William K. Purves, and David M. Hillis, *Life: The Science of Biology*, 8th ed., San Francisco, W. H. Freeman, 2008; and James D. Watson, Tania A. Baker, Stephen P. Bell, Alexander Gann, Michael Levine, and Richard Losick, *Molecular Biology of the Gene*, 7th ed., Boston, Pearson, 2014. Medicine is also a scientific field closely associated with

interact—particularly through the philosophy of science subfield, the philosophy of biology, since the 1960s—death has not emerged as a unified topic at their intersection.[9] Thus, the discussion of death has been confined within philosophy, especially phenomenological or existential philosophical approaches.[10]

In contrast to these academic trends, the present study unveils the potential for meaningful interactions between biology and philosophy concerning the topic of death by expanding upon Jean-Paul Sartre's unique perspective. Accordingly, Section 2 examines Heidegger's conceptualization of death as a unity of certainty and indeterminateness. Section 3 focuses on Sartre's philosophy of death, reframing his criticism of Heidegger to highlight a perspective inherent in his argument yet divergent from his conclusion.[11] This section elucidates the Sartre–

death; however, it primarily focuses on understanding life until the moment of death, as its objective is to prevent mortality. Consequently, death itself lies beyond the scope of medicine.

[9] Regarding the estrangement between the philosophy of biology and the topic of death, see, for example, Peter Godfrey-Smith, *Philosophy of Biology*, Princeton, Princeton University Press, 2014; Samir Okasha, *Philosophy of Biology: A Very Short Introduction*, Oxford, Oxford University Press, 2019; Alex Rosenberg and Daniel W. McShea, *Philosophy of Biology: A Contemporary Introduction*, Abingdon, Routledge, 2008; and Elliott Sober, *Philosophy of Biology*, 2nd ed., Abingdon, Routledge, 2000. Sterelny and Griffiths' representative textbook in the field, part-titled *Sex and Death*, was not titled as such because death is its central topic. They clarify, "We chose the title because it was fun." See Kim Sterelny and Paul E. Griffiths, *Sex and Death: An Introduction to Philosophy of Biology*, Chicago, University of Chicago Press, 1999, p. 2. As a result of estrangement from death, the philosophy of biology automatically excludes the concept of *one's own* death from its scope. Note that, besides the philosophy of biology, which has become a major force in philosophy owing to its analytic philosophical approach, a school of philosophy approaches biology from a phenomenological perspective, emphasizing the comprehensive relationship between the cognitive and life dimensions. Thompson demonstrates the effectiveness and potential of the phenomenological approach to modern biology, but does not address the topic of death. See Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*, Cambridge, Harvard University Press, 2007. This work even bridges some of the gaps between phenomenology and analytic philosophy by sharing with the philosophy of biology critiques of certain trends in biology. For another classic work on the phenomenological approach to biology, see Francisco J. Varela, Evan Thompson, and Eleanor Rosch, *The Embodied Mind: Cognitive Science and Human Experience*, Cambridge, MIT Press, 1991.

[10] This study does not address such issues as the distinctions and interconnections between phenomenology, existential philosophy, and existentialism, nor the philosophers' own stances regarding their respective philosophies.

[11] A conventional assessment of *Being and Nothingness* as "a version and variant" (George Steiner, *Martin Heidegger*, Chicago, University of Chicago Press, 1991, p. 5) of *Being and Time* seems valid in terms of the philosophy of death, as discussed in Note 2. However, while Sartre's criticism of Heidegger is sometimes irrelevant, he offers a perspective that extends beyond a mere variant of Heidegger's perspective, as Section 3 elucidates. Conversely, some scholars, such as Kaufmann, do not attribute any significance to *Being and Time* despite recognizing it as the starting point of existential philosophy regarding death; Walter Kaufmann, 'Existentialism and Death', in Herman Feifel (ed.), *The Meaning of Death*, New York, McGraw-Hill Book

Heidegger relationship and places the outside viewpoint on *my* death at the core of the philosophy of death. After expanding the scope of the philosophy of death to enable a dialogue with biology, Section 4 delves into the biological classification of reproduction, clarifying the significant distinction between death as an external accident and as an internal ability of the individual. This demonstrates the potential relationship between Heidegger's philosophy of death and reproductive biology.[12] This interpretation allows for an extension of Sartre's outside viewpoint on *my* death to encompass that of the child, *my* genuine other, underscoring the significance of the concept of conflict in the philosophy of death. Section 5 concludes that the contradiction, formulated by the author through biology, that the end of life is a continuation of life, pervades our everydayness and serves as the foundation of the philosophy of death.[13]

2. THE CONCEPTUALIZATION OF DEATH

To the extent necessary to characterize Sartre's philosophy of death in *Being and Nothingness*, the author will provide an overview of the discussion of death in *Being and Time*, focusing on the conceptualization of death.[14]

Heidegger distinguishes his philosophy of death from the disciplines of biology, medicine, history, psychology, ethnology, theology, and metaphysics,

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Company, 1959, pp. 39–63. By contrast, the author situates Sartre's perspective on Heidegger's legacy (explored in Section 2), thus expanding the scope of the philosophy of death.

[12] In a lecture delivered several years after *Being and Time*'s publication, Heidegger refers to biological theories, such as Driesch's neovitalism and Uexküll's theory of the *Umwelt*, which can be linked to his mentioning the potential connection between the philosophy of death and biology; Martin Heidegger, *The Fundamental Concepts of Metaphysics*, trans. William McNeill and Nicholas Walker, Bloomington, Indiana University Press, 1995. By contrast, Sartre excludes perspectives related to the death of other organisms from his philosophy of death, asserting, "Death reveals to us only ourselves and that from a human point of view." See Sartre, *Being and Nothingness*, p. 682. Consequently, although *Being and Time* was written 16 years prior to *Being and Nothingness*, it offers more possibilities for dialogue with biology concerning death. However, the latter work conceals the key to unlocking these possibilities.

[13] The author of this paper is referred to as "the author" herein to prevent confusion with the pronoun "I," which is used to represent individuals in a universal sense.

[14] While Heidegger considered death both before and after *Being and Time*, the author focuses on his consideration of death in this book, as it greatly influenced Sartre's philosophy of death, given that this study aims to connect Sartre to reproductive biology. Furthermore, regarding Sartre, as it is essential for this purpose to discuss his philosophy of death in full light of the influences of Heidegger, the author limits the discussion to *Being and Nothingness*, which shows a marked influence of Heidegger.

among others.[15] Regarding biological research on death, he states: "Connections between the life-span, reproduction, and growth can be known. The 'kinds' of death, the causes, 'arrangements,' and ways of its occurrence can be investigated."[16] By contrast, according to him, his philosophy unveils "the *way of being* in which Dasein *is toward* its death."[17] In *Being and Time*, "Dasein" refers to the human being; Heidegger explores how human beings are involved in their own death.[18] To elucidate the way of being of Dasein as being-toward-death (*Sein zum Tode*), he argues that we cannot experience "the dying of others in a genuine sense."[19] We can be present at the death of others, but this is not the experience of death itself. Although I can die for others, I cannot remove their death by replacing my death with theirs.[20] Death is inevitable for everyone, without exception. Moreover, as I cannot know exactly when it will befall me, I am in principle constantly confronting my death. Accordingly, Heidegger states: "Every Dasein itself must take dying upon itself in every instance. Insofar as it 'is,' death is always essentially my own."[21]

As the death at which we can be present cannot be equated with death itself, the analysis of objectifiable death is insufficient to develop a fundamental understanding of death. Furthermore, as death, whether my own or that of others, cannot be experienced, engaging in research without first clarifying what it is would entail adopting "an idea of death that has been devised arbitrarily and at random."[22] To explore death without arbitrariness, our everyday understanding of our dying provides a clue, even though death remains evasive and covert due to the unbearableness of squarely confronting one's own death.[23] Heidegger states, "if being toward death belongs primordially and essentially to the being of Dasein, it must also be demonstrated in everydayness, although

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[15] Heidegger, *Being and Time*, pp. 237–9.
[16] Ibid., p. 237.
[17] Ibid., p. 238.
[18] Regarding the point that Heidegger's "Dasein" refers to the human being, see, for example, Heidegger, *Being and Time*, p. 10. However, this point can be said to be limited to *Being and Time*. Furthermore, Dasein had been used in different senses by philosophers before Heidegger.
[19] Ibid., p. 230.
[20] Ibid., p. 231.
[21] Ibid., p. 231.
[22] Ibid., p. 239.
[23] Ibid., pp. 242–8.

initially in an inauthentic way."[24] Contrary to the negative connotations often associated with the term "inauthentic," he clarifies that "the inauthenticity of Dasein does not signify a 'lesser' being or a 'lower' degree of being."[25] Instead, authenticity is "existentially only a modified grasp of everydayness."[26]

Heidegger conceptualizes death as follows: "[A]s the end of Dasein, death is the ownmost, nonrelational, certain and as such indeterminate, unsurpassable possibility of Dasein."[27] This conceptualization, which may seem at odds with our everyday understanding, exactly represents a modified grasp of everydayness. My death is *ownmost* because I must face it alone; it is *nonrelational* because it cannot be replaced by the death of others; it is *certain* because it is inevitable; it is *indeterminate* because the timing of its arrival is unknown; it is *unsurpassable* because there is nothing beyond it; and it is a *possibility* because it is yet to be realized.

This study delves into the usually incompatible adjectival relationships within this conceptualization to elucidate Heidegger's modification to authenticity. Usually, for something to be ownmost or unique, it must be related to other things (e.g., my personality attains uniqueness through its relationship with and distinction from others). For something to be certain, it requires determination (e.g., when my love is certain, its certainty is determined in relation to others). Similarly, for something to be unsurpassable, it necessitates determination (e.g., my incurable disease is determined by doctors and myself as a disease for which there is no cure). By assigning all these adjectives, not typically used in conjunction, to death, Heidegger modifies our evasive and covert understanding of death's peculiarity to grasp its existential concept. Aligned with this conceptualization, he summarizes the contradictory characteristics of death as

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[24] Ibid., p. 242.

[25] Ibid., p. 42.

[26] Ibid., p. 172. Heidegger also states: "Inauthenticity has possible authenticity as its basis" (Ibid., p. 249). In short, authenticity and inauthenticity can be regarded as mutually modifying. A key to understanding the relationship between the two lies in the prefix "in," which signifies "*non-being*." See Heidegger (Ibid., p. 169). Additionally, in his philosophy, inauthenticity and everydayness are closely related to the perspective of "the they," which is not addressed herein.

[27] Ibid., p. 248. For this sentence, the author replaces the translation "indefinite" assigned to "*unbestimmt*" with "indeterminate," considering Heidegger's differentiation between *Bestimmung* and *Definition*, as well as the significance of this differentiation in Hegel, whose influence on Heidegger is noteworthy. Consequently, the translation of "*Unbestimmtheit*" is altered from "indefiniteness" to "indeterminateness" in the final sentence of the following paragraph. Additionally, "insuperable" is replaced with "unsurpassable," some comma placements are modified, and full-text emphasis is omitted.

"certainty and indeterminateness."[28]

Moreover, the conceptualization of death as the end is consistent with our everyday understanding of the following: If I die, everything *ends* for me. The peculiarity of death is closely related to our inability to understand one's own death by standing outside it. I can stand outside my personality, love, and disease through others and the *me* after the fact and understand them, albeit indirectly and imperfectly. This enables me to consider the weaknesses of my personality, carefully nurture my love, and strive to heal my disease. However, as nothing is left for me if I die, I cannot change my death or even consider it after I die. Heidegger echoes this everyday understanding: "Obviously, being-toward-death […] cannot have the character of being out for something and taking care of it with a view toward its actualization."[29] His use of the expression "taking care of" refers to the way people relate to things like tools in their everyday lives, as indicated in the passage, "[t]he actualization of useful things at hand in taking care of them (producing them, getting them ready, readjusting them, etc.)."[30] *Obviously*, people do not pursue the actualization of their own death by producing or getting ready or readjusting, as they do for tools. This obviousness is linked to the notion that I cannot be *out* for my own death in the sense of being *outside* of it.[31] In contrast to being out for something, Heidegger introduces the term "*running ahead* [*Vorlaufen*] *in*" the possibility of death.[32] From this figurative terminology, which is open to various interpretations, the author reads the implication that only a *running activity* (not a "theory," which etymologically means "calmly looking at") with the characteristics of being *ahead* and *inside* of something can serve to obtain a modified grasp of that which cannot be understood

[28] Ibid., p. 248.

[29] Ibid., p. 250. The expression "*Aussein auf*," which is the original phrase corresponding to "being out for" in this translation, is an idiom meaning "being in pursuit of something." Heidegger's notation "*aus-sein*" allows us to discern within this meaning the implication of "going out of something and being outside of it." Thus, the English translation captures both the meaning as an idiom and Heidegger's intended meaning of "outside."

[30] Ibid., p. 250. According to Heidegger, "the expression 'taking care' is used […] as un ontological term (an existential)" (Ibid., p. 57).

[31] See Note 29. Notably, the discussion of this obviousness is preceded by his reference to the obviousness of the distinction between the end of a thing or event and the end of Dasein. See Heidegger, *Being and Time*, pp. 235–6.

[32] Ibid., p. 251. The German term *Vorlaufen in* is paraphrased in the translation as "anticipation of" the possibility; however, the author translates this term literally to accurately reflect Heidegger's intentions.

after/outside it—that is, my own death. Since the introduction of this terminology, he converges his existential analysis toward the "individualizing of itself" of Dasein, without any discussion of the outside of one's death.[33]

Note that Heidegger regards the self not as an inside separated from the outside but as something that already possesses an openness to the outside in itself, as the following sentence indicates: "In directing itself toward … and in grasping something, Dasein does not first go outside of the inner sphere in which it is initially encapsulated, but, rather, in its primary kind of being, it is always already 'outside' together with some being encountered in the world already discovered."[34] This definition of the self as already having been outside must be deeply related to the analysis of death that is solely localized within death, without discussing its outside. This self-definition is readdressed in the next section, in line with Sartre's understanding of Heidegger.

3. THE OUTSIDE VIEWPOINT ON MY DEATH

Sartre, in *Being and Nothingness*, was prominently influenced by Heidegger but aimed to develop his own philosophy of death. He distinguished himself from Heidegger as follows: "[W]e must conclude in opposition to Heidegger that death, far from being my peculiar possibility, is *a contingent fact*."[35] Considering this conclusion, the author will first confirm Sartre's disregard for Heidegger's context. For example, Sartre fully criticizes Heidegger for privileging the irreplaceability of death, arguing that, while my love can be considered peculiar and irreplaceable if it can be considered replaceable, my death can be regarded as equally replaceable.[36] From this criticism, Sartre states, "there is no personalizing virtue which is peculiar to *my* death."[37] However, Heidegger's view on irreplaceability is that in various aspects of everyday life, we represent the affairs of others within certain limits; only the death of others cannot be represented within any limits.[38] Sartre ignores this localization to our average everydayness in his criticism, based on a question about a different dimension, namely, "is the

[33] Ibid., pp. 252–5.
[34] Ibid., p. 62.
[35] Sartre, *Being and Nothingness*, p. 697.
[36] Ibid., pp. 683–5.
[37] Ibid., p. 684.
[38] Heidegger, *Being and Time*, pp. 230–1.

death which will overtake me *my* death?"[39] Moreover, the example of my love, which he provides, far from denying the peculiarity of my death, contributes to highlighting it. Even people who have been broken by irreplaceable love and have firmly vowed never to love again may do so; even if they live the rest of their lives as they have vowed, they always retain the possibility of loving someone again. By contrast, my death is my *end*; I cannot have the possibility of dying again. This is the implicit basis of Heidegger's argument.

Furthermore, Sartre assumes this understanding in his discussion. He states, "death is not *my* possibility of no longer realizing a presence in the world but rather *an always possible nihilation of my possibles which is outside my possibilities*."[40] His use of the word "nihilation" signifies making some things never appear to me as the background of others.[41] Therefore, for him, my death is the background of my possibilities; it always stays in the realm of the possible, unlike my other possibilities that could manifest in reality. However, Heidegger highlights the distinction between the possibility of death and other possibilities by describing the former as "the possibility of the absolute impossibility" or "the possibility of the measureless impossibility."[42] Thus, except for differences in expression and semantic scope, Sartre's and Heidegger's ideas on the possibility of death have no essential differences. Instead, the former's fierce criticism of the latter obscures their true difference, which is based on their commonality and the originality of the former.

The author clarifies Sartre's originality by repositioning his considerations against Heidegger's without being confined to his own formulations. To this end, the following facts provide a clue: Sartre, like Heidegger, uses our everyday understanding of death to guide his considerations, without specifying this as a research methodology; further, unlike Heidegger, he emphasizes our understanding of the time after one's own death:

> So long as I live I can escape what I am for the other […]; so long as I live, I can give the lie to what others discover in me […] Thus ceaselessly I escape my outside and ceaselessly I am reapprehended by the other; and in this "dubious battle" the definitive victory belongs to neither the one nor the other of these modes of being.

[39] Sartre, *Being and Nothingness*, p. 683.
[40] Ibid., p. 687.
[41] Ibid., pp. 41–2.
[42] Heidegger, *Being and Time*, pp. 241, 251.

> But the *fact of death* without being precisely allied to either of the adversaries in this same combat gives the final victory to the point of view of the other […] [T]o die is to be condemned […] to exist only through the other, and to owe to him one's meaning and the very meaning of one's victory.[43]

In other words, to say that my death is my end and I cannot stand after/outside it implies that I cannot contest in any way any opinion about me after my death. No matter how distant the evaluations of others may be from the "reality" of my life, I cannot evaluate them in return or reject them. Even if they were satisfactory, they would remain unilaterally bestowed by others upon me, and I would have no part in their continuation or cessation after my death. Because we understand this, we are more or less concerned with the time after one's own death. Therefore, by focusing on this understanding, which is an extension of the understanding that my death is my end, Sartre, while sharing Heidegger's perspective on everydayness, adopts a broader stance. In other words, despite his outright criticism of Heidegger, Sartre does not follow a different path but treads the same realm, namely, our everyday understanding; however, he pushes forward, beyond the point where Heidegger cautiously stopped, identifying it as fertile ground.[44]

Behind this push forward lies Sartre's own theory of the other. He defines the other as the look toward me and bases self–other relations on the conflict of whether the other looks at me or I look at the other.[45] For him, the look is the way of being of the other beyond the act of physically seeing with one's eyes.[46] The other looks at me as an object, but I can always look back at the other as an object. However, this is only possible as long as I am alive—when I die, I will be unilaterally looked at by the other. With my death, the other will no longer fall

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[43] Sartre, *Being and Nothingness*, pp. 695–6. In the English translation, the original French term "*l'autre*" is translated as "the Other." However, given that the original word is written in lowercase and that, in philosophy and its adjacent fields, each scholar often affords inherent meaning to the capitalization of "Other," the author presents this term as "the other." The translation is also changed in the related quotations.

[44] According to Heidegger, death, as the nonrelational and unsurpassable possibility, makes Dasein "understand the potentialities-of-being of others" (*Being and Time*, p. 253). In other words, for him, the potentialities-of-being of others cannot be a precondition for understanding my death.

[45] Sartre, *Being and Nothingness*, pp. 340–400.

[46] Sartre states that the look "is not connected with any determined form," even if "what *most often* manifests a look is the convergence of two ocular globes in my direction" (Ibid., p. 346).

from the subject looking at me to the object looked at by me and will be free to assign any meaning to my deeds during my lifetime: the final victory of the other's viewpoint. In other words, "it [death] confers a meaning from the outside on everything which I live in subjectivity."[47] Thus, defining the other as the look toward me highlights that my death is inextricably linked to its outside. Sartre states, "it [death] is an unavoidable necessity of existing elsewhere as an outside."[48] Therefore, he regards death not only as a contingent fact but also as a necessity. He recognizes a similar contradiction, referred to as a "contingent necessity" or "factual necessity," in "the other's existence."[49] The close connection between my death and the other's existence further clarifies the former's characteristic of the outside. He states, "it [death] comes to us from outside and it transforms us into the outside."[50] That is, my death, which completely deprives me of the possibility of looking back at the other, leaves the look of the other to freely invade me, covering all of me with outside viewpoints. Thus, the statement that death is a contingent fact in his conclusion is another way of expressing that it is an outside.

Regarding the concept of the outside, the author would like to highlight Sartre's criticism of Heidegger's self-definition. Sartre states: "Undoubtedly Heidegger's human-reality 'exists outside itself.' But this existence outside itself is precisely Heidegger's definition of the *self*."[51] In other words, according to Sartre, Heidegger's notion of the outside of the self is solely the self itself, not the outside that is not the self. Building on this, Sartre declares: "In my own inmost depths I must find […] the other himself as not being me."[52] Regardless of whether this criticism of Heidegger is justified and whether Sartre's theory of the look accomplishes its task, Sartre was acutely aware of the genuine outside in his exploration of the other and death. In contrast to Heidegger, who did not address the concept of the outside by defining my death as my end, Sartre, while building on the same definition, regarded the outside viewpoint on my death as the key to the philosophy of death. Here, the author acknowledges Sartre's exceptional

[47] Ibid., p. 696.
[48] Ibid., p. 700.
[49] Ibid., p. 337.
[50] Ibid., p. 698.
[51] Ibid., p. 336.
[52] Ibid., p. 338.

originality. However, Sartre did not elucidate the following: Whose viewpoint is this? In other words, who is the other that conflicts with me in my death? Answering these questions will illuminate the legitimacy and productivity of connecting my death with its outside viewpoint, going beyond Sartre's arguments.

4. THE BIOLOGICAL SIGNIFICANCE OF DEATH AS MY END

To answer the above questions, the author will focus on the following facts. Although my other's viewpoint is given a final victory by my death, this victory is not eternal; my other's viewpoint is also mortal and is eventually deprived of its victory, giving a new victory to the viewpoint of the other who will look at my other unilaterally. Insofar as no viewpoint can be immortal, the same befalls the other of my other. In principle, this chain extends to encompass the entirety of the other. Therefore, once we open my death to its outside viewpoint, we discover within it the aspect of connection from one other to another. There is little distance between this aspect and reproduction, namely, the mechanism that connects life, although the dimensions of the argument are not the same. In other words, by considering my death in connection with its outside, Sartre unexpectedly brings his considerations closer to the topic of reproduction. To fully clarify this, the author first elucidates the relationship between this topic and Heidegger.

As mentioned at the beginning of Section 2, Heidegger excludes the biological topic of reproduction from his philosophy of death. This must be linked to the fact that he, unlike Sartre, does not include the perspective of the outside in his consideration. Nonetheless, biological research on reproduction can be interpreted as being closely related to his consideration of death as my end. To understand this, the author focuses on the two types of reproduction that form the basis of reproductive research: asexual reproduction, which is carried out by all prokaryotes and some eukaryotes, and sexual reproduction, which is carried out by most eukaryotes. Prokaryotes, the first life form to emerge on Earth, approximately 3.8 billion years ago, can continue dividing indefinitely in hypothetical ideal conditions (i.e., sufficient food, absence of predators, and a safe environment). For approximately 1.8 billion years, from the origin of life until the emergence of eukaryotes, the only way to perpetuate life was through division and multiplication, that is, asexual reproduction. Divided cells continued to divide without ever fusing. As the real world is far from ideal, multiplying cells

die one after another; however, active division compensates for this. In this context, an organism's death signifies a cessation of life that should be minimized, or a lack of life that should be promptly replenished. Prokaryotes still surpass eukaryotes in terms of biomass through a survival strategy that allows a small fraction of individuals to live indefinitely. Therefore, death is not an inevitability for the organism.[53] Instead, immortality can be considered the foundation of life. The form of life that leads to immortality can also be found in humans: Germ cells do not have division limits.[54] Thus, the certainty of death holds limited biological meaning, that individual eukaryotes have a lifespan. This biological fact, which emerged during the evolutionary history of life, gave death a new significance, namely, certainty/inevitability.

Even if we can avoid accidents and illnesses, our lifespan will eventually end, although the exact timing is unknown. Our ancient yearning for immortality reflects a poignant but daily and average concern for the lifespan that brings me to my certain end. Scientific and technological advancements reinforce this concern because they cannot grant us an unlimited lifespan, although they effectively mitigate or eliminate various causes of death. Furthermore, understanding death as a matter of lifespan represents a typical evasive and covert relationship with one's own death, as the phrase "the average human lifespan is consistently increasing" indicates. Thus, lifespan is an everyday term that encapsulates our average understanding of death as *my* end. Therefore, it is related to Heidegger's argument. Nevertheless, Heidegger does not include the lifespan within his philosophy of death because he considers it an exclusively biological term.

However, even as a biological term, the lifespan is closely linked to Heidegger's core argument. To clarify this interpretation, the author discusses Sartre's argument on immortality. Sartre criticizes the fact that Heidegger has "based his whole theory of *Sein-zum-Tode* on the strict identification of death and finitude," arguing that "human reality would remain finite even if it were

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[53] See, for example, William R. Clark, *Sex and the Origins of Death*, Oxford, Oxford University Press, 1996, p. 62.

[54] This is in contrast to somatic cells. See, for example, Nick Lane, *The Vital Question: Why Is Life the Way It Is?*, London, Profile Books, 2015, p. 232.

immortal."[55] Considering that time is irreversible and my experiences are unique, his argument holds merit. However, Heidegger considers death as *a possibility*, not as a fact of death, which is the opposite of immortality. Although this possibility is that of impossibility, it is a possibility that annihilates all other possibilities of Dasein. That is, the issue is not that I die, but that I *can* die.

The distinction between dying and being able to die is biologically crucial. The assumption of immortality as a fact is merely an assumption insofar as death, as the cessation of life, comes to any organism. However, the assumption of the absence of the ability to die is already realized in prokaryotes. For organisms, the opposite of death is immortality; Sartre's assumption is based on this dichotomy. However, the opposite of the ability to die is not the ability to not die but the inability to die autonomously. The ability or inability to die autonomously signifies the presence or absence of lifespan. The evolution of life has transformed dying from a mere accident to a biological ability that is essential for the continuation of life in eukaryotes. Therefore, lifespan is not merely the length of time that organisms live but the embodiment of this ability: The individual *can* die. Thus, it potentially has a deep connection to Heidegger's considerations on the possibility of death. In other words, his conceptualization of death as a possibility, based on the distinction between his own philosophy and the sciences, has unexpectedly brought him closer to the biological concept of lifespan.

The focus on the lifespan provides an essential perspective for the philosophy of death. As indicated at the beginning of Section 2, Heidegger excludes reproduction, along with lifespan, from his analysis. However, as mentioned, reproduction in the form of binary cell division without fusion, which has continued uninterrupted since the emergence of life, is based on unlimited division. Therefore, it is not mere reproduction that is closely related to lifespan, but *sexual* reproduction, a new reproductive method.[56]

Sexual reproduction involves the alternation of generations, which is

[55] Sartre, *Being and Nothingness*, p. 698.

[56] In other words, the individuals of the organisms that reproduce sexually, eukaryotes, have a lifespan. Certainly, some eukaryotes reproduce primarily or only asexually. However, "[w]ith the exception of secondarily derived asexual eukaryotes, which usually fall extinct quickly, all known eukaryotes are sexual" (Lane, *The Vital Question*, p. 199). Additionally, although some jellyfish are said to have no lifespan, they return to an asexual life by turning into polyps after completing sexual reproduction. Therefore, it does not mean that they do not have a lifespan through sexual reproduction only.

fundamentally different from asexual reproduction. The establishment of generations and their secure alternation requires that genetic differences between individuals are ensured through systematic reciprocal recombination across the entire genome through the fusion of two gametes (i.e., sex cells such as sperm and eggs). Furthermore, all individuals must inevitably die, unlike bacteria, among which some clones continue to survive. Although bacteria are guaranteed genetic diversity through the mechanisms of mutation and horizontal transmission, the two cells resulting from cell division (i.e., daughter cells) are, in principle, genetically identical to the mother cell. In other words, it cannot be determined which of the daughter cells is the original and which one is its clone; therefore, asexual reproduction does not involve the evident alternation of generations. Thus, the ability to die/lifespan, sexual reproduction, and the alternation of generations are closely related biologically. In fact, in our average everydayness, we understand, to some extent, these close relationships. For example, we progressively adjust our understanding of which generation we belong to, based on our remaining lifespan. We also perceive generational differences as being closely tied to the maturation and decline of sexual ability (e.g., an age gap between partners often draws attention).

The preceding discussions highlight the significance of Sartre's remark about Heidegger that "his *Dasein* appears to us as *asexual*."[57] According to Sartre, sex is the relationship within the depths of the self with the other itself, which establishes the self.[58] As previously discussed, Sartre criticizes the fact that in Heidegger's definition of the self, the outside of the self is solely the self and not the other in the inmost depths of the self. Thus, unlike the criticisms he presents regarding death, this remark directly relates to the true difference between the two, clarified in Section 3. In other words, his understanding of sex corresponds to the understanding of the outside within the inmost depths of my death. Consequently, sex is positioned in close proximity to death in his philosophy through the topic of the outside. Nevertheless, he did not establish a connection between the two. This is because he regarded sex merely as a horizontal

[57] Sartre, *Being and Nothingness*, p. 498. Emphasis on "asexual" in the quotation is by the author of this paper.
[58] Sartre's consideration of sex, restricted to humans, seeks to indicate that sex, which is the relationship with the other itself, is internal to us by focusing exclusively on the aspect of sexual desire. See Sartre, *Being and Nothingness*, pp. 497–527.

relationship between the two sexes (i.e., male and female) and did not perceive within it the vertical relationship between parent and child.[59] However, if sex is indeed a relationship with the outside itself, as he describes, it is not confined to a bilateral relationship between myself as male/female and the other as female/male; it should also encompass generations, based on my death. This aligns with how my other's viewpoint extends to the other of my other through my death and encompasses the entirety of the other, as described at the beginning of this section. Therefore, his criticism of Heidegger, asserting that Dasein must be considered sexual, becomes complete when it is also considered as generational.

The considerations presented thus far allow us to answer the question raised at the end of Section 3: Who possesses the outside viewpoint on my death, in other words, who conflicts with me in my death? It is the child. However, this does not refer to a specific individual; similarly, the fact that the child conflicts with me in my death does not imply a de facto hostile relationship between my children and me. The concept of the child, as well as the parent, implies a linkage, as the parent of a child is the child of their own parents. Insofar as the establishment of generations presupposes the death of the individual, as discussed in this section, the child presupposes the death of the parent. I, who was born as a child in the linkage and must die, can never escape this linkage. Therefore, even if I sever my ties with others for the remainder of my life, I can never reject the outside viewpoint. The look to which Sartre refers, as discussed in Section 3, is the way of being of the other beyond mere visual perception.[60] Regardless of whether I have children, whether I care about future generations, or whether I expose my corpse to others, my death is essential to the perpetuation of generations. In other words, my death is my child's life. In this sense, my child

[59] Regarding sex, he highlighted the oppositional aspect of self and other and made latent the aspect of integrating the two.

[60] As for the concept of conflict that characterizes Sartre's theory of the other, interpreting it not only in terms of de facto hostile relationships but also as the opposition that is inherently encompassed by what is generally considered to be more intimate than anything else, such as the parent–child relationship, allows us to grasp its conceptual universality. Furthermore, the eat-or-be-eaten relationship that underlies our inclination to care for life can be seen as an embodiment of this concept. The fact that phagocytosis is absent in prokaryotes is significant for understanding us, eukaryotes, from a conflict perspective.

and I are in inherent conflict.[61] The endlessly expanding outward linkage from my other to the other of my other through death as my end is established within me by converging upon the singular concept of the *child*, my genuine other.[62]

5. CONCLUSION

In the evolutionary history of life, death has been transformed from a mere external accident to an internal ability of all individuals, paradoxically becoming an issue intertwined with the connection of life that extends beyond the individual. The certain death of individuals seems "natural" and is indeed our destiny. However, when viewed from the initial viewpoint of life 3.8 billion years ago, it was a mechanism hidden deep within life that took 1.8 billion years to "discover." This discovery unveiled the following contradiction or mystery of life: the end of life is a continuation of life.[63]

We understand this contradiction in our everyday lives without realizing it. The superimposition of the lives of my descendants on my death (e.g., entrusting my own beliefs to my children) is natural for us, regardless of whether we do so. Including such an understanding in the discussion signifies expanding the scope

[61] Levinas states, "the son is not me; and yet I *am* my son. The fecundity of the I is its very transcendence. The biological origin of this concept nowise neutralizes the paradox of its meaning, and delineates a structure that goes beyond the biologically empirical." See Emmanuel Levinas, *Totality and Infinity*, trans. Alphonso Lingis, Leiden, Martinus Nijhoff Publishers, 1979, p. 277. Although he does not directly examine biological findings concerning fecundity, this statement implies the significance of investigations interpreting biology, such as the present study. Although consideration of the relationship between Levinas and this study is a future research task, the author nonetheless asserts that "I *am* my son" indicates a form of integration; however, at its basis lies the inevitable conflict between myself and my child. To clarify the relationship between conflict and integration in terms of death, the insights from modern biology that examine the underlying conflict in the continuation or evolution of life can serve as valuable guidance. Additionally, Sartre's theory of the other, founded on conflict, can provide philosophers with a valuable entry point to explore these biological findings.

[62] The substantial gap between existential philosophy, rooted in the perspective of the individual, and biology, which examines the mechanisms of life's continuation, arises not only from external factors, such as whether the research subject is limited to humans or encompasses other organisms, but also from the difficulty of exploring the relationship between "the individual" and "between the individual and the individual." However, this difficulty is surmountable, allowing us to strive for a profound dialogue between the two fields.

[63] The origin of sexual reproduction, which is closely related to the certain death of the individual, is a mystery even for modern biology. See, for example, David M. Hillis, David E. Sadava, Richard W. Hill, and Mary V. Price, *Principles of Life*, 2nd ed., San Francisco, W. H. Freeman, 2014, p. 318.

of our average everydayness of one's own death, surpassing even that of Sartre. This may be seen as undermining the precious nature of the phenomenological/existential philosophical approach, which has revealed aspects of the irreplaceable *I* and the world in which it dwells. However, the author's considerations do not disregard the fact that I must die alone; rather, they focus on the unchangeability of this fact, which is closely related to the outside within me (i.e., the child), and attempt to highlight its depth. While we understand the above contradiction in our everyday lives, in most cases, we do not consider the child as being the outside in conflict with ourselves. Therefore, our understanding of the child requires a modified grasp, just as our understanding of *my* end does.

This study, which represents one attempt at this grasp, marks the intersection between philosophy and biology. However, it also reiterates the distance between the two. Although this study expands the scope of our everydayness beyond Heidegger, it delves into the topic of death based on his conceptualization: that is, death as the unity of certainty and indeterminateness. Philosophy's disciplinary uniqueness lies in retaining the *determination of indeterminateness* as the basis for its formation, which grants it a privileged status in the topic of death.[64] By contrast, biology, grounded in observation and experimentation, cannot encompass the undetermined within itself, as it regards that which cannot be materialized as beyond its research scope. Consequently, it does not independently acknowledge the scholarly significance of indeterminateness. This disciplinary disparity constitutes the high wall separating them, which is why, in this study, the focus was placed on one of the two characteristics of death (i.e., certainty).

Is this wall surmountable? This question requires careful consideration, given that what is not scientifically defined has often perplexed the scientific community.[65] Deepening the exploration of indeterminateness and cautiously

[64] Indeterminateness is the unknown in that it cannot be converted into the known. On the relationship between the unknown and science, the unknown and my death, and science and my death, see Manabu Fukuda, 'Exploring the Philosophical Concept of *My* Death in the Context of Biology: The Scholarly Significance of the Unknown', *Continental Philosophy Review*, vol. 56, no. 2, 2023, pp. 317–33.

[65] Regarding this fact, neovitalism's concept of entelechy, an unprovable entity, stands as a classic example in the history of biology. Heidegger commends Driesch's work for clarifying the organism's character as a whole; however, concerning entelechy, he sharply criticizes it as "some force which […] explains nothing." See Heidegger, *The Fundamental Concepts*, p. 262. A more recent example is the work of immunologist Jacques

addressing this question through the interpretation of robust biological findings is a task for future inquiries.

As a preliminary understanding for this task, the author emphasizes that biology is currently venturing into territories previously unexplored due to their unobservable nature. For instance, biochemist Nick Lane discusses the origin and evolution of life from the perspective of energy.[66] Although biological energetics is not directly connected to the undetermined, it addresses the inherent conflicting relationships that underpin life. The symbiosis between bacteria and archaea, believed to have led to the dramatic evolution of eukaryotes, initiated intense intra-self conflict that could potentially destroy the symbiont. Sexual reproduction and the inevitable death of individuals are deeply linked to the perilous conflicting relationships within eukaryotes—the taxonomical domain to which human beings belong.[67] Anchored in these facts, contemporary biology can be seen as discovering the issue of conflict, which Sartre identified as fundamental to human existence, within the deeper realm of life. Thus, the energy perspective, inseparable from conflict, may be uniquely associated with indeterminateness in biology, akin to how Sartre associates conflict with complete indeterminateness for me (i.e., the outside of my death). Pursuing such interpretability is essential not only for extracting profound philosophical insights from biology but also for reaffirming and fulfilling the classical mission of philosophy to lay the foundations of sciences by engaging with biology, which has made remarkable progress since the time of Sartre.

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Benveniste in the 1980s. He asserted that highly diluted solutions lacking the active ingredient still influence the body, demonstrating the "memory" of the previously dissolved substance. Note that although the importance of scientifically refuting research lacking scholarly basis is indisputable, the question of whether science can directly address indeterminate wholeness, which humanity has longed to confront, is a separate topic that warrants discussion.

[66] See Lane, *The Vital Question*. From the perspective of the history of biology, the title of Lane's book evokes vitalism and, accordingly, energy evokes entelechy. This suggests that even a notorious past concept could be revived in some cases by renewing its content in cutting-edge research.

[67] For hostile symbiotic relationships within eukaryotes and their relationship to sexual reproduction and the origins of death, see Lane, *The Vital Question*, especially part Ⅲ.

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