The Historical Evolution of the Ethics of Complexity and Its Conceptual Development

Ethics of complexity is a set of theories based on a worldview of complexity which examines the relationship and impact of this worldview on ethics. These theories which began with a critique of the influence of simplistic worldviews on current and traditional ethical theories, introduced by scholars like Hesson Bai, Edgar Morin, Paul Cilliers, Harry Kaneman, and Minka Woermann, contain a variety of views and theories. While these concepts and theories have conceptual commonalities, there are differences as well and in each of them, significant or neglected aspects can be found that necessitate revising and developing the Ethics of Complexity. Therefore, in this study, by introducing the Ethics of Complexity through examining the historical evolution of the theories proposed in this area, we will attempt to develop the Ethics of Complexity in a new formulation. This development is supported by the common and reliable concepts in the proposed theories and through a content composition, it is presented in the light of Ethics and Complexity metaphor and has two levels. The first level involves complex reflection and self-critical rationality in the macro domain of complexity and in fact, it is the background and prerequisite to the second level that constitute the Ethics of Complexity. Second level is a set of measures including three principles of "Enter-Being", "Provisional Imperative", "Planetary benevolence" that have an interactive and complementary relationship. By utilizing these principles, ethical agent can gain a broader ethical insights and in the light of this insight, it can perform better at decision making and ethical functions.

Keywords: *Ethics of Complexity; Complexity Paradigm; Enter-Being; Provisional Imperative; Planetary benevolence.*

Introduction

Ethics has been and is one of the most important concerns of mankind to achieve the desired individual and social life. That's why throughout history it has been looked at from various dimensions and different theories and views are proposed. Part of this variation can be attributed to the influence of ontology on cognition and its variations at different times and even places. As Bai and Banak (2006: 7) argue, our basic views of how to live well (ethics) are based on how we perceive the world (ontology) and as our understanding of the world changes, our ethical orientation and paradigm change as well. Accordingly, considering complexity as a worldview that has greatly influenced and changed our understanding of the world, the present study investigates the consequences of complexity on ethics. Complexity scholars claim that although current and traditional ethical theories have reliable and justified aspects and elements, most of them are vulnerable to the challenges posed by the complexity of worldview as well as the complexity of life and the changes resulting from today's scientific advances. They believe that one of the

1 most important reasons for this vulnerability is decision-making and action in
2 ethical situations which is usually overlooked in current and traditional
3 theories; a problem that theorists of Ethics of Complexity perceive as the
4 realization of a modern-day thought and the "simplicity paradigm".

5   The paradigm of simplicity, also called the mechanical, Newtonian, or
6 modern-day thought paradigm, has been the dominant worldview of cognition
7 since 17th century AD, and has affected different aspects of human life. Since
8 the emphasis of this paradigm is to reduce and simplify phenomena and events
9 and to explain and control them based on simple linear causal relationships,
10 Morin (1394) called this way of thinking "simplicity paradigm" and in contrast
11 introduced "complexity paradigm". Complexity is a kind of worldview, which
12 believes that the complexity of being and facts must be accepted, and therefore,
13 cognition should not seek to reduce the complexity of phenomena and events
14 (including human societies and their relationships). Following developments in
15 basic and natural sciences in the mid-twentieth century, attending to the recent
16 worldview has had a new manifestation and has affected different areas of
17 knowledge. The area of ethics is not excluded from the influence of complexity
18 and for more than a decade, it has been affected by complexity. In this way,
19 theorists of complexity have provided theories of ethics in a variety of studies
20 aimed at expanding the complexity of science and knowledge. These scholars
21 believe that the complexity worldview and its consequences calls for a new
22 approach to ethics; therefore, they are looking for a new paradigm in the
23 approach to ethics based on a complex worldview which is used as a "Ethics of
24 Complexity" among scholars and in related texts. It should be noted that the
25 Ethics of Complexity comprises a diverse set of views and theories, which are
26 also different in spite of their conceptual commonalities. Moreover, in each of
27 them you can find significant or neglected aspects, which necessitate their
28 revision and development.

29   The purpose of this study, therefore, is to develop the conceptualization of
30 Ethics of Complexity while presenting the theories put forwarded in this area
31 historically and to review them analytically. This development will be
32 accomplished by combining the content of the common and reliable concepts
33 in the proposed theories and in the light of complexity and ethics as shared
34 meta-languages. Assuming the existing theories to be complementary, it is
35 claimed that they together provide a more comprehensive account of the Ethics
36 of Complexity in the light of the coherence of meta-languages. Since the
37 design and theorization of Ethics of Complexity have been done in the area of
38 complexity studies and the complexity is also shaped by the confrontation with
39 the paradigm of simplicity and modern thought, understanding the concepts
40 emphasized in simplicity and complexity is essential and will be addressed in
41 subsequent sections.
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1 **Complexity versus Simplicity**
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3   In the simplicity worldview/paradigm, the explanation of all the events and
4 phenomena of the universe is based on mechanical laws and simple causal and
5 linear relations as well as the consideration of the relationship between
6 phenomena and events in a predictable way and on the other hand, it
7 emphasizes objectivity, causal explanation, quantitative data, and certainty.
8 The application of this attitude in many sciences has led to a greater
9 understanding of phenomena and to the achievement of remarkable scientific
10 advances. But following these tremendous advances and the expansion of
11 human understanding of the universe and his surrounding phenomena, new
12 issues have emerged that the simple approach could not fully describe and
13 explain. Given this limitation, and following the emergence of the challenges
14 in mathematics, physics, and biology that emerged in the early 20th century,
15 humans had to think in a different way to comprehend the challenges and then
16 face them. Such thoughts are capable of better describing, explaining, and
17 understanding the phenomena and events of the universe that is not only more
18 real, but also more effective in dealing with today's issues of which the change
19 and complexity are essential features. This new and different method was
20 called complexity.
21   Linguistically, complexity means the unity of two elements that overlap
22 without eliminating their duality (Morin; Domingomota and Ciurana, 2008:
23 33). Moreover, by referring to the word "complex", this term in English refers
24 to things or ideas that "consist of a number of different interconnected and
25 interrelated components" and in particular, as an adjective, it is often used for
26 personality, community, feelings, or thoughts that are difficult to understand
27 and cannot be easily analyzed (Alhadeff-Jones, 2008: 63).
28   The history and evolution of complexity have experienced ups and downs.
29 Its theoretical backgrounds are various theories and sciences such as
30 Information Theory, Cybernetics, General Systems Theory, Evolutionary
31 Biology, Chaos Theory, and Complex Adaptive Systems Theory each of which
32 played an important role in orienting and completing complexity (Alhadeff-
33 Jones, 2008; Morin,1394; Micheal, 1395). This has led scholars of various
34 sciences to apply its concepts in a variety of ways and come up with different
35 interpretations and perceptions of its nature, conceptual boundaries, and
36 applications (Alhadeff-Jones, 2008; Koopmans, 2017).
37   Morin (2007), at a glance, divides these perceptions and applications into
38 "restricted" and "general" complexities and distinguishes them. He considers
39 restricted complexity the study of interconnected and multiple processes in
40 complex systems for modeling the laws and rules governing them through
41 reduced complexity of phenomena and its ultimate goal is to limit complex
42 phenomena to a precise definition or mathematical equation. In other words,
43 their goal is to simplify the complexity with the help of modern science and
44 technological tools. In contrast, the general complexity makes it impossible to
45 compute, formulate, and accurately understand complex phenomena due to the
46 many variables and interactions that exist (or arise) in complex systems, and

1 calls us to accept these constraints. Cilliers (2016) also emphasizes that this
2 limitation and the necessity of choosing the pattern of cognition (among the
3 various patterns that can be modeled or discovered) will guide us to the
4 temporality of cognition and knowledge, and relying on these two principles,
5 this dimension of complexity is called "critical complexity". This notion has
6 been more widely accepted in the humanities and social sciences, and thus the
7 second study (involving general complexity and critical complexity) is the
8 basis of the present investigation, since it has both a distinct and effective place
9 in human affairs and it is rightly assumed the default complexity by ethics
10 scholars.

11   Accordingly, the following sections include the most important concepts
12 and features of complexity in the second conception. Although, it should be
13 noted that in all conceptions and applications of complexity there are many
14 conceptual commonalities.

15   In the complexity, the universe, all phenomena, and events are regarded as
16 systems composed of multiple intertwined components and there is a great deal
17 of interaction between them: First, a complete and accurate understanding of a
18 phenomenon or event is difficult and largely unattainable, therefore, the
19 resulting cognition is forced to choose the outcome and pay attention to certain
20 variables. Second, each of the components is critical to understanding the
21 system as a whole. In other words, it recognizes and analyzes the phenomena
22 and events that result from selective modeling; however, it warns that the
23 identifier must be aware of this selectivity and not regard that knowledge as
24 definitive. Complexity also warns that the seemingly insignificant and
25 unexplained elements and factors should not be sidelined, as they may be part
26 of the whole system that, at a certain level of complexity, makes the
27 development of new and emerging features and behaviors possible (Mason,
28 1394: 80): A problem that was either neglected in the paradigm of simplicity or
29 deliberately used to simplify phenomena. Third, in complexity, the interactions
30 between a large number of variables in a system are nonlinear and dynamic;
31 nonlinear in the sense that the effect of each set of variables on each other is
32 variable and not the same depending on the spatial and temporal conditions;
33 and dynamic such that the presence of many variables and nonlinear
34 interactions may affect a particular event so that the event has a ripple effect on
35 the whole system and the system itself, in turn, made many changes to its
36 adjacent variables (Radford, 2008: 144-145).[1]

37   The consequence of these dynamic and nonlinear interactions is the advent
38 of emerging events; that is, the intrinsic relevance of phenomena and their
39 external interaction with the environment (including other variables) cause
40 them to emerge and cannot be understood and predicted by their separate
41 knowledge of the components and science. As a result, they are largely
42 unpredictable. Therefore, it is not possible to understand them before analyzing
43 the interactions and merely through variables. In other words, in terms of
44 complexity at higher levels of linear relationships (when variables are abundant
45 and relationships are nonlinear and dynamic), there are emerging behaviors and

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[1]This effect is referred to as the "butterfly effect".

characteristics that arise not only as a consequence of the nature of the variables and the constitutive and contributing elements in the situation, but more importantly as a result of the relationships and interactions between them.

Moreover, in the complexity paradigm, in addition to accepting the causal principle emphasized in simplicity, which is predicted based on simple and linear cause-effect relationships of the future behavior of the system, multi-dimensional causality is also considered and it is believed that linear causality is insufficient to explain the relationships of the phenomena of the universe and thus the second and third causes are raised. The second type of causality, known as "reactive cyclic etiology", emphasizes that effect can also affect its cause (Morin, 1394: 94). For example, a person's initial (polite / impolite) behavior can exacerbate that behavior as a result of the feedback he receives from others and also affect his (good / bad) social relationships with others. The third type of causality is known as "recursive causality", which implies that in a recursive process, the effects and products are necessary for the process that produces them (Ibid: 95). For example, individuals in a society are involved in shaping the culture of that society, and the culture of the community also shapes individuals and their identities; in other words, culture is both a product and an effect of society and identity.

According to the above-mentioned features, complexity has been introduced as a new paradigm in the domain of cognition and knowledge, in contrast to the paradigm of simplicity (Morin, 1394; Kuhn, 2008; Koopmans, 2017) and it has had influence and manifestation in various areas, including ethics, which will be discussed below.

The Ethics of Complexity; the Historical Process and Analysis of the Proposed Theories

The Ethics of Complexity is a new field of study that seeks to develop the worldview and epistemology of ethical complexity. That is because theorists of Ethics of Complexity consider many ethical situations to be complex and believe that common ethical approaches to understand ethical situations and decision-making and practice in those situations are ineffective. They claim that one of the most important reasons for this inefficiency is the difficulty and complexity of cognition, decision making, and acting in ethical situations which usually overlook this complexity; in other words, they believe that the factors involved and the complex conditions of ethical situations in many of the traditional views and theories have often been reduced and simplified to achieve a generalized and inclusive criterion or rule. New discoveries and achievements unveil day by day the complexity of the universe and add to its complexities, and therefore, it is necessary to adopt a new approach to ethics in order to face the challenges and achievements of the new sciences and the consequences of applying and using these achievements; an attitude that can benefit from new and technological advances in cognition, decision making, and ethical practice. Therefore, attempts have been made to formulate this

attitude in ethics, which, though not long after, has evolved. Bai, Morin, and Cilliers can be considered as the pioneers of the conceptualization of the concept of Ethics of Complexity, each of which has begun and developed his work by considering aspects of complexity in facing ethics.

In an article on complexity and ethics presented at the 2003 Annual Conference on Complexity Sciences and Educational Research, Hesson Bai put forward the first conceptualization of complexity-based ethics and applied the term "Ethics of Complexity". He believes that current ethical views and theories can be accommodated in a range from absolutism to relativism, and thus criticize these ethical theories - which either emphasize absolute ethics, or believe in ethics relativity - to move beyond the challenges of these perspectives and raises "Relational Ethics". Relational Ethics is established on a complexity-based worldview and indeed, by considering the relationship between phenomena and events in the world dynamically, nonlinearly, and non-definitely, Bie has set the Relational worldview against the mechanical worldview and the extremism worldview of postmodern relativism. He also considers Relational worldview as relationships that although not formulated (unlike mechanical worldviews), they are not without pattern, and therefore, they can be controlled and predicted. He then sets out the patterns of relations of phenomena in the world and consequently in ethics, on the basis of which he proposes the principles of "Enter-Being", "Generosity" and "Universal Beneficence" for the relational ethics and Ethics of Complexity. Enter-Being principle emphasizes the interrelationship between self and others. Generosity principle is concerned with the effects of one's action or presence on the world and calls the ethical agent into the generosity and openness of one's own beneficent ethical practice toward oneself and others. He believes that the practice of the two preceding principles leads to Universal Beneficence (Bai, 2003: 26-28). In his subsequent work (Bai & Banack, 2006), Bai emphasizes the principle of "Enter-Being" to expand his views on ethical training.

Edgar Morin is another philosopher of complexity who recognizes today's ethical crises as rooted in the dominant cognitive thinking based on the paradigm of simplicity - which emphasizes partiality and reduction - and he has pondered on this issue in a book entitled "Ethics" published in 2004. He considers the pursuit of ethics in today's complex world to be necessitated by the modification of thought and cognition based on the complex thinking (versus simplistic thinking) and he believes that this modification provides the basis for a return to ethics based on solidarity and responsibility - as the neglected sources of ethics (Morin, 2014, p. 5). Morin argues that this return requires complex thinking, cognition, and practice based on its principles, and calls it Ethics of Complexity.

In this regard, by defining human identity as interdependence and solidarity of the tripartite relationship of "individual-society-human kind", Morin considers the Ethics of Complexity as self-based, community-based, and human-based. Self-based ethics refers to one's embodied ethics and calls the individual to organize Egoism and development of Altruism (Ibid: 164-162). Community-based ethics is the calling of the individual and society to associate

with a common "us". Morin believes that by understanding and developing their attachment to the whole planet as a shared "us", one will better understand their solidarity and shared interests with others and with other beings and phenomena, and therefore, many of the issues that arise from delimitations, detachments, and profitabilities will automatically be eliminated. He uses the term "planetary" to understand this common "us" and calls the individual to the home-earth planet[2]. Human-based ethics treats human as the concept of human beings but it is not human-centered; it involves another understanding and relates to the awareness and behavior of the environment and humans and generations so that this understanding can make human destiny, human generation, and the environment interdependent, common, and universal. As a result, Morin believes that ethics requires understanding the complexity and correlation of human relationships with nature, human beings, and past and future generations, and reorganizing these relationships responsibly.

Similarly, Cilliers (2004), in his article "Complexity, Ethics, and Justice", introduces the concept of justice by turning to the Ethics of Complexity. By proposing a division of ethics including modern ethics and postmodern ethics, he implicitly considers the complexity as a postmodern ethic in contrast to modern ethics, and tries to provide an explanation of the Ethics of Complexity with the aid of justice as an ethical concept. In fact, he seeks to draw the line between modern ethics and the Ethics of Complexity, and this is reflected in his later work.

Harry Kahneman is another philosopher who begins his critical analysis of Cilliers (2004) in a chapter in his book "Complexity, Difference, and Identity", entitled Ethics of Complexity. He believes that Cilliers presupposes the existence of a very specific type of complex system in his intended Ethics of Complexity and exhibits features that cannot be obtained from the general theory of complex systems. Thus, he seeks to draw a "mediating level" to link the general theory of complex systems to the Ethics of Complexity, and attempts to draw the lines of this mediating level by assuming that Ethics of Complexity possesses an excellent quality of the relationship between "oneself" and "others" (Kunneman, 2010). He calls this mediating level "Dia-poesis" and defines it as the continuous evolutionary acquisition and development of identity (for everything as a system; for example, an individual or community) through dynamic interaction with others. Of course, Conman suggests the need to go beyond the concepts of complexity and tries to develop his theory with the help of the narrative ethics proposed by French Paul Ricoeur. Subsequently, Cilliers, in collaboration with Woermann, in an article entitled "Ethical Complexity and Ethics of Complexity" explores the implications of complexity to recognize ethics. In their view, ethics and ethical approaches as a consequence of the selectivity and temporality of cognition in

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[2]Moran uses "being a planet" to avoid using the word "globalization" because he believes in globalization, the humanitarianism and the emphasis on political, economic, and technical aspects is very strong while being planetary or getting planetary, emphasizes the social and cultural aspects of humanity in relation to other beings (on planet Earth).

complexity are kinds of probabilistic cognition. As a result, it cannot be considered completely objective or reduce it to a general formula. Thus, they present a critical position and a kind of ethical strategy that calls for the ethical agent to have a particular attitude when making ethical decisions (Woermann & Cilliers, 2012); an attitude called the "Provisional Imperative", and generally, it includes the state of mind or the attitude of the ethical agent when making decisions and choosing rules to practice. Based on the "Temporary Rule" when you do an action, you must first be aware of this logic that there are other ways to model events and facts (for example, when facing others) and second be open to these methods (and the results that are the same as models); that is, accept the existence of other methods and models, and revise your method and model if necessary (Woermann & Cilliers, 2012: 451-452). This strategy has practical and effective capabilities in dealing with issues specially in ethical situations.

Other issues related the Ethics of Complexity have often been put forward by the same philosophers and in the context of proposed theories; therefore, they are not mentioned here to avoid verbosity. We will discuss the proposed theories in subsequent sections.

Examination of the proposed theories shows that theorists of Ethics of Complexity formulate their own ethical approach by criticizing the influence of simplicity worldview on traditional ethical theories, and from this point of view, they necessitate the attitude change in ethics in terms of complexity worldview; a change in attitude that is essentially an effort to make the ethic a new and more efficient organization. However, each of the aforementioned philosophers, from a different perspective, has come to theorize the complexity of ethics in terms of his understanding of complexity and ethics, each of which has considerable strengths and weaknesses.

The strength of Bai's ideas is proposing relational worldview and its Ethics of Complexity. His Enter-Being principle emphasizes different aspects and dimensions of the interpersonal relationship and calls on the ethical agent to understand the dynamic and interacting human identity. But to understand this principle and to consider it by an ethical agent requires a different (complexity-based)[3] attitude and thought, which would not be possible without practical responsibility and direction; mere understanding of this relationship does not lead to ethical practice, and of course, responsibility must include a broader scope of self-centered attitudes. Probably that is why Bai has come up with two other principles (generosity and Beneficence) and it should be noted that calling for these two principles also requires understanding and responsibility and it does not seriously eliminate the primary deficiency of the "Enter-Being" principle.

One of Morin's strength is the discussion about the link between cognition and ethics, that cognitive development leads to ethical development. The necessity of this attitude is also evident in Bai's work, although Morin has paid more attention to it. There is a challenge, however, that cognitive development does not necessarily lead to ethical development and can only be regarded as a

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[3]Complex Thinking

basis for the ethical development of the ethical agent. Another point is that Morin does not explicitly and strategically point out how this growth in ethics and solutions to ethical issues is manifested and he hopes that through the cognitive development of ethical agent, ethical dilemmas do not emerge, or if they do, they could be fixed by relying in complex thinking. This view is achievable but ideal.

The "Provisional Imperative" proposed by Cilliers and his colleagues is largely considered as an attempt to link ethical thinking and ethical practice and to move beyond absolutism in decision making and ethical practice; however, the "Provisional Imperative" is a general principle or strategy in thought and cognition. In other words, it is not just about ethical situations and it requires ethical formulation and the addition of a constraint that brings about beneficent decision and practices; for example, mental modeling of events may be done for the purpose of personal benefit.

The Ethics of Complexity; Conceptual Development

Given the proposed challenges and for the purpose of greater cohesion, conceptual development of the ethic of complexity seems necessary. This necessity is related to the separate inadequacy of each of the theories; that is, we believe that each of the presented theories alone has deficiencies that call its effectiveness and consistency into question. At the same time, they each have reassuring strengths that can be combined to integrate with the Ethics of Complexity. Accordingly, in the light of the presented theories and their strengths and commonalities, we seek to provide a more efficient explanation of the ethical situation for ethical agent by developing the Ethics of Complexity in a new formulation.

In line with this development, and in a primitive definition, Ethics of Complexity can be considered a set of measures (based on the concepts and components stated in the conceptualization of the complexity paradigm) that help ethical agent gain a broader ethical insight and in the light of this insight, the agent can work better in ethical decision making and practice. These measures can be categorized into two levels that are somewhat different, though there are several overlapping cases.

At the first level, there are those cases that relate to the paradigmatic characteristic of complexity, which are present in all aspects and dimensions of human existence and cognition. These cases are the prerequisites for the second level, which include the content of the Ethics of Complexity. In other words, the first level contains considerable cases in all areas of science and knowledge and at the second level, there are measures in the area of ethics that help the ethical agent in decision making and improving the ethical practice.

The first and prerequisite level include the "complex thinking" proposed by Morin in the area of "General Complexity" and "Self-Critical Rationalism" presented by Cilliers in "Critical Complexity".

1   Through proposing the concept of general complexity, Morin believes that
2   the key to confronting and resolving challenges in different areas of science
3   and knowledge, including ethics, is the modification of thought and method of
4   cognition and believes that complex thinking has changed the theoretical
5   foundations of understanding the world, human, knowledge, society, etc.
6   Thereafter, the ethical agent obtains a broader and more effective insight into
7   ethics issues, especially in ethical situations; For Morin, complex thinking is
8   essential to the Ethics of Complexity and provides the interconnected and
9   mutual link between "cognitive development - ethical development" (Morin,
10   1394: 197-169). In this regard, the guiding principles of complex thinking, in
11   his view include: Systematic Principle, Hologrammatic Principle, Retroactivity
12   Principle, Autonomic Dependent Principle, Dialogic Principle, and Principle of
13   Introducing the identifier into all Cognitions - most of which are related to the
14   method of cognition (Morin et al., 2008: 20-25).
15   The Systematic Principle enables the understanding of phenomena and
16   events (whether human identity or ethical relationships) as a complex system,
17   comprising diverse, interconnected, and multifaceted components and
18   dimensions. The Hologrammatic Principle refers to the existence of whole
19   features (complex systems) in its components[4] and the Retroactivity Principle
20   is a higher level of causality and linear insight that considers the recurrent
21   effects on cause.
22   The Autonomic Dependent Principle suggests that any system in order to
23   maintain its autonomy requires an openness to the environment in which it
24   interacts, and without these dependencies, autonomy is not possible. The
25   Dialogic Principle enables the contemplation and organization of the
26   intellectual space by means of logics that are complementary, competing or
27   opposing at the same time; in other words, thinking through this principle does
28   not exclude those cases which are competitors or antagonists and also it does
29   not exclude the possibility of them being concurrent or complementary. The
30   Principle of Reintroducing the Identifier into all Cognitions, challenges
31   objectivity and certainty and the identifier contributes to the overall knowledge
32   and recreation of knowledge, and thus contributes to uncertainty and ambiguity
33   (Ibid.).
34   In the field of social and human relations, for example, one ethical agent,
35   relying on complex thinking, considers other human beings having a complex
36   identity, including the interaction of diverse and multiple intertwined layers
37   that constitute a member of society. This member's identity is the result of
38   genetic, social, and cultural information to come to the existence as an
39   independent identity; while the member carries the existence of the community
40   to which he belongs, the community is present in member's mind and
41   cognition through its language, culture, rules and norms. Independent
42   individual identity, therefore, is in fact dependent on the environment and
43   society in which the individual exists. So understanding human behavior in

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[4]A hologram is an image in which each point contains almost all the information about the
depicted subject. In simpler terms, this principle expresses the simultaneous existence of whole
in part and part in whole.

accordance with or contrary to society's norms will be understandable by humans; behaviors that may seem contradictory and may be positive or negative aspects of one's personality traits.

Parallel to complex thinking and its principles, Cilliers' Self-Critical Rationalism emphasizes the following in the area of epistemology and method of thinking; acknowledging the limitation and temporality of cognition and its selectivity (Cilliers, 2016). In his view, from the complexity point of view, it is not possible to fully understand the system and complex phenomena and to identify the models one must necessarily eliminate some of the complexities. However, the identifier is aware of this elimination based on which the intended cognition is temporary. Temporality of the awareness refers to this point that we do not assume any knowledge and practice as absolute and are constantly subject to review and reconsideration (Woermann & Cilliers, 2012: 452). Moreover, temporality involved being conditional and historical implicitly within itself. It is conditional because existing modeling is based on selected variables. It is historical because first, the variables are formed and selected based on assumptions already within the identifier and second, the identifier applies the consequences of previous decisions (and practices) to new decisions (and practices).

Diagram 1. Different Levels of Ethics of Complexity

In the context of what is explained at the first level, at the second level, there are three principles of "Enter-Being", "Provisional Imperative " and "Planetary Benevolence" that fall under the guiding principle of Ethics of Complexity:

A. The principle of "Enter-Being" is one of the common elements and concepts in the Ethics of Complexity and is based on the complexity worldview. Its assumptions imply the varied and dynamic relationships and the existence of numerous and influential variables in complexity, and although explicitly raised by Bai, they are clearly implicit in Morin and Conman's work and in Cilliers' work. Understanding it requires the Hologrammatic Principle, Retroactivity Principle, and Autonomic Dependent Principle based on complex thinking and emphasizes the temporality of cognition.

1   Enter-Being conceptually means every person or thing at every moment of
2   time is inextricably interconnected and interdependent with all individuals and
3   objects. Therefore, people will have to live in solidarity with others. Bai
4   believes that this principle depicts interpersonal communication at the
5   community level because it emphasizes the mutual connection between oneself
6   and others that their relationships and characteristics are in constant influence,
7   so that people think and act through the cognition and recognition of the
8   relationships between themselves and others (Bai & Banack, 2006: 14). The
9   development of others into one another that includes, in addition to humans,
10   other living and non-living beings, and events and phenomena, can contribute
11   to Morin's purpose in human-based ethics, that is the understanding of shared
12   destiny, and this is the cornerstone of Ethics of Complexity. In other words,
13   understanding one's inevitable solidarity with the other is an introduction that
14   guides the ethical agent to ethical decision and practice.

15   B. The principle of Provisional Imperative has been specifically put
16   forward by Cilliers and his colleagues and is implied in Morin and Bai's work.
17   The assumptions of this principle are concepts of uncertainty, nonlinear
18   interactions, and emerging events and to understand and apply it requires
19   believing that the cognition is selective and the identifier is reintroduced into
20   all cognitions. Provisional Imperative requires the ethical agent to adopt a
21   particular attitude in decision-making and practice in an ethical situation; an
22   attitude that addresses all the ethical requirements associated with that situation
23   (Woermann & Cilliers, 2012: 451). The requirements may be rooted in
24   community, culture, or religious beliefs or may be of a humane and universal
25   nature. However, the Provisional Imperative requires the ethical agent to
26   consider, first and foremost, the contribution or privilege of any one of those
27   requirements, and formulate diverse and possible modeling in accordance with
28   the conditions and characteristics of the ethical position, and make decision and
29   practice in accordance with the other two principles. Of course, this decision
30   may be in line with current or ethical requirements or a new one. In other
31   words, the Provisional Imperative requires the ethical agent to take into
32   account the different approaches and aspects in which an ethical situation can
33   be understood and formulated and then, make decisions and take actions
34   consistent with the principle of Enter-Being.

35   Woermann and Cilliers believe that a Provisional Imperative needs to
36   consider four components that enable the capacity to apply the Provisional
37   Imperative: Provisinality, Transgressivity, Irony, and Imagination (Ibid: 452-
38   459). Provisinality refers to the awareness that we do not assume any ethical
39   requirements or approaches as absolute and keep them under constant review
40   and reconsider them if necessary in practice. Transgressivity refers to
41   sensitivity and openness to what we have assumed to be provisional, where
42   necessary, to violate commonly accepted requirements and rules, and to
43   formulate and choose new requirements or rules or practices. Irony means
44   having doubts about their beliefs, decisions, and practices, and not being
45   confined to them, and actually taking a critical position in support of being
46   Provisinality and Transgressivity. Imagination, in addition to helping to bring

1 to mind the greatest possibilities and consequences for understanding ethical
2 position and practice, involves the ability to visualize and formulate diverse
3 methods of modeling and the creation of new methods and it moves towards
4 the future.
5   C. The principle of "Planetary Benevolence" points to the two preceding
6 principles. Benevolent practices and motives are central concepts in ethics
7 (Stanford Encyclopedia of Philosophy, 2019) and exist in virtually all ethical
8 theories and approaches as ethical ends and give them positive direction. It is
9 the product of a variety of cognitive and emotional elements and factors, and in
10 complexity ethics can also have a complex correlation feature; that is, at the
11 same time there is a conflict or contradiction between its emotional and
12 cognitive aspects. By "Planetary" it means the scope of all creatures and events
13 on Earth.
14   There is a trace of this principle in Morin's Ethics of Complexity and Bai's
15 initial activity. Bai (2003) introduces the principle of "Universal Beneficence"
16 as a derivative of the Enter-Being principle, and believes that since All beings
17 in the world are interconnected and identified through their interactions,
18 therefore, conflict of interest has no meaning and good will for one depends on
19 good will for others. This argument of Bai indeed focuses on a theoretical
20 scope called "Benevolence". Morin also believes that human life and its social
21 community involve human, community, and mankind, therefore, every
22 decision and action is considered to have ethical dimensions and connections
23 and be influential on others. From this point of view and since he believes that
24 solidarity and responsibility are the sources of ethics, the principle of
25 benevolence is inevitable.
26
27
28 **Discussion and Conclusion**
29
30   Although the development of the Ethics of Complexity in the new form is
31 based on parts of theories of Ethics of Complexity that have been sufficient to
32 reconstruct and invoke ethics in a complex worldview, it is nonetheless
33 necessary to explain this theory considering the ethical implications of each of
34 the principles stated in order to evaluate its effectiveness. Then we explained
35 that since the first-level principles and arrangements contain paradigmatic
36 features of complexity and are considered as the background of second-level,
37 we have not directly examined them. Therefore, our focus is on the second
38 level, which consists of the three principles of "Enter-Being", "Provisional
39 Imperative" and "Planetary Benevolence". The relationship of these three
40 interactors is complementary and confirming; that is, the presence and
41 harmony of the three come together leads to a combination of Ethics of
42 Complexity.
43   The Enter-Being principle and applying it in the area of ethics is related to
44 the solidarity of the ethical agent with other human beings and phenomena and
45 it points to their shared destiny. The consequence of Enter-Being is that each
46 individual, in understanding this shared destiny and correlated with the

1 universe, finds himself compelled to interact with the other and second thus
2 responsible for it. In fact, this principle and interaction of the individual with
3 others brings about the ethics and that one has a sense of solidarity with others
4 in a shared destiny causes the other dimension of human identity to become
5 relevant and - possibly - to modify the self-centered dimension of one's
6 identity. Moreover, understanding this solidarity enhances one's understanding
7 of the consequences of their decisions, actions, and behaviors and it warns that
8 some effects of behaviors, actions, and events are chaotic and sometimes a
9 seemingly small or trivial decision or action leads to big far-reaching
10 consequences.

11 The purpose of Provisional Imperative is to confront absolutism in ethical
12 decision-making and practice and has two important consequences. First,
13 knowing that it is possible to model different kinds of events, the ethical agent
14 does not assume approaches, requirements, and common rules as consistent
15 and absolute and by taking two other complementary principles (Enter-Being
16 and Planetary Benevolence) into account, choose a model that is more
17 consistent and probably acts on it. In other words, the ethical agent when
18 placed in an ethical position, selects and applies a modeling approach by
19 examining the situation based on different modeling of events (various options
20 of decision and action; for example, according to a deontologism or
21 utilitarianism approach). It should be noted that this choice is made in the
22 context of complex thinking and critical complexity, with the help of
23 Provisional Imperative and correspond to two other principles. Correspondence
24 means that the result should not violate the other two principles or their
25 expected consequences; in fact, the other two principles control decision-
26 making and practice in order to achieve those two principles and ultimately
27 good ethical decision/action.

28 Second, Provisional Imperative has provided the ethical agent the
29 possibility to return and reconsideration and requires the agent to continually
30 review and reconsider previous and current ethical decisions and actions based
31 on any modelling or ethical approach. This revision, of course, must also be
32 done using the elements of Provisional Imperative and corresponding to two
33 other principles. The application of this possibility usually becomes relevant
34 after the decision is made and acted upon to avoid absolutism and
35 naturalization[5] so that one can always use new modeling in social change
36 situations as well as scientific and technological advancements.

37 Planetary Benevolence is the principle that guides the two previous
38 principles and neutralizes their possible deviation. Morin and Bai, however,
39 believe that understanding Enter-Being makes benevolence inevitable. In other
40 words, the two principles of Enter-Being and Planetary Benevolence
41 correlative and complementary. The overall responsibility is to extend the
42 scope of this benevolence to beyond human beings and mankind. That is to
43 say, the ethical agent here calls for benevolence towards other beings,
44 phenomena, and events; a problem that is unintentionally or deliberately
45 ignored in human-centered ethical theories.

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[5]A state of mind in which one merely follows existing accepted beliefs and models.

Consequently, based on the above-mentioned remarks, it appears that the hybrid model of Ethics of Complexity has more potential to be used in ethical situations that in many cases involve a variety of complexities. These potentialities include attendance to the conditions and complexities of the ethical situation, existence of various opportunities for ethical decision-making and practice (not just a fixed opportunity as a rule), and principles of control and validation of a good ethical decision and action.

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