Necessity and Chance: The Metaphysical Dilemma

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Abstract This paper critically examines the old metaphysical problem of chance and necessity as they relate to change. Have you ever sat down and thought about chance and necessity as contending forces in human lives? If you have been bothered by such a thought, then, you would have probably known that these forces hit us from every side. This paper argues that we live in a world that is more vulnerable to the vicissitudes of the contending forces of necessity and chance. The consequences of chance and necessity in human affairs manifest in an endless variety of forms. Some darken, frustrate and complicate our existence, confound our plans and prevent us from actualizing our cherished ambitions. Others illuminate our lives and instill in us the expectation of hope, confidence, a bright future and happiness. The basic question now is: What is chance and what is necessity? Necessity in general implies what is bound to occur and occurs in nature or society under specific conditions. Necessity is always expressed in the objective laws of nature and society. On the other hand, chance is taken to mean that which might or might not happen. This position makes chance stand on a causal dependence. The metaphysical world where we live is ruled by possibilities and probabilities thereby making chance and necessity inevitable. It is on this ground that the paper submits that there is nothing that necessarily must occur and nothing that might not occur. Anything, or any event, however incredible may occur or may not occur. From this viewpoint, nothing is impossible, everything appears to be dependent on chance thereby giving little room to necessity.

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Some Conceptions of Necessity and Chance

Necessity and chance are two contending metaphysical forces which directly or indirectly affect the activities and actions of men. Through the lenses of metaphysics, some schools of thought have argued that human actions are propelled by necessity rather than by chance. Chance has been regarded as a terror which tends to dominate human accomplishments. This paper attempts to explore the metaphysical imports imposed by necessity and chance as they affect human activities. What then is necessity?

A seminal discourse on necessity is traceable to the metaphysical speculation of Leucippus in fifth century B.C. Before Leucippus, Philolaus of Thebes had earlier stated that "all things take place by necessity and by harmony". This opinion prepared the ground for the atomic theory in Greek metaphysical tradition. Leucippus consolidated this position thus: "Nothing happens without a reason, but all things occur for a reason, and of necessity" (Durant 1966: 352).

The elaboration of this view by Leucippus appears to be a response to the view earlier put in place by Zeno and Parmenides on the void or empty space. Through this view, Leucippus hopes to clarify the concept of motion theoretically possible as well as sensibly actual. The universe according to him is composed of atoms and space and nothing else. These atoms in his view tumble about in a vortex fall by necessity into the first forms of all things, like attaching itself to like, in this way arose the planets and the stars. All things, even the human soul are composed of atoms (ibid.).

Democritus of Abdera 460–360 BC, a distinguished disciple of Leucippus developed the atomistic metaphysics into a rounded system of materialism. He begins like Parmenides with a critique of the senses. For the purposes of demonstration, we may rely on them, but the moment we begin to analyze their evidence we may run into difficulties. For Democritus, the only thing that exists is atom and the void. He put it this way;

> Nothing comes about perchance,
> But all through reason and by necessity
> Nothing can be created out of nothing, nor
> Can it be destroyed and returned to nothing.
> There is no end to the universe, since it was
> Not created by any outside power (Santillana 1961: 144).

Arising from this position is the view that an atom cannot be created nor destroyed showing its indivisibility. This view, however, could not stand the test of time as the atom was divided into protons, electrons and neutrons through advancement in scientific research and development. Democritus, also, deplored the senses as they obscure knowledge or opinion; genuine knowledge comes through investigation and thought. In his words, "Verily, we know nothing. Truth is buried deep. . .. We know nothing for certain, but only the changes produced in our body by the forces that impinge on it" (Durant 1966: 353).

He also observed that the atoms that constitute the world differ in size, figure and weight. No nous or intelligence guide them but by necessity. It is from this viewpoint that Konstantinov (1982: 134) sees necessity as the stable, essential connection of things, phenomena, processes and objects of reality conditioned by the whole preceding course of their development. The necessary according to him stems from the essence of things and, given certain conditions is bound to occur. Since necessity is something that must happen, how does it relate to inevitability? The point must be made that not everything that is necessary is inevitable. Necessity becomes inevitable when other possibilities have been ruled out and there is only one left. In a nutshell, necessity implies what is bound to occur and occurs in nature or society under specific conditions. Necessity therefore is expressed in the objective laws of nature and society (Zakharov 1985: 113). In a similar vein, necessity is understood as that which must occur and cannot but occur. Necessity from the dimension of this analysis is metaphysical determinism. In this regard, the Stoics unarguably were the first to present a coherent system of determinism. The term determinism depicts the view that everything that happens has a cause or causes, and could not have happened differently unless something in the cause or causes had also been altered. For the Stoics, "The world itself, like man, is at once completely material and inherently divine. Everything that the senses report to us is material, and only material things can cause or receive action. Qualities as well as quantities, virtues as well as passions, soul as well as body, God as well as the stars, are material forms or processes, differing in degrees of fineness, but essentially one" (Durant 1966: 652–653). The Stoics further state that, "all matter is dynamic, full of tension and powers, perpetually engaged in diffusion and concentration and animated by an eternal energy, heat or fire". On the universe, the Stoics assert that it "lives through innumerable cycles of expansion and contraction, development and dissolution; periodically it is consumed in a grand conflagration, and slowly it takes form again; then it passes through all its previous history, even in minutest detail; for the chain of causes and effects is an unbreakable circle, an endless repetition" (ibid., 653). The conclusion of the Stoics is that all events and all acts of will are determined; it is as impossible for anything to happen otherwise than it does as it is for something to come out of nothing; any break in the chain would disrupt the world.

The Stoics were so much engrossed in hard metaphysical determinism believing that everything under the sun is predetermined. In this view, then, necessity or causality depicts a situation where something must occur whether we like it or not.

In their interpretation of the Stoics, Solomon and Higgins (1996: 71) maintain that the Stoics' doctrine of determinism is characterized by an almost fanatic faith in reason. In particular, they intensify the old antagonism between reason and emotion. For the Stoics, reason must be separated from emotion because emotions are forms of irrational judgment, the sort that makes us frustrated and unhappy. The Stoics looked and observed that they were in a world that had gone haywire, a social world in which vanity, cruelty and foolishness reigned supreme. In spite of this assertion, the Stoics believed in the rational universe even though this contradicts their earlier assumption which sees the universe as irrational and absurd. The Stoics

consolidated their notion of determinism by uncompromisingly accepting the power of human reason, a "spark of the divine", to enable us to see through the cruel and petty foolishness of human concerns. The purpose of this is to appreciate that larger rationality. To achieve this target, the Stoics advised that we should live "in conformity with nature". Living in conformity with nature is desired but this does not acquit man from the vicissitudes of nature (Honderich 1995).

Types of Necessity

Various forms of necessity have been identified as follows:

(a) Epistemic necessity: In an effort to communicate knowledge, sometimes the modal auxiliaries 'must and may' appear to be used in an epistemic sense to express, respectively, what is entailed by and what is consistent with what a thinker knows. Thus, someone who knows that a train is due but has not yet arrived may assert, 'it must be late,' and one who knows that it is due but does not know whether it has yet arrived may assert, 'it may be late'. Epistemic necessity is accompanied with a high degree of certainty.

(b) Logical necessity: A proposition is described as a logical necessity when it is deduced from the law of logic alone. For example, either it will rain or it will not rain expresses a logically necessary truth because it is an instance of the law of excluded middle. Again, if all men are mortal and Socrates is a man, then, Socrates is mortal, expresses a logically necessary truth. A logical truth is necessarily true because the contrary will amount to a contradiction. A logical necessity may be characterized as a proposition which is true in every possible world without exception.

(c) Metaphysical necessity: Kripke (1980) has maintained that there is an objective necessity which is at once stronger than physical necessity and yet not simply identifiable with logical necessity. Logically necessity truths are knowable a priori from a rational point of view, but Kripke argues that metaphysical necessity is typically, only discoverable a posteriori that is, on the basis of empirical evidence. For example, Kripke holds that if an identity statement such as 'water is H_2O' is true, then, it is necessarily true – in the sense that it is true in every possible world where water exists. In this case, we can prove that water is H_2O on empirical ground through scientific investigation which is prone to error.

(d) Nomic necessity: The word nomic means law-like which implies that the world is governed by laws. These laws seem to be regular if human experience is anything to go by. For example, water boils at a certain degree, cigarette smoking leads to cancer and lung cancer can kill. Although these laws provide a guide through experience, different results can occur depending on the individual. There are people who have smoked all their lives but have not been infected with cancer, there are those afflicted with lung cancer but have

not died. The shortcoming with nomic necessity is that there is no regularity in nature. Things could go wrong any time.

Chance

Just like any metaphysical concept, the word "chance" is not easy to define in a single phrase or construct. Chance is commonly taken to mean that which might occur or might not occur, or might occur in any way. A basic question raised by metaphysicians is: What is the interrelation of necessity and chance in the world around us? In an attempt to answer this question, Boguslavsky (1978: 198) states that there is nothing that necessarily must occur and nothing that might not occur. Anything, any event, however incredible may occur, and it may occur one way or the other. From this position, it means that nothing is impossible. There is no such thing as necessity. Everything in the world is the outcome of chance.

Konstantinov (1982: 134) restated this opinion when he maintained that chance is what under certain conditions may occur or may not occur, may happen in a certain way or may happen otherwise. The problem with this position is that chance events seem to be based on certain principles. Chance events seem to be open-ended. If chance is open ended, it means that it is unpredictable. This view is further elaborated by Rastrigin (1973: 18) as follows; "chance is first and foremost, the unpredictability that is due to our ignorance: to our being badly informed, to the absence of necessary data, and to our lack of essential knowledge." What we can deduce from here is that, chance is essentially a measure of ignorance: the less the information we posses about an object or issue the more chancy is its behaviour. Conversely, the more we know of an object or issue the less is its behaviour a matter of chance, and the more definite we can be in predicting its future behaviour. Now, if chance is based on ignorance, and we happen to have knowledge of something, does this eliminate chance? We have to be careful on the response we are positing to this question. In the view of Rastrigin, three defenders of chance have emerged. They are as follows:

First, there is an infinite complexity of the world. It is impossible for us to exhaust the endless variety of the world. The more this is pursued the more we are confronted with more complex challenges. To put it simply, there is a natural ban on completely exhausting the world of its mysteries. In order words, "it is impossible to fathom the unfathomable."

The second point why chance cannot be eliminated is that it is found in our limited accuracy of measurement. Although development in science and technology has helped us to improve the measuring of various items it is not yet perfect. In other words, there is nothing like an absolute accuracy. This state of affairs limits the possibility of prediction and as a result makes the survival of chance possible.

The third point is that chance comes into play as a result of the indeterminacy principle or uncertainty formulated by a German physicist Werner Heisenberg (1901–1976). The uncertainty principle states that every event the outcome of

which is determined by the interaction of individual atoms is of its nature a chance affair. Chance seems to have a strong linkage with probability. An action is said to be probable when its result cannot be predicted. Trying to clarify chance as having linkage with probability, Honderich (1995: 129) maintains that chance is used interchangeably with probability. According to him, among experts, however, there are more distinctions, or attempted distinctions between chance, probability, degree of belief, relative frequency, propensity, likelihood and some others. He gave some illustrations; For a given coin-tossing device, we may think of:

(i) the actual frequency of heads in a given series of tosses,
(ii) the betting rate a person would offer on heads for a prospective toss,
(iii) what the frequency would be for some prospective "long run"
(iv) the dispositional condition of the device to produce heads, and other related things.

The problem with this outline is whether we are identifying something definite and whether to call it chance. This view reminds us of the traditional problem in philosophy concerning the view that nothing ever really happens merely by chance. On this view, even though the probability or chance of heads for a single toss may be explained in various theories as being half, it will nonetheless be true that the outcome of the toss was causally determined in advance. The implication in essence is that the result of tossing of a coin is not predetermined, the coin is capable of falling either way. The prediction of where the coin will fall is a matter of chance.

That chance dominates human activities is attested by Monod (1971) when he maintains that life on earth arose by "freak chemical accident and was unlikely to be duplicated even in the vast universe." In his words, "man at last knows he is alone in the unfeeling immensity of the universe, out of which he has emerged only by chance". Monod believes that man is a merely chemical extract in a majestic but impersonal cosmic drama – an irrelevant, unintended side show. Some scholars have raised strong objections on this view as it seems to be anchored on the evolutionary theory. One of the criticisms is that Monod used this bleak assessment as a springboard to argue for atheism, the absurdity and the pointlessness of existence. For this school of thought chance is a fiction invented to disguise our ignorance. Activities of men on earth seem to be motivated by chance, especially those actions or decisions we are unable to control. If our actions are based on the rigid laws of the universe, we would not be making mistakes and this provides enough room for chance to operate. This aspect of the analysis will throw more light on chance in human affairs.

Chance and Necessity in Human Affairs

The brute experience of human existence demonstrates to a large extent the interaction between necessity and chance. When we are confronted with life challenges, we might not know where the pendulum will swing. Sometimes, when we succeed in solving some protracted problems, we begin to ask whether we are the one that solved the problem or somebody else. Sometimes, we ask whether the problem was solved by chance or through a defined device.

Some scholars have shown examples on how necessity and chance dominate human affairs. Sodipo (1973) in offering a unique sense of African philosophy distinguishes what he calls the "Yoruba concept of cause" and the western or the "scientific" concept of cause. The Yoruba concept of cause according to him is ruled by some supernatural or god and satisfies aesthetic and religious emotions. Causes of events are explained purely in terms of personal entities. Sodipo extended this view to competitions. When for example a person wins in a competition, the cause of his victory must be that the gods were in his favour, that is, that the gods wanted him to win. When he is defeated, it is because the gods do not favour him or do not want him to win. There is no scientific or general law of chance which determines such a victory or defeat. He further states as follows;

> Even if a general law says that only one person out of a hundred passengers in a lorry involved in an accident would be saved the Yoruba believe that the gods, not chance, decide who that lucky one shall be and it is certainly worth trying to make oneself the lucky one. . . through the necessary sacrifices to some god or gods (ibid.,19).

In a similar vein, Ohaeri (1988) agreed with Sodipo's submission when he states that the Yorubas traditionally conceive of illness as being caused by an admixture of three factors, namely: natural, preternatural and supernatural. Mild problems, such as common cold and diarrhoea, especially when brief in duration are attributed to natural causes (for example bad odour, filthy or unsanitary conditions). But when a disease is severe or becomes chronic or is unexpected, then primitive supernatural beliefs prevail. Preternatural causes (such as witchcraft and human curse) and supernatural causes (such as offences against the gods or ancestors) are sought in such instances.

Superstition Ohaeri believes still waxes strong in African traditional societies irrespective of one's level of education as far as causation is concerned. Events, especially unfavourable ones, do not just happen by chance, but are caused by supernatural forces. A man's sickness or his involvement in an accident may be attributable to the influence of another person who for some reason harbours ill will toward the unfortunate victim.

There are strong objections against anchoring necessity and chance on religious or supernatural grounds. Oruka (1975: 48–49) argues that if we take Sodipo's position and other schools of thought seriously, it may imply that Yoruba traditional thought or philosophy is grounded on religion. If cause is explained in terms of chance set-ups and if the occurrence of an event is brought about by the probability of its chance to occur, in accordance with certain objective and impersonal laws of

science, it becomes clear that the cause of any event must be based on chance. But if Oruka's view is pushed to a logical conclusion, it will amount to subjecting every event to the whims and caprices of chance. In this case, therefore, anything can happen.

Makinde (2007: 90–91) reduced the whole argument on cause and chance as presented in African philosophy as obsolete. In his view, the traditional concepts of cause and chance in Yoruba traditional thought is presented from purely a religious angle. He compared this view to that of Mbiti who conceived the universe in a religious term. In Mbiti's account according to Makinde, God is read into objects and phenomena, while in Sodipo, things and events are caused by God or gods. Makinde did not condemn traditional thought which is not peculiar to Africans but cuts across Europe, however, he is of the view that the idea of conceiving the universe, cause and chance on purely a religious dimension does not promote the critical attitude expected in the development of philosophy and science. As an obsolete philosophy, this conception of cause and chance is not only unscientific but will make scientific investigation impossible. One will agree with Makinde's position because if at this age of critical philosophy and sophisticated scientific advancement we still fall back on traditional modes of explanation of events and phenomena, we are likely to be left behind with the train of progress.

This author is of a strong conviction that chance plays a dominant role in human affairs. Some examples that will illustrate our case better are as follows: If professor x emerges as a vice chancellor from a group of competent professors, this does not mean that the others are not qualified but is as a result of chance. That a baby boy or girl is born into a family is not dependent on the man or woman but the forces of the x and y chromosomes. Some families have witnessed instability as a result of blaming a woman for having more female children than male ones. That one is appointed a minister or a special adviser does not mean that he is better than any other person who is also qualified. Everything is dependent on chance.

Human Freedom

One of the ways in which necessity and chance play a dominant role in human affairs is through the exercise of human freedom. Freedom consists in rational judgment pulling a man to the right while irrational impulses pull him to the left. The metaphysical notion of freedom appears to have come from Hegel in his analysis between freedom and necessity. For Hegel, freedom is the appreciation of necessity. "Necessity is blind only in so far as it is not understood." Freedom does not consist in any dream – of independence from natural laws, but in the knowledge of these laws, and in the possibility this gives to systematically making them work towards definite ends (Engels 1978: 140–141).

In the realization of this definite end, freedom of the will therefore means nothing but the capacity to make decisions with knowledge of the subject. To this end, the freer a man's judgment is in relation to a definite question, the greater is the

necessity with which the content of this judgment will be determined; while the uncertainty, founded on ignorance, which seems to make an arbitrary choice among many different and conflicting possible decisions, shows precisely by this that is not free, that is controlled by the very object it should itself control. Freedom, therefore, consists in the control over ourselves and over external nature, a control founded on knowledge of natural necessity which is necessarily a product of historical development (ibid.). Hegel's position seems to rule out chance in the exercise of human freedom. The nature of man when he is faced with competing interests is unpredictable. This position is giving credence by Davies (1983: 137) who used the quantum factor to dismiss necessity. According to him the basic principle of the quantum theory is that nature is unpredictable. Davies linked this view to the uncertainty principle developed by Heisenberg which maintains that there is always an irreducible indeterminism in the operation of subatomic systems. In the micro world, events occur that have no well-defined cause. This runs contrary to the view of the proponents of free will who assert that the activities of a person are determined by his character, inclinations and personality. Most scholars who support indeterminism do so, on a critical scrutiny of human actions. Reacting to this, Ian Hacking, (http://www.cambridge.org.catalogue), argues that "by the late nineteenth century, it became possible to think of statistical patterns as explanatory in themselves, and to regard the world as not necessarily deterministic in character. In the same period, the idea of human nature was displaced by a model of normal people with laws of dispersion. These two parallel transformations fed into each other, so that chance made the world seem less capricious: it was legitimized because it brought order out of chaos." Hacking further argues that "these developments have led to a new style of scientific reasoning gaining its hold upon us." His conclusion is that "the greater the level of indeterminism in our conception of the world and of people, the more we expect control and intervention in our lives, and the less we expect freedom." The implication of this position is that determinism or necessity is an obstacle to human freedom and an obstruction to man's effort to transform the world.

It is against this background that Eiseley (1961: 350) argues that the mind of man, by indetermination, by the power of choice and cultural communication, by the great powers of thought, is on the verge of escape by the blind control of that deterministic world with which the Darwinists had unconsciously shackled man. The inborn characteristics led upon him by the biological extremists have crumbled. Man is many things – he is protean, elusive, capable of good and appalling evil. He is what he is – a reservoir of indeterminism. He represents the genuine triumph of volition, life's near evasion of forces that have molded it.

The analysis of human freedom is one of the difficult metaphysical problems. In one breath, man is said to be free, and in another, he is said not to be free. The discussion and the proffering of a solution to this metaphysical problem is the metaphysical dilemma to which we shall now turn.

The Metaphysical Dilemma in Necessity and Chance

The rift between necessity and chance can be traced to the thesis of Democritus on the nature of the atom. This thesis is anchored on the view that, "the atoms that constitute the world differ in figure, size, and weight; all have a tendency downward; in the resultant rotatory motion; like atoms combine with like and produce the planets and the stars. No *nous*, or intelligence, guides the atoms, no Empedoclean 'love' or 'hate' assorts them, but necessity – the natural operation of inherent causes – rules over all. There is no chance; chance is a fiction invented to disguise our ignorance" (Durant 1966: 353).

From the view of Democritus, everything in the universe is governed by necessity thereby making chance a fiction. The indivisibility of the atom which formed the basis of Democritus, view was set aside when the atom was broken down into protons, electrons and neutrons. This, I think, was actualized because of chance through a breakthrough in science. The view of Democritus on necessity and chance was further compounded by philosophers after him who threw more light on the nagging issue of necessity or determinism on one hand, and chance or indeterminism on the other. Determinism maintains that all events must have causes; that is, whatever events occur may be connected by general laws to other events (Abel 1976: 10). The interpretation of this position, is that, what does actually happen, must happen, and whatever does not actually happen cannot happen; there is no middle ground of possibility or contingency. This position is likely to rule out chance or probability which is an objective and inherent aspect of the world. The dilemma of determinism and indeterminism are so glaring when we are confronted with human actions. This dilemma can be stated thus: "(1) if determinism is true, we can never do other than we do; hence, we are never responsible for what we do. (2) If indeterminism is true, then some events – namely, human actions – are random, hence not free; hence, we are never responsible for what we do. (3) Either determinism is true or else indeterminism is true. (4) Therefore, we are never responsible for what we do" (Feinberg and Shafer-Landau 2002: 458). A thorough examination of these options presented above points out an undeniable position. This position is that both determinism and indeterminism are possible metaphysical orientations. For example, we can say that passing an examination depends on how hard a candidate works. This is contrary to winning a lottery or getting a job. In the former, hard work is a necessary condition for passing an examination while in the latter chance takes predominance. It is also not out of place if a candidate passes examination without working hard. There could be bribery or corruption where a hard-working candidate can be oppressed. The conclusion one can draw here is that anything is possible in human affairs as no rigid laws are sacrosanct. Even when we apply and observe all laws pertaining to an event or phenomenon, we can not guarantee absolute certainty but a provision for our limitations must be recognized.

Conclusion

The dilemma of chance and necessity has attracted a protracted metaphysical debate starting from the classical period in philosophical development. This debate appears to be compounded by the traditional metaphysical stance that reality is grounded on necessity. The examples that we have given in this paper show that no matter how strictly we adhere to the tenets of determinism, indeterminism unarguably affects our actions. The indeterminacy principle made popular by the German physicist Werner Heisenberg shows clearly that our measurement precision is always limited giving room for chance. Also, the history of man and his struggle with nature demonstrates the reality of chance. It is on this ground that this paper concludes that necessity and chance are two contending metaphysical forces that dominate human affairs.

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