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REVIEW ARTICLE

LAW OF CAUSALITY AND IDEA OF TIME IN THE 'THEORY OF KARMA'

***Dr. Rakesh Kumar Pandey**

Associate Professor in Physics, K M College, Delhi University, India

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ABSTRACT

An attempt is made to understand the similarities in the origin of the basic laws of physics including the Newton's laws of motion and the 'Theory of Karma'. The problem of arbitrariness in time of observing the 'fruits' that is observed in the 'Theory of Karma' is also discussed using the concept of time that exists currently according to the 'modern science'. A recently reported scientific result (Physical Review Letters, 2014) (arrived at by simulating the Universe through multimedia technology) suggesting existence of a mirror Universe where 'arrow of time' would be negative, has also been discussed in the light of expected violation of the 'Law of Causality'. More recently a paper by Dmitriy Podolskiy and Robert Lanza (Annalen der physic, 2016; Science alert, 2016) concludes that time is created in observer's mind and therefore demanding a time bound effect for the 'Theory of Karma' is not valid.

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INTRODUCTION

Modern science originated from Newton's attempt to use mathematics to understand rules of nature. The laws of motion that he gave was one of the initial laws that contributed towards building up the present scientific way to see and analyze the nature around us. Newton's laws can be reasoned out to have been conceived from the analysis of our daily experiences and the common sense developed through our observations of the world around us. It is an unchallenged fact that the material world is a world in which we do not expect time to move in a way where cause would follow the effect. This world itself can be defined as a place where a 'cause' precedes its 'effect'. Newton's laws are nothing but a logical conclusion of this understanding of the world around us. It basically assumes two states as 'natural' – one when a system is at rest and the other when it is moving with constant velocity. Newton argued that these two kinds of states are perfectly natural and they do not require any external hand to keep the system in these states. Any violation in the state therefore, was expected only to confirm presence of an external agency causing the same. In this light, the three Laws of Newton (Halliday, Resnick and Walker, 2011) can be re-written in the following way without changing the basic meaning governing the laws.

Corresponding author:* **Dr. Rakesh Kumar Pandey,
Associate Professor in Physics, K M College, Delhi University, India.

1. The first law means that if you want to disturb a system from its 'natural state' (as defined above) you need to do something extra and that too through an agent 'external' to the system.
2. The second law says that the disturbance created in a system is the measurement of the effort that is being put up by the 'external agent' in creating the same.
3. And the third law states that there is an exactly equal effect on the 'external agent' that is causing the disturbance as is that felt by the disturbed system itself.

Supported by the formulation of the first two Laws, in particular the 'Third law' is nothing but the manifestation of Theory of Karma in an equivalent form for the living beings. You would reap what you have sown. 'Theory of Karma' states that whatever you do, comes back to you exactly in the same extent and manner. But when? While Newton's law suggests that it would be immediate, Theory of Karma remains silent about the time that a 'fruit' would take to appear once the 'effort' is sincerely made for that. It however asserts that the effect would certainly appear after the cause gets executed. Theory of Karma also conjectures to accept the validity of 're-birth' as the time for an effect to surface itself is not bounded from above and according to this theory the effect may appear immediately, or sometimes later in this life or even in our next life after our re-birth. Many other laws of Physics can find their origin in such an understanding of the world as no instance of event is expected to challenge this 'common sense' even occasionally. All conservation laws in physics stem from

such an understanding that systems do not get disturbed externally unless the change is caused through an external agent. Laws of conservation of linear and angular momentum, law of conservation of mass-energy combine and conservation of charge and parity directly originate from this understanding of the material world. Scientifically speaking, these laws are expected to solve and predict behavior of non-living matter and are never expected to find their application in the case of living beings. Science, as developed by Newton and others, has focused on understanding only the material world with these laws. To develop an equivalent understanding of the 'living' world was never considered to be a topic of science, as it was difficult to expect identical responses from every 'living beings' even in identical environment – this being the primary requirement for inviting any attention from the scientists.

Understanding wider variety of phenomena through fewer number of laws

Modern Science has evolved to its present state using its main strength wherein 'science' keeps itself open for any change in its laws in order to have a better and wider understanding of the material world. A continuous attempt is being made by 'science' in developing such an understanding of the universe wherein we would be able to explain wider and wider variety of phenomena using fewer and fewer laws of science. Let me elaborate this with the following examples.

1. Newton proposed the gravitation laws for all the heavenly bodies without discrimination although he apparently noticed only an apple falling on the earth. 'Science' in this case wanted to understand movement of all the heavenly bodies with the same set of gravitation laws.
2. Starting from an understanding that sun moves around the earth 'science' modified itself by accepting that actually it is the earth that moves around the sun; then it changed in favor of the picture where sun and earth both move around their centre of mass and finally it has accepted that all observed motions are only relative. Each of these formulations successively gave us an understanding of the dynamics of more and more heavenly bodies using a uniform set of laws governing their movements.
3. Magnetic effects that were earlier understood as different from the electrostatic effects also went through a paradigm shift. Now, magnetic effects are understood only as the effects of moving charges (Halliday, Resnick and Walker, 2011) instead of being a new phenomenon to be analyzed separately.
4. Another aspect that mass and energy are entirely different and both must be separately conserved also got modified after the Einstein's relativity (Halliday, Resnick and Walker, 2011) theory forced 'science' to consider the conservation of mass-energy combine. This also helped in understanding the world even at a microscopic level without giving up our understanding of the macroscopic world.
5. With the formulation of Quantum mechanics, science lost even the distinction even between matter and waves. This giant leap in the understanding of science came after De-Broglie (Arthur Beiser, 2003) proposed that the dual nature that was supposedly then associated and observed only in the case of light is an inherent property of every matter that exist in this universe.
6. The evolution of Standard Model (Matthew D. Shwartz, 2014) similarly, has also been an attempt to understand all forces with the same set of rules and laws.

These examples, although not exhaustive, nevertheless lay stress on the realization that the attempt of science has since remained to find laws that could be applicable to more and more phenomena and situations. Arguably, 'Science' wants to understand this universe with as lesser number of laws as possible. Each time 'science' has been able to find a single law to explain physical phenomena that were earlier considered to be entirely disconnected from each other – a new era has emerged marking a phase of much better understanding of universe.

Science of 'Theory of Karma'

Surprisingly, since its inception, science has differentiated between the living and the non-living things by 'assuming' a 'scientific distinction' between the two. The laws of Newton were never expected to be applicable for the living beings in the scheme of 'modern science'. On the other hand 'Theory of Karma' that existed in this part of the world in the form of our 'ancient philosophy and common heritage' has kept on asking 'science' to widen-up its understanding of the universe. In this regard, what de-Broglie did for science by erasing the distinction between matter and wave – 'Theory of Karma' has been demanding the same - by asking 'science' not to differentiate between 'non-living' and 'living beings'. 'Theory of Karma' can be easily considered, in this context, as a natural extension of Newton's laws to cover even the 'living beings' along with the 'non-living' objects. 'Theory of Karma' essentially proposes that whatever is true for the non-living matter is true even for living beings. Similar to the basic ideas of Newton's laws, its understanding of universe also originates from the assertion that 'nothing happens in this world without a cause'. 'Theory of Karma' also believes that each event is an effect of a cause occurred earlier. It tries to explain this by assuming that if a living being is 'suffering' or 'enjoying' - it must be because of one's own earlier actions. To accept this law to be true however, one has no option but to accept the existence of multiple lives of a single soul. To explain an effect whose cause is apparently missing in the present life - one has to believe that the cause rested in one's life earlier than the present one. 'Theory of Karma' that finds its origin earlier in Atharva-Veda and then discussed extensively in the Buddhism later, are slightly different in its treatment and understanding in the two narrations.

Buddhism accepts the 'Theory of Karma' as per the understanding of science of non-living matter that existed during his era - without accepting the existence of 'God' and argues that, just as in the case of non-living materials, for the living beings too the result comes as a natural response to one's actions. However to differentiate between the two it also proposes that there are several other 'unavoidable factors' too that influence the 'fruits' of an action (Bhikkhu Bodhi (translator) 2000; Bhikkhu Nanamoli (translator) 1995; Bronkhorst, Johannes 1998; Bronkhorst, Johannes 2000; Burke, Erin 2003; http://www.buddhanet.net/e-learning/karma.htm). To accept even the Buddhist 'Theory of Karma' was forced to believe in the idea of re-birth as it becomes impossible to provide satisfying responses to the doubts raised in those cases where 'theory of Karma' apparently fails to give reasons for different rewards for similar actions under similar

circumstances. On the other hand, while the Vedic literature including Bhagwad-Geeta does convey that the 'fruits' that one receives, are decided by the Karma of the doer but it also talks of some variation from the ideas as illustrated in the Buddhist literature. In all the major school of thoughts existing in Hinduism - such as Advaita philosophy, as proposed by Adi Sankaracharya and given in Brahmsutra (Commentary on Brahma Sutras III.2.38), and Dvaita philosophy as proposed by Madhwa (Tapasyananda, Swami. *Bhakti Schools of Vedanta*), 'Mimansa View' (Commentary on Brahma Sutras III.2.38), 'Shaivism' explained by Thirugnana Sambandar, 'Vaishnavism' as given in Bagwat-Purana & Vishnu Sahasranama using Brihadaranyaka Upanishad (Krishna, the Beautiful Legend of God) and 'Nyaya' school of thoughts as given in Vedanta (Theistic Explanations of Karma), it accepts the existence of a super-consciousness (God) that 'regulates' the allocation of 'fruits' to do justice in each individual case. These different narrations existing in the Vedic literature invariably points out the requirement of an external agent (God) who keeps on sanctioning the 'result' of each 'action' without interfering in the actions while being performed. It is for this reason that Bhagwad Geeta (*The Bhagavad Gita, Indian Sacred Text*) concludes that – we must focus on our 'Karma' (actions) that is under our control since the 'results' are decided not by us but by someone Else (God) Who does an honest evaluation of the respective actions. All other philosophies that originated in this part of the world have overwhelmingly been influenced by the 'Theory of Karma' and therefore the idea of rebirth is accepted by almost all (Tull, Herman; Radhakrishnan; Karma and Rebirth in Classical Indian Traditions, 1980; Reichenbach and Bruce, 1989; Krishnan, Yuvraj, 1997; Karma in Hinduism).

The assumption of existence of God that decides the 'extent' and 'quality' of a 'fruit' to be returned in response to an 'act' seems to have been proposed only to convince that it is impossible for a 'result' to be not 'exactly' matching with the 'act'. Advaita philosophy of Sankara provides enough clues for such an understanding.

The idea of time in 'Theory of Karma'

In each of these approaches however, no acceptable reference is given to any explanation about the time that a 'result' would take to reach the 'doer'. That the 'results' or the 'fruits' would be available to the doer only after an action is executed is asserted but how long it would take – the 'Theory' remains silent on this account. 'Buddhism' has attempted to address this issue by bringing in too many parameters (circumstances and environmental factors) influencing the 'calculations' for getting the result and in a way indicate that the estimation of 'time' is beyond us. Hinduism school of thoughts already put this question beyond our reach as the 'quality' of 'return' and the 'time' that it would take to reach the person performing the 'action' - are decided by God Himself. It is argued that for living beings 'mechanical/immediate' reaction may not be able to provide 'justice' and hence some regulatory authority exist that 'sensibly' decides these issues rationally and satisfactorily.

Existence of a Mirror Universe as reported (Physical Review Letters, 2014) using Multimedia Technology

Science almost takes it for granted that 'time' in this world is changing in a single direction. The direction of time is best understood by physicists is the movement of time that coincides with increase in entropy of an isolated physical system (Arthur Stanley Eddington, 1927). The third law of thermodynamics clearly states that any isolated system can only increase its entropy after going through an 'internal process'. The universe itself being an isolated system is therefore expected to be passing through a process of evolution that is supposedly increasing the entropy of the universe. And that defines the positive change in 'time'. Recently (Physical Review Letters, 2014), scientists have attempted to simulate a model wherein a large number of particles were allowed to move under laws of gravitation. This model was simulated on a computer using multimedia technology that illustrated the dynamics of the Universe. Based on the results arrived through this model, it was concluded that there may exist two universes. These two universes are found to be mirror of each other such that sense of 'time' happens to be opposite to each other in the two. In the first instance, this indicates that in the other Universe the arrow of 'time' might move from 'effect' to 'cause' and thereby would contradict the 'Law of Causality'. However they have reported that although the sense of 'time' would be 'relatively' opposite to each other in the two Universes but for an observer making a measurement in any of the two Universes, 'time' would always appear to be moving from 'cause' to 'effect'. The law of Causality therefore would be violated only in the 'mirror' Universe where the observer is actually not making measurements. And therefore, Law of Causality still prevails.

With Einstein's Theory of Relativity, it has been scientifically established that 'time' is relative and it changes with the choice of a frame of reference where the observations are being made. However, no frame can reverse the sense of movement of time – that is, 'time' can never be negative. In the present context each living being in this universe would define its own 'frame' entirely personal to that observer. In this strictly scientific way of understanding 'time', it becomes clear that 'time' is relative and hence the duration taken to deliver a 'result' may vary from 'frame to frame' i.e. 'person to person' but that an appropriate 'fruit' would be resulted due to an 'action' performed earlier – can never be violated for sure. The Law of Causality therefore is still observed to be true for science as well as for the 'Theory of Karma'.

Another recent paper by Dmitriy Podolskiy and Robert Lanza (2016) reports that time is created by the observer and as reported in Science Alert (Science alert, 2016) - "In his papers on relativity, Einstein showed that time was relative to the observer," Lanza told Wired "Our paper takes this one step further, arguing that the observer actually creates it." This paper shows that time doesn't just exist 'out there' ticking away from past to future, but rather is an emergent property that depends on the observer's ability to preserve information about experienced events. With this result then and the understanding of 'time' as proposed in this paper, the same conclusion gets further enforced that as time taken for the effect to display itself has no meaning as long as it occurs after its cause, 'Theory of Karma' can't be falsified on this ground.

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