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## **A Parallel Between Bhagavad Gita Slokas and Newton's Laws of Motion**

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### **ABSTRACT**

*Bhagavad Gita and Vedanta discuss three paths to reach the ultimate goal of life that of Jnana (Knowledge), Bhakti (Devotion) and Karma (Action). Here, parallels are drawn between Bhagavad Gita and Newton's three laws to emphasize the point that everyone who is into enquiry of the reality would get to the same truth but from different perspectives. In this paper, a parallel is drawn between force in Newton's laws to that of desire in philosophical thought while trying to bring about an amalgam between the paths of Jnana, Bhakti, Karma and Newton's three laws. Similarly, a parallel is drawn between the mind and a bowl to relate the various states of equilibrium such as unstable, stable and steady state of matter as discussed from Newtonian perspective, to those of an immature, mature and illumined mind that result as one progresses on the spiritual path or a scientific path of enquiry into nature of Truth with an open mind.*

**Keywords:** *Force, Desire, Jnana, Karma, Newton's laws*

### **1. INTRODUCTION**

Spirituality is a process of transformation from animosity to humanity to divinity. A person has to refine his/her tendencies from those inherited from animal nature such as the six *arishad vargas*: *kama* or lust, *krodha* or anger, *lobha* or greed, *moha* or attachment, *mada* or pride, and *matsarya* or jealousy, to developing the human values such as *Sathya* or Truth, *Dharma* or Righteousness, *Shanti* or Peace, *Prema* or Love, *Ahimsa* or Non-violence, and *Sahanubhuti* or Empathy. *Manas ekam, Vachas ekam, Krmanyekam Mahatmanam* or a truly great human being is one who has developed unity of thought, word and deed. Spirituality is an inner journey that takes one from animal nature to human nature and from human nature to

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divine nature. Bhagavad Gita is one of the pinnacles of Vedanta, an exposition on the Self and various philosophies of life which were enunciated by Lord Sri Krishna to Arjuna on the battle field of Kurukshetra. Of all the various paths laid down in the Gita, three of them are considered primary, that of, Jnana or Knowledge, Bhakti or Devotion and Karma or Action. All the three paths lead to the same goal of Moksha or Liberation. Moksha may be defined as Moha Kshaya, deliverance from Moha or Attachment. Attachment is the root cause of all misery from which a person is seeking deliverance so that one may enjoy eternal bliss or a constant state of happiness which Lord Buddha calls Nirvana.

On the other hand, Science is the process of understanding the working of the material or physical universe through methodical observation and verifiable experimentation. Science is a process of enquiry into the truth behind the physical reality, including comprehension of how this universe came into existence and why are things the way they are. Understanding the laws of nature gives the power to transform knowledge into skills that have led to many technological innovations which confer physical comfort and a multitude of conveniences, like effective transportation, communication, health care etc., as well as to weapons of mass destruction. Newton's laws are one of the foundations of Classical Mechanics, which deals with the understanding of the motion of various material bodies in the universe. The goal of Newton's laws of motion is to present a theoretical construct that could explain the motion of all bodies in the universe so that, given the initial conditions of the system, one could solve Newton's equations of motion to predict the future course of the system at any time instant. Philosophically, it presents a **deterministic** universe, that is, a universe where once one knows the initial conditions and initial state of the system one can predict the future state of system without ambiguity, in other words, a **causal** universe, where the same cause always results in the same effect and an **objective** universe where the observation is independent of the observer.

In this paper, an attempt shall be made to see the underlying unity between the three laws of Newton and the three paths of Vedanta as propounded in the Gita by Lord Sri Krishna. Also, we shall explore the three states of equilibrium and how they are similar to the states of equilibrium in spiritual seekers.

## 2. NEWTON'S LAWS AND BHAGAVAD GITA:

In Bhagavad Gita [1], Lord Sri Krishna in the 18<sup>th</sup> Sloka of Chapter 4 [2], describes a Jnani thus:

कर्मण्य कर्म यः पश्येदकर्मणि च कर्म यः ।  
स बुद्धिमान्मनुष्येषु स युक्तः कृत्स्नकर्मकृत् ॥

*“That man indeed is greatly intelligent, who sees inaction in action, and action in inaction, And he being a greatly Wise man, would do all his actions with a peaceful mind”.*

This was very difficult for me to comprehend when I was a student of M.Sc. (Physics). I kept wondering how someone who is not engaged in action can be always in a state of action and vice-versa. Then, when I started teaching Newton's laws of motion [3], in the Classical Mechanics course to first year undergraduates, after joining as a lecturer, suddenly something struck me.

### 2.1 Newton's First Law:

*“When viewed in an inertial reference frame, an object either is at rest or moves at a constant velocity, unless acted upon by an external force”.*

Here is a situation where something which is in constant motion (action) is being put on equal status to something which is at complete rest (inaction), when the net external force (Desire) is equal to zero (does not exist). Sri Krishna also declares that all actions performed without any desire for the fruits thereof, are equivalent to inaction. How does such an action take place? It is inspired by pure love and selfless service such as that of saintly people who are only interested in Loka Kalyana or welfare of the world and have no other interest in their mind. The best example of actions inspired by love are that of mother towards her children. Love in Action is truly inaction - if we say 'Love in Action' fast it sounds like 'Love Inaction'.

*“State of Rest is equivalent to State of Uniform motion if Net External Force = 0”*

*“Inaction is equivalent to Action if Desire = 0”*

## 2.2 Newton's Second Law:

*“The Rate of change of momentum of a body is directly proportional to the net external force acting on it and is in the direction of the force.”*

The progress of a spiritual seeker towards his goal of moksha similarly is going to be directly

*Rate of change of Momentum = Force acting on the body and is in the direction of force*

*Rate of Progress = Intensity of Desire and is dependent on single pointed focus*

proportional to the intensity of the desire and the single pointed direction of the desire. For that matter, it is often said that one can obtain anything one desires if one has strong desire for it and has a focused mind on obtaining it. Paulo Coelho in his book, “The Alchemist” [4] says, “When you really want something to happen, the whole world conspires to help you achieve it”.

When a spiritual seeker approached Sri Ramakrishna Paramahansa and asked him, “Master! How can I get the darshan of the Lord?” the Master held the head of the seeker inside water and did not release him in spite of repeated struggles from the disciple to take his head out. Finally, when he let him out, the disciple gasped for a breath and the Master told him: “If you yearn for the Lord with the same intensity as you have done just now for the sake of a single breath, the Lord will certainly appear before you.”

Lord Sri Krishna sums up these very thoughts in a beautiful way to his disciple Arjuna in 34<sup>th</sup> Sloka of Chapter 9 [5] in the Bhagavad Gita as:

मन्मना भव मद्भक्तो मद्याजी मां नमस्कुरु ।  
मामेवैष्यसि युक्त्वैवमात्मानं मत्परायणः ॥

*“Please become, one who thinks of Me, one who is My devotee, one who worships Me, and one who always salutes Me. For if you consider Me as your divine goal, Single-mindedly, you would attain Me”.*

Just as the frictional and drag forces decrease the acceleration of a body so also various attachments bind a person and drag him to the material existence and away from the goal of moksha. Intensity of devotion implies cutting away the worldly attachments and developing strong attachment to the Lord.

### **2.3 Newton's Third Law:**

*“When one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction to that of the first body”.*

Every action has an equal and opposite reaction. The action and the reaction are simultaneous in case of forces but not when in the case of force fields. So also according to the law of karma propounded by Vedanta, one shall face the consequences of one's actions whether in this life or the next. When we hit the table, immediately we feel the hurt, when we eat something we get the result of digestion after few hours, when we plant a seed we get the tree after a few years. So, whenever we undertake certain actions the results of the action shall certainly occur but in some cases after some time lapse. In fact, the whole world is but a reaction, reflection and resounds. But when our actions are filled with love, then they result in real action, real affection and real sound.

*“Every Action has equal and opposite Re-action”*

*“This entire world is but Reaction, Reflection and Resound”*

### **3. STATES OF EQUILIBRIUM:**

A body is said to be in a state of equilibrium when the net forces acting on the body are zero. There are three states of equilibrium, unstable, stable and neutral equilibrium.

#### **3.1 Unstable Equilibrium:**

If the system moves away from the equilibrium after small disturbances, then the equilibrium is said to be unstable. In unstable equilibrium, the body tends to increase its displacement. That is, in this type of equilibrium, any departure of the system from equilibrium gives rise to forces or tendencies that move the system further away from equilibrium. For example, consider a ball at the top of an inverted bowl as in Fig. 1(a). In its current position, it is stable - but if given a slight push in any direction it will roll downhill - diverging from the equilibrium point.

This can be compared to the case of of a person with an immature state of mind. When all the person's desires are satisfied they look very happy and to be enjoying an equilibrium state but even small variation from their expectation, say, a setback in exam or in love, and they tend

towards depression or a state of despair. These are seekers who are gaga about their devotion when their desires are fulfilled and will run to another guru when their smallest desires do not materialize. This state can be compared to that of a closed mind just like the upturned bowl.

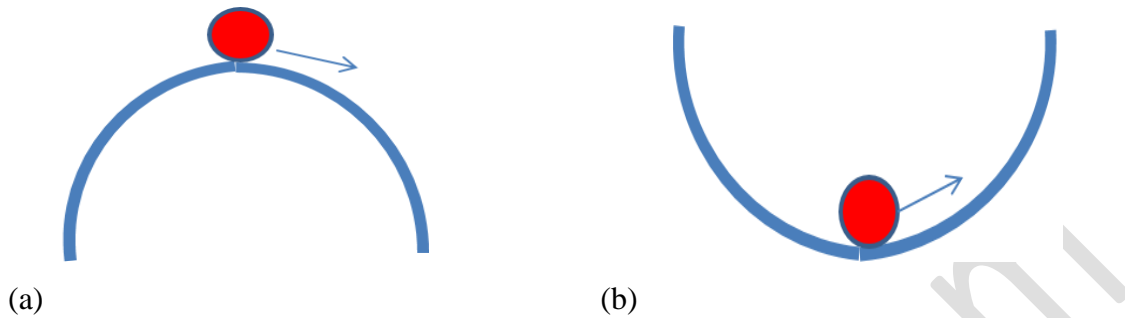


Fig 1: (a) Unstable equilibrium, (b) Stable equilibrium

### 3.2 Stable Equilibrium:

A body at rest is in stable equilibrium if, when slightly displaced, it returns to its original position and state of equilibrium. In this equilibrium, any departure from the equilibrium state gives rise to forces or influences which return the system to its state of equilibrium. For example, if we give a small push to the ball inside the bowl in Fig. 1(b), it will oscillate back to its original still state.

This can be compared to a person with a mature mind who has seen many setbacks and comes to realize that happiness is an interval between two sorrows. These are spiritual seekers who, although their faith might have oscillated in face of setbacks earlier, nevertheless reach a state of equilibrium after some time. These are with an open mind but are in a well, constituted of their own experiences which per-condition their for new circumstances.

### 3.3 Neutral Equilibrium:

In a neutral equilibrium, a slight change will not necessarily lead to the system returning to the prior state, but it will not begin to diverge (move far away from its initial position), either. For example, consider a ball on a flat table as in Fig. 2. Push it slightly and it will roll a bit and settle on another spot on the table. The disturbance affected the position, but not the stability. This state of equilibrium possessed by a body will stay at rest if moved into a new position; it will neither move back to its original position nor move on any further.



Fig 2. Neutral or Steady State equilibrium

This state is achieved after expanding the walls of the well as one's knowledge develops and as a result of constant pushing of the walls with many trials and tribulations. Finally, the devotee after many hardships which he/she perceives as the Lord's Will reaches a state of equilibrium that can be called an illuminated mind, the true state of a Jnani.

#### 4. CONCLUSION:

In conclusion, a parallel has been drawn between Newton's laws and major ideas of *Jnana*, *Bhakti* and *Karma* in Bhagavad Gita. However, it must be kept in mind that Newton's laws are limited to the domain of physical reality which is within the realm of the senses, whereas the ideas of *Jnana*, *Bhakti* and *Karma* are sublime and philosophical in nature and help one achieve realization of one's own self which is beyond the realm of senses and is the result of a process within. So, when one is interested in understanding the motion of objects in the physical universe, Newton's laws hold, whereas for a seeker in the spiritual realm, the laws transform themselves into the three paths of *Jnana*, *Bhakti* and *Karma*. Just as the three laws of Newton are embedded in the second law so also the three paths of *Jnana*, *Bhakti* and *Karma*, culminate in *Bhakti*, Love for God. As the Lord says in 7<sup>th</sup> Sloka of Chapter 7 [6] of Bhagavad Gita:

मत्तः परतरं नान्यत्किञ्चिदस्ति धनञ्जय ।  
मयि सर्वमिदं प्रोक्तं सूत्रे मणिगणा इव ॥

*There is no Truth superior to Me. Everything rests upon Me, as pearls are strung on a thread. Bhakti* or true devotion is a product of gaining this wisdom, "*Vasudevas-Sarvamidam*" that "**the Lord alone is**" and immersing oneself in constant worship of the Lord with no desire for the fruits of action. The 56<sup>th</sup> Sloka of Chapter 18 [7] of Bhagavad Gita sums it up as,

सर्वकर्माण्यपि सदा कुर्वाणो मद्व्यपाश्रयः।  
मत्प्रसादादवाप्नोति शाश्वतं पदमव्ययम् ॥



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One saturates oneself with performing every action (*Karma*) as an offering to the Lord and accepts (*Jnana*) everything that results, as the Lord's *Prasadam*, benediction or Grace, culminating in a state of True devotion (*Bhakti*).

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