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# Algebraic Modeling of Bhagavat Gita: Group of Human Resources for Attitude

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**Abstract:** In this paper, we present a Mathematical model of the Bhagavat Gita as an Algebraic Group of the Human Resources for Professional Human Resource Management. An individual is considered as an algebraic Group of Human Resources (Soft skills, Outer and Inner human Resources) under the binary operation, *Bhakti-Yoga* (Professional Attitude). In this paper, we investigate the Human Resources Management (HRM) principles mentioned in the Bhagavat Gita and their Mathematical formulation in the abstract algebraic Group theoretical terms.

**Keywords:** Algebra, Group, Human Resource Management, Bhagavat Gita, Attitude.

## I. INTRODUCTION

Bhagavat Gita, which is a part of the great Indian epic, Mahabharata, had studied by scholars from various fields like Management, Psychology, Education, Humanities, Upanishads, Politics, Social work, and Spiritual Sciences. The first chapter is a preface and the slokas from 2.40 to 15.20 explains and concludes the science part of Bhagavat Gita. Suresh Kumar [3] initiated the Mathematical Modeling of Bhagavat Gita and identified some Groups of Human Resources of an individual for Human Resource Management and professional Quality Management. He introduced the Algebraic model of the former part of the science of Bhagavat Gita (2.40-6.47) as a Group of Human Resources for Professional Aptitude. In this paper, we present and investigate the Mathematical model of the later part of the science of Bhagavat Gita (11.01-15.20) as an Algebraic Group theory of Human Resources for Professional Quality Improvement and Human Resources Management. The only Mathematics used in this paper is the notion of an “algebraic Group”, which is the abstraction of the algebraic properties of our familiar integer numbers under the addition operation. In abstract algebra (*Bija-Ganitam*), objects in the universe with similar algebraic properties are investigated.

A Group is a Mathematical structure, denoted by a pair,  $(G, +)$ , consisting of a non-empty set,  $G$ , a binary operation (denoted by  $+$ ) defined on  $G$  satisfying the following four properties:

1) *Closure Property:*  $a + b \in G$  for all  $a, b \in G$

This simply means that the sum of any two elements of  $G$  is again an element of  $G$ .

2) *Associativity:*  $a + (b + c) = (a + b) + c$  for all  $a, b, c \in G$

This simply means that the sum of three given elements of  $G$  can be computed in any order.

3) *Identity Property:* There is an element, say  $0$ , in  $G$  such that  $a + 0 = a$  for all  $a \in G$

This simply means that there is an element in  $G$  which doesn't alter any element when added to it.

4) *Inverse Property:* For any  $a$  in  $F$ , there is an element, called as  $-a$ , in  $G$  so that  $a + (-a) = 0$

This simply means that every element of  $G$  has an additive inverse in  $G$ .

In the next section, we will show that the set,  $G$  of all Human resources forms a Group under the binary operation, *Bhakti-Yoga* (Professional Attitude). Reader may refer some good book on Bhagavat Gita like [1] for slokas from Bhagavat Gita with translation. For Mathematical terms and definitions not explicitly defined here, one may refer Fraleigh [2].

## II. MAIN RESULTS

Let  $G$  be the set of all Human Resources of an individual (Soft skills, Outer and Inner Human Resources) and let  $+$  be the binary operation, *Bhakti-Yoga* (Professional Aptitude), defined on  $G$ . The *Bhakti-Yoga* (Professional attitude) operation adjoins two Human resources towards a virtuous Human Personality. In this section, we formulate that the four axioms of an algebraic Group,  $(G, +)$  for the Science part of Bhagavat Gita (11.01-15.20). The Mathematical model of the Bhagavat Gita is an Algebraic Group of Human Resources and it identifies a human being as an algebraic Group of resources (Soft skills, Inner and Outer human resources) under the binary operation, *Bhakti-Yoga* (Professional Attitude). We investigate the Human Resources Management (HRM) principles mentioned in the Bhagavat Gita (11.01-15.20) and their Mathematical formulations in the abstract algebraic Group theoretical terms.

### A. Closure Property (*Bhakti-Yoga*)

The human resource quality inculcates in the individuals a Professional attitude (Personality) which is suitable for the best utilization of the human resources of individuals. In the 11<sup>th</sup> chapter, it is explained that the with mere human resources, individuals cannot attain the absolute cosmic intellect and need some special vision to be acquired from the supreme personality of Godhead (we call it as the cosmic intellect of individuals) (11.01-11.18), and that the cosmic intellect is the Time, which annihilates all Human resources (10.32), and explains the desirable dedicated state of mind towards the devotion (11.40-11.50) and concludes that the excellence (supreme cosmic intellect) can only be realized in an individual with devotional service mentality (11.54-11.55). This is formally defined as the *Bhakti-Yoga* (Professional Attitude) for Human resources. This is the binary operation we define on Human resources.

The nature of the *Bhakti-Yoga* (Professional Attitude) is explained in the 12<sup>th</sup> chapter, namely *Bhakti-Yoga*, in which the right Attitude towards one's actions/decisions is explained and that in turn shows that the above Mathematical operation is well defined. *Bhakti-yoga* (Attitude) means the individuals should condition their attitude by orienting their mind towards the cosmic intellect (excellence in that action) and be constant minded person (12.01-12.05). In case an individual is not capable of it, then they that person should condition the attitude by orienting the intellect towards the cosmic intellect and be concentrated intellectual person (12.06-12.08). If an individual is not capable of both of these ways, then that person should condition the mind, the intellect and the body through yogic exercises (12.09-12.10). If even that is not possible, that person should dedicate all his actions to the cosmic intellect (excellence in that action) (12.11-12.12). If even that is also not possible, then that person should simply surrender all his actions/thoughts to the cosmic intellect (excellence in that action) (12.13-12.20). For effectiveness of such attitudes, individuals may adopt a concrete (*Sakara*) model of cosmic intellect such as human form (Lord Krishna) because an abstract (*Akara*) model is usually difficult for the human beings to attain this attitude (12.05): *kleshoAdhikatharaS thesham Avyakta sakta chetasam avyakta hi gatiR dukham dehavadbhirApapyate*

"It will be miserable for those who try to keep their concentration fixed in abstract form of the cosmic intellect, as it is almost impossible for the human individuals to fix their concentration (*Nishta*) in the abstract form of the cosmic intellect (*Brahma*)". ISKCON founder, Prabhupada [1] called this aspect of the human personality as "Krishna Consciousness" and he devoted his entire life for the practice and propagation of it. *Bhakti Yoga* has the enhanced effect on the human resources of individuals and this quality personality is another human resource. Mathematically it says that the set, G of human resources is closed under the binary operation, *Bhakti yoga*.

### B. Associativity Property (*Kshtra-Kshetranja Vibhaga Yoga*)

The 13<sup>th</sup> chapter, namely *Kshtra-Kshetranja Yoga*, explains the relation between the knowledge and the structure of knowledge. *Kshetra* means the body of individuals whereas *Kshetranja* means that absolute cosmic knowledge of the body. The relation between the two is explained (13.01-13.12) and it is further modeled as the relation between the senses (*Indriya*) and the sensory knowledge (13.13-13.19), the mind (*Chittam*) and the mental knowledge (13.20-13.24) as well as the intellect (*Buddhi*) and the intellectual knowledge (13.25-13.25) about the cosmic intellect (Supreme personality of Godhead) of the individual. Thus all these types of experience are of the same structure. But the professional attitude of individuals is related to the senses, mind or intellect. Hence, the *Bhakti Yoga* (Professional attitude) of human resources can be adjoined in any order of the resources. Mathematically, it is called the associativity property of the binary operation, *Bhakti Yoga*.

### C. Identity Property (*Guna Traya Vibhaga Yoga*)

The 14<sup>th</sup> chapter explains the 3-tier classification (*Guna traya vibhaga yoga*) of the attitude of individuals based on the personal taste and instinct (*Guna*). The three classifications of the attitude are Virtuous (*Satvik*), Passionate (*Rajas*) and Ignorant (*Tamas*). The Virtuous (Satvik) Personality (attitude) is explained as the best among them and a person can identify the nature and orientation of one's attitude to actions/decisions by knowing the effects of these three quality types in individuals (14.05-14.18). These three quality types bind the individuals within the material body and distracting them from realizing the cosmic intellect within them so that individuals should think and understand beyond these types of quality of human resources to realize the cosmic intellect (14.19-14.20). The chapter concludes with the explanation of the nature and advantages of the persons, who could surpass the qualitative divisions of human resources (*GunaAtheethan*) (14.22-14.27). This attitude has the property that when it adjoins to any human resource, that human resource does not change. Mathematically, this is called the identity element of the binary operation, *Bhakti Yoga*.



*D. Inverse Property (Purushottama Yoga)*

The 15<sup>th</sup> chapter begins with a structural explanation of the cosmic intellect (15.01-15.06) and explains the knowledge and the nature of the cosmic intellect within the individuals (15.07-15.19), thereby imparting a significant attitude for the Human beings towards the realization of the cosmic intellect within them. Upon the realization of the cosmic intellect within the individuals, any human resource is beyond all types of quality divisions. That is, it becomes another human resource which negates all qualitative attitudes of individuals and results in a state called as *GunaAtheethan*, which was the identity element of the binary operation, *Bhakti Yoga*. Hence, the latter is called the inverse of the former human resource. This proves the fourth property of the algebraic Group structure,  $(G, +)$ .

Thus,  $(G, +)$  is a Group. Mathematical formulation of the Human Resource Management principles mentioned in the Bhagavat Gita is an active research that can be done extending this work. On the other way, we can consider the abstract algebraic Group theory concepts as applied to the Human resources to investigate the resulting HRM principles which will be the extensions or variations of the HRM principles mentioned in the Bhagavat Gita.

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