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An Example Usage of Graph Theory in Other Scientific Fields: On Graph Labeling, Possibilities and Role of Mind/Consciousness

Auparajita Krishnaa

Additional information is available at the end of the chapter

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Abstract

This paper provides insights into some aspects of the possibilities and role of mind, consciousness, and their relation to *mathematical logic* with the application of problem solving in the fields of psychology and graph theory. This work aims to dispel certain long-held notions of a severe psychological disorder and a well-known graph labeling conjecture. The applications of graph labelings of various types for various kinds of graphs are being discussed. Certain results in graph labelings using computer software are presented with a direction to discover more applications.

Keywords: mathematical logic, graph labeling, magic, antimagic, inner magic, inner antimagic, graceful, harmonious, felicitous, sequential, NP-Complete

1. Introduction

In this paper, we begin with looking at the problems and problem solving elements of *mathematical logic* of the field of Discrete Mathematics (of which graph theory is a subject) and its application in the realms of mind and consciousness. Section 2 focuses on dispelling certain notions about a severe psychological disorder namely *paranoid schizophrenia*. It is a much debated and often misunderstood illness affecting many people. Many remain untreated and undiagnosed not even able to adequately articulate their thoughts and feelings causing them a severe debility and an untold suffering.

Generally, the mind and consciousness aspects have been nearly left out from Mathematics for various reasons but mostly studied in other fields. Perhaps, the first instance (as per the available