by

## Pushkin Kachroo

Doctor of Philosophy University of California Berkeley, Virginia Tech 1993, 2007

A thesis submitted in partial fulfillment of the requirements for the

> Master of Science Degree Department of Physics College of Sciences

## ABSTRACT

## Gödel's Incompleteness and Gentzen's Inconsistency in Quantum Logic

by

#### Pushkin Kachroo

(Dr. Bernard Zygelman), Examination Committee Chair Professor of Physics University of Nevada, Las Vegas

This thesis studies the incompleteness theorem as well Gentzen's inconsistency theorems in the context of quantum logic. As quantum logic is based on a lattice and not Boolean logic, its meta analysis is very different. This thesis is devoted to studying the differences that this structure provides and how those differences relate to the incompleteness and inconsistency theorems.

# TABLE OF CONTENTS

ABSTRACT	iii
LIST OF FIGURES	V
LIST OF TABLES	vi
ACKNOWLEDGEMENTS	vii
CHAPTER 1 INTRODUCTION	1
BIBLIOGRAPHY	3
VITA	5

# LIST OF FIGURES

# LIST OF TABLES

## ACKNOWLEDGEMENTS

I would like to thank Doina Bein for letting me see what she did when she wrote her thesis. I would like to thank Kensaku Umeda, who helped me with the UNLV requirements.

#### CHAPTER 1

#### INTRODUCTION

Writing a graduate thesis is very time consuming. One of the obstacles placed in front of the student is the set of requirements for the look of thesis. These requirements look like they date from the middle ages, but there's nothing you or I can do about that. Writing a thesis in mathematics or some other discipline that requires mathematical symbols is even more difficult, because most typesetting programs do not deal with them very well. One program that was designed to handle mathematical symbols is LaTeX. This program is a publishing grade program. For example, I have published a book that was typeset using LaTeX[1] and almost all journals that I submit to request that source files be in LaTeX.

Unfortunately, LaTeX is much more sophisticated than what the average graduate student requires, and none of its standard packages look anything like the required UNLV format (though every one of them looks better). On the other hand, much of this can be automated by a TeX pert. That's what this package is about. It describes how to use the UNLV thesis.sty style file to format theses into the UNLV format. Unfortunately, I do not make the rules, so there may be things I haven't anticipated or dealt with correctly, so some tweaking may be required. I welcome questions, though I may not deal with them promptly. I can be reached at baragar@unlv.edu.

There are some requirements that are very difficult to adhere to. For example, the font style is to be "a standard ... computer font, such as Bookman, Courier, Arial(Helvetica), or Times." Though it is possible to change the font in LaTeX documents, I prefer to not do so. The LaTeX font is Computer Modern Roman, and very few would notice that it is not Times.

# BIBLIOGRAPHY

## VITA

## Graduate College University of Nevada, Las Vegas

## Arthur Baragar

Home Address:

8815 Wallaby Lane Las Vegas, Nevada 89123

## Degrees:

Bachelor of Science, Honors Mathematics, 1985 University of Alberta, Edmonton, Canada

Doctor of Philosophy, Mathematics, 1991 Brown University, Providence, Rhode Island

Dissertation Title: The Markoff Equation and Equations of Hurwitz

Dissertation Examination Committee:

Chairperson, Dr. Joseph H. Silverman, Ph.D. Committee Member, Committee Member, Graduate Faculty Representative,