

Relationship between golden ratio and internalized linguistic system of the human brain



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Thesis submitted in partial fulfillment of requirements for the degree of Master of
Science in Applied Linguistics

in the

DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE SCHOOL OF
SOCIAL SCIENCES AND HUMANITIES

**UNIVERSITY OF MANAGEMENT AND TECHNOLOGY LAHORE,
PAKISTAN**

DEDICATION

To the awaited reality who is to settle peace across the world

ACKNOWLEDGEMENTS

I express my deep and humble gratitude to my great teachers Dr. Shaban, chairman of the department and my supervisor Dr. Nazir Malik; a daring man to support me in exploring the yet unexplored areas in Syntactic theory. Without the illustrious support of these two teachers I could have never accomplished such a challenging task as this one. I am grateful to my friend Ahmad Naveed who helped me collect data for my study. I thank Mr. M. Rashid, Head, Risk Management department, MCB Headquarters Lahore, for his guidance in data analysis. Prof. Irfan Basheer deserves my humble gratitude for his sincere advice and support during the research process. I pay my gratitude to all the parents who provided the data of their children. My special thanks go to my honorable student Ali Raza Nazir for his active participation in the data collection activity. I'm direly indebted to my most devoted student Ijaz Hussain for proofreading and formatting this research work for me a number of times. I specially thank my sons Hafiz M. Qaim Ali and Hafiz M. Muntazar for staying patient throughout this research activity.

I am most importantly thankful to my beloved wife, Mrs. Adnan Ali, the most dedicated and humble woman I've ever seen. She is the one who made countless sacrifices while I completed my humble effort. I am only the writer of this research; she is the caretaker.

Adnan Ali

ABSTRACT

The title of this research was “Relationship between Golden Ratio and Internalized Linguistic System of the human brain”. This study followed a mixed approach to explore two research questions. The first was whether the movement driven phrase structures carry golden ratio at the head position in their constituency or not. The second research question was whether golden ratio is a constructive statistical regularity or not. The null hypothesis that this study aimed to test was that there is no relationship between golden ratio and internalized linguistic system (ILS) of the human brain. In order to explore the research questions content analysis and argument were used. In order to test the null hypothesis 202 telegraphic speech structures by 47 toddlers aged between 24 to 30 months located in Lahore and Shakar Garh were selected as sample. 202 mature structures spoken by the parents of the same toddlers were selected as the counterpart for telegraphic structures as sample. Analysis of the XP elementary trees proved that golden ratio lies in the topmost constituency of X phrases in the pre-movement condition. Argument and discussion proved that golden ratio is a constructive statistical regularity in language. Quantitative data analysis comprising the ratio between the number of words in each telegraphic structure and that in each mature counterpart structure was found in the golden ratio. One sample t-test proved the high significance level of the sample structures generalizable for the population. This study concluded that there existed a strong relationship between golden ratio and ILS of the human brain. This valid research is replicable for future studies.

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List of Abbreviations

Sr #	Abbreviations	Stand For
1	CLT	Central Limit Theorem
2	CP	Complementizer Phrase
3	DP	Determiner Phrase
4	ILS	Internalized Linguistic system
5	IP	Inflectional Phrase
6	MLU	Mean Length of Utterance

7	NP	Noun Phrase
8	PP	Prepositional Phrase
9	SPEC	Specifier
10	t	Trace
11	TP	Tense Phrase
12	VP	Verb Phrase
13	XP	X-Phrase

CHAPTER ONE

INTRODUCTION

1.1 Overview

The notion of movement was introduced in the Transformational grammar by Chomsky in 1955 and 1957 (Akira & Masaya, 2013) to account for satisfying two functions performed by a single constituent. Two rules were mainly focused in this model – the phrase structure rule and the transformation rules. The phrase structure (Pütz & Verspoor, 2000) rules studied the combinatorial qualities of the constituents to form phrase markers (Palmer, 2001) while transformation aimed at mapping P-markers in relation to one another. It was the transformational rules (Freberg, 2009) that later developed movement operations in order to meet the phenomenon of displacement. These operations later took the form of a single general movement rule. Later, Chomsky (Palmer, 2001) explored movement as a process of checking the syntactic features that could be eliminated as un-interpretable in the interfaces. This elimination was made possible through movement. It also helped unify the explanations of island constraints.

1.1.1 Nature of Internalized Linguistic System

Huebner (1983) comments that the form-function relationships of inter-language and the way these form-function relationships change the acquirer's reviews of the language are found in a continuum. Pütz & Verspoor(2000) comment that the Internalized Linguistic System (Wilson & Keil, 2001) in the human brain lies in the form of well-organized parts of brain dedicated to the language ability. It is a phenomenon of interconnectivity and a unified functionality of the brain parts. Although this faculty nurtures itself socially mostly, yet most of its functions are idiolectal. Any individual's ILS utilizes itself in communicating with others on the grounds of its compatibility with the ILS of others. These remarks of Whorf pave the path for explorations in

the realm of some common ground of compatibility shared by the ILS of each individual that make the communication process feasible. While commenting on Whorf's hypothesis related to the two internalized systems for automatic language encoding in bilinguals Michel(1993) suggests that bilinguals may or may not have two separate systems for the two languages they speak. But they definitely use one at a time without letting the other interfere. This study takes into account the only system at work at a time; be it one or the other. The study looks into the phenomenon of the relationship that the ILS has with the language faculty in the human brain as one of the key concerns of the linguists.