Chapter One

INTRODUCTION

1.0. Introduction

The goal of linguists is to reach to a better understanding of language comprehension. Sentence ambiguity can provide insight into language processing. Ambiguity is also a longstanding topic in psycholinguistic research. Many knowledge resources contribute to sentence comprehension and guide comprehenders in resolving ambiguity. These might include lexical plausibility and frequency, syntactic storage, intonation, pragmatics and discourse knowledge. The influence of each and the stage in which they are used in parsing is a matter of debate among psycholinguists. Therefore, there have been conflicting theories addressing the issue of the most important contributors among these resources, and the manner in which they are accessed i.e. in a serial or parallel way, at initial or final stages of parsing.

This study investigates particularly the effect of lexical and thematic information on the processing of syntactic ambiguity. It is organized as follows: Chapter One introduces the topic of the study. Chapter Two reviews major studies in the field. Chapter Three presents the design of the study and the methodology used in collecting the data.
Chapter Four provides the results and a discussion of them. Chapter Five summarizes the major findings of the study.

1.1. Statement of the Problem

This study investigates how two utterances with identical structures, distinguished only by one lexical item, are processed differently:

(1) The policeman shot the man with a stick.

(2) The policeman shot the man with a gun.

(3) As the professor lectured the students took notes.

Sentence (2) is ambiguous and presents greater processing difficulty than sentence (1). This is due to the fact that in (2) there are two alternative attachment sites for the prepositional phrase, i.e. either as a modifier to the Determiner Phrase (henceforth DP) or to the Tense Phrase (henceforth TP), whereas in (1) there is only one possible attachment site, i.e. as the DP modifier.

Moreover, this study attempts to establish the most preferred structure and interpretation. When comprehenders encounter two alternative structures, they will prefer one. Sentences (2) and (3), for example, have two alternative structures, both of which are plausible in the absence of context. Therefore, there is a need to determine the optimal structure in the absence of context.
Finally, this study offers a broad comparison of the three widely investigated types of ambiguity: lexical ambiguity, structural ambiguity, and combined lexical and syntactic ambiguity.

a. lexical ambiguity
   (4) We went to the bank yesterday.

b. structural ambiguity
   (5) The policeman saw the man with the binoculars.

c. combined lexical and syntactic ambiguity.
   (6) The old train the young.

1.2. Purpose of the study

This study presents two on-line experiments that examine the nature of L2 (in this study, L2 may refer to either EFL or ESL) sentence processing by advanced Arabic-speaking learners of English in comparison to that of English native speakers (hereafter NS). One of the interests of this study was to determine the role of lexical plausibility in facilitating the processing of ambiguous sentences. It focused on particular lexical information: verb argument, verb frequency, verb subcategorization, and animacy of preverbal and postverbal nouns. Also, this study aims to investigate possible parsing strategies employed by both NS and L2 learners in resolving ambiguity, how that contributes to our understanding of sentence processing, and how it fits with already established models of ambiguity resolution. Finally, this study investigates to what extent Optimality Theory (hereafter OT) provides a
suitable framework to account for experimentally determined parsing preferences and processing difficulty.

1.3. Significance of the study

Of the studies reviewed, most were restricted to either one type or sub-type of sentence ambiguity. The present study offers a broad generalization of the processing difficulty for the three types of ambiguity. In addition, this study reveals regular patterns of sentence processing by exploring the optimal interpretation of ambiguous utterances.

Second, most of the studies reviewed were conducted on native speakers' processing of their first language. Over a decade of first language (hereafter L1) processing research has revealed that various constraints, such as linguistic information (syntax, semantic) and prosodic, discourse information, and working memory capacity, play important roles in sentence comprehension (for a review, see Clifton and Duffy, 2001; Gibson, 1998; Gibson and Pearlmutter, 1998). However, little is known about how sentence processing in a second language (L2) is constrained. Therefore, this study is significant in comparing advanced Arabic-English bilinguals with native speakers of English.

Moreover, most studies examining processing in a second language focused on speakers with French (Zagar, Pynte, and Rativeau, 1997),
Spanish (Cuetos and Mitchell, 1988), German (Hemforth, Konieczny, Scheepers, and Strube, 1998), and Greek (Papadopoulou and Clashen, 2001) L1 backgrounds. There are only very few studies that investigate the processing of Arabic native speakers such as Ehrlich, Fernandez, Fodor, and Stenshoel, 1999). Thus, it would be insightful to see how Arabic speakers process English as a second language, knowing that these languages are from two different language families, Indoeuropean for English and Semitic for Arabic.

Finally, this study contributes to OT by providing an analysis of parsing as seen in the OT literature to date. Hence, it contains the expansion of OT into the domain of language processing.

1.4. Study Questions

The following questions are raised in the present study:

Q1: Is combined syntactic and semantic ambiguity the most difficult type to comprehend?

Q2: Can thematic and lexical information reduce or eliminate the processing difficulty?

Q3: Is there a preferred reading for ambiguous sentences?

Q4: Do comprehenders prefer the most economical and the simplest structure?
Q5: Do Native speakers and L2 learners show similar patterns of ambiguity processing?
Q6: which is an adequate framework to account for preferred interpretation and processing difficulties?

1.5. Study Hypotheses

According to the above-mentioned questions, the following hypotheses are adopted:

Hypothesis 1: There is no statistically significant difference between four sentence types, (1) sentences with semantic ambiguity only, (2) sentences with syntactic ambiguity only, (3) sentences with combined semantic and syntactic ambiguity, and (4) sentences with no ambiguity.

Hypothesis 2: There is no statistically significant effect of lexical and thematic information in reducing or eliminating the processing difficulty.

Hypothesis 3: There is no statistically significant preference for one structure over another.

Hypothesis 4: There is no statistically significant difference between native speakers and L2 learners in the processing of semantic and syntactic ambiguity.