THE ACQUISITION OF RELATIVE CLAUSES:

HOW DO SECOND LANGUAGE LEARNERS OF ARABIC DO IT?

by

Dola Algady

A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Linguistics

at

The University of Wisconsin-Milwaukee

December 2013

ABSTRACT

THE ACQUISITION OF RELATIVE CLAUSES: HOW DO SECOND LANGUAGE LEARNERS OF ARABIC DO IT?

by

Dola Algady

The University of Wisconsin-Milwaukee, 2013
Under the Supervision of Professors Hamid Ouali and Fred Eckman

The new developments in syntactic theory under Minimalism reconsiders the relation between the language faculty and general cognitive systems whereby language acquisition is accomplished by the interaction of Chomsky (2005)'s three factors: (F1) a minimally specified UG (Genetic endowment); (F2) Primary Linguistic Data (PLD), i.e., input; and (F3) non-language faculty-specific considerations, including principles of efficient computation and principles of data analysis employed in acquisition. Based on this assumption, this study examines the role of economy conditions of (F3) on syntactic derivation and feature interpretability in accounting for the process of second language acquisition by investigating the nature of interlanguage grammars of Arabic-English relative clauses.

Arabic and English differ with respect to the operations involved in the derivation of relative clauses, such that, while English uses *Move* of an operator to generate relative clauses, in Arabic they are base-generated with a resumptive pronoun in the extraction site and are hence derived through (external) *Merge*. The two languages also differ with respect to the use of overt versus covert relative

complementizers and the use of agreement features. Focusing on these three aspects of relativization, I carried out a study with 16 adult English-speaking learners of Modern Standard Arabic (MSA). The participants completed 3 tasks: (1) a grammaticality judgment task, (2) a sentence combination task, and (3) a picture description task.

Based on syntactic differences and the cost of syntactic derivations I hypothesized that: (1) individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of relative clauses, (2) individual interlanguage grammars would show a systematic pattern in the use of relative complementizer within definite and indefinite relative clauses, and that (3) individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases.

The results of the study show that: (1) the distribution of resumptive pronouns in the interlanguage relative clauses systematically varies depending on the extraction site which still obeys to economy conditions of syntactic derivation, (2) individual interlanguage grammars show a systematic use of overt versus covert relative complementizers within both definite and indefinite relative clauses, and (3) individual interlanguage grammars show a systematic use of matching/mismatching agreement features on relative complementizers and resumptive pronouns but the pattern does not appear to be related to the increasing complexity of the relative clause structure.

I argue that these results suggest that a minimalist account can be implemented to specify what language features and operations are least accessible to the learner. Distribution of resumptive pronouns is constrained by economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement*. Errors with complementizer's use and agreement are related to feature interpretability and *Agree*.

We conclude that, the general principles of computational efficiency of syntactic derivations are operative on the process of second language acquisition.

DEDICATION

To my beloved parents, Fayiz & Khitam

To my dear brother, Mohammad, and sisters Dima, Dunia, Falak & Myrna

To my great friends, Amoon, Bara & Sara

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGMENTS

بسم الله الرحمن الرحيم

"وَمَا تَوْفِيقِي إِلَّا بِاللَّهِ عَلَيْهِ تَوَكَّلْتُ وَإِلَيْهِ أُنِيبُ" هود (88)

"And my success (in my task) can only come from Allah.
In Him I trust, and unto Him I look

I would like to express my sincerest thanks and appreciation to the many people who have helped me and given me invaluable support in my study over the last five years.

First and foremost, I am greatly indebted to Professors Hamid Ouali and Fred Eckman, my dissertation supervisors, who have inspired me and guided the development of my academic thinking.

Professor Hamid Ouali directed me from the beginning to the completion of this dissertation with his exceptional insight and perspective on linguistics and scientific thinking and writing. I am truly indebt to him for years of encouragement, help, endless support, and guidance. He kindly helped me when I was stuck with puzzling questions on Minimalist syntax and contributed significantly to the theoretical basis of this dissertation. He has offered all sorts of advice from time to time, which were extremely valuable for a novice scholar. Our continuous meetings and discussions helped me a lot during the writing process. I would like to also take this opportunity to acknowledge his genuine assistance from the first day I came to UWM. I would like to thank Professor Ouali for believing in me and giving me confidence to be part of this profession. I extend my deepest gratitude and profound

appreciation to him for all the support and help he provided throughout my graduate studies.

Also it fills me with pride and honor to have had Professor Fred Eckman as my dissertation co-supervisor. Professor Eckman has been immensely kind and supportive in everything. His informative feedback and insightful remarks were instrumental in shaping my research. The discussions I had with him broadened my views of second language acquisition research and linguistics. I have benefited a lot from his intellectuality, valuable comments, and enlightening insights and was also touched by his great personality. Moreover, I thank him for his SLA classes, which inspired me greatly. The data collection practice from his lectures trained me to be more rigorous in my own research. I wish I could be the kind of teacher he is.

I am greatly indebted to the other members of my doctoral committee. I extend my sincerest thanks to Professor Roberta Corrigan. Her insightful comments and suggestions on the manuscript of this dissertation helped me clarify many points. Professor Nicholas Fleisher and Professor Sandra Pucci, I thank you for your time, encouragement, support, and feedback.

I wish I had more time to work with and to learn from these great intellectuals.

This dissertation would no have been possible without the help of many other people. I thank all my teachers here at UWM for the valuable knowledge they passed on to me. Besides my teachers at UWM, I would like to extend my special thanks to Professor Lutfi Abu Alhaija, my M.A. advisor at Yarmouk University in Jordan, for his dedicated advice, support and many recommendation letters.

My gratitude goes to the English-speaking learners of Arabic for their willingness to be part of this study. I would not like to forget to thank them for their participation in the study. I would like also to recognize the help of Bara Omari, Juman AlBukhari, Melanie Bartholomew and Zafer Lababidi for proofreading some of my chapters.

This long journey would not have been possible without the support of several individuals. I would like to take this opportunity to thank them.

I owe a debt of gratitude to my fellow TAs and colleagues at the Arabic and the linguistics departments- Abdelatif Oulhaj, Alison Gracia, Bara Omari, Carolyn Hamacher, Fahad Masalkhi, Humaid AlWahaibi, John Kellog, Juman AlBukhari, Kelsie Armadilo, Khuloud Labanieh, Parichart Phootirat, Rana Ebeid, Salma Farid, Siriporn Lerdpaisalwong, Sooyeon Lee, and Zafer Lababidi- for their friendship and willingness to listen to my complaints and frustrations and helping me maintain a positive attitude throughout my writing of this dissertation. I was so fortunate to have met you all!

I am grateful to my close friends here at UW-Milwaukee for constant support. This long journey would not have been possible without their endless love and support. They have made my five years of life in Milwaukee enjoyable, fun, and meaningful indeed. I cherish all of them with warmth and respect. I would like to recognize the help of my great friend Zafer Lababidi. I thank Zafer for last minute formatting and for always being ready for last-minute rescues. I am deeply grateful

for Amnah AlHilal and Sara Fairaq for hosting me during my last semester in Milwaukee. Hamsah Badra, Maram AlHilal and Zeineb Hamdan deserve a special mention. I would like to acknowledge their help and support from the very first days of my arrival at Milwaukee. I also thank Bara and Maram Omari, Dalia Hesnawi, Juman AlBukhari and Humaid AlWahaibi, our friendship has always been a great source of comfort particularly when things got tougher. Dalal AlBudaiwi, without you, this journey would not have been as enjoyable as it was for me, and I will miss you! I would like to also extend my thanks to my friends' families- AlBudaiwi's, AlHilal's, the Omari's and the Fariaq's- for their generosity, moral support and warm hearts. To other friends, whose names are not mentioned here, I appreciate your continuous encouragement, messages, and emails. This indeed is hard to forget.

Special recognition goes to the Fulbright FLTA program, which gave me a priceless opportunity to broaden my view of teaching the Arabic language at UWM in 2008-2009 and to begin my academic life again since then. I would like to express my gratitude to the Foreign Language and Literature Department and the Linguistics Department at UWM for offering me a teaching assistantship and funding through the whole years of my graduate studies.

Finally, I owe my sincere thanks to my family. I am grateful for my parents' understanding and their unconditional support for my choice of career pursuit and choice of life. I am blessed to have parents who are so loving and caring. For his unbounded moral and financial support, I thank my father Dr. Fayiz AlGady. His

continuous encouragement has been a source of strength for me. He is proud of me as much as I am proud of him. I thank my brother and sisters for their love, support and prayers for me. I wish to also extend my sincere thanks to my one and only Uncle, Faris AlMohd, for his generosity and for being supportive all the time.

Chapter 1

Introduction

Relative clauses have long been the focus of research in second language acquisition. The interest in this structure has sparked from its wide range of usages in world languages, its grammatical complexity and the rich typology that it manifests in different languages. In this introductory chapter I provide an overview of the scope and main objectives of the study and highlight its significance in Section (1.1). A brief overview of the language under investigation is also given in Section (1.2). Section (1.3) provides the questions of the study. Section (1.4) describes the empirical study designed to answer the research questions. Our expected predictions and claims are described within the hypotheses of the study in Section (1.5). In the last section (1.6) I provide an overview of the main chapters of the dissertation.

1.1. Purpose and Significance

This dissertation aims at investigating the second language (L2) acquisition of Modern Standard Arabic (MSA) relative clauses by English-speaking second language learners. It will examine the role of some Minimalist constructs (Chomsky, 1995) of the economy conditions on syntactic derivations and the interpretability of features involved in the derivation, in accounting for the nature of interlanguage (IL) grammars. An empirical study of Second Language Acquisition (SLA) sheds some light on the role of such Minimalist constructs in accounting for the nature

(i.e., knowledge/mental representations) of IL grammars. I investigate these phenomena with respect to L2 acquisition of relative clauses of MSA by English-speaking learners. English and MSA relative clauses are both postnominal and could be derived under the traditional Matching syntactic analysis of relative clauses (whereby a relative clause is right-adjoined to a head noun, and an operator (OP) moves from some DP position in the clause to the specifier [Spec, CP] leaving behind in the extraction site a full copy/trace (Chomsky, 1995)); however, the two languages still differ in many other aspects with respect to relative clause constructions, which facilitates the task of deciding how economy conditions and feature interpretability come into play in IL grammatical representations of the structure.

Relative clauses are subordinate clauses modifying a nominal element (NP/DP). They modify the antecedent restricting the range of possible referents for it. Examples of relatives' extractions from subject (SU), direct object (DO), indirect object (IO) and oblique (OBL) positions, which are the focus of the empirical study, are provided in (1a-d) respectively:

(1)
a.

l-bint	llati	ta-drus	l-luɣawijjaat
the-girl	that.3FS	3FS-study	Linguistics

'The girl who studies Linguistics.'

b.

l-bint	llati	l-ustaað	ju-darris- ***(ha)***	l-luɣawijjaat
the-girl	that.3FS	the-teacher	3MS-teaches-***her***	Linguistics

'The girl who the teacher teaches Linguistics.'

c.

l-bint-aan	llat-aan	l-ustaað	ju-ʕtˤii- ***huma***	l-kitaab
the-girl-DNom	that.3F-DNom	the-teacher	3MS-gives- ***them***	the-book

'The two girls who the teacher gives the book.'

d.

l-wlaad	llað-iin	l-ustaað	ja-xaaf	ʕalaj- ***hum***
the-boys	that.3M-Pl	the-teacher	3MS-scares	for- ***them.M***

'The boys who the teacher is scared for.'

Relative clauses belong to the syntactic category labeled as CP; i.e., Complementizer Phrase, (e.g., Rizzi 1997) and are embedded in a complex nominal expression (DP). In MSA, the types of relative clauses under investigation are those introduced by a complementizer (C) of '*ʔallaðii*-type' (the equivalent of English 'that'), and C has to agree with the antecedent in person, number and gender in addition to case as shown in (1). Unlike English, MSA relatives contain a resumptive clitic pronoun (or in some cases a gap) in the subordinate clause marking the initial position of the element that has been relativized. In the examples in (1) above, resumptive pronouns are in ***bold italics***; also note that resumptive pronouns agree in number and gender with the antecedent. (Chapter 2 provides a detailed description of the different aspects of relativization in MSA and English).

The acquisition of the different types of relative clauses has been extensively examined under different approaches. Relevant to the empirical study are the predictions and findings of L2 research under the typological universal framework, mainly empirical research testing the implications of Keenan and Comrie's (1977, 1979) Noun Phrase Accessibility Hierarchy in (1) below, with respect to the use of resumptive pronouns within relative clauses and their relevant implicational markedness and processing considerations explanations (e.g., Hawkins, 1999).

Moreover, many aspects of relativization have been dealt with under a UG-based (UG for Universal Grammar) generativist approach to SLA, which, as I will show in Chapter 3, deals with parameters/features acquisition (i.e., resetting or shifting values) as related to first language (L1) transfer and UG-constraints. A Minimalist framework to language acquisition falls within the generativist approaches to SLA.

(2) Keenan and Comrie's Noun Phrase Accessibility Hierarchy (NPAH):

Subject > Direct Object > Indirect Object > Oblique > Genitive > Object of Comparison[1]

The assumption in most of the studies under the typological universal approach and UG-based approaches is that ILs are natural languages (Adjémian, 1976) and if linguistic universals constrain natural languages, then, they will also affect the development of ILs; similarly if principles of UG restrict natural languages they should also restrict IL grammars. Numerous studies investigated the relation between the distribution of resumptive pronouns and the types of relative clauses preceding them, as well as the implications that this relation has for the way relative clauses are acquired and much of the existing research reports the robust finding of IL grammars adhering to the implicational universal hierarchy with respect to resumptive pronouns. The prediction of Keenan and Comrie's NPAH with respect to resumptive pronoun use, simply stated, is that the lowest positions of the hierarchy are the most likely to require resumptive pronouns; whereas the highest positions are the least likely to require resumptive pronouns; the observed performance is

[1] (">" means that the next position is lower in the hierarchy)

that when L2 learners use resumptive pronouns within relative clauses in higher positions in the hierarchy, they also use them in all of the lower positions. The reason comes from processing considerations (Hawkins, 1999; 2005), suggesting that humans operate with an economy strategy that leads to reduced time for processing (gap) when there is little cost (as when the distance between the head noun and the gap is minimal) and an explicit strategy that leads to a resumptive pronoun in contexts of greater complexity.

Deploying Minimalist assumptions on different aspects of relative clause acquisition, a structure that has been extensively investigated under typological universals and UG-based frameworks, would provide fresh accounts to second language acquisition theories. I argue that a Minimalist approach to L2 relative clauses would provide a unified account for the IL grammatical representations. Given that features are viewed as emergent properties falling out of the interaction of Chomsky's (2005) three factors: (F1) a minimally specified UG (Genetic endowment); (F2) Primary Linguistic Data (PLD), i.e., input; and (F3) non-language faculty-specific considerations, including principles of efficient computation and principles of data analysis employed in acquisition, a Minimalist approach can provide a more complete explanation of language acquisition.

This study is significant as it contributes to a theory of second language acquisition by examining how the new developments of syntactic theory can offer fresh accounts for IL grammars. It is also important because it focuses on new data from Modern Standard Arabic, a less commonly investigated language in the field of SLA. This dissertation would thus contribute to some general SLA questions:

(a) What constitutes knowledge of language?

(b) How is language acquired?

(c) How does knowledge of syntax develop over time? (Based on Herschensohn, 2000; and Hawkins, 2001)

1.2. The Arabic Language

Arabic is an Afro-Asiatic Semitic language spoken by approximately 452 million speakers around the world (Ethnologue, 2013, 17th edition). It is spoken as a first language (L1) in all the countries of the Arabian Peninsula (i.e., Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine/Israel, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen), as well as in most of the Arab countries of Africa (e.g., Algeria, Djibouti, Egypt, Libya, Morocco, Sudan, and Tunisia). These countries are collectively referred to as the Arab World simply because their inhabitants speak Arabic as an L1. Arabic is also spoken as a second language (L2) in some countries of Asia (e.g., Iran, Pakistan, India, and Indonesia) and Africa (e.g., Chad and Nigeria).

Arabic has much religious significance and is the religious language of Muslims in many parts of the world. The language found in the Holy Qur'an is what is usually referred to as Classical Arabic. Classical Arabic was the language of public recitation and oral composition of poetry practiced by Arab tribes in the Arabian Peninsula. For many Arabs, Classical Arabic was a "highly developed formal oral art practiced by all Arab tribal groups and held in the highest esteem" (Ryding, 2005, p. 2).

The Arabic language variety under study is Modern Standard Arabic (MSA). This variety of language evolved from the Classical Arabic of the Qur'an of the seventh century; although vocabulary has been added and there has been some syntactic variation, MSA has remained very similar to the classical form. It is used in books, newspapers, and radio and television reports throughout the Arab world, and thus serves as a unifying element across the dialects, as well as a common medium that speakers of different dialects can use when conversing with one another. It is also used in university lectures and public talks. Since the 1970s, MSA has been one of the official languages of the United Nations. MSA is the variety of Arabic taught in foreign language classrooms. Hence, MSA, rather than colloquial varieties, is the language being taught in most schools and universities in the United States since it is simply the standard language understood across all Arabic countries (i.e., Lingua Franca). For this reason, I have chosen this particular variety in this study.

1.3. Questions of the Study

Based on the syntactic comparison and the theoretical and literature backgrounds (see Chapters 2-4), the study is set to answer the following specific questions:

Question 1: Would English-speaking L2 learners of MSA show a systematic pattern in their use of resumptive pronouns within SU, DO, IO, and OBL relative clauses?

Question 2: Would English-speaking L2 learners of MSA show a systematic pattern in their use of relative complementizers as related to the definiteness of the head noun in the matrix clause?

Question 3: Would English-speaking L2 learners of MSA show a systematic pattern in their use of agreement features on relative complementizers and resumptive pronouns?

Question 4: Would individual interlanguage (IL) grammars show a Noun Phrase Accessibility Hierarchy (NPAH) effect in the distribution of resumptive pronouns?

In order to answer these questions an empirical study was designed in which different tasks were employed to test the knowledge of English-speaking L2 learners of MSA relative clauses.

1.4. The Empirical Study

This study investigates the acquisition of MSA relative clauses by adult English-speaking L2 learners. Sixteen English-speaking learners participated in the study.

Focusing on different types of relative clauses, varying by the extraction site (e.g., subject, direct object, indirect object, oblique relatives), three tasks were created in order to obtain a picture as detailed as possible of the underlying linguistic knowledge of individual IL grammars, as far as the acquisition of relative clauses are concerned. All participants completed (a) a Grammaticality Judgment task; (b) a Sentence Combination task; and (c) a Picture Description task. The tasks

developed for this study tested different aspects of relative clauses by manipulating definiteness and agreement features on the head DP.

1.5. Hypotheses of the Study

The results of the empirical study will be discussed in light of three hypotheses (see Chapter 4 for a detailed discussion of the predictions and implications of each hypothesis):

Hypothesis 1: Individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of MSA relative clauses.

Hypothesis 2: Individual interlanguage grammars would show a systematic pattern in the use of relative complementizers within MSA definite and indefinite relative clauses.

Hypothesis 3: Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on MSA relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases.

1.6. Outline of the Dissertation

This dissertation is structured as follows. In Chapter 2, I start with describing the structure under investigation, i.e., relative clauses. The aim is to provide a description of the different aspects of relativization under study and point out the similarities and differences between English and MSA.

In Chapter 3, I review a variety of hypotheses proposed to explain different aspects of the acquisition of relative clauses and the relevant literature. The aim is to set the background for the current study, which investigates the nature of interlanguage grammars of relative clauses, within the context of second language acquisition. The chapter begins with a short history of second language acquisition research and explains the notion of 'Interlanguage'.

In Chapter 4, I present the framework of the study and outline some of the Minimalist constructs of economy conditions and feature interpretability relevant to the study. I sketch some reasons for thinking that the cost to analysis comes into play in L2 acquisition. I examine the structure and syntactic derivation of relative clauses in English and MSA as well as some of their morpho-syntactic properties and present an analysis that best accounts for the acquisition difficulty of the different aspects of relative clauses as related to economy of derivation.

Chapter 5 introduces the empirical study and the research methodology. It presents how the tasks were constructed and all tasks are presented in details. I also describe the data coding and the analyses process.

In Chapter 6, I report the results of the three tasks conducted for the purpose of answering the questions of the study and testing certain hypotheses.

In Chapter 7, I discuss the predictions of the research hypotheses in light of the findings of the empirical study.

And finally in Chapter 8, I provide a summary of the study, discuss the significance of the findings of the study and draw some conclusions.

Chapter 2

Structural Background

2.0. Introduction

The purpose of this study is to investigate the second language acquisition of Modern Standard Arabic (MSA) relative clauses by adult L1 English-speaking learners. Therefore, in this chapter I provide a theory-neutral (i.e., descriptive) presentation of the main structural properties concerning relative clauses in English and MSA. It is important to set the structural background before reviewing the relevant literature on relativization structure and discussing their theoretical implications. Further, in order to understand the construction of the tasks in the present study (Chapter 5) and the nature of the first language (L1) and the interlanguage (IL) productions when the data are examined in Chapters 6 and 7, I have to examine the structure of relative clauses as well as some of their morpho-syntactic properties.

The chapter is organized as follows. In Section 1 I identify the types of relative clauses under investigation. Section 2 provides a theory-neutral presentation of the data of restrictive relative clauses in English. In Section 3, I describe the structural properties for MSA relative clauses in detail. The relative clause structure will be described in terms of three aspects: the distribution of relative clauses, types of relative markers and resumptive pronouns use. The morphological features on relative complementizers and resumptive pronouns in MSA will also be discussed. In the same section I will formulate three research

questions based on the structural differences between English and MSA. Finally, Section 4 concludes and summarizes the chapter.

For illustrative purposes, examples in Arabic are provided. These examples are presented in broad phonetic transcription following the IPA conventions (See Appendix G for a list of Phonetic Symbols Description).

2.1. The Structure of Relative Clauses

The types of relative clauses at issue in this study are the restrictive ones. Restrictive relative clauses[2] are subordinate clauses modifying a nominal element. They modify the antecedent restricting the range of possible referents for it and are extracted from the subject (SU), direct object (DO), indirect object (IO), object of preposition (OPrep), Genitive (Gen), or Object of Comparison (OComp) positions in the embedded clause. Restrictive relative clauses belong to the syntactic category labeled as CP[3] (e.g., Rizzi 1997) and are embedded in a complex nominal expression (DP). In MSA, the types of relative clauses under investigation are those introduced by a complementizer (C) of '*ʔallaðii*-type' (the equivalent of English 'that') and contain a resumptive element (or in some cases a gap) in the subordinate clause marking the initial position of the element that has been relativized. Examples of

[2] Restrictive relative clauses differ from non-restrictive relatives at the phonological, semantic, and syntactic level. The discussion in this dissertation is limited to restrictive relative clauses. For details of the distinction between the two types of relatives see Huddleston and Pullum (2002), and for discussion of the structure of non-restrictive relative clause see Borsley (1997) and De Vries (2002; 2006).

[3] See Ouhalla (2004) analysis of Arabic relative complementizers as determiners and thus heading a DP projection instead of CP.

relatives extracting from SU, DO, IO and OBL positions, which are the focus of this study, are provided in (1a-d) respectively[4]:

(1)
a.
l-bint llati <l-bint> ta-drus l-luɣawijjaat
the-girl that.3FS <the-girl> 3FS-study Linguistics
'The girl who <the girl> studies Linguistics.'

b.
l-bint llati l-ustaað ju-darris- <l-bint> l-luɣawijjaat
the-girl that.3FS the-teacher 3MS-teaches <the-girl> Linguistics
'The girl who the teacher teaches <the girl> Linguistics.'

c.
l-bint llati l-ustaað ju-ʕtˤii <l-bint> l-kitaab
the-girl that.3FS the-teacher 3MS-gives <the-girl> the-book
'The girl who the teacher gives <the girl> the book.'

d.
l-bint llati l-ustaað ja-xaaf ʕala <l-bint>
the-girl that.3FS the-teacher 3MS-scares for <the-girl>
'The girl who the teacher is scared for <the girl>.'

In what follows I give a theory-neutral presentation of the facts of restrictive relative clauses in English and MSA.

2.2. English Restrictive Relative Clauses

English relative clauses take one of three forms. They can either occur with a *wh*-word such as *'who'*, as in (2a) and (3a), with a complementizer such as *'that'*, as in (2b) and (3b) or with neither, as in (2c). The absence of the complementizer in a relative is allowed only when a non-subject is being relativized. The structures in (2) are object relative clauses since *'student'* is in the direct object of the verb, while

[4] The constituent in <> identifies the original position from which the head/relative operator is extracted.

those in (3) are subject relative clauses since *'teacher'* serves as the verb's subject. The relative clause in English always follows the head noun (the antecedent) as illustrated in the following examples:

(2)
a. The student who the teachers like.
b. The student that the teachers like.
c. The student the teachers like.

(3)
a. The teachers who like the student.
b. The teachers that like the student.

Relative markers in English might follow either a definite or an indefinite antecedent while in MSA no relative markers follow an indefinite antecedent (see section 2.3.2.2). Relative pronouns in English have 5 forms: *who, whom, whose, which*, and *that*; only two of which are marked for case, *whom* for accusative and *whose* for genitive. In MSA, the relative pronoun has the same phonological base with differences in person, number, gender and case endings (see Table 2-2).

A basic difference between English and Arabic in relativization is the appearance in Arabic of a pronominal element usually occupying the extraction position within the relative clause. This pronoun is called in Arabic *ʔadˤ-dˤamiiru l-ʕaaʔidu* 'returning pronoun' or 'the resumptive pronoun' which agrees with the antecedent in number, gender and case. In English, on the other hand, there is no resumptive pronoun in relativization. Zobl quoted in Hamdallah and Tushyeh (1998) claims that "The resumptive pronoun appears in Old English and nonstandard dialects of English" p. 144, though no examples were given to support his claim.

The following section presents the data on relatives in Modern Standard Arabic (MSA) and describes the properties of their structure on a wide scope. The focus will be on restrictive relative clauses introduced by the complementizer *ʔallaðii* 'that' in its variant manifestations.

2.3. Modern Standard Arabic Restrictive Relative Clauses

This section presents the main characteristics of relative clauses in MSA, their distribution, internal order, and some morphological features of the structure. The first section exhibits the various relativizer forms in Arabic in terms of case, gender and number, pointing out that Arabic undergoes a process of reduction in terms of *ʔallaðii*-type forms. The second section gives a detailed description of the various aspects of *ʔallaðii*-type relatives in MSA; two different kinds of restrictive relative clauses are distinguished in MSA; definite relative clauses and indefinite relative clauses. The first are always used with an element, which can be argued to be a complementizer (i.e., C), and the second type is used with no overt relative complementizers. In Arabic, relative clauses are usually placed directly after the noun they refer back to, which could follow the Arabic normal verbal word order: verb-subject-object or nominal word order: subject-verb-object[5]. It is worth pointing out that in this study, the tasks construct contains relatives following the

[5] Although, Arabic has the order of VSO as the most frequent and basic word order, there are two different types of sentence structures in Arabic: (i) the verbal sentence and (ii) the nominal sentence. The verbal sentence begins with a verb and has the VSO word order; whereas the nominal sentence starts with a noun and has the SVO word order. In other constructions, the nominal sentence has no overt verb in its surface structure. (Owens, 1988; Albanyan, 1996).

nominal SVO order. Finally, the last section sums up the fundamental characteristics of relative clauses in MSA.

2.3.1. Relative markers in MSA relatives

According to Wright (1975), relative clauses in Classical Arabic exhibit a rich morphology whether in terms of how the relativizer element is inflected or the range of the relativizers used. In Arabic, relative pronouns are called by grammarians *ʔadˤ-dˤamiiru l-mawsˤuulu* (literally the pronouns which link), translated as *conjunctive pronouns* (Wright 1975). Those so-called pronouns are of many types in Arabic as Table 2-1 shows (based on Wright, 1975:270-271):

Table 2-1: The Various Types of Relativizers in Classical Arabic and MSA

Relativizer Masculine Form	Relativizer Feminine Form	Meaning
ʔallaðii	ʔallatii	Who, which, that
man	man	He who, she who, whoever
ma	ma	That which, whatever
ʔajju	ʔajjatu	He(she) who, whoever
ʔajjuman	ʔajjuman	Every one who, whosoever
ʔajjuma	ʔajjuma	Everything which, whatsoever

The relativizers that we see in Table 2-1 are traditionally divided into two categories. The first category is the 'declinable' category, which includes *ʔallaðii*-type and the *ʔajju*-type relatives – the relativizers inflected for gender, number, person and case. The second category includes the 'undeclinable' relativizers, which

are invariant for gender, person, number and case. Of both categories, the *ʔallaðii*-type one is the richest morphologically. [6]

This highly declinable relativizer, however, undergoes a process of total reduction in MSA and the dialects (Galal, 2004 and Al-Momani, 2010). In MSA, *ʔallaðii* seems to have been standardized so that different variants and the parallel forms that used to exist in Classical Arabic almost vanished, giving way to roughly the following set:

Table 2-2: Declension of ʔallaðii for Gender, Case and Number in MSA

Number and Case	Masculine	Feminine
Singular	ʔallaðii 'that.3MS'	ʔallatii 'that.3FS'
Dual Nominative	ʔallaðaani 'that.3MDNom	ʔallataani 'that.3FDNom'
Dual Genitive/Accusative	ʔallaðajni 'that.3MDAcc	ʔallatajni 'that.3FSAcc'
Plural	ʔallaðiina 'that.3MP'	ʔallaati, ʔallawaati 'that.3FP

The process of reduction reaches its peak in dialectal Arabic with the use of *ʔilli*, which neutralizes case, number and gender so that it is used for masculine and feminine, singular and plural, and all different grammatical cases (Al-Momani, 2010).

It is worth noting that in both Classical Arabic and MSA, the use of the relative pronoun is dependent on the definiteness of the preceding noun head (NP/DP) so that *ʔallaðii*-type forms can only follow a definite noun:

(6)
a.

raʔaj-tu	l	-walad-a	*(llaðii)	ju-ħib	l-qiraaʔa
saw-1S	the-boy	-Acc	that.3MS	3MS-likes	the-reading

'I saw the boy who likes reading.'

[6] See Galal (2004) for the Declension of *ʔallaðii* for Gender, Case and Number in Classical Arabic.

b.

raʔaj-tu	walad-a-n	(*llaðii)	ju-ħib	l-qiraaʔa
saw-1S	boy-Acc-indef	that.3MS	3MS-likes	the-readings

'I saw a boy that likes reading.'

In (6a) the definite nominal *l-waladu* 'the boy' requires *ʔallaðii* to introduce the embedded relative clause. An indefinite nominal head in relative structure, on the other hand, cannot be followed by *ʔallaðii*-type forms as evident in the ungrammaticality of (6b) if *ʔallaðii* follows the indefinite nominal *waladan* 'a boy'.

2.3.2. Types of relative Clauses in MSA

The following subsections introduce the data that represents the main aspects of relativization in MSA. The sentences are divided into definite and indefinite relatives reflecting the observed dichotomy in MSA relativization- the observation that the relativizer (the *ʔallaðii*-type element) appears in definite relatives while it does not in indefinite relatives.

2.3.2.1. Definite relative clauses

Definite relatives are those relatives that adjoin to a preceding definite nominal head. Relative clauses in MSA systematically follow their heads. In (7a), for instance, the relative clause *llaðii ju-ħib l-qiraaʔa* 'that likes reading' follows the nominal head *l-walad-u* 'the-boy'.

(7)

a.

ʒaaʔa	l-waladu	llaðii	ju-ħib	l-qiraaʔa
came.3MS	the-boy	that.3MS	3MS-likes	the-reading

'The boy who likes reading came.'

b.

ʒaaʔ-at	l-bintu	llatii	tu-ħib	l-qiraaʔa
came.3FS	the-girl	that.3FS	3FS-likes	the-reading

'The girl who likes reading came.'

Also, as observed particularly in (7-11) that *ʔallaðii*-type form varies in agreement with the preceding head noun in terms of gender, number and case (see Table 2-2 for the different forms of *ʔallaðii*).

(8)

a.

ʒaaʔa	l-walad-aani	llað-aani	ju-ħib-aani	l-qiraaʔa
came.3MS	the-boy-D.Nom	that-3MD.Nom	3M-likes-D	the-reading

'The two boys who like reading.'

b.

ʒaaʔ-at	l-bint-aani	llat-aani	tu-ħib-aani	l-qiraaʔa
came.3FS	the-girl	that-3FDNom	3F-likes-D	the-reading

'The two girls that who like reading.'

As we see in (8a) the noun head *l-walad-aani* 'the two boys' agrees with *llaðaani* 'that' in gender (masculine), number (dual) and case (Nominative). Comparing this with (7a), we clearly see that *l-waladu* 'the boy' agrees with the relativizer *llaðii* 'that' in gender (Masculine) and number (Singular). Likewise, in (7b) the noun head *il-bintu* 'the girl' agrees with the relativizer *llatii* 'that' in gender (Feminine) and number (Singular). But the case is left unmarked in (7). The case is assumed to be covert here, in opposition to the examples in (8) where case is apparently marked. Like (4), example (9) shows agreement in terms of number (Plural), gender (Masculine) in (9a) and gender (Feminine) in (9b):

(9)
a.

ʒaaʔ-a	l-ʔawlaadu	llaðiina	ja-qaraʔ-uun	l-kitaaba
came.3MS	the-boys	that-3MP	3M-read-P	the-book

‘The boys who read the book came.’

b.

ʒaaʔ-at	l-banaatu	llwaatii	ja-qaraʔ-na	l-kitaaba
came.3MS	the-girls	that-3FP	3F-read-P	the-book

‘The girls who read the book came.’

In this example, the noun head *l-ʔawlaadu* ‘the boys’ agrees with *llaðii* in gender and number while the case is unmarked. In (9b), *l-banaatu* ‘the girls’ agree in gender and number with *llatii* and the case is left unmarked, too.

Example (10) shows a full head-relativizer agreement in gender, number and case since this is an example of a dual case. This example shows accusative case agreement versus Nominative case agreement shown in (8):

(10)
a.

ʕariftu	l-walad-ajni	llaðajn	qaraʔaa	l-kitaaba
knew.1S	the-boy-D.Acc	that-3MDAcc	read.3MD	the-book

‘I knew the two boys who read the book.’

b.

ʕariftu	l-bint-ajni	llatajn	qaraʔaa	l-kitaaba
knew.1S	the-girl-D.Acc	that-3FDAcc	read.3FD	the-book

‘I knew the two girls who read the book.’

So, as shown here the head noun *l-walad-ajni* ‘the two boys’ agrees with *llað-ajni* ‘that’ and (10a) *l-bint-ajni* ‘the two girls’ agrees with *llat-ajni* ‘that’. In addition to gender and number agreement, accusative case agreement is shown, too.

The examples presented so far in this part, (7-10), illustrate the case of subject relatives. The intended subject here is the subject occupying the relativized position inside the relative clause. All subject relatives as seen from the data above do not allow an overt resumptive pronoun; only gap is allowed in the relativized subject position[7]. Relativized DPs can occupy some other various positions as well.

One of the characteristics of relative clauses in MSA that distinguishes it from English is the use of clitic pronouns (see Table 2-3 below) at the position in the clause at which the head of the relative clause is interpreted, as illustrated in examples (11-13). These are often referred to in the literature as resumptive pronouns (pronominal copies). Resumptive pronouns occupying the subject position come in a free subject pronoun form. For the moment, in describing the facts of relative clauses in MSA, it will be reported whether a clitic appears or not.

Table 2-3: Forms of Third Person Objective Resumptive Clitics in MSA

Number	Masculine	English	Feminine	English
Singular	-hu/ -hi	Him/it.M	-ha	Her/it.F
Dual	-huma	Them.D	-huma	Them.D
Plural	-hum	Them.M	-hunna	Them.F

In certain contexts, clitics are obligatory while they are ruled out in others. There are also contexts in which both gaps and clitics can appear. Clitics are optional in the Direct object position (11a, b). Clitics are required in all non-subject positions. The distribution of clitics[8] in different types of relative clauses is illustrated (*in italics*) in the following examples:

[7] It is still controversial whether a resumptive pronoun is generated in subject position (Galal, 2004).
[8] Clitics in Arabic are nominal; they have the function of DPs (see Aoun et al (2010: Chapter 2 and 6) and Aoun (1999) for the distribution of clitics in Lebanese Arabic)

(11)
a.

qaraʔ-tu	l-kitaaba	llaðii	ʃtaraa-(*hu*)	tˤ-tˤaalibu
read-1S	the-book	that.3MS	bought.3MS-it	the-student

'I read the book that the male student bought.'

b.

qaraʔ-tu	l-maʒallata	llatii	ʃtaraat-(*ha*)	tˤ-tˤaalibatu
read-1S	the-book	that.3FS	bought.3FS-it	the-student

'I read the book that the female student bought.'

As seen in (11), the relativizer *llaðii, llatii* 'that' is coreferential with the resumptive clitic *–hu, –ha* which occupies a direct object position and is suffixed to the verb *ʃtara* 'bought'. However, it is perfectly possible that the object position within the relative clause can include a gap rather than resumptive pronoun.

The examples in (11a) and (11b) indicate, interestingly, that optionality occurs between gap and resumptive pronoun in the case of direct object relativization only. This optionality, however, does not exist in the case of indefinite direct object relatives where a resumptive clitic attaching to the verb is compulsory.

The sentences in (12 a-b) below show the relativization of indirect object DPs. The two DPs *tˤ-tˤaaliba* 'the student' and *l-ʒaaʔizata* 'the award' are coreferential with the resumptive clitics *–hu* in *mahaħat-hu* 'granted him' and *–ha* in *manaħat-ha* 'granted her' that occupy indirect object position inside the relative clause.

(12)
a.

qaabal-tu	tˤ-tˤaaliba	llaðii	manaħat-*hu*	l-madrasatu
met.1S	the-student	that.3MS	granted.3FS-him	the-school
l-ʒaaʔizata				
the-award				

'I met the student that the school granted the award to.'

b.

raʔaj-tu	l-ʒaaʔizata	llatii	manaħat-*ha*	l-madrasatu
saw.1s	the-award	that.3FS	granted.3FS-her	the-school

li-tˁ-tˁalib
to-the student
'I saw the award that the school granted the student.'

The relativization of prepositional objects (oblique) is displayed by items (13a-b). In (13a) for example, both the DP *tˁ-tˁaalibu* 'the student' and the relativizer *llaðii* 'that' are coindexed with the resumptive –*hi* which is an object to the preposition *ʔila* 'to'.

(13)
a.

ʔata	tˁ-tˁaalibu	llaðii	ʔarsaltu	ʔila-j-*hi*
came.3MS	the-student	that-3MS	sent-1S	to-him

r-risalata
the-message
'The student that I sent the message to came.'

b.

ʔat-at	tˁ-tˁaalibatu	llatii	ʔarsaltu	ʔila-j-*ha*
came.3FS	the-student	that.3FS	sent-1S	to-her

r-risalata
the-message
'The student that I sent the message to came.'

To sum up, an element of *ʔallaðii*-type forms must be present as the introductory element of the definite relative clause; otherwise the sentences are rendered ungrammatical. The examples presented above demonstrate clearly that, in particular, in the dual and plural cases, there has to be agreement in gender and number between the antecedent and the *ʔallaðii*-type element. Any disagreement brings about ungrammaticality. *ʔallaðii*-type element agrees with the case of the

antecedent (particularly manifested in the dual). It is worth mentioning here that *ʔallaðii*-type form agrees with the head noun in its matrix position rather than its position within the relative clause. A compulsory resumptive clitic has to occur in the case of indirect object and oblique relatives; the only case that allows optionality is that of the direct object relatives.

The following section deals with the characteristics of the indefinite relatives in MSA.

2.3.2.2. Indefinite relative clauses

Indefinite relatives exhibit the same properties of the definite relatives with one sole difference in which relative complementizers are ruled out within indefinite relatives. Examples (14-16) are intended to show the absence of the relativizer in indefinite relatives for singular (example 14), dual (15) and plural (16). As we see in (14a) the indefinite head noun *waladun* 'a boy', does not require the presence of *ʔallaðii*-type element and the presence of *ʔallaðii*-type element would render the sentence ungrammatical:

(14)
a.

ʒaaʔa	walad-un	(*llaðii)	ja-ħmil	la-ka	risalat-an
came.3MS	boy-Indef.Nom	that.3MS	3MS-carry	to-you.2MS	letter-Indef

'A boy who has a message for you came.'

b.

ʒaaʔ-at	bint-un	(*llati)	ta-ħmil	la-ka	risalat-an
came.3FS	girl-Indef.Nom	that.3FS	3FS-carry	to-you.2MS	letter-Indef

'A girl who has a message for you came.'

Likewise in (15) (the dual case; masculine and feminine) and (16) (the plural case; masculine and feminine), the *ʔallaðii*-type element is not allowed.

(15)
a.
ʒaaʔa walad-aani ja-ħmil-aan la-ka risalat-an
came.3MS boy-3MDNom 3M-carry.D to-you.2MS letter-Indef.Nom
'Two boys who have a message for you came.'

b.
ʒaaʔ-at bint-aani ta-ħmil-aan la-ka risaalat-an
came-3FS girl-3FDNom 3F-carry.D to-you.2MS letter-Indef.Nom
'Two girls who have a message for you came.'

(16)
a.
ʒaaʔa ʔawlaad-un ja-ħmil-uun la-ka risaalat-an
came.3MS boys-IndefNom 3M-carry.P to-you.2MS letter-Indef
'(Some) boys who have a message for you came.'

b.
ʒaaʔat banaat-un ta-ħmil-na la-ka risaalat-an
came.3FS girls- IndefNom 3F-carry.P to-you.2MS letter-Indef
'(Some) girls who have a message for you came.'

However, a case worth mentioning here is the one of direct object relatives. It was observed in definite relatives that direct object relatives allow optionality between gap and resumption in the object position as was evident in examples (11a-b). The optionality observed here is disallowed for indefinite direct object relatives; the existence of a resumptive clitic is compulsory as displayed by the contrast in grammaticality between (17a) and (17b):

(17)
a.
*qaraʔ-tu kitaaban ʃtaraa tˤ-tˤaalibu
read.1S book bought.3MS the-student(m)
'I read a book that the student bought.'

b.
qaraʔtu kitaaban ʃtaraa-*hu* tˤ-tˤaalibu
read.1s book bought.3MS-it.MS the-student(m)
'I read a book that the student bought.'

(17a) is ungrammatical because of the non-occurrence of a resumptive clitic; attaching resumptive -*hu* 'it.MS' to the verb *ʃtaraa* 'bought' in (17b), on the other hand, renders the sentence grammatical.

Based on the general structural differences between English and MSA relative clauses, the study questions can be stated as follows:

Question 1: Would English-speaking L2 learners of MSA show a systematic pattern in their use of resumptive pronouns within SU, DO, IO, and OBL relative clauses?

Question 2: Would English-speaking L2 learners of MSA show a systematic pattern in their use of relative complementizers as related to the definiteness of the head noun in the matrix clause?

Question 3: Would English-speaking L2 learners of MSA show a systematic pattern in their use of agreement features on relative complementizers and resumptive pronouns?

2.4 Chapter Summary

In this chapter I described the structure and syntactic derivation of relativization constructions in English and Modern Standard Arabic (MSA). Focusing mainly on restrictive relative clauses, I showed that relative clause formation in English and MSA appear to be similar in many constructions; however, there are certain aspects that are distinct.

I demonstrated that in both English and MSA, the position of the relative clause is postnominal (i.e. relative clauses follow the antecedent), and that they are similar regarding the relativization positions described in the NPAH. While English has five relative pronouns; *who(m), whose, which* and *that*; only two of which are marked for case (e.g. *whom* and *whose*). In MSA, no relative pronouns are used; instead *ʔallaðii*-form complementizer, which is equivalent to English *that*, introduces definite relative clauses. I noted that this complementizer has the same base phonological form with differences in agreement and case markings given it roughly 8 different shapes. I also presented data that showed how, in MSA, *ʔallaðii*-type form varies in agreement with the preceding head noun in terms of person, number, gender, and case.

I showed that the structure of relative clauses is far from simple as it brings up the clustering of many issues. Relative clauses in MSA can be divided into two main types: definite relatives and indefinite relatives. Typically a relative marker *ʔallaðii* immediately follows the modified NP if it is definite. Relative markers are ruled out if the head noun is indefinite.

Excluding the subject relativization cases and the optional gap case of definite direct objects, one recurrent feature in MSA relative clauses where a coreferential pronominal element (resumptive clitic) that agrees with the head noun for number and gender is used in the corresponding argument position within the relative clause spelling out its gender and number in its original position.

I formulated three questions at the end of the chapter based on the structural differences between the two languages.

The next chapter provides a review of the main second language acquisition theories and studies on the acquisition of relative clause structures.

Chapter 3

Theories of SLA and the Acquisition of Relative Clauses

3.0. Introduction

This chapter is concerned with presenting a variety of hypotheses proposed to explain different aspects of the acquisition of relative clauses as well as reviewing the relevant literature. The aim is to set the background for the current study, which aims at investigating the nature of interlanguage grammars of relative clauses, within the context of second language acquisition (SLA). The chapter begins with a short history of second language acquisition research and explains the notion of 'Interlanguage' in Section 1.

In the subsequent parts of this chapter, two dominant theoretical approaches used to study different aspects of interlanguage grammars of relative clauses will receive attention. One approach is based on the study of Typological Universals and the other is derived from Chomsky's (1981; 1995) theory of Universal Grammar (UG). Section 2 outlines the typological generalizations of the Noun Phrase Accessibility Hierarchy (NPAH of Keenan and Comrie, 1977) and points out the reverse hierarchy assumed for the use of resumptives within relative clauses (i.e., the Resumptive Pronoun Accessibility Hierarchy (RPAH)). The reminder of section 2 is concerned with the interlanguage (IL) studies that adhered to the reverse hierarchy assumed for the use of resumptives within relative clauses (i.e., the RPAH). The question of the explanatory force typological approaches provide to SLA data is also brought up in this section. Section 3 examines the various processing

considerations and hypotheses proposed in response to the difficulties learners encounter when faced with relative clauses. Several of these have been described in the recent literature and some of them have already proved to have advantages in accounting for a wider range of languages over others (e.g., structural distance vs. linear distance). Section 4 presents the different hypotheses about the role of UG in SLA research and reviews some relevant research within the UG approach, under both the principles and parameters (P&Ps) and the Minimalist Program (MP) frameworks. I also discuss literature written about *wh*-movement, agreement and pro-drop from the minimalist perspective and point the relevance of their findings to the general predictions of the study. In section 5 I point out the gap in the literature of studies that take Modern Standard Arabic (MSA) or other colloquial varieties, in general, as second language data. In section 6 I review relevant L1 studies. Finally, section 7 summaries and concludes the chapter.

3.1. Second Language Acquisition and the Study of Interlanguage

One of the theoretical explanations of second language learning is the Contrastive Analysis Hypothesis (CAH), advocated by Lado (1957). The CAH assumes that the learner's native language plays a very significant role in the process of learning any target language, such that if the linguistic pattern of the first language (L1) is similar to that of the L2 pattern, then learning of the target language linguistic pattern will be easier and vice versa.

Some of the problems associated with the CAH assumptions have resulted in the development of the Error Analysis stage of language development research

(Corder, 1967; Selinker, 1969, 1972; Nemser, 1971). The Error Analysis Hypothesis assumes that learners produce errors that are not necessarily based on the CAH assumptions, but errors that depict other factors or processes like transfer of training, overgeneralization, simplification, and learning strategies. There were some problems that arose with the Error Analysis as well. These, for instance, included the over attention paid by researchers to the errors learners produced in language learning, and the disregard of the correct patterns learners produced.

With the growing interest in second language research, the focus has shifted from analyzing only learners' errors to understanding the whole linguistic system of the second language learner, which is the study of interlanguage (a term coined by Selinker, 1972). The study of interlanguage (IL) refers to the learner's language system, which is composed of various elements, many of which could be traced to the native language or the target language systems, while some others cannot be attributed to neither the native language nor the target language systems.

My empirical study, described in Chapter 5, examines the nature (i.e., knowledge) of IL grammars without reference to the source of errors. In what follows I review approaches to the study of IL systems and some relevant studies.

3.2. Typological Universals and Second Language Acquisition

According to Ellis (1994), typological universals refer to "the cross-linguistic comparison of a wide range of languages drawn from different language families in order to discover what features they have in common" (p. 415). As far as the current study is concerned, a typological universals approach seems to provide a firm ground to make predictions about the ease of acquisition of some language features. According to Gass and Selinker (2008), one of the most widely discussed implicational universals is one that deals with relative clause formation. This universal is known as the Noun Phrase Accessibility Hierarchy (NPAH), and was proposed by Keenan and Comrie (1977). The generalization is an implicational markedness hierarchy of grammatical relations that can be 'relativized'. The presupposition is that relativization is a rule of all natural languages. No language is expected to disallow relative clause formation; however, it is predicted that there should be some languages that only allow relativization of one position, which has to be the subject (many Austronesian languages show such restricted relativization). Because this study will eventually discuss the relevance of the NPAH to the L2 data and the results will be presented according to the scalability of the NPAH (following work by Hyltenstam, 1984; 1990 and Maghrabi, 1997 for instance), it is worthwhile to have a sufficiently clear idea of what the predictions of the NPAH are, and its relevance to the study of the acquisition of relative clauses in general and to the current study in particular, which I discuss next in (2.2.1).

The following subsections present the main implications of the Noun Phrase Accessibility Hierarchy (NPAH), proposed by Keenan and Comrie (1977, 1979) and the Resumptive Pronoun Accessibility Hierarchy (RPAH), interpreted by Hyltenstam (1984, 1990) and reviews some of the relevant research. The aim is to point out some robust findings on the use of resumptive pronouns in relative clause structures, as this particular aspect of relativization is examined in the investigation of MSA L2 relative clauses. The findings reported in studies examining Keenan and Comrie's (1977) hierarchies are interesting because they provide predictions about IL data on the use (retention/deletion) of resumptive pronouns as related to the grammatical function of relative clauses and the current study should also examine similar effects on resumptive pronouns of English-MSA IL grammars. Moreover, the evaluation of explanations offered by typological universals about L2 learners' IL grammars are relevant, as they appear to raise further questions about the nature of IL grammars; such that, why interlanguages are the way they are, and how L2 is acquired.

3.2.1. The Accessibility Hierarchy

A much-discussed implicational universal in the field of second language acquisition typology, according to Gass and Selinker (2008), is the Keenan and Comrie's (1977) famous Noun Phrase Accessibility Hierarchy (NPAH) that deals with relative clause formation. The NPAH illustrates a crosslinguistic consistency concerning the types of relative clauses that a language allows; namely, if a language can relativize a given NP, then any other NP in a higher position on the hierarchy

can also be relativized. Subjects (SU) are highest in the hierarchy, followed by direct objects (DO), indirect objects (IO), obliques (OBL), genitives (GEN), and objects of comparison (OCOMP). This relativizability order is preserved across 49 different languages. The proposed order of the NPAH is represented below for convenience, where the symbol ">" indicates that the following position is lower in the hierarchy (1):

(1) The Noun Phrase Accessibility Hierarchy (NPAH):

Subject (SU) > Direct Object (DO) > Indirect Object (IO) > Oblique (OBL) > Genitive (GEN) > Object of Comparison (OComp)

The crosslinguistic evidence that crucially supports this hierarchy is the fact that there exists at least one language that relativizes in a certain position but not on a lower one from the scale, so the particular order in (1) not only presents a continuum of complexity but also an implicational scale. If a language relativizes an oblique (OBL) position, this hierarchy predicts that it will also do so in all the higher positions, so that language obligatorily has SU, DO and IO relative clauses, too. Note that the different types of relative clauses in the NPAH are defined in terms of the relativized grammatical extraction positions. The following examples illustrate these different relativized extraction positions in English and Modern Standard Arabic (MSA):

(2) Subject (SU) relatives:

a. The woman [that ___ carries the baby] English

b. l-ʔimraʔa llatii ta-ħmil tˤ-tˤifl MSA
the-woman that.3FS 3SF-carry the-baby
'the woman that carries the baby.'

(3) Direct Object (DO) relatives:

a. The baby [that the woman carries ___] English

b. tˤ-tˤifl llaðii l-ʔimraʔa ta-ħmil-(**hu**) MSA
the-baby that.3MS the-woman 3FS-carry-(**him**)
'the baby that the woman carries (**him**).'

(4) Indirect Object (IO) relatives:

a. The baby [that the woman gives the food to ___] English

b. tˤ-tˤifl llaðii l-ʔimraʔa tu-ʕtˤii-**hu** tˤ-tˤaʕaam MSA
the-baby that.3MS the-woman 3FS-give-**him** the-food
'the baby that the woman gives **him** the food.'

(5) Oblique (OBL) relatives:

a. The baby [whom the woman cares about ___] English

b. tˤ-tˤifl llaðii l-ʔimraʔa ta-htam bi-**hi** MSA
the-baby that.3MS the-woman 3FS-care about-**him**
'the baby that the woman gives **him** the food.'

(6) Genitive (GEN) relatives:

a. The woman [whose baby my kids like ___] English

b. l-ʔimraʔa llatii ʔawlaad-ii ju-ħib-uun tˤifla-**ha** MSA
the-woman that.3FS kids-my 3M-like-P kid-**her**
'the woman whose my kids like **her** baby.'

(7) Object of Comparison (OCOMP) relatives:

a. The woman [who my sister is taller than ___] English

b. l-ʔimraʔa llatii ʔuxt-ii ʔatˁwal min-**ha** MSA
the-woman that.3FS sister-my taller than-**her**
'the woman that my sister is taller than **her**.'

As the examples (2-7) show, both English and MSA allow relativization at any position on the NPAH. Relative clauses are formed using the gap strategy (the extracted constituent is replaced by a silent copy) in English, whereas MSA makes use of resumptive pronouns (marked in bold in the above examples) in the extracted site. Relative clauses in MSA involve a relative pronoun of *ʔallaðii*-type, which agrees with the extracted constituent in gender, number and case and also shows coreferential agreement with the resumptive/gap site (Chapter 3 will point out the structural differences between the two languages in details).

Besides the typological reality of the NPAH, Keenan and Comrie (1977) also suggest that it has psycholinguistic validity: the NPAH "directly reflects the psychological ease of comprehension. That is, the lower a position is on the AH, the harder it is to understand relative clauses formed on that position" p. 88. Keenan and Comrie (1977) speculated that their typological generalization might have a basis in performance factors. This idea was supported by the results of a psycholinguistic experiment published in Keenan and Hawkins (1987), which concluded that "the AH is reflected in the psychological processing of relative clauses in that repetition errors increase as the position of the relative clause on the hierarchy decreases." However, the authors pointed out that it remains unexplained

just why relative clauses should be more difficult to comprehend-produce as they are formed on positions lower on the NPAH.

Although the NPAH was originally formed as a typological universal, it was later extended to the order of difficulty in acquiring and processing relative clauses (Doughty, 1991; Eckman, Bell, & Nelson, 1988; Gass, 1979; Hawkins, 2007; among others). This extension will be referred to as the NPAH effect (following Comrie, 2007) in the current study as opposed to the NPAH, which denotes the original typological generalization. The research questions in most of the early studies testing the NPAH were about the influence that typological universals can have on the order of acquisition of certain grammatical structures, and on the power of these universals to explain the easiness or difficulty in learning some linguistic features. The main assumption was that interlanguages are natural languages (Adjémian, 1976) and if linguistic universals constrain natural languages, then, they will also affect the development of L2 languages.

More specifically, with respect to relative clauses, the hypothesis was that if the ranking proposed by Keenan and Comrie (1977) is the correct one, then it should also hold in the development of a language, be it L1 or L2 acquisition. The results from studies on the universal predictions of the NPAH support the notion that ILGs are constrained in a similar way to natural language grammars. There is a general support for the universality of the NPAH and it has been stated for both L1 and L2 learners, which found that the difficulty with different types of relative clauses parallels the implicational relationships in the NPAH.

In general, the reported difficulty in the acquisition of relative clauses and

resumptive pronouns is observed in the production of various relative clause types of the NPAH. The assumption has been made that since this hierarchy is implicational, it also implies a markedness relationship among its categories; i.e., SU relatives are less marked that DO ones, and DO relative clauses are less marked than IO relative clauses, and so on. However, what is crucial about this hierarchy is that it can predict the acquisition order of relative clauses such that less marked structures of relative clauses will be acquired easier and faster than more marked structures.

Further, a second important aspect of the hierarchy is the implication regarding the use of resumptive pronouns (also referred to as pronominal reflexes or copy pronouns) in relative clauses. While English does not allow for pronoun retention in all positions of the NPAH, Keenan and Comrie (1977) found that Arabic allows for pronoun retention on all positions except in subject relativization. Again, if a language allows for retention at a lower position it follows that a higher position on the hierarchy also allows for retention. Thus, a resumptive pronoun will occur within relative clauses lower down the hierarchy (e.g. IO) rather than with those higher up (e.g. SU). Keenan and Comrie pointed out that more marked positions on the NPAH exhibit pronoun retention. Thus, the hierarchy also implies that resumptive pronouns are in a similar implicational relationship; however, the direction of implication is reversed (e.g. Hyltenstam, 1984, 1990). The proposed order of the Resumptive Pronouns Accessibility Hierarchy (RPAH) is represented in (8) below:

(8) Resumptive Pronouns Accessibility Hierarchy (RPAH):

OCOMP > GEN > OBL > IO > DO > SU

The results from studies on the universal predictions of the NPAH support the notion that ILGs are constrained in a similar way to natural language grammars. There is a general support for the universality of the AH and it has been stated for both L1 learners (e.g., Gibson, 1998; Gibson & Schutze, 1999; Diessel and Tomasello, 2005) and L2 learners (e.g., Gass, 1979, 1981, 1983, 1984; Hamilton, 1994; Hawkins, 1989; Hyltenstam, 1984; Pavesi, 1986; Izumi, 2003 among others)[9], that the difficulty with different types of relative clauses parallels the implicational relationships in the NPAH. Although in recent years work in this area has expanded to cover a wide range of languages when Hamilton (1994), (cited in Gass and Selinker, 2008), took this research a step further and questioned the extent to which this universal is truly universal, the evidence, in general, does support this universal principle. However, more recently, it has been claimed that the NPAH effect may not hold for all languages—primarily, not for East Asian languages (see the special issue of Studies in Second Language Acquisition 29, 2007). These claims have, in part, been made on the basis of an alternative analysis of East Asian relative clauses Comrie (2002).

In the next subsection I briefly identify "Markedness" as one of the fundamental concepts underlying much grammatical work in second language typology. Many hypotheses under the Typological Universals approach to SLA have

[9] See Ellis, 2008, pp. 563-575 for a comprehensive review of L2 studies testing the NPAH effect.

made use of the concept “Markedness”. Studies testing the prediction of the NPAH are an instance.

3.2.2. Markedness

In general, markedness has been considered in terms of implicational universals. Gundel *et al.*, (1986: 108) as cited in Eckman (2004), defined markedness as “A structure X is typologically marked relative to another structure, Y (and Y is typologically unmarked relative to X), if every language that has X also had Y, but every language that has Y does not necessarily have X”. In explaining what makes a feature marked or unmarked, Greenberg (1966) and others have provided that simplicity/complexity, frequency and distribution as the criteria to be considered.

In order to explain how markedness affects transfer, Eckman (1977) advanced the Markedness Differential Hypothesis (MDH): those areas of difficulty that a second language learner will have can be predicted on the basis of a comparison of the native language (NL) and the target language (TL) such that:

(a) those areas of the TL that are different from the NL and are relatively more marked in the NL will be difficult;

(b) the degree of difficulty associated with those aspects of the TL that are different and more marked than in the NL corresponds to the relative degree of markedness associated with those aspects;

(c) those areas of the TL that are different from the first language but are not more marked than in the NL will not be difficult. (Eckman 1977: 321)

In the following subsection (2.2.2) I take a closer look at some studies that considered the role of typological markedness in explaining the acquisition of resumptive pronouns in relative clauses (Hyltenstam, 1984, 1990; Pavesi, 1986; and Maghrabi, 1997). I point out that although these studies base their assumptions of the acquisition process from a syntactic analytical perspective, their predictions and findings seem to be supported even when viewed from a psycholinguistic perspective (Hawkins, 1999; 2005), which I consider in turn in the section that follows (2.3). After presenting the relevant research I will examine some critical points within a typological universal approach to L2 relatives that are relevant to its power in explaining how languages are acquired.

3.2.3. Studies of the acquisition of resumptive pronouns based on typological universals

The second language acquisition studies I will present here were set to assess the pattern of retention/deletion of resumptive pronouns in relative clauses reasonably described by the typological patterning of the NPAH. The typological distribution of the use of resumptive pronouns has been found to reflect the NPAH and a parallel formulation to the case of resumption with relatives has been suggested (Hyltenstam, 1984; 1990), such that if a resumptive pronoun is deleted in a particular position on the hierarchy, it must also be deleted in all positions higher (to the left) in the hierarchy (1). The more marked representation would be the use

of gaps within all different types of relative clauses and the least marked representation is where resumption is used within all types of relatives instead.

Hyltenstam (1984, 1990) assumes that languages exhibit various degrees of markedness in terms of the retention versus deletion of resumptive pronouns. He assumes four initial stages of the L2 learner's IL grammar in terms of the retention and deletion of resumptive pronouns in relative clauses illustrated in Table 3-1 below. These four stages show that regardless of the status of markedness in the native language and/or the target language, the resultant IL structure will be the unmarked status. That is, the initial stages of IL development are predicted to be qualitatively similar for learners of typologically different native languages.

Table 3-1: A Hypothesis about Markedness Condition in Initial Stages of Interlanguage

Row	Native Language	Target Language	Initial stages of IL
1	Unmarked	Unmarked	Unmarked
2	Unmarked	Marked	Unmarked
3	Marked	Unmarked	Unmarked
4	Marked	Marked	Unmarked

(From Hyltenstam 1984: 43)

According to Hyltenstam's (1984, 1990) hypothesis, the most marked case in languages would be to delete resumptive pronouns, and the least marked case is to retain resumptive pronouns in all position of the NPAH (see Table 3-2).

Table 3-2: Typological Patterns for Retention/Deletion of Resumptive Pronouns in Languages

SU	DO	IO	OBL	GEN	OCOMP	
-	-	-	-	-	-	**Most marked**
-	-	-	-	-	+	
-	-	-	-	+	+	
-	-	-	+	+	+	
-	-	+	+	+	+	
-	+	+	+	+	+	
+	+	+	+	+	+	**Least marked**

(From Hyltenstam 1984: 45)

The hypothesis strongly represents the initial IL stages that learners go through in terms of markedness and language acquisition. However, Hyltenstam's assumptions regarding the retention and deletion of resumptive pronouns are based on a syntactic analytical perspective (formal complexity) without clear discussion of any psychological assumptions (perceptual complexity). I present Hyltenstam's empirical study next.

Hyltenstam's (1984) empirical study explored the status of resumption versus gap. His data come from the acquisition of Swedish as a second language by speakers of Spanish (n = 12), Finnish (n = 9), Greek (n = 12) and Persian (n = 12). Both Spanish and Finnish follow the same pattern in Swedish in not supplying resumptive pronouns, whereas Greek and Persian do supply them, although to somewhat different degrees. The elicitation material in Hyltenstam's study consisted of a set of eight pictures for each relativizable function, where the participants' task was to orally identify persons on each picture using relative clauses. Results indicated that all subjects produced resumptive pronouns when producing relative clauses and that the pronouns were deleted "roughly in the order

predicted by the NPAH, although the ordering is not perfect" p.47. These results led Hyltenstam to conclude that even though the learners have a marked category in their native language, such as the absence of resumptive pronouns, they all use unmarked options in their interlanguage grammar, i.e., resumptive pronouns. The degree to which they use the pronominal retention, though, depends on the characteristics of the native language of the learner: the Persian speakers used resumptive pronouns to a larger extent (240 pronouns in total), followed by the Greek speakers (205 pronouns), the Spanish speakers (144 pronouns), and the Finnish (27 resumptive pronouns) speakers.

In a replication of Hyltenstam (1984), Pavesi (1986) reported similar results. Her subjects were Italian learners of L2 English in both formal and informal contexts. Despite the fact that both English and Italian do not exhibit the pronoun retention phenomena in relative clauses, the ILGs of these learners contained numerous instances of resumptive pronouns and her learners produced more instances of relatives with resumptive pronouns than without. Moreover, Pavesi reported that the participants also adhered to the implicational pattern of the NPAH.

Despite the fact that some of Hyltenstam's (1984) results show a clear transfer effect, transfer does not explain why Spanish and Finnish learners used resumptive pronouns in their IL. First language transfer does not either explain Pavesi's (1986) results. The relative clause data in Hyltenstam's and Pavesi's study, thus, point to the need for both transfer and processing-based accounts of IL data.

When English and MSA are compared in terms of the status of resumptive pronouns, each language comes to a different end of one line with regard to the use

of resumption. Hyltenstam's typological markedness hypothesis suggests that the retention of resumptive pronouns in relative clauses in languages such as MSA exhibits the unmarked status, whereas the deletion of resumptive pronouns in relative clauses in English exhibits the marked status. On this basis, the typological patterns of resumptive pronouns in English and MSA relative clauses are outlined in Table 3-3 below:

Table 3-3: Typological Patterns of Resumptive pronouns in English and Arabic Relative Clauses

SU	**DO**	**IO**	**OBL**	**GEN**	**OCOMP**		
-	-	-	-	-	-	English	Marked
-	-/+	+	+	+	+	MSA	Unmarked

Accordingly, the initial stage of the IL grammar of MSA learners of English and of English learners of MSA, would by hypothesis, exhibit the unmarked categories (i.e., retention of resumptive pronouns). Table 3-3 above shows that English and MSA differ in the retention and deletion of resumptive pronouns on the different levels of the NPAH. An explication of the syntactic comparison (based on syntactic and morphological levels) between English and Arabic relative clause structures is presented in Chapter 3. At this stage, it sufficient to say that English does not require the retention of resumptive pronouns in any type of relative clauses, whereas Arabic requires the retention of resumptive pronouns in the four lower levels if the NPAH with allowing their optional deletion in the DO level, and their obligatory deletion in the SU level. In testing the predictions of the NPAH with respect to English-MSA ILs, Maghrabi (1997) reported conforming results

Maghrabi (1997) carried out a bi-directional study examining the acquisition of L2 resumptive pronouns status of two groups of learners; 12 Arabic-speaking learners of English (of beginning and advanced proficiency levels) and 12 English-speaking learners of Arabic (of beginning and advanced proficiency levels). Both groups were administered three types of tasks: (a) Grammaticality Judgments; (b) Sentence Combination; and (c) Oral Picture Description. Additionally, they were asked to reflect on their choices on the three tasks. The results of the study indicate that the subjects of both Arabic learners of English and English learners of Arabic groups retained resumptive pronouns more often than they deleted them in the perception, written production, and oral production of the target language relative clauses. Whether their L1s require the retention or deletion of resumptive pronouns, the subjects retained resumptive pronouns in their use of L2 relative clauses more frequently. These results then also support Hyltenstam's (1984; 1990) typological markedness hypothesis. Because Maghrabi's study investigates the acquisition of relative clauses of MSA as an L2, and it is the only study that examines similar aspects of relativization as the empirical study reported later in this dissertation, it should provide comparable data. Therefore, in what follows I will present the findings and explanations offered in Maghrabi (1997) in detail.

The results of Maghrabi (1997) with regard to resumptive pronoun retention by the different groups on the three tasks collectively are reproduced in Table 3-4 below:

Table 3-4: Maghrabi's (1997) Resumptive Pronoun Retention Results

Group	Percentage of pronoun retention
Arabic learners of English-Beginners	74%
Arabic learners of English-Advanced	48%
English learners of Arabic-Beginners	72%
English learners of Arabic-Advanced	77%

According to Maghrabi, these results, as well as looking at percentages of pronoun retention on each of the three tasks separately, could strengthen the claim of the universality of the retention of resumptive pronouns in IL relative clauses. However, Maghrabi (1997) explained such behavior under his psycholinguistic constraints (the incomprehensibility learners encounter in processing L2 relative clauses without resumptive pronouns) and typological influence (transfer, use of L1 typological features in processing L2 relative clauses) hypotheses. Arabic learners of English retained resumptive pronouns because they were psycholinguistically constrained and/or typologically influenced; English learners of Arabic retained resumptive pronouns because they were, undoubtedly, psycholinguistically constrained (because English does not require the retention of any resumptive pronouns in relative clauses). Therefore, Maghrabi considered the process of psycholinguistic constraints as the primary cause of retaining resumptive pronouns. In this case Maghrabi is pointing to the advantage of processing principles in accounting for IL grammars.

With regard to the implicational scaling of the NPAH in (2), the results of Maghrabi (1997), in general, and similar to Hyltenstam (1984) and Pavesi (1986), indicate that the participants followed RPAH in the use of resumptive pronouns in L2 relative clauses. In particular, the data showed that there was a greater tendency

to use resumptive pronouns in the lower positions in the hierarchy. This result was interpreted within the framework of typological markedness.

Another interesting result of Maghrabi's is that there were some situations in which some of the Beginner English learners of Arabic showed some difficulty in deciding the appropriate gender and number linguistic features of the resumptive pronoun retained in place of the extracted noun phrase. Maghrabi reported that this difficulty was exhibited during the verbal reflections. It was also reported that beginning English learners of Arabic faced this difficulty more than advanced learners who seemed to have already acquired agreement. However, no further explanation was given in the study. Our current empirical study was designed to assess agreement features on resumptive pronouns as well and will consider Maghrabi's findings.

More interestingly, Maghrabi (1997) pointed out that the Arabic learners of English groups have a prolonged IL interim when compared with the English learners of Arabic groups. The beginning Arabic learners of English did not progress in their IL interim towards the acquisition of L2 forms with greater precision (23%) because the learners still violate the structure of English relative clauses, whereas Advanced Arabic learners of English progressed somewhat in their IL continuum (52%), yet still not with complete progressive precision as indicated by the fact that they still violate the structure of English relative clauses. Using an at least 70%-80% cut off point of acquisition, Maghrabi reported that since neither the Beginner nor Advanced Arabic learners of English/ reached this percentage in the acquisition of

the target language structure, it is plausible to say that they have a prolonged IL interim.

On the other hand, the results show that both Beginner and Advanced English learners of Arabic had progressed (86%) and (92%), respectively in the acquisition of resumptive pronouns in Arabic relative clauses. Maghrabi explained that the beginners group are psycholinguistically constrained because English does not require resumptive pronouns, the advanced learners are constrained by this process as well as by their repertoire/knowledge of the L2 system, as reflected in their verbalizations. This, according to Maghrabi, helped both English learners of Arabic groups to precisely acquire the structure of resumptive pronouns in Arabic relative clauses, which consequently shortened their IL interim.

In sum, both advanced groups were in a stage that they are able to reset their current structural status with the appropriate L2 structure. However, the Arabic learners of English group had a longer IL interim than the English learners of Arabic as shown by their violation of the grammaticality of the L2 system. Maghrabi (1997) interpreted his results within the framework of markedness theory. The main assumption of the markedness hypothesis suggests that language learners acquire L2 unmarked linguistic forms before marked forms. Maghrabi further argues that this also agrees with the prediction of the Markedness Differential Hypothesis (MDH, Eckman, 1977) in the sense that, for the Arabic learners of English group, since the L2 differs from the L1 and is more marked than the L1, then the L2 is difficult to acquire perfectly. Hence, both groups of the Arabic learners of English show high frequency of resumptive pronoun retention in violation of the L2 system.

In contrast, for the English learners of Arabic groups, since the L2 differs from the L1 and is less marked than the L1, then the L2 is not difficult. This explains the situation where both groups showed high frequency of resumptive pronoun retention in accordance with the L2 system.

Results from different studies dealing with the acquisition of relativization in general, not focusing on the acquisition of resumption *per se*, (e.g., Gass, 1979, 1982; Schachter, 1974; Ioup and Kruse, 1977; Tarallo and Myhill, 1983; Eckman *et al*., 1988, and Doughty, 1988, 1991) still show evidence that learners from typologically different native language backgrounds tend to retain resumptive pronouns in their perception and production of relative clauses. The retention of resumptive pronouns was prominent and represented a persistent difficulty among the numerous other difficulties associated with the construction of relativization for many L2 learners even after traditional instruction (e.g., Pavesi, 1986; Eckman et al, 1988). It seems that pronoun retention is shown in most of the research conducted on relative clauses. Focusing on Arabic as an L2, many of the issues related to resumptive pronoun remain unexplored and is worth exploring under the assumptions of new syntactic theories.

It is worth pointing at this stage that the study of typological universals as a basis for investigating L2 acquisition, according to Hyltenstam (1990) can be justified on the grounds that it is of value on what he referred to as 'the descriptive phase of research' p.33, or for what Eckman (2004) calls 'lower-order explanations'. However, clearly the case can be made stronger if higher order explanations can be developed to explain why learning difficulty and the order of acquisition appear to

be influenced by linguistic universals identified by typological linguists (Eckman, 2004; Ellis, 2008). Section (2.3) will examine some relevant explanations proposed in the literature. Both Hyltenstam (1984) and Maghrabi (1997), base their assumptions on analyzing individual IL grammars. Their findings regarding the acquisition of resumptive pronouns in adhering to the implications of the NPAH, even when employing different types of tasks (in Maghrabi) are of a very special interest to theempirical study in this dissertation, since the use of resumptive pronouns is one of the aspects I am investigating. Both studies make use of Markedness hypotheses in explaining IL grammars, which seem to work well for their results; however, as pointed out in Eckman (2004), L2 learners might not have an implicit knowledge of Markedness. In line with White (2004), I consider both implicational universals and Markedness as descriptive of IL grammars and that some other aspects and processing considerations related to the mental representations of the learners' language could account for the IL grammars observed patterns reported in many typological studies.

3.2.3. Summary of research findings

Based on typological markedness relations, Keenan and Comrie's (1977) Noun Phrase Accessibility Hierarchy makes sound predictions about patterns on IL grammatical representations of relative clauses. Empirical studies on both L1 and L2 acquisition reported that in the process of acquisition of relative clauses, resumptive pronouns were more retained than deleted regardless of their status on the L1 or the L2. More interestingly, research reports that individual IL grammars

adhere to the NPAH, whereby when learners retained resumptive pronouns in higher positions on the NPAH ((SU>DO>IO>OBL>GEN>OCOMP), they seemed to also retain resumptive pronouns in all lower positions. This IL pattern was also observed in MSA IL (Maghrabi, 1997).

These findings have raised the question of why the acquisition process should be sensitive to the NPAH (Gibson, 1998; Eckman, 2004). One important implication of the AH is that the grading difficulty in the acquisition of the different types of relative clauses defined in terms of the relativized grammatical extraction positions must be related to structure. To put in another way, "processing considerations" must be responsible for the contrast between the different patterns. And these processing considerations are important for SLA, because they are necessary for a theory of how L2 is acquired as well as a theory of what is acquired (Juffs, 2004).

Based on the robust findings reported in this section, I examine whether, similar to Maghrabi, 1997, among others, the L2 learners in this study would show an RPAH/ NPAH effect. This leads to the formulation of the fourth question of the study:

Question 4: Would individual IL grammars show a Noun Phrase Accessibility Hierarchy (NPAH) effect in the distribution of resumptive pronouns?

Many researchers attempted to explain the universality of such graded difficulty of relative clauses. In what follows I briefly review the different hypotheses/ proposals that attempted, to a large extent, to provide an explanation for the acquisition pattern of relative clauses based on the NPAH and RPAH. These explanations/hypotheses are reviewed here because they bring some logical insight into the distance between the gap and the filler (i.e., head) in the relative clause and processing considerations of L2 structures learning.

3.3. Relative Clause Acquisition and Processing Considerations

3.3.1. The linear distance hypothesis

The linear distance hypothesis was put forward by Tarallo & Myhill (1983) and Hawkins (1989), and maintains that the difficulty of relative clauses can be predicted by the linear distance between the head and the gap (O'Grady, Lee, Choo, 2003). In its original form suggested by Tarollo & Myhill and Hawkins, to implement this idea, one simply needs to count the number of intervening words between the head and the gap. However, another possible implementation has been introduced later, in which only the elements introducing new discourse referents (noun phrases and main verbs) are calculated (e.g., Gibson, 1998).

In (9) below, these two versions of the Linear Distance Hypothesis are applied to English subject and direct object relative clauses. The linear distance between the head and the gap - as expected respectively by the first and second versions of the hypothesis - is given in italics:

(9)

a. Subject relative: the lion that [__ carries the cow] *1 word or 0 words*

b. Object relative: the lion that [the cow carries ___] *4 words or 3 words*

L2 learners' preference for subject relative clauses in English has been explained as the result of a longer linear distance between the direct object gap and the direct object, as opposed to the shorter distance between the subject gap and the subject.

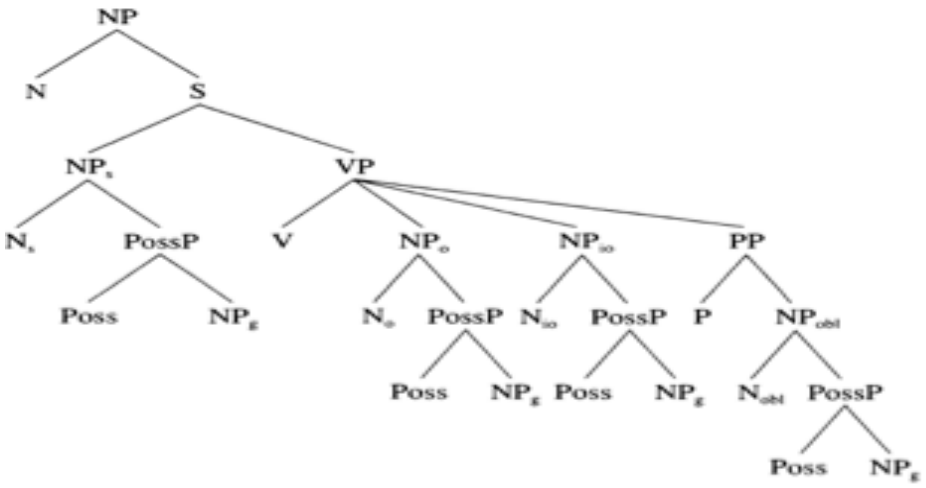
3.3.2. The structural distance hypothesis

The structural distance hypothesis suggests that contrasts in the difficulty of the different types of relative clauses can be attributed to differences in the depth of embedding of the clause-internal gap found in these patterns (e.g. O'Grady 1999; Hawkins; 1999). The AH of Keenan and Comrie (1977) involves increasingly complex domains for relativization, measured in terms of the number of nodes and structural relations that need to be computed in order to match the relative clauses head with the position relativized on.

Hawkins (1999) proposed the Filler-Gap Domain theory (FGD) to account for the behavioral effects of the AH. A FGD is defined as "the smallest set of terminal and nonterminal nodes dominated by the mother of a filler and on a connected path that must be accessed for gap identification and processing" (Hawkins, p.248). It is said that the human processor prefers smaller FGDs. "The minimal FGD for each relativizable position will include the filler N, the subcategorizer of N's gap (V, P, or Poss), any overt arguments on which the gap is dependent, and all nodes dominated

by the mother of N(NP) that are required for grammaticality and that are on the path from N to the rightmost constituent of the FGD" (Hawkins, p.255). In postnominal relative clause languages, for instance, a simplified abstract tree structure looks like (10):

(10)



(Hawkins, 1999, p.254)

The nodes required for different relative types are presented below:

(11)

SU = 5 {N, NP, V, VP, S}
DO = 7 {N, NP, N_S, NP_S, S, V, VP}
IO = 9 {N, NP, N_S, NP_S, S, V, VP, N_O, NP_O}
OBL = 9 {N, NP, N_S, NP_S, S, V, VP, P, PP}
GEN-SU = 9 {N, NP, N_S, NP_S, S, Poss, PossP, V, VP}

(Hawkins, 1999, p.255)

For the processing asymmetry between SU and DO relative clauses, for instance, the minimum number of nodes required to establish a SU-extraction

relative clause is five, including V, VP, S, N, and NP, while the number required to establish DO-extraction relative clause is seven.

Importantly, such a relative ranking of positions remains the same regardless of the linear ordering of the syntactic elements: rankings will be maintained whether the language is head-initial or final. For prenominal relative clause languages, the branching direction will be different from (10), but the number of nodes for minimal FGD for a particular type of relative clause will remain the same.

Hawkins went on to address why the implicational pattern for resumptive pronouns is in the opposite direction for that for relativization, for the former is from low to high whereas the latter is from high to low. The answer lies again in an account of how humans process languages. Hawkins suggested that humans operate with an economy strategy that leads to reduced time for processing (gap) when there is a little cost (as when the distance between the head noun and the gap is minimal) and an explicit strategy that leads to a resumptive pronoun in contexts of greater complexity. The more relations of combination or dependency are involved between the filler and the predicate in an FGD, the higher the complexity of the structure. For Hawkins (2005) the crucial difference between gaps and pronominals is that the latter only involve a relation of co-indexation between the locally realized pronominal argument and the antecedent. By contrast, gaps, in addition to the co-indexation relation between the gap and the filler, also involve lexical co-occurrence (of the filler and the gap) within the lexical domain of the predicate. The main consequence of this difference is that while co-indexation is marked only once on a chain, information relating to lexical co-occurrence involves every single node

intervening between the filler and the gap, thus, increasing the processing load of embedded structures, by increasing the size of the processing domain. Hawkins' main prediction is that in more embedded positions pronouns are preferred over gaps, since the size of the processing domain of gaps keeps increasing with embedding.

Although the Structural Distance Hypothesis and the Linear Distance Hypothesis generate the same predictions about English relative clauses, they make fundamentally different claims about the factors relevant to developmental order in language acquisition—one assuming computational operations on hierarchical syntactic representations and the other positing nothing more than a linear array of words. Determining which of these views is correct is no easy task in English, where structural distance and linear distance are confounded in the manner just illustrated. Interestingly, however, this difficulty is neutralized in languages with a different typological profile, for example Korean. Relative clauses in Korean precede the noun that they modify. This allowed (O'Grady et al., 2003) to disentangle the effects of linear and structural distance, since a subject gap is structurally closer to the head than is a direct object gap but is linearly more distant. Hence, a structural-based approach wins as it accounts for the processing difficulty in a wider range of languages.

Many studies found support for the psycholinguistic theories and their explanatory power in explaining L2 processing and production data. Consider for instance Xu (2009). Xu's study was set to explore L2 learners' processing and production of different types of Chinese relative clauses including SU, DO, IO and

OBL relative clauses. Xu (2009) found that the acquisition of Chinese relative clauses is generally consistent with NPAH. Their self-paced reading task revealed that SU relatives are, in general, easier than non-subject relatives with IO and OBL relative clauses being harder for their L2 learners. Xu has reported that their L2 learners could produce DO and SU relative clauses with similar accuracy. They, however, have interpreted this as indicating that learners have acquired both structures.

Xu (2009) have also found that individual learners' use of pronoun retention is consistent with the NPAH adhering to the same pattern that is observed in the L2 acquisition of relative clauses in other languages (e.g., Swedish, MSA, English among others). The individual IL grammars thus appeared to be subject to the universal constraint of the NPAH. Moreover, their findings from the production task supports the *Structural Distance Theory*.

Although pronoun retention was not a frequent error in Xu's (2009) study, there were instances of such errors in both SU and DO relative clauses in their production tasks. Additionally, there were errors of 'resumptive NP/DP'. Xu (2009) analyzed both types of errors as a non-movement structure. They claimed that such errors are not surprising, if I assume that a filler-gap relation with movement is psychologically more costly than a coindexing relation between the resumptive pronoun/NP and the head NP. In addition, Xu noted that resumptive NPs only appeared in IO and OBL relative clause productions, but not in SU and DO relative clauses. This probably has something to do with the filler-gap distance: if the filler-gap distance is short, and a resumptive NP is used, the same NP (the head N) will be repeated within only a few words.

3.3.3. Summary

We pointed out in this section that the difficulty of the acquisition of different relative clauses types is determined by the distance between the gap and the filler (i.e., head of relative clause), which should be minimized for economy of processing reasons. The question is, however, how this distance should be calculated. According to Tarallo & Myhill (1983) and Hawkins (1989), the *Linear Distance* between the gap and the head can predict the difficulty of relative clauses. This linear distance is measured by counting the number of the intervening words of any type or counting only the elements that introduce new discourse referents-NPs and main verbs. Another explanation is related to the depth of embedding of the gap where one counts the nodes intervenient between the gap and the head of the relative clause. Such distance is measured by counting X' projections as well as XP.

Structurally-based accounts of L2 acquisition seem to provide adequate explanation of L2 behavior and allow one to predict what structure could be more difficult than others given psycholinguistic processing considerations. These approaches are more advantageous to a theory of SLA because they contribute to the issue of how IL grammars are acquired in addition to why IL grammars are the way they are. In chapter 4 an alternative account will be given where the distance between the gap and the filler is examined from the minimalist perspective (Chomsky, 1995; 2005).

The following section will consider the Universal Grammar (UG) approach to language development. The purpose is to present the way in which a theory of UG is related to language acquisition research. The study presented in this dissertation follows a Minimalist approach, which is classified under a UG-based framework to SLA. Moreover, many relevant aspects of the current study are investigated under the UG perspective. Researchers interested in SLA have viewed this phenomenon of UG from a number of perspectives, one of which is the nature of L2 knowledge that underlies the use of the language. Two of the questions much addressed in the literature are: (a) In what way does the learner's native language influence L2 knowledge?, and (b) To what extent are L2 learners' grammars constrained by innate linguistic knowledge (UG)?

3.4. Universal Grammar and Second Language Acquisition

Originally UG was proposed to account for L1 acquisition. The main assumption of this approach is that "grammars of human language are essentially built on the same pattern; that is there is a Universal Grammar that underlies the particular grammars of specific languages" (Hawkins, 2001). Linguists justify a UG account for language acquisition to explain what is referred to as the 'logical problem' in language acquisition (Chomsky, 1981). The main argument for a nativist (biological) account for language acquisition is that children succeed in acquiring their first language despite the fact that the input they are exposed to is deficient. According to this view the input that children receive is deficient as it is corrupted by performance pressures and errors. Therefore, UG was proposed to refer to an

architecture for the language faculty, which establishes a number of principles which languages fall within (Chomsky, 1995; White, 2007) and offers a range of interpretable and uninterpretable features (parameters), where particular selections of features determine syntactic differences between languages.

Although the focus of UG was initially to account for the underlying innate first language acquisition, researchers in the field of SLA have equally applied the UG framework in trying to understand interlanguage IL grammars of adult SLA. The main assumption is that interlanguages are natural languages and therefore should be UG-constrained. Besides, L2 learners are equally faced with 'poverty of stimulus' argument where they also have to construct their grammar based on an inadequate input they are exposed to from the class or the environment. In this regard, Larson-Freeman and Long (1991) posit that "UG consists of a set of such innate, abstract, linguistic principles, which govern what is possible in human languages, thereby helping to alleviate the learning problem created by poverty of the stimulus' p. 230. The main thrust of SLA research done within the UG framework was to assess whether L2 learners would still have access to abstract categories after maturation. Three major arguments addressed the extent of the availability of UG in second language acquisition: (For a complete review of second language acquisition work within a UG framework see (White, 2003).

3.4.1. Access to UG and L1 transfer

Regarding the controversial role that L1 and UG play in the development of L2 knowledge, different accounts have been proposed in the existing literature. In

what follows I will briefly review a number of views held about the role of the L1 in SLA and the extent to which UG is involved. Because the framework of this study is the Minimalist Program of the Generativist Syntactic Theory, UG-based theories and studies are relevant. It is thus important to examine what the predictions of UG-based accounts for SLA relative clauses are and to review relevant studies investigating different parameters (features) as related to *wh*-movement, pro-drop, and morphological agreement since these are relevant to the empirical study presented later in this dissertation.

3.4.1.1. Full access account

The Full Transfer Full Access Hypothesis proposed by (Schwartz & Sprouse, 1994, 1996) argues that UG remains accessible even after adulthood, this account maintains that at the initial stage, IL will rely on L1, but later on, learners will be able to acquire any new functional categories, features and parameter values not represented in their L1 regardless of age. In other words, parameters activated during the learning of the first language, can still be reset either way to accommodate the incoming input from L2 (e.g. Epstein et al. 1996; Grondin and White, 1996). According to these researchers, Full Transfer refers to the initial state grammar; and Full Access refers to the subsequent restructuring of the grammar during the course of development. Interlanguage grammars developed during the course of acquisition are nevertheless UG-constrained. In the later stage of L2 acquisition, advanced learners are, by hypothesis, able to restructure their initial grammars to be more native-like based on the L2 input or UG options (White, 2003).

Schwartz and Sprouse (1996), for instance, claim that "in some cases, this restructuring may occur quite rapidly; in others, much more time is needed." A related aspect is that obtaining L2 competence cannot be guaranteed; there is a possibility of fossilization. However, for Schwartz and Sprouse any divergence from the target L2 is not a sign of partial access to UG (which I discuss next), but an effect of insufficient linguistic experience, or ambiguity/complexity of the input.

3.4.1.2. Partial access account

Within the *Partial Access* view, it is claimed that some parts of UG are no longer available. Thus, although the principles of UG constitute the implicit part of the interlanguage grammar of L2 learners, only L1 parameter settings are available. All the new parameters that are not instantiated in the L1 are difficult to set, and therefore L2 learners compensate for the missing features by drawing on other resources available within UG. Researchers (Tsimpli and Roussou 1991; Smith and Tsimpli 1995; Hawkins and Chan 1997; Hawkins and Hattori 2006; Tsimpli and Dimitrakopoulou 2007; Kong 2005, 2007, 2011) taking this Partial Access to UG account assume that adult L2 learners can make use of grammatical options, which exist neither in the L1 grammar nor in the L2 target grammar, through the availability of UG principles. How this hypothesis differs from the Full Transfer Full Access account is that there is no subsequent parameter resetting in response to L2 input when the L1 and L2 differ in parameter values. One version of this account is the Failed Functional Feature Hypothesis (FFFH). The FFFH postulates that mature learners will not be able to acquire abstract grammatical categories (functional

categories that are different from those instantiated in their first language. In other words, adults L2 learners have no access to parameters not set during their L1 acquisition (Hawkins and Chan, 1997). Another restrictive version of the Partial Access to UG account is Tsimpli and Dimitrakopoulou's (2007) Interpretability Hypothesis. One of the claims made by this hypothesis concerns the inability of older L2 learners to acquire certain unselected uninterpretable syntactic features (Case and Agreement, for example), which are subject to a critical period. Interpretable features, on the other hand, remain available throughout life. According to Hawkins and Hattori (2006), it is functionally useful for interpretable features to be permanently available because they are necessary for learners to construct new lexical items. Uninterpretable syntactic features, by contrast, are specific to language and form a small class of closed functional-category-related items. It would not be economical for these uninterpreatable features to become permanently available. Differences in the mental grammars between non-native and native speakers of target languages, therefore, are the result of L1-L2 parameter value differences.[10]

Because many studies on resumptive pronouns, *wh*-movement and morphosyntactic agreement were examined under the Interpretability Hypothesis and the Failed Functional Feature Hypothesis. Subsection (3.4.2) takes a closer look

[10] On the other side of the argument, Bely-Vroman (1989) and others like Clahsen and Muysken (1986, 1989) argued that second language learners do not have direct access to the UG features as available to native speakers. Bley-Vroman generally based his argument on the Fundamental Difference Hypothesis to reject claims of UG availability to L2 learner. He explained that lack of success in adult second language learning, correlation of age and proficiency, the usefulness of negative evidence to adult learners, but not to L1 learners, etc. are all indications that UG is not available to L2 learners. Instead, the adult L2 learner depends on his/her native language and other general 'problem-solving strategies'' to form the abstract knowledge of the target language grammar.

at the predictions of these hypotheses and reviews some relevant studies.

The following subsections review studies within the UG-based Generativist framework relevant to the different aspects of relativization discussed in the current empirical study. I will show how similar aspects were viewed under the different hypotheses of UG access and L1 transfer as well as other studies within the Minimalist perspective of L2 acquisition.

3.4.2. Second language acquisition research within the UG Framework

While L1 acquisition normally leads to convergence on the target grammar, both anecdotal evidence and empirical research show that in the majority of cases adults do not demonstrate native-like convergence in all areas of the target grammar (e.g., Hawkins, 2001; White, 2003). In explaining child versus adult differences in linguistic outcomes, critical period[11] effects (i.e., age effects) and L1 transfer received wide attention within the generative research.

Research on L2 morphosyntax has documented that while some L2 speakers show mastery of complex L2 morphosyntcatic properties, even these same highly proficient L2 speakers demonstrate variability and optionality in the target L2 use, especially in the production of functional morphology (Lardiere, 2009 cited in Dintrans, 2011).

Some accounts point to a syntactic representational deficit in the L2 grammar, such that there are inevitable problems in L2 morphosyntactic

[11] The claim of the critical period hypothesis for language acquisition is that the human capacity for acquiring a language is time-sensitive with its window of maximal potential closing roughly around puberty. (Lenneberg, 1967)

representation depending on what features have been instantiated in the L1 (Tsimpli & Roussou, 1991; Hawkins & Chan, 1997; Tsimpli, 2003 among others). The general claim is made such that while inborn universal linguistic principles remain accessible for L2 acquisition, new uninterpretable (parameterized) features from the target language are destined to not be acquired if they were not instantiated during L1 acquisition. In what follows I briefly present two hypotheses relevant to this claim because these are also relevant to the current study and to the studies presented in the next sections.

To start with Smith and Tsimpli (1995) argued that features of functional categories such (e.g., complementizer (C), agreement (Agr)) set in L1 acquisition cannot be changed for adult L2 acquisition such that functional categories in L2 acquisition can only be mapped to new morphophonological forms without any related syntactic properties. Following this line of argument, Hawkins and Chan (1997) proposed the *Failed Functional Features Hypothesis,* according to which learners are unable to acquire abstract grammatical features that differ from those found in the L1 beyond a critical period for language acquisition. In other words, it is impossible, according to this account, for the IL grammar to represent functional features that are not instantiated in the speaker's mother tongue grammar.

Tsimpli and Dimitrakapoulou's (2007) *Interpretability Hypothesis* 'makes an explicit claim about one area where L2 speaker knowledge will permanently diverge from that of native speakers' p.271. This area is related to the uninterpretable syntactic features that have not been selected during L1 acquisition. The claim here, as in Hawkins & Chan (1997) *Failed Functional Feature Hypothesis*, is that while

interpretable features remain available even if they are not selected during a critical period, uninterpretable features do not, as they cease to exist after the critical period. It is these features only that are subject to a critical period because they are 'members of the set of properties that are selected in response to experience (linguistic input)' p.271. Thus, even when learners appear to have native-like performance, caution is required against 'over-interpreting' their mental representations. In Tsimpli (2003), it is argued then that a Minimalist approach to second language acquisition can be implemented to specify the status of features, which are least accessible to re-setting in the L2 acquisition process, given constraints on their learnability and their setting in the L1 grammar. Tsimpli (2003) proposed that the Logical Form interpretability of the features involved in the derivation could affect L2 acquisition.

3.4.2.1. Research on L2 wh-movement

Hawkins and Chan (1997) provided evidence for their *Failed Functional Feature Hypothesis* based on the absence of acquisition of properties associated with uninterpretable features. They investigated the acquisition of L2 English relatives by 147 L1 Cantonese and 112 L1 French participants. According to Hawkins and Chan, Cantonese permits relative clauses to use resumptive pronouns in most relative clauses types and does not allow *wh*-movement; in contrast, French permits *wh*-movement because C in French relative clauses has a [+wh] feature, and forbids resumptive pronouns. Given the differences between the two languages investigated

the authors claimed that L2 learners will not be able to acquire English *wh*-movement if their instantiated L1 setting is the non-movement.

Their results showed that French (being structurally more similar to English) speakers outperformed Chinese in all tested aspects. Chinese speakers were reported not to have yet acquired *wh*-movement. Hawkins and Chan (1997) argued that Chinese speakers showed evidence for L1 transfer in their use of resumptive pronouns with L2 English-clauses. Their use of *wh*-pronouns along with resumptive elements was explained such that they are still deriving L2 relatives via base-generating *wh*-phrases in CP instead of moving an operator (OP) to [Spec, CP] bound by an overt resumptive pronoun. The fact that advanced learners accepted Subjacency violations lead Hawkins and Chan (1997) to claim that those learners analyzed the English gap as null resumptive giving the wrong impression of their awareness of the ungrammticality of resumption in English relatives. They concluded that, although the Chinese-speaking learners were able to associate new morphophonological forms with English relatives, their IL grammar are still not native-like; however, it is still UG-constrained.

Opposite to Hawkins and Chan's findings, the following studies on *wh*-movement support the *Full Access* view of UG. White and Juffs (1998), in their study of L1 Chinese acquisition of Subjacency in *wh*-questions reported that L2 learners whose language does not involve *wh*-movement (i.e., Chinese) where able to acquire this uninterpretable feature. Their finding constitutes as a counter argument for Partial Access views to UG in L2 acquisition, their main claim for availability of UG in language acquisition is evidence where learners obey constraints that operate only

in the L2, or resetting parameters to L2 values 'since knowledge of the L2 system have not come solely from the L2 input' p.113.

Bolotin (1995) investigated whether age has an effect on the ability to reset a parameter whose value differs in the L1 and L2. 21 children and 21 adults whose native language is Arabic were given a judgment task involving grammatical and ungrammatical extractions from English relative clauses. The sentences instantiated both the L2 and the L1 setting (English operator version of English as well as a parallel sentence with the resumptive pronoun strategy imposed upon it).

The difference between the L1 and the L2 is that English uses movement of an operator to generate relative clauses, whereas Arabic relative clauses are base-generated with a resumptive pronoun in the extraction site. His results showed no critical period effect with regard to acquiring parametric properties of a second language. Rather than being an instantaneous process of parameter resetting, what instead occurs is a gradual process of parameter reshifting in which the two settings coexist during the transition, a pattern that is also found in L1 acquisition and for languages undergoing historical change. According to Bolotin (1995), such a process involves two steps: resetting a parameter, which is easy and quick and unsetting a parameter, which is slower and more difficult. The rate at which this process occurs is affected by the extent to which the L1 still plays a role in the learners' lives, the length of time that the L1 has been their sole language, and individual variation.

A possible 'rapid restructuring' as dictated by a *Full Access* view, was also reported with elementary English-speaking learners of L2 Chinese in Hu and Liu (2007). Chinese relatives do not involve *wh*-movement and resumptive elements

are optional in DO position and obligatorily used in IO and GEN relatives. English, on the other hand, involves *wh*-movement and does not exhibit the use of resumptives within relative clauses. The elementary learners in Hu and Liu interestingly showed more acceptances for L2 grammatical relatives with resumptive pronouns than ungrammatical sentences involving gaps.

The study I am reviewing next has also investigated the acquisition of wh-movement in English relative clauses. What is mostly relevant to the study, is their conclusions regarding the use of complementizers by Arabic-speaking learners of English. By investigating definite and indefinite relative clauses using the same languages as the current study, Shaheen (2013) provides IL data comparable to mine and this is why it is important to present her findings here.

In Shaheen's (2013) study, Arabic-speaking participants were chosen from different proficiency levels and three tasks were constructed: (1) a grammaticality judgment task, (2) a guided-gap filling task, and (3) a translation task. All tasks aimed at eliciting information about knowledge and use of English relative clauses of Subject, Object, Oblique and Genitive types. The main differences between relativization in English and Arabic is exhibited in the use of resumptive clitics and relative pronouns/complementizers. English allows for overt relative pronouns, null relative pronouns, overt C *that* and the null C and do not display the resumptive pronoun phenomenon. Latakian Syrian Arabic, on the other hand, allows only for overt C within definite relatives and null C within indefinite relatives, and exhibits the resumption phenomenon in all non-subject relatives.

The results obtained from the different tasks show no L1 transfer effects on relativizers use in definite and indefinite relative clauses given that the use of relativizers in Arabic (L1), which depends on the definiteness of the head, was not reflected in her data. However, L1 effects were clear in the results of the use of resumptives, which do exist in the L1 but not the L2, as reported in the different tasks.

Regarding the relativizer/complementizer use, no favoring for null pronouns/ complementizer relatives was reported in Shaheen (2013); *Who* and *that* were reported to be mutually exclusive in the elementary learners' grammar, one possibility for such behavior mentioned in Shaheen is that participants at the elementary stage consider relative pronouns to move into C rather than into [Spec, CP], she also added that this behavior might then be the result of shortest move or economy. However, as learners get more proficient, they become more aware of the fact that *wh-*, *that*, and the null alternatives are all acceptable in English. As learners develop more proficient parsing strategies in the L2, their performance would reflect their 'favor economy of spell-out' (a UG Economy Principle which requires spelling out as little as possible at PF). This explains using a null C more often by here advanced learners too. Shaheen also argued that Non-*wh* structures maybe simpler in computational terms because they do not involve spelling out the number, gender and case features of the (null) relative pronoun. Another strategy might be using the structure that requires the least computational effect, once learners become more proficient at parsing L2 structures, they may then prefer more economical or (computationally) simpler structure.

Similarly, in the production tasks, overt relativizers were used with both definite and indefinite heads by elementary learners, and instances of the null alternatives only appeared at advanced stages. A possible explanation for why learners showed tendency to using overt relativizers rather than null ones, Shaheen attributed to frequency in the input.

Regarding the results of resumptives, on the grammaticality judgment task learners showed more acceptance of resumption within embedded relatives rather than within simple ones. Shaheen offered two explanations; the first one is related to a problem in processing embedded relatives without resumptive pronouns given that embedded relatives are heavier to process than simple ones so the participants relied on making a coreference explicit; and the second explanation assumes that learners might not be sensitive to long distance movement (i.e., they have not established the non-resumptive strategy yet). More interestingly, Shaheen seemed to also argue along the same lines of Hawkins and Chan (1997) who found that Chinese L2 learners of English have not acquired *wh*-movement whereby their learners assumed the presence of resumptive pronouns (overt with elementary learners and null with advanced learners). Shaheen found that elementary learners used resumptive pronouns more frequently than advanced learners and that advanced learners rejected resumption most of the time but seemed to allow them in lower positions of the NPAH (e.g., Genitive relatives), Shaheen interpreted such results in terms of the acquisition of movement in that it would be either that in some contexts advanced speakers have got movement so they do not use resumptive pronouns, whereas in other contexts they have not got movement as in

the case of Genitive relative, and they still allow non-movement; or it means they have not actually acquired movement at all; they simply allow null resumptive pronouns in some contexts.

One important result reported in Shaheen is that not all parameters were reset in her study suggesting that participants, had not acquired movement and that they resorted to the L1 way of generating relatives. Although there were some learners who accepted gaps sometimes, they themselves accepted the resumptive in other cases. According to Shaheen, this suggests that the status of the gap in L2 learners' mental grammar is not of trace/copy, but rather of a null resumptive pronoun. She used that evidence to argue that the learners' mental representation of relative clauses does not include the L1 operator movement setting supporting to some extent the predictions of the Interpretability Hypothesis.

Using a Minimalist perspective UG-based framework to L2, Kim (2003) demonstrated that the language learner (of either L1 or L2) initially assumes the most economical form of syntax, in which no overt syntactic movement (or no movement at all) is involved. Kim claims that the initial state of human grammar is the most economical one and that the economy principles of derivation (e.g., procrastinate, which prefers derivations that hold off movement until after Spell-out, that is, wait as long as possible before moving) constrain child language acquisition as well as adult L2 acquisition. Kim investigated the IL initial syntax with regard to wh-question constructions. His arguments for L1 data of English-speaking children's early wh-questions showed no conflict with this claim. Based on his own bi-directional experimental study of L2 English and Korean acquisition by native

Korean and English speakers, he proposed that L2 learners start testing grammar using the most economical syntax, in which complex linguistic computations, such as overt *wh*-movement to [Spec, CP], is avoided.

The participants of the bidirectional study were two groups of L2 learners: 44 English-speaking learners of Korean and 48 Korean-speaking learners of English of a beginning level. Data were collected using elicited written-production tasks. English and Korean hold different parametric values with regard to the feature Q with English demonstrating a strong Q feature and requiring wh-movement, whereas Korean contains a weak feature and wh-constructions are derived via wh-in-situ. The results were as follows. English IL speakers predominantly produced questions in which the wh-phrase does not move to CP, suggesting that the learners do not assume the strong Q feature, although the data did not provide direct evidence of wh-phrases remaining in-situ. Korean interlanguage speakers predominantly produced questions with the wh-phrase remaining in-situ, showing the adoption of a weak Q feature. Moreover, although both groups of interlanguage speakers equally had to acquire a target parametric value for the *wh*-question, which is opposite to their L1's, the acquisition of the Korean wh-in-situ construction was easier than the acquisition of the English *wh*-in-Spec-CP construction.

What is interesting about Kim (2003) is that the research supports the idea that learners initially assume a simple and economical grammar for the Target Language. This conclusion, Kim argued, matches the general human preference for economy. From the perspective of the learning process, there is no reason for language learners to start with a complex syntax before testing whether a simpler

and economical syntax can satisfy communicative needs. Considering that simple linguistic computation is easier to process than complex computations involving syntactic movements, it is reasonable to assume that learners would start testing target grammars using the most economical syntax. If the initial grammar does not match with the target language grammar, then, the learner would keep testing the grammar with more complex syntax until it matches the target grammar.

Our current study will investigate whether Kim's (2003) proposal can account for other constructions to help determine the extent to which the minimalist approach can provide an account of the L2 mental representation and the extent to which it can be utilized for SLA research.

3.4.2.2. Research on L2 morphosyntax agreement

When proposing the *Failed Functional Features Hypothesis*, Hawkins and Chan (1997) originally looked at syntactic consequences of [+/-wh] feature in the IL grammar of Chinese-speaking learners of English. The hypothesis was later extended to abstract features like tense and gender, claiming that the failure of adult learners to consistently supply overt tense morphology or gender agreement is a consequence of the absence of the corresponding features in the L1 grammar (e.g. Hawkins, 1998, 2001). This section reviews some studies on the acquisition of agreement because their main claims and findings are related to the study.

Counter to the predictions of the *Failed Functional Feature Hypothesis* and the *Interpretability Hypothesis*, White *et al*., (2004) have demonstrated that adult learners of Spanish are able to acquire uninterpretable agreement features. They

investigated the acquisition of Spanish, a language that has a gender feature for nouns and gender agreement for determiner and adjectives. Their participants were L2 speakers of French and English at different proficiency levels who were tested on an oral production task and an interpretation task. White *et al*., (2004) reported that number proved unproblematic for all learners, whereas for gender there were significant effects for proficiency but not for L1 nor for prior exposure to an L2 with gender. Problems were reported for lower proficiency learners; however, accuracy was high for intermediate learners and for the advanced learners, gender agreement was almost native-like. Nevertheless, there was some variability in gender agreement in both tasks, mostly occurring as overuse of masculine determiners and adjectives with feminine nouns. White *et al*., (2004) suggested that this reflects the insertion of masculine default items into the structure, in accordance with mechanisms proposed for natural language in general. Earlier assumptions regarding the use of default forms in performance IL data (e.g. Prévost & White, 2000 cited in White *et al*., 2004) attributed such behavior to communication pressures that make it impossible to retrieve the appropriate item from the lexicon. Evidence for that was that learners, even at low levels of proficiency, might represent abstract gender features but fail to implement agreement on occasion, so that there is a discrepancy between abstract properties and their surface manifestation. However, contrary to these assumptions White *et al*.'s study showed similar results of default form preference on interpretation tasks in addition to production tasks.

Similar results were found in L2 Arabic. Alhawary (2005), for instance,

examined the acquisition of gender agreement in Arabic as an L2 by two groups of different L1 backgrounds: English (27) and French (27). In each L1 group there were three levels of proficiency defined in terms of years of instruction. English lacks grammatical gender agreement on either the adjective or the verb, but French shows grammatical gender agreement on both. Alhawary investigated gender agreement marking in Arabic on adjectives (attributive and predicative combined in one category) and verbs. Because number was kept constant (singular only), the only variable tested in his study was gender (masculine/feminine). The findings for the Noun Adjective agreement, which could be comparable to a Noun-Complementizer agreement in the current study, showed that French L1 participants outperformed English L1 participants in both masculine and feminine environments. Furthermore, English L1 participants produced significantly more errors with singular feminine than they did in singular masculine, because they under-produced the feminine marker. In other words they considered the masculine singular the default agreement, which had been the case with learners of Spanish, whose L1 is French in White *et al.,* (2004). Our study also makes general predications about agreement within relative clauses and any default agreement marker in IL grammars will be reported.

The next subsection reviews studies on L2 pro-drop parameter. Although the current study was not set up to explore the acquisition of pro-drop, (i.e., pro-drop referring to the absence of overt subjects in the matrix subject position which is attested in many languages (e.g., Hebrew, Korean, Spanish, Arabic)), one of the

important aspects of the study regarding the acquisition of SU relative clauses in MSA is relevant to syntactic facts of pro-drop, overt inflectional morphology on the verb and the economy conditions.

3.4.2.3. L2 research and the pro-drop parameter

Because pro-drop is related to one of the facts of the L2 data I will discuss later in this study, in this section I will present some L2 general research findings (based on a review provided in Kim, 2000) and review Kim's (2000) study of the same phenomenon in L2 initial grammars of English-Korean interlanguages.

According to Cook (1996) (cited in Kim, 2000), Four combinations are possible regarding the pro-drop parameter and L2 acquisition. The following Table 3-5 illustrates the combinations:

Table 3-5: Cook's (1996) Pro-drop L2 Combinations

L1	L2
+ pro-drop	- pro-drop
+ pro-drop	+ pro-drop
- pro-drop	- pro-drop
- pro-drop	+ pro-drop

Based on a thorough review in Kim (2000) of different studies testing different L1-L2 pairings of the pro-drop parameter combinations represented in Table 3-5 above, L2 learners IL grammar, in general, shows the null subject setting regardless of the L1-L2 pairings. Whereas in some cases, i.e., when the L1 is [+ pro-drop] it is possible to think that L1 transfer leads to the initial pro-drop setting, on the other hand, when the L1 is [+ pro-drop] and the L2 is [– pro-drop], L1 parametric value made a difference, however, it was reported that even though L1

interferes in such case; it does not rule out the L2 setting whereas when both the L1 and the L2 are [– pro-drop], and the IL of the learners exhibits the [+ pro-drop setting], then such setting cannot be explained by the L1 transfer theory. In cases where the L1 is [- pro-drop] and the L2 is [+ pro-drop] (similar to MSA-English pairing in the current study), all studies reviewed in Kim (2000), demonstrate that L2 learners have little difficulty in producing null subject sentences, suggesting again that L1 transfer effect is not significant with respect to the null subject parameter.[12] Given this background, Kim (2000) predicted that the pro-drop setting can be better explained under the hypothesis that the language speaker has to go back to the innate parameter setting assuming the weak nominal feature of Agr.

Kim (2000) carried out a bi-directional study testing early stage of pro-drop in English [- pro-drop] and Korean [+ pro-drop] IL grammars. Ninety-two L2 learners participated in the study: 44 were English-speaking learners of Korean and 48 were Korean-speaking learners of English. Each group included beginner and intermediate low learners. The data was collected using elicited production tasks, which included paragraph composition, story writing based on pictures and conversational situations through pictures. The results were the following: Korean IL data showed that English L1 speakers predominantly employed null subject sentences (85.19%). Kim (2000) reported that their subjects did not have difficulty in adopting Korean null subject sentences during the first-year-level (83.19%), and they continued to use null subjects in the second-year-level (87.10%). The English IL data, as Kim reports, were consistent with the literature, the Korean-speaking

[12] For a detailed review of studies testing the null subject parameter see (Kim 2000: 112-123)

learners used null subjects; however, their use of null subjects decreased as the time exposed to the target language increased (55.42% in the first-year-level to 15.42% in the second-year-level). No bi-directional transfer was reported rejecting the Partial Access view of UG. Instead, Kim (2000) results of pro-drop data were in support of the Full Access hypothesis. The fact that both the Korean and English interlanguage speakers produced null subject sentences in early stages of L2 acquisition regardless of their L1s was consistent with Kim's prediction that the initial form of the L2 will show the most economic form of syntax by adopting a weak N feature of Agr_sP. According to Kim, the weak feature means that the checking of the sentential subject may occur only at L2 without any overt insertion of the subject. This fact suggests that as long as the meaning of sentences can be correctly conveyed, L2 learners tend not to use unnecessary syntactic operations such as inserting an overt subject pronoun regardless of their L1, following the general principle of economy.

Kim proposed that this direction of difficulty in acquiring target construction may be explained in terms of the learner's inborn preference to the minimal syntax. That is, acquisition of the pro-drop setting is easier because the learners simply had to go back to the initial state of syntax, which assumes only weak syntactic features. On the other hand, acquisition of the [- pro-drop] setting may take time because it requires switching from an in born parameter of its natural setting. Kim concluded that such results suggest that switching to the inborn economic setting is easier than switching to the less economic form which involves an overt syntactic operation.

3.4.3. Summary of research findings

Two different views concerning SLA have been discussed in the literature. If the Full Transfer Full Access account is correct, i.e., that learners start out with L1 functional categories and are able to acquire L2 categories, it would be expected that adult or older L2 learners will converge on target grammars given sufficient input. If, however, the Partial Access to UG account is correct, i.e., that uninterpretable syntactic features not selected in primary language acquisition become inaccessible, it would be expected that adult L2 learners would have to use alternative options made available by UG to approximate to the target grammar. They may appear to have reset the relevant parameters when in fact their underlying grammar is still L1; no parameter resetting has taken place.

With respect to the acquisition of relative clauses and resumptive pronouns within the P&Ps framework under UG-approaches to SLA, many studies focused on the acquisition of movement. Whereas some studies argue that learners have persistent problems acquiring movement (Hawkins and Chan, 1997), others report findings that are evident for a Full Access hypothesis (e.g., Bolotin, 1995).

Regarding the acquisition of morphosyntactic features, I reported evidence for the acquisition of gender and number features, i.e., uninterpretable features in L2 grammars by White et al., (2004) and Alhawary (2005); I argued that these studies could provide comparable findings to mine. Following Tsimpli and Dimitrakapoulou's (2007) line of reasoning. I speculate that learners might have problems with the uninterpretable agreement features on MSA relative complementizers. Moreover, because one of the facts related to MSA SU relatives is

discussed in light of pro-drop phenomenon, I reviewed some studies on L2 pro-drop in general. Although the results seem to vary depending on the L1-L2 pairings and the pro-drop setting, one general finding is that regardless of the status of +/- pro-drop in the L1 and/or L2, IL grammars exhibited the [+pro-drop] setting; while transfer effects can explain some IL grammars, Kim (2000) argued that L2 will show the most economic form of syntax by adopting a weak N feature of Agr_sP, and hence find it unnecessary to spelling out overt subjects.

In the next section focus will be shifted to studies conducted on Arabic SLA in general. The purpose is to point out the gap in the SLA Arabic literature adding more significance to the current study by additionally focusing on MSA as an L2. According to Alhawary (2009), little has been published on Arabic SLA. Studies that have appeared so far either focus on a limited set of structures or suffer from methodological limitations related mostly to elicitation techniques and small data samples. Moreover, the literature focused on beginner or low intermediate learners; hence the focus was on simple grammatical structures rather than complex structures.

3.5. Arabic SLA literature

Many L2 Arabic studies were motivated by the recent debate in SLA theories in the study of L2 morpho-syntactic processability under the Processability Theory. The main focus of the processability studies on the acquisition of Arabic L2 was to identify the sequential order of Arabic L2 acquisition development.

Pienemann's (1998) Processability Theory (PT) predicted that the acquisition of morphosyntactic structure follows the following implicational processing procedures: word/lemma access > category procedure > phrasal procedure > sentence procedure > subordinate clause procedure. (The symbol > implies 'is more accessible than'). (Pienemann 1998: p.7). Findings of research studies in languages other than Arabic have generally validated PT predictions. In the domain of Arabic language, however, research findings have provided mixed results (Alhawary, 2003, 2009; Mansouri, 2000, 2005; Nielson, 1997). Apart from Alhawary's studies, all other Arabic studies that have tested PT have generally validated the implicational hierarchy hypothesized by the theory. In all his investigations, Alhawary has invalidated PT's predictions. In fact, he has been one of the vocal critics of PT's claims and predictions. Despite the interesting findings reported by these studies, I am not going to review them any further here because their generalizations cannot be extended to the current study.

However, one study reported some general findings regarding the acquisition of agreement within relative clauses in MSA, which I will review next.

Husein (2012) investigated the acquisition of Arabic morphosyntactic agreement structures in the IL system of Arabic of foreign language learners (AFL) in Ghana, using the Processability Theory as a framework. Husein performed a cross-sectional study in order to test the theory. Data were elicited from 15 participants from the University of Ghana using a Grammaticality Judgment Task and an Elicited Production Task. Five Arabic morphosyntactic agreement structures at the phrasal, inter-phrasal and subordinate clause processing procedure stages of

Pienemann's implicational hierarchy were tested and gender and number inflectional features were the only features considered in his study. One relevant finding reported in Husein's (2012) study is related to the wrongly structured relative clauses, which exhibited feature mismatch between the relative pronouns and the resumptive pronouns or the lack of both the correct relative pronoun and resumptive pronoun. Since Husien's study investigated agreement aspects in many structures, his conclusion about relative clauses was based on 8 instances of relative clauses from the Grammaticality Judgment Task. Husien's elicited production task simply asked the participants to complete sentences using the appropriate relative pronoun providing 'ʔallaðii (MS), ʔallatii (FS), ʔallaðiina (MP), ʔallati (FP)' as options and resumptive pronouns with no examples. This task included 4 instances only. Yet still agreement feature mismatch was evident in IL grammars of learners of MSA as an L2.

In addition to Maghrabi's (1997) study on the acquisition of relative clauses in MSA and English, which I reviewed earlier in the chapter (in Section 2.2.3), another relevant study on L2 relativization is Kassabgy and Hassan's (2000) study of the acquisition of English and Arabic relative clauses.

Kassabagy and Hassan's (2000) study investigated relative clause production errors made by English-speaking learners of two varieties of Arabic; namely, Egyptian Colloquial Arabic and MSA. Unlike Maghrabi's (1997), they did not examine Keenan and Comrie's AH with regard to the ease or difficulty of the acquisition of relativization of various types of relative clauses, rather, they sought to investigate production errors on a sentence-combining task, which included a

variety of relative clauses aiming to come up with activities for pedagogical reasons. I review Kassbagy and Hassan (2000) because some of their findings regarding the use of relative complementizers in Arabic IL grammars are relevant to the predictions of the current study.

Kassabagy and Hassan's (2000) study included 89 subjects, 39 native speakers of Arabic and 47 native speakers of English from different proficiency levels (beginner, intermediate and advanced). The subjects completed a sentence-combining task (in English for the Arabic-speaking learners and in two varieties of Arabic for the English-speaking learners) that contained 10 items. Errors that persisted across the three different levels for both English L2 learners and the Arabic L2 learners involved mostly pronoun retention/deletion, use of the wrong relative pronoun, omission of prepositions, and problems with structures with expressions of quantity. Additionally, Egyptian Colloquial Arabic relative clauses were reported easier than MSA relatives for the L2 learners. The authors attributed such results to the fact that only one relative pronoun /illi/ is used for the different structures in Egyptian Arabic; whereas in MSA relative complemtizers are more problematic, as they need to agree with nouns in case, gender, and number. The researchers; however, do not provide any further explanation of why should this be the case.

3.6. L1 Acquisition of Relative Clauses: Movement vs. Non-movement

The theoretical issue with the resumptive pronoun strategy is whether it implies movement at all (this issue is discussed in detail in Chapter 4). Traditionally, when there is a pronoun in a relative clause it is assumed to be interpreted through binding and not through movement (Sells, 1984), but there are some authors (Aoun, Choueiri & Hornstein, 2001; Choueiri, 2002) who propose a movement account for Arabic when resumption entails a weak resumptive pronoun, not a strong one.

The overuse of resumptive pronouns instead of gaps both in licit and illicit contexts of relative clauses have been reported for young children who are in the process of acquiring relative clauses (Friedmann et al., 2008). It has been reported for several languages such as English (de Villiers, 1988; Pérez-Leroux, 1995), Greek (Varlokosta & Armon-Lotem, 1998), French (Ferreiro et al., 1976; Labelle, 1990), Spanish (Ferreiro et al., 1976; Pérez-Leroux, 1995), and Hebrew (Varlokosta & Armon- Lotem, 1998).

Based on Bshara et al., (2013) there are two approaches in the research on the acquisition of relative clauses, which aims to explain the use of resumptive pronouns and gaps in early formation of relative clauses. These approaches are: (a) the Non-movement (i.e. binding) approach (Labelle, 1990) whereby the resumptive pronoun is base-generated within the relative clause, bound by an operator and the gaps are viewed as null resumptives (pro); and (b) the Movement approach where gaps are considered traces or silent copies, and resumptive pronouns are accounted for as spell-out of traces or as a result of a binding derivation.

In what follows, I review two relevant studies of L1 acquisition of relativization in an Arabic dialect; namely, Palestinian Arabic. Bshara (2012) and Bshara et al., (2013) claim that children derive relative clauses through movement. They based their claim on the types of errors their participants produced on different tasks.

In her investigation of first language acquisition of relative clauses in Palestinian Arabic Vernacular, Bshara (2012) tested three groups of Palestinian Arabic-speaking children; two groups of 20 preschool children (ages 3;0-4;0 and 5;1-5;11), one group of school age children (third grade, ages 8;1-9;0 years), and one control group of 10 Palestinian Arabic-speaking adults. The study made use of three different production tasks: (1) a storytelling/narration based on the pictureless book "Frog where are you?" by Mercer Mayer (1969); (2) elicited production with pictures; and (3) elicited production with props. The study also included one comprehension task.

The storytelling/narrative study was used to explore the place of relative clauses within the order of overall usage frequency of various simple and complex clauses in the narrations. Bshara found that relative clauses were the least preferred type of complex clauses used among children (used only 1%-3% of the time). She explained the rationale behind this result such that children avoid producing the more syntactically costly structure of relative clause and opt for other types of structures, which do not display the complexity that relative clauses bear (e.g., coordinate and adverbial clauses).

In the production tasks (elicited production with pictures and elicited production with toy props), where the elicitation of relative clause usage was the specific target, Bshara reported that the younger groups of children were less accurate in the production of non-Subject relative clauses with the Oblique relative clause category being the hardest. Bshara based her assessment on the differences found between the usage frequencies of the different types of non-Subject relatives investigated (Direct Object, Indirect Object, Locative, and Oblique relatives). Moreover, three types of errors were reported in the production tasks by children: (1) Subject fronting whereby the children moved the clause's subject to the beginning of the relative clauses between the relative head and the complementizer; (2) doubling the relative complementizer and (3) use of a resumptive DP instead of a resumptive clitic. In addition, there were very few uses of a gap. These types of errors are illustrated in (3 b-e) below:

(3)
a. Target

iz-zaraafi	illi	l-walad	ħadˁan-ha
the-girraffe	that	the-boy	hugged-it

'The giraffe that the boy hugged.'

b. Subject Fronting:

*iz-zaraafi	l-walad	illi	ħadˁan-ha
the-girraffe	the-boy	that	hugged-it

c. Double illi:

*iz-zaraafi	illi	l-walad	illi	ħadˁan-ha
the-girraffe	that	the-boy	that	hugged-it

d. Resumptive DP:

*iz-zaraafi	illi	l-walad	ħadˁan	iz-zaraafi
the-girraffe	that	the-boy	hugged	the-girraffe

e. Gap:

*iz-zaraafi	illi	l-walad	ħadˤan
the-girraffe	that	the-boy	hugged

(Bshara, 2012:133)

Adopting the availability of wh-movement in children's relative clauses (as opposed to the alternative assumption whereby relative clauses are not derived by any type of movement given that resumptive pronouns are used as last resort due to movement blockage (Shlonsky, 1992)), Bshara (2012) proposed that wh-movement was available in some or all of the occurrences of relative clauses production in her data for the following reasons: (1) despite the fact that all Palestinian Arabic relative clauses necessitate the occurrence of resumptive clitics, there were instances in which the children did not use resumptives. Rather, they either omitted the resumptive clitic and left a trace, or made use of a resumptive DP. Bshara claimed that to have occurrences of gaps specifically in the children's non-Subject relative clauses when the adult's pattern of forming such relative clauses is to obligatory (not optionally) use a resumptive pronoun can serve a strong evidence for the availability of movement; (2) the use of resumptive DPs has also been argued to be an indication for the availability of wh-movement in children's relative clauses (Varlokosta and Armon-Lotem, 1998). It is called "the salvaging mechanism" suggesting that after carrying out the movement, the children realized their violation of the Empty Category Principle (ECP) and saved the structure by inserting a resumptive DP in the extraction site (Kayne, 1994); and (3) subject fronting indicates the third piece of evidence for the availability of wh-movement.

Moreover, Bshara reported a difficulty with embedded-SU relatives as opposed to SU relatives and argued that what makes the production of embedded-SU relatives more difficult for children as evidenced by their opting for alternative structures (e.g., adding resumptive clitics to higher embedded verbs) is that such clauses include an additional level of embedding. That is, the further the filler from the gap the more difficult to produce the structure.

In the comprehension study, the previously reported subject-object asymmetry in the comprehension of relative constructions in other languages was reconfirmed for Arabic. Bshara's (2012) comprehension study also suggested that different non-subject (i.e., DO, IO and OBL) relative clauses yield different levels of difficulty. The source of such difficulty with non-SU relative clauses was explained by examining the structural and developmental factors that affect the acquisition of relative clauses. For instance, Bshara used accounts proposed in the literature to explain the asymmetry, such as, the Reversal Assignment of theta roles and the Externalization accounts (by Botwinik, 2008), which argue that both SU and DO relatives are the outcome of two equally satisfying parsing analyses, and the Intervention account (by Friedmann et al., 2009), which suggests that such difficulty is due to the nature of the intervener subject and the relative head both being lexical NPs.

Using a structural explanation, Bshara has also explained the difficulty with non-SU (DO) relatives such that the children were not able to process movement; she further noted that the asymmetry is not limited to DO relatives and that there is a ranking of difficulty with the Oblique category of relative clauses proved to be the

most difficult of all (with the youngest group of children comprehension accuracy of 36.6%). Bshara analyzed such difficulty as follows: in Oblique relatives the verb assigns a theta role to the noun which complements the preposition, case is assigned by the preposition itself and the resumptive pronoun is cliticized to the preposition (unlike in DO and IO relatives where the verb assigns both case and theta role to its complement and the resumptive pronoun is cliticized to the verb instead). Thus, Bshara claimed, children more easily identify the reference of the resumptive pronoun in DO and IO compared to OBL.

Bshara (2012) also reported that children showed correct use of relative clauses in 80% of their responses. However, she argued that this still could not confirm the assumption that there is no movement in these cases. Since the results showed continued occurrence of all types of errors over the three age groups of children, albeit at different rate, it is unclear and inconclusive whether the learners were sketching their way towards producing relative clauses via A'-movement, as proposed for adults by Aoun and Choueiri (1997), or via the resumptive strategy without any kind of movement, as proposed for adults in Shlonsky (1992). Bshara claimed that this analysis can be explained in terms of the Weak Continuity Hypothesis. This hypothesis states that the representations of early grammar are compatible with the principles of Universal Grammar (UG) but not necessarily with the

As I have just noted, according to Bshara's (2012) study, Palestinian-speaking children are correct in 80% of their relative clauses with subject relatives being easier than non-subject relatives. However, the children made three types of

production errors (1) resumptive DP errors; (2) subject fronting and (3) doubling of the relative clause complementizer. Because the errors produced by the children on the production tasks in Bshara (2012) were never documented in the acquisition of relative clauses, Bshara et al., (2013) set up a study to account for these errors as well as for the familiar resumptive DP error in relative clause development. Their account of the resumptive DP errors across languages, including Palestinian Arabic, assumed a movement of the relative operator without the copy of the relative head under the 'matching analysis' of Sauerland (1998, 2000). In accounting for what they referred to as 'unique errors', Bshara et al., (2013) proposed that in the initial stages of relative clause acquisition children might identify the resumptive clitic, rather than pro, as the variable of the relative clause and since this element cannot be moved to [Spec, CP], subject fronting is attempted, in order to check the features of illi, complemented by the double illi derivation resorting the modification relation. However, once the function of the resumptive clitic as 'merely' the licensor of the independent null element, pro, is acknowledged, the adult derivation involving movement of pro or binding thereof can be implemented.

More interestingly, the heavy reliance on resumptive strategies has been reported as evidence in favor of the hypothesis that movement is the source of syntactic deficit (Voplato, 2009). Resumptive pronouns, which are considered a 'last resort' in sentences that do not allow movement, were shown to be used also when movement is impaired by Friedmann et al.'s (2008) study which I will review next.

Friedmann et al., (2008) looked at another way in which movement can be blocked in the context of language impairment. They tested whether Hebrew-

speaking school-age orally-trained children with hearing impairment (14 subjects), who have a deficit in the comprehension of sentences derived by phrasal movement, use resumptive pronouns when trying to produce sentences that are normally derived by movement. In Hebrew, resumptive pronouns are obligatory in OBL and IO relatives, optional in DO relatives, and are not allowed in SU relatives.

Given the deficit children with hearing impairment have in structures that are derived by movement of phrases, it is especially interesting to see how they would produce relative clauses, and whether they use resumptive pronouns as a last resort, salvaging them from the inability to produce relative clauses that are derived by movement, or from production of ungrammatical sentences. A further question is whether resumption is also used in this population in the contexts that do not allow for resumptive pronouns in unimpaired speech, such as highest subject position in subject relatives.

Using a sentence-picture matching task with relative clauses and topicalization structures Freidmann et al.'s (2008) main finding was that the children impairment had a severe difficulty in the comprehension of sentences derived by A-bar movement, and the results of the comprehension of the object relatives (without a resumptive pronoun) and of Topicalization structures indicate a severe difficulty in the comprehension of sentences that are derived by A-bar movement.

In their production study, two types of tasks were used to elicit relative clauses: a preference task, and a picture description task. The preference task showed that the children with hearing impairment had difficulties producing object

relatives; in many cases they either produced an object relative clause with a resumptive pronoun, refrained from producing an object relative, or tried to produce an object relative but ended up with ungrammatical sentences. Although resumptive pronouns in object position are grammatical in Hebrew, they are characteristic of the production of much younger children. The control group produced grammatical object relatives with less resumptive pronouns. The picture description task, too, indicated a deficit in the production of object relatives; when the children with hearing impairment did produce object relatives, they tended to produce them with resumptive pronouns. In other cases they either produced an ungrammatical relative clause, or refrained from producing them by producing a simple or conjoined sentence, or a subject relative instead of an object relative.

The main result of Friedmann's et al.'s (2008) study is that resumptive pronouns were used as a last resort when movement is blocked for other reasons as well – namely, when movement is impaired. In their study, individuals who are impaired in A-bar movement as a result of hearing impairment, which prevented them from the necessary exposure to language at the critical period, were shown to rely heavily on the use of resumptive pronouns in the production of object relatives. Their use of resumptive pronouns in production is far more prevalent than that of healthy speakers of the same age. Moreover, their considerable difficulties in comprehension of relative clauses were substantially reduced when they were presented with object relatives that included a resumptive pronoun in object position. Crucially, the insertion of resumptive pronouns occurred not only in object position, where it is licit, but also in subject positions, where a gap is required in

intact syntax (Shlonsky, 1992). This constitutes perhaps even stronger evidence that it is the blocking of movement, due to the impairment, that causes the insertion of resumptive pronouns and licenses it. The production of a subject relative with a resumptive pronoun in embedded subject position is not grammatical, and is not included in the linguistic input that these children encounter. However, a deficit that relates to A-bar movement blocks movement in this environment too and yields the insertion of a resumptive pronoun.

3.7. Conclusion and Chapter Summary

The purpose of this chapter was to review main theoretical underpinnings and the related studies on the acquisition of relative clauses. I considered two main linguistic approaches to L2 relative clauses: one is based on typological universals and the other is based on UG. The approach I am following in the current study is the Minimalist approach, which is identified among the UG-based generativist approaches to second language acquisition.

The main assumptions, hypotheses and findings of related studies under each approach were reviewed. The purpose is to: (a) present IL findings regarding the different aspects of relativization investigated in the study (i.e., the relation between the type of relative clause and the use of resumptive pronouns and relative complementizers as well as agreement features on relative complementizers and resumptive pronouns); (b) to point out the explanations that such approaches can offer about how and why IL grammars are the way they are, and (c) to evaluate the power of the predictions of these different approaches about IL grammars. The

rationale behind this review is to highlight where the study stands among the different approaches and point out its significance to second language acquisition theory.

I conclude that a Minimalist approach to second language acquisition of relative clauses could be very promising. A Minimalist approach is advantageous because it legitimizes predictions regarding the nature (i.e., mental representations) of the learner's language. A typological universal approach in which assumptions about IL grammars are based on factors external to the human mind, e.g., Keenan and Comrie's (1977,1979) NPAH, Eckman's (1977) Markedness Difference Hypothesis, and Hyltenstam's (1984) Typological Markedness account. A UG-based framework under the G&B theory whereby assumptions about IL grammars merely feed into an L2 question of why IL grammars are the way they are based on a genetically endowed UG restrictions on the range of parameters available in the human mind being finite in number, and other external factors related to L1 transfer and input effects. Additionally, and unlike such approaches to SLA, Minimalism also makes claims about how L2 grammars are acquired.

I started by presenting some typological universals' findings regarding the acquisition difficulty and the status of resumptive pronouns. I showed that empirical evidence provides clear predictions about the role of implication markedness and the accessibility hierarchy in describing ILGs. However, I point out that they necessitate higher order explanations of such typological effects in SLA behavior.

I reviewed some possible explanations as related to language processing and pointed out that such processing considerations appear effective in accounting for

IL grammars. I concluded that similar assumptions of these hypotheses should recast under the MP principles.

Because much research considered the acquisition of parameters under the UG-framework, it was important to review general hypotheses in the field before reviewing relevant research to the study. I pointed out that a UG theory for IL grammars only provide constraints on how IL grammars should look like under the restrictions presented in UG. I thus argued that exposing IL data to MP claims would complement the UG theory by also accounting for IL grammars and the general SLA question about how language is acquired.

Moreover, I reviewed some L1/L2 Arabic studies and pointed out that research on IL Arabic is very limited and that the research should contribute to L2 literature by additionally investigating a variety of Arabic.

The next chapter presents the theoretical framework of the current study.

Chapter 4

Theoretical Background

4.0. Introduction

The aim of this chapter is to link the syntactic background in Chapter 2, which presented a description of restrictive relative clauses in English and Modern Standard Arabic (MSA), with the empirical study presented in Chapter 5, which will make use of the insights gained from this structural description and the related theories/literature to test claims about the role of the economy principles of the Minimalist Program (Chomsky, 1995, 1999, 2005) in providing an account to adult interlanguage (IL) representations of relative clauses.

This chapter is organized as follows. The first section is devoted to presenting the framework of the study; i.e., the Minimalist Program, and explaining its main tenets along with illustrating the course of derivation in this program. Furthermore, this section also presents some of the basic pillars of minimalism such as the economy conditions, interpretability of features and feature checking as related to some important facts of the analyses and discussion of the IL data of the current study. The second section examines the question of the explanatory factors a minimalist approach can provide to L2 acquisition data and briefly sketches some reasons for thinking that the cost to analysis comes into play in L2 acquisition. In fact I found that a minimalist approach introduces ideas of considerable interest to IL grammars of relativization properties to be in concern, with independently proposed conceptions of typological markedness (presented in Chapter 2), in

accounting for IL grammars. Section 3 presents an analysis of the structure and derivation of relative clauses in MSA. This section contains a description of some aspects of MSA relativization in Minimalist terms. Proposals and predictions in light of these minimalist ideas to account for the acquisition difficulty of the different relative clause types and aspects are also provided. I close the section with a discussion of the consequences that my suggestions have for the theory of interlanguage grammars. Finally, in Section 4, a summary of the chapter is given.

4.1. The Framework: The Minimalist Program

This study investigates the interlanguage (IL) grammar of Modern Standard Arabic (MSA) relativization constructions. Since generative grammar-based second language acquisition (SLA) research cannot be separated from the development of linguistic theories (Kim, 2000), the study will explore how a minimalist version of syntax in which syntactic operations are constrained by the economy principle can be activated for SLA research and more specifically for second language (L2) relative clauses. In particular, I will examine whether the minimalist framework (Chomsky, 1993, 1995, 1998, 2005) can provide a better explanation and a more unified account for the IL grammatical representations of these relativization constructions.

The following subsections present the framework of the study and provide an overview of those aspects of the theory that are relevant to the assumptions and analyses of the current study.

4.1.1. The Minimalist Program: Overview

The framework adopted in the current study is that proposed by Chomsky (1993, 1995). This framework is generally known as the *Minimalist Program*. Like its predecessors (the Government and Binding (G&B) and Principles and Parameters (P&P)), the minimalist program (MP) takes the human language faculty as its object of study. However, one of the most revolutionary aspects of Minimalism is the consideration of the language faculty in a broad cognitive and perceptual system, which marks a significant shift from the earlier tendency to attribute the totality of linguistic properties to Universal Grammar.

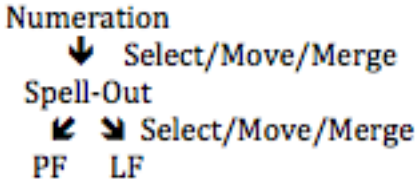
The main enterprise of minimalism is that economy principles evaluate derivations. Conceptual necessity is a filter on levels of representation. Those that are considered not conceptually necessary are removed. In this sense, Minimalism works in accordance with the philosophy of sciences for the evaluation of theories in that it reduces its machinery and hypotheses to the minimum (the most economic); that is, its internal system design leans towards simplicity and minimal computation.

An important principle in syntactic theory is the *structure dependencies principle*, which states that syntactic operations are structure-dependent. This means that syntax operates on (hierarchical) structures (e.g. In describing "inversion", for instance, one needs to make use of a structural description in saying that the subject noun phrase swaps places with auxiliary verb, not that the first two words of the clause swap places).

In the MP, a linguistic structure has two structural representations: LF and PF. LF refers to *Logical Form*, which is a representation from which the semantic value of the phrase is computed. The LF representation is used by the syntactic system in its interaction with the semantic system: the syntactic system creates a syntactic structure and from an LF of it, which is then passed on to the semantic system so that it can compute the semantics of the phrase. The other representation that is created by the syntactic system is PF, the *Phonological Form*. This representation is sent to the phonological system, where it will be 'spelled out'. Spelling out a structure basically means mapping the hierarchical structure onto a linear structure that contains only the features needed for further phonological processing of the sentence.

Chomsky argues that the derivation of a clause starts with a so-called numeration, which is an unrounded set of all the lexical elements that will eventually appear in the sentence. This numeration is formed by selecting the required lexical elements from the lexicon, such that, the computational system of human language (C_{HL}) builds up, in a piece-by-piece bottom-to-up way, the sentence structures form the lexical resources by Select, Merge, and Move until Spell-Out, a certain point when the derivation splits up into an LF-derivation and a PF-derivation. This grammatical model is schematized as in (4-1):

Figure 1: 4-1 The Minimalist Program Model of Chomsky (1995)



Every symbol must be interpretable (meet a condition of *Full Interpretation*), respectively in terms of the articulatory-perceptual (A-P) and conceptual-intentional (C-I) systems. A derivation that reaches LF without violating any principle is said to converge at LF. If a derivation does not converge, it is said to crash.

One important theme in the MP is that linguistics operations, derivations, and representations are subject to economy conditions. The following subsection presents some of the economy conditions based on a review provided in Collin (2001).

4.1.2. Economy conditions

Notions of economy have been much discussed in the MP (Chomsky 1993, 1995, 1998). Economy dictates that the length or cost of the derivation must be minimized in some way, and that the representations formed in the course of a derivation should be as simple as possible, consisting of a minimal number of syntactic objects, each of which is interpretable at either LF or PF (Collins, 2001).

This section only gives an overview of the economy conditions that have been proposed for syntax. These features become relevant to the discussion in

subsequent sections in this chapter, the economy conditions will appear to bring logical insights into the learner's language (IL).

According to Collins (2001), the principle of Last Resort can be stated as follows:

(1) Last Resort

An operation may apply only if the derivation would otherwise result in an ungrammatical representation (at PF or LF).

According to this principle, when a constituent moves, it does so in order to satisfy its own needs. If there are no requirements to fulfill, there must be no movement, since movement is nothing short of a last resort. As Marantz (1995) puts it, this principle implies the exhaustion of other possible options a derivation may have for avoiding the violation of some principle or filter.

Some authors have analyzed resumptive elements as Last Resort (including Rizzi, 1990; Ura, 1996; Shlonsky, 1992; and Pesetsky, 1997). For example, Shlonsky (1992: 168) states that "resumptive pronouns only occur as a Last Resort, when *wh*-movement fails to yield a grammatical structure."

Another economy condition is *Minimality,* which states that given a choice between two comparable operations, the smallest is chosen. Looked at this way, according to Collins (2001), Minimality bears a strong resemblance to the *Shortest Derivation Requirement* that says that the number of operations in a derivation should be minimized. The intuition behind both conditions is that a grammar tends to minimize whatever can be ranked along some scale: length of movements, steps in a derivation, or the number of violations of some condition.

Consider Chomsky's (1995) Minimal Link Condition (previously called shortest move). This principle deals with the length of the derivation. Chomsky (1995) defines it in the following words: "a longer link from α to K cannot be formed if there is a shorter legitimate link from β to K" (295), so that, " α can raise to target K only if there is no legitimate operation [satisfying Last Resort] Move β targeting K, where β is closer to K " (296). This principle prefers shorter movements to longer movements when there is a choice (Chomsky, 1995). All the various kinds of movements arguably obey this very general condition. This condition can be looked at as a kind of economy condition, in the sense that it favors the smallest possible adjustment to the structure.

Another derivational economy condition is Merge-over-Move. According to Chomsky (1995, 1998), Move is a more expensive operation than Merge and derivational steps, at which both operations are possible, are required to choose the 'cheaper' Merge operation as the next step.

Castillo et al. (2009) take Merger over Move to be jointly constituted by the following: (i) Merge is cheaper than Move and (ii) at any point in a derivation where both Merge and Move are both applicable, the cheaper operation is chosen. The cost distinction can be motivated by understanding Move as a composite or conspiracy for operations that includes Merge as a sub-part (e.g., Move = Copy + Merge (+Delete) (+Form Chain)), so it is simply a matter of 'more vs. 'less' (Chomsky, 1998, Nunes, 2004, Hornstein 2001).

The conceptual motivation for assuming that Merge is a "costless" operation has to do with assumptions about the nature of LF. Chomsky (1995) assumes that

the conceptual-intentional system must assign an interpretation to the LF-representation, and that this is only possible if the LF-representation is a single syntactic object. Given the assumption that the elements in the numeration are also syntactic objects, this condition is only met when the numeration is empty at the end of the derivation. This implies that Merge must apply in any case in order to arrive at a converging derivation, so that the null hypothesis is that Merge applies "for free".

Another economy principle is Chomsky's (1993) Procrastinate, which can be stated as follows: **"**Covert movement is less costly than overt movement"

Thus, according to this principle, since overt movement is more costly than covert movement, the former should operate as late as possible. The idea is that, while reaching to PF, structures try to minimize overt syntax, thereby making use of feature checking (covert movement) whenever possible, rather than applying overt movement before Spell-Out. *Procrastinate* in this sense prefers movement to lag as late as possible in a derivation.

This cost-of-operations distinction is perhaps one of the most interesting novelties of minimalist investigations (Castillo *et al*., 2009). Deploying this cost distinction to relativization constructions and their derivation will be discussed in details in Sections (4.2 and 4.3).

4.1.3. Feature Interpretability

Formal features such as person, number and gender agreement (typically referred to as φ-features) have been divided according to their interpretability (Adger, 2003). Interpretable features such as cardinality or definiteness make a semantic contribution to interpretation. Uninterpretable features such as case or gender do not make such a contribution and have to be checked and eliminated for the derivation of a sentence to converge (i.e., achieve grammaticality). Interpretable features are checked, but they are not eliminated because they interface with the semantic-conceptual system of the mind.

This feature interpretability contrast has also been taken up by L1 and L2 acquisition researchers (Liceras, 2010; Tsimpli and Dimitrakopoulou; 2007 and Tsimpli and Mastropavlou; 2008). The main claim is that uninterpretable features are problematic for adult L2 learners, while interpretable features are not. (See Chapter 2)

It is worth pointing out that, according to more recent developments in the Minimalist Program (Chomsky, 2001; Hornstein, Nunes, & Grohmann, 2005; Pesetsky & Torrego, 2007; Radford, 2004), rather than being divided into the [+interpretable] and [−interpretable] subsets, the inventory of features is represented in pairs so that all features have an interpretable and an uninterpretable counterpart. This implies that while person and number features on the subject DP are interpretable, these same features are uninterpretable (make no semantic contribution) on TP, where they are realized as agreement markers. Uninterpretable features are still eliminated, but it is via the evaluation by their

interpretable counterparts through the Agree operation.

Research on the acquisition of morphosyntax has used notions of interpretability. The status of interpretability, in fact, appeared to account for many L2 grammars. In this dissertation, I will examine the acquisition of agreement features with respect to their interpretability status and check whether interpretability and the Agree operation can provide insights into the IL grammar (Chapter 7).

According to Liceras (2010), syntactic theory has played a role in L2 acquisition research since the early 1980s, when the P&Ps model of generative grammar was implemented. More recently, with the MP as background, and, formal features, one of the core constructs of this program, have set the pace for the formalist research in L2 research that has been conducted in this century. Given this background I now consider how Minimalism (the MP) is utilized in language acquisition research.

4.2. Minimalism and Language Acquisition

According to Yang and Roeper (in press), the P&Ps framework, for the first time, gives a plausible solution to the logical problem of language acquisition: How does the child acquire a language so rapidly and accurately under limited linguistic experience? The principles, which are considered universal, are not learned, and can be expected to be operative in (early) child language. The parameter values, which vary cross-linguistically, must be learned on the basis of specific linguistic evidence.

Minimalism has not altered the fundamental problem of language acquisition, and it has not supplemented the basic architecture of P&P for the task for language; however, the Minimalist approach to the language faculty in a broad context of cognition and evolution has led to new conceptions of learning, which may provide a more complete explanation of language acquisition.

Minimalism has forced us to reconsider the relation between the language faculty and general cognitive systems. Assuming the continued validity of the parametric enterprise within the MP, it is no longer feasible to postulate a richly specified parametric endowment as part of UG; instead, parameters would need to be viewed as emergent properties falling out of the interaction of Chomsky (2005)'s three factors by which acquisition is accomplished: (1) a minimally specified UG (Genetic endowment); (2) Primary Linguistic Data (PLD), i.e., input; and (3) non-language faculty-specific considerations, including principles of efficient computation and principles of data analysis employed in acquisition.

4.2.1 Overview

While the important insights from previous work under older syntactic systems can still be retained, Minimalism casts a different light on certain puzzles; in other words, the new formulations of the syntactic system (the Minimalist innovations) can bring new tools to the explanation of language acquisition.

In the MP, (Chomsky, 1993, 1995), it is proposed that the content of functional categories is defined by bundles of features which have a crucial role in the operations Merge, Agree, and Move. While these operations are assumed to

belong to UG and to be innate, not all features are activated or organized in the same way in all languages. Therefore, according to Liceras (2010), it is the matter of how learners activate and organize the features of the target language, as well as how they make them interact with the operations, Merge, Agree, and Move, that may be problematic for the L2 learner. In other words, in order to acquire the grammar of a given language, the L2 learner has to combine elements from the target lexicon to form a derivation by means of the structure-building operation Merge. The L2 learner has to determine how Agree establishes relations of syntactic dependency by means of features, as well as when and how Move displaces an element (the goal) from its canonical position in order to have a feature checked or valued by the element that has the corresponding feature (the probe).

Based on the assumption that interlanguages (IL) are natural languages (Adjemian, 1976), the MP principles and conditions that hold for primary natural languages should be operative in and constraint individual IL grammars as well.

Following the same line of argumentation, the claim would be that while UG principles, (e.g., Merge, Move and Agree), are available to the learner, economy conditions would guide the learners in the language acquisition process. Therefore, I consider in more detail how economy conditions come into play in IL grammars.

4.2.2. The cost to analysis and L2 acquisition: Reasoning

This section introduces, discusses and extends one important theoretical background for the present study; namely, Platzack's (1996) view of markedness[13] within minimalist syntax. Platzack used the minimalist concept of parameters to explain L1 and L2 acquisition, language attrition, and specific language impairment. For the purpose of this study, I generally review the main proposals that Platzack has claimed for language acquisition and the important logical insights these proposals offer for the analysis and predictions regarding the acquisition of relative clauses (section 4.3).

First of all, Platzack (1996) claims that minimalist syntax can offer new insights into the concept of markedness and the initial state of human grammar. Take for instance, syntactic movement involved in the derivation of *wh*-questions whereby it is generally assumed that, in languages like English, the *wh*-phrase overtly moves into [Spec, CP] because Q feature in English is strong, whereas in languages, where *wh*-phrase does not overtly move but rather remains in-situ, Q feature is assumed to be weak. Platzack viewed this dichotomy of feature strength in a way such that strong features are marked and weak features are unmarked.

Interestingly, Platzack believes that it is a reasonable claim if one considers that performing overt operations cost more than performing covert ones, or not

[13] Since it was first proposed by Nicholas Trubetzkoy and Roman Jakobson in the 1930s, the term 'markedness' has been very popular in linguistics. However, the term 'markedness' developed a multiplicity of sometimes widely diverging senses that linguists who use it are often not aware of.

Not surprisingly, 'markedness' lost its association with a particular theoretical approach and became established as an almost theory-neutral everyday term in linguistics. In general, Markedness is defined in terms of complexity, difficulty, abnormality or multi-dimensional correlation. (cf. Haspelmath, 2006 for twelve different senses of markedness).

performing operations at all. One economy principle *Procrastinate* dictates that movement should be delayed as long as possible because movement costs. Accordingly, Platzack suggests that what is initially assumed by children in the language learning process will be the most economic forms of syntax in which, for instance, no overt movement is involved. In other words, the grammar of the human language is restricted by the economy principle because the child initially assumes the most economic form of syntax. With respect to second language acquisition, on the other hand, Platzack claims that the adult L2 learner, like the child acquiring L1, genetically prefers less costly structures (e.g., no overt syntactic movement) and both the L1 and the L2 initial stage will reflect this genetic or UG tendency. He further claims that "the main difference between L1 and L2 acquisition is that the system acquired within the critical period of L1 acquisition is engraved in the brain of the young child, creating the language-particular knowledge system that we automatically apply as our mother tongue" p. 369.

Platzack discussed some evidence in support for his claims. For instance, he claims that the existence of null subjects in child language, irrespective of whether the adult language is a null subject language, is related to a weak feature of a functional category which children initially assume regardless of their native languages. As for the L2 evidence, Platzack discussed the verb second phenomenon being the result of a strong head feature; many Swedes learning German make errors with regard to this, although both languages are verb second.

Given that, the MP attempts to place linguistic theory in the broader cognitive sciences by proposing that principles of language follow the principle of economy.

Human beings want to achieve a maximum of effects at a minimum of effort, and this principle also applies to the grammar of the language (Kim, 2000). Considering this point, I expand on Platzack's (1996) view of markedness and claim that syntactically costly operations are more marked than their less costly counterparts. For example, with regard to the syntactic analysis of relative clauses, deriving relatives through movement is considered more costly than when no movement is involved whether covert or overt. The child L1 syntax as well as the adult L2 interlanguage grammar should show a preference towards deriving relative clauses through less costly structures.

Consider for instance the L2 resumptive pronoun studies by Hyltenstam, (1984; 1990) and Pavesi (1986) I reviewed in Chapter 3. These studies provide strong support for the contention that even in cases where both the L1 and the L2 contain marked forms (i.e., derive relatives through movement), the learners opt for the corresponding less costly, more economical option, and produce relative clauses with resumptive pronouns (i.e., derive relative clauses through non-movement) even when no evidence for resumption is present in either the L1 or the L2.

According to the current analysis, the effect of resumption is understood in terms of lesser costs induced by the way relative clauses are derived. In the following section, I will examine how the different aspects of relativization are defined in terms of economy and how my view of the cost to analysis can provide an account for IL grammars. Based on the Matching/Adjunction analysis, I will show that relatives in MSA (with resumptive pronouns) are derived via external merge of a null relative operator and a resumptive element.

4.3. Analysis of Different Aspects of Relativization under Economy Conditions

Relevant to the investigation is whether the economy conditions (outlined in Section 4.1.2) are operative in the process of the L2 acquisition of relative clauses and whether they can account for the individual IL mental representations. In this section; therefore, I examine the different aspects of relativization in MSA as related to the economy conditions of the Minimalist Program. As I have pointed out in Chapter 2, relative clauses in English and MSA differ parametrically in many aspects (Section 2.4). For the purpose of this study, I focus mostly on their mode of derivation (i.e., merge versus move) as related to the nature of the element coreferential with the head NP (i.e., gap versus resumptive pronoun).

4.3.1 Merge-over-Move and the acquisition of relativization

Of concern in this study is whether relative clauses are derived through an operation Merge or Move and how such phenomena would be viewed under the economy conditions of the MP I pointed out in Section (4.1.2).

Unlike in English (2a), in MSA, relative clauses include an element (overt or null, depending on the relativized position), coreferential with the modified DP (2b). In example (2b), the resumptive element is coindexed with the modified DP, both appearing in bold:

(2)
a. [This is **the book**$_i$ [$_{CP}$ which$_i$/that Sara is reading **t**$_i$]
b.

haaðaa	**l-kitaab**$_i$	[$_{CP}$ OP$_i$	llaðii	Sara	ta-qraʔ-(**hu**$_i$)]
this	the-book		that.3MS	Sara	3FS-read-it

'This is the book that Sara is reading.'

In contrast to some studies (e.g. Aoun and Choueiri, 1996 and Bshara *et al*., 2013) that argue that relative clauses are derived via movement even with the occurrence of resumptive clitics/pronouns within relatives, in the current study, I adopt Galal's (2004) view that resumptive clitics in MSA are in complementary distribution with movement. This view is supported by their lack of sensitivity to island constraints in MSA.

The debate is, however, very controversial on how relative clauses are syntactically represented (e.g., Chomsky, 1965, 1977, Kayne, 1994, Aoun and Li, 2003, Galal, 2004). Within generative grammar, different hypotheses have been proposed for the formal structure of relative clauses across languages that I will be discussing next. In one trend, in the Matching/Adjunction analysis (Chomsky, 1977), which I am adopting in this study, the head of the relative clause is base-generated outside of the relative clause. However, the case where relative clauses do not include a resumptive element and involve a gap (trace) instead, like in English (2a), I adopt the view that there is an OP (operator) movement (in case *wh*-elements; i.e., relative pronouns, are used then it is this element what moves) to [Spec, CP] (3a). In the case where a relative clause involves a resumptive pronoun, the derivation of the relative clause does not involve movement of the OP. Rather the OP is externally merged in [Spec, CP] binding the resumptive pronoun (e.g., Sells, 1984 and Galal, 2004) (3b). Accordingly, given that Merge is less costly than Move (Chomsky, 1995), I consider deriving relative clauses by merging OP directly into [Spec, CP] as less costly than moving the OP to [Spec, CP].

(3)

(a) [$_{DP}$ [$_{D}{}^{0}$ the book [$_{CP}$ OP_i [$_{C'}$ that [the girl reads t_i]]]]]

Movement

(b) [$_{DP}$ [$_{D}{}^{0}$ the book [$_{CP}$ OP_i [$_{C'}$ that [the girl reads it_i]]]]]

The Matching/Adjunction analysis of relative clauses (also referred to as the operator-movement analysis) assumes that a clause (CP) is right-adjoined to a head noun, and an operator (OP) moves from some DP position in the clause to the specifier [Spec, CP] leaving behind in the extraction site a full copy deleted in PF (Chomsky, 1995; 2002 and Jackendoff, 1977). The fronted operator is coindexed with the null copy/trace in the clause, as illustrated in (3a):

The head noun 'book' is base-generated and the relative clause is adjoined to it as an adjunct. The covert operator (OP) is raised to the [Spec, CP] position and leaves a trace in its original position[14].

Another well-attested analysis for relative clause derivation is the Promotion Analysis (Kayne, 1994). Kayne (1994) tried to revive the Head Raising analysis of relative clauses proposed previously by Vergnaud (1974) and Schachter (1973). In his Promotion proposal, the head noun originates inside the relative clause. The DP with the head noun are raised to [Spec, CP], and the head noun is raised again within

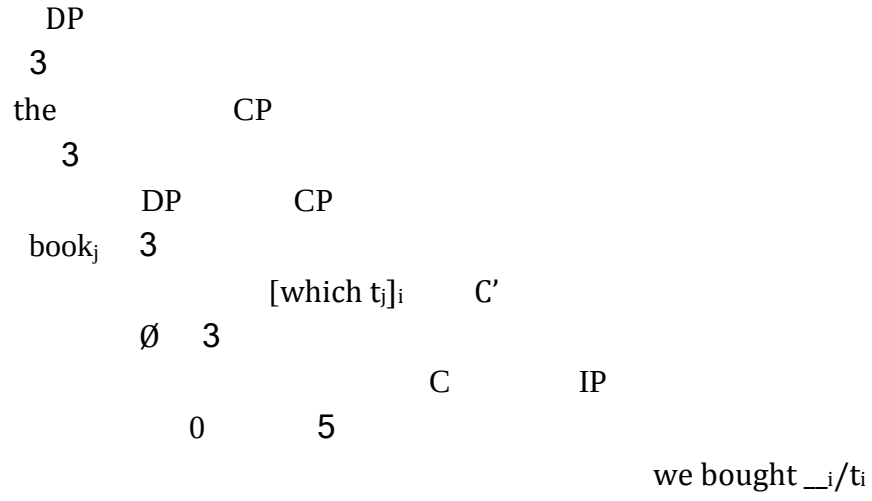
[14] Different accounts have been proposed to answer the question of what triggers wh-movement: Rizzi (2000: 214-215), for example, assumed that it is the wh-criterion that provides a fundamental motivation for movement:

a. A *Wh*-operator must be in a Spec-head configuration with [+*wh*] head.
b. A head with [+*wh*] must be in a Spec-head configuration with a *wh*-operator.

Chomsky (1998) and (2000) proposed that movement is triggered by an EPP feature and more recently an Edge Feature (Chomsky, 2005) which requires a C constituent to have Spec.

the CP. Kayne argues that instead of being an adjunct, a relative clause is a complementation structure of the DP. Thus, a sentence like (4) has the following representation:

(4) [$_{DP}$ The [$_{CP}$ [$_{NP}$ book]$_j$ [Op/which t$_j$]$_i$ [$_{IP}$ we bought t$_i$]]]] from the bookstore.



The common observation had been that the Head of a relative clause could be interpreted as if it were in the gap position inside the relative clause i.e. show reconstruction effects.[15] In this study I adopt the Matching analysis for both English and MSA relatives. The Matching analysis seems to account for the different types of relative clauses in English (2.2), and provides the best fit to MSA relatives (based on Galal's (2004) analysis where MSA relatives do not observe reconstruction effects).

Given this background, consider for instance the economy condition *Merge-over-Move,* which prefers merge over move because move is costly, in reference to

[15] Reconstruction effects represented by the distribution of idiom chunks, binding and scope properties indeed argue for the raising analysis of relative clauses. (For a discussion of reconstruction effects cf. Galal, 2004: 45-47)

the IL representation. The learners are therefore assumed to show a preference towards deriving relatives via Merging the OP in [Spec, CP] by resorting to resumption for instance, rather than resorting to the more expensive operation of Move (Merge-over-Move of Chomsky, 1995; 1998). My assumption regarding the IL mental representation follows from the more general economy principle of *Minimality*, which states that given a choice between two comparable operations, the smallest is chosen.

Based on Galal's (2004) minimalist analysis of the different types of relative clauses in MSA, in the following section I consider the syntactic derivation of the different types of relative clauses under investigation, i.e., SU, DO, IO, OBL as related to economy conditions of derivation. It is worth considering these syntactic derivations in much more detail, as they utilize the relevance of the minimalist framework to the analysis of the L2 data.

4.3.2. Number of steps and the acquisition of relativization

Bearing in mind that the use of resumption is related to depth of embedding (e.g., Erteschik-Shir, 1992; Tsimpli, 1999; Hawkins, 1994, 1999, 2005, among others), such that the further the gap (extraction site) from the filler (the relativized head DP), the more likely it is that learners will resort to resumption due to increase in processing load. My syntactic account from a minimalist perspective measures the probe-goal domain; i.e., the distance between the filler and the gap, in reference to the number of the derivational steps of the different relative clause types. The

assumption, following the *Shortest Derivation Requirement* (of minimizing the number of operations necessary for convergence), is that the more steps required for the derivation of a certain relative clause type through movement, the more likely learners will resort to merging OP rather than moving it, given humans general preference towards resorting to more economically efficient computations.

Our representations and diagrams below follow the Phase Impenetrability Condition (which is a recast from Rizzi's 1990 Relativized Minimality), according to which movement of a constituent out of a phase (as a syntactic domain) is only permitted if the constituent has first moved to the left edge of the phase (Chomsky, 1999). By considering the number of steps involved in the derivation of relative clauses, I show that the derivation of OBL relatives is more costly than that of IO relatives, which are in turn more costly than DO relatives. Further, I provide evidence that deriving SU relatives is the most economical in terms of the number of steps of a derivation and the use of null resumptive pronoun in equation to the pro-drop phenomenon, which I discuss further under a minimalist analysis of weak versus strong agreement features.

4.3.2.1. Direct Object Relative Clauses

As was shown earlier in Chapter 2, the DO relativization in MSA involves two situations. The object relativization site could be a gap or a resumptive clitic. This optionality, however, is non-existent in the case of indefinite relatives. Following Galal (2004), I adopt the view that movement is available in MSA definite relatives for the case of DO relatives where a gap occurs in the relativized position.

Furthermore, no movement occurs if a resumptive pronoun exists in this position, given that the occurrence of resumptive pronouns renders the sentence insensitive to island effects[16]. This analysis again implies that, generally, the occurrence of resumptive pronouns is in complementary distribution with the availability of movement (Suaieh, 1980; Alsayed, 1998; and Galal, 2004).

A definite DO relative in MSA involving a gap is derived by movement of an operator (OP) to [Spec, CP] which takes two steps; whereas DO relatives involving resumptive pronouns (RP), the OP is externally merged in [Spec, CP] and no movement is involved as illustrated in the representation (5) below:

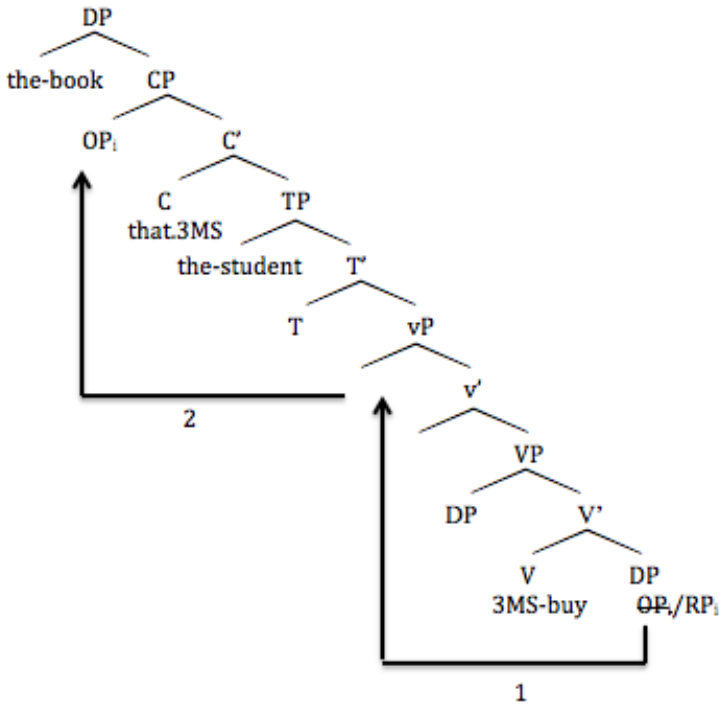
(5)
a.

qaraʔ-tu	l-kitaab	llaðii	tˤ- tˤaalibu	ja-ʃtari-hu
read-1S	the-book	that.3MS	the-student	3MS-buy-it

'I read the book that the student buys.'

[16] Because the relation between the gap position and the head DP in the definite DO relative construction is sensitive to island constraints (Ross, 1967) this gives an indication to the availability of movement. On the other hand, the relation between the resumptive pronoun and the relativized DP in the indefinite case for instance is insensitive to islands constraints, which indicates that movement is not available. (cf. Galal, 2004: 50-54)

b.



In the next subsections I present cases of relativization where resumption is syntactically required (i.e., Indirect Object and Oblique relativization). The importance of presenting the syntactic analysis below comes into play when I compare the different types of relative clauses as related to economy conditions of *Minimality* and the *Shortest Derivation Requirement* and how this can provide logical insights into IL grammars (section 4.4).

4.3.2.2. Oblique Relative Clauses

The resumptive pronoun obligatorily exists in MSA OBL relative clauses as a 'last resort' means by which the derivation is salvaged (Galal, 2004). Its appearance is argued to be necessary for feature-checking purposes of [+GEN] case feature on

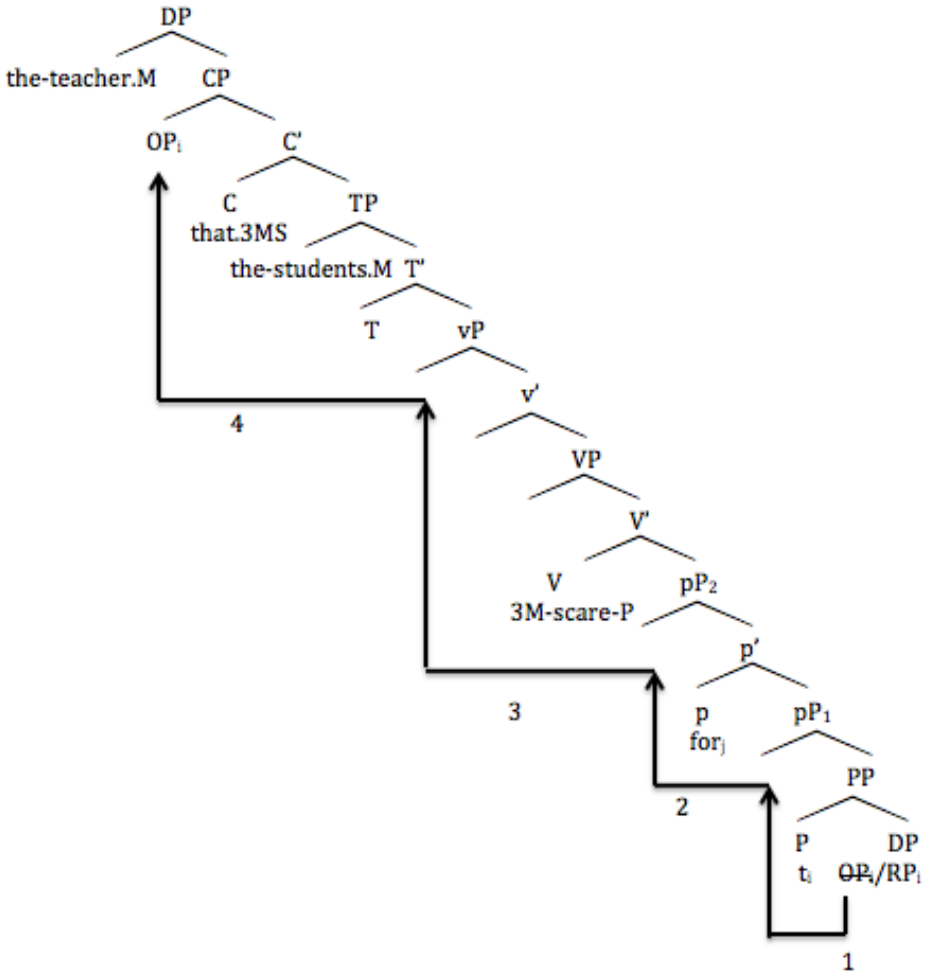
the preposition. By adopting Galal's analysis using a Pp functional phrase (posited to enable feature checking in creating a Spec-head configuration), an OBL relative clause as in (6a) can be given the representation in (6b):

(6)
a.

ʔata	l-ʔustaað	llaði	tˤ- tˤullab	ja-xaf-uun	ʕalaj-hi
came.3MS	the-teacher	that.3MS	the-students	3M-scare-P	for-him

'The teacher that the students are scared for came.'

b.



Consider the representation of an OBL relative derived by movement in (6b). The diagram shows that OP has to go through 4 steps to get to [Spec, CP], which is more costly when compared to a representation where the same syntactic structure is derived by freely merging the OP in [Spec, CP]. Thus, if learners resort to deriving their relative clauses via Merge over Move, then I can conclude that in observance of economy, language learners have picked the cheaper derivation. In other words, instead of computing all these steps imposed by Move they resorted to a more efficient and economical representation where no movement or further derivational steps are involved.

In the next section, I present another case of obligatory resumption in MSA; namely, the case of Indirect Object relativization.

4.3.2.3. Indirect Object Relative Clauses

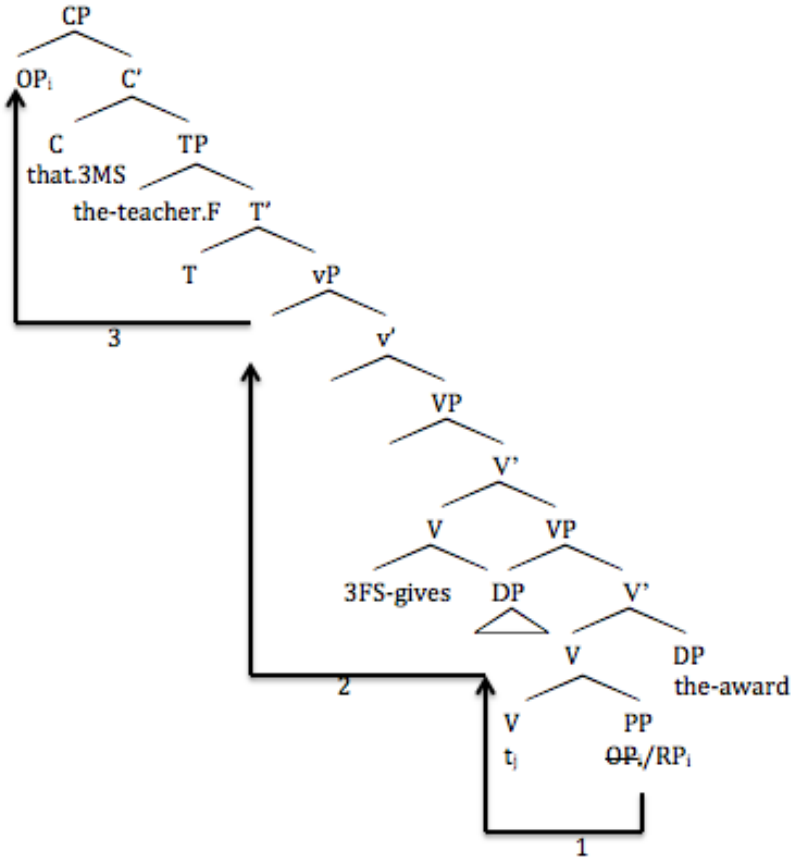
Similar to the OBL relative case, the presence of a resumptive pronoun in an IO relative is taken to be in complementary distribution with the availability of movement, no movement is involved in their derivation and hence, the OP is externally merged in its position. Following Larson's (1988) approach to double-objects and Alsayed's (1998) analysis of IO relatives in MSA whereby the resumptive pronoun can be assigned case from the verb via the mediation of the null preposition, the IO relative clause in (7a), can be roughly diagramed as in (7b):

(7)
a.

raʔaj-tu	tˤ-tˤaalib	llaðii	l-mudarisatu	tu-ʕtˤii-hi	l-ʒaaʔizata
saw-1S	the-student	that.3MS	the-teacher	3FS-gives-him	the-award

'I met the student that the teacher gives the award.'

b.



As the above representation shows, in case of resumption (RP), no movement is involved and the OP is merged in its position [Spec, CP]. In cases where the derivation requires movement, then it will involve 3 steps until the OP reaches the [Spec, CP] site.

The next section specifies the analysis I adopt in this study for subject relative clauses in MSA based on principles of the economy of derivation and in equation to the analysis provided by Speas (1995) for the pro-drop (i.e., nullness of subject position in matrix clauses) phenomenon. (Based on Galal, 2004)

4.3.2.4. Subject Relative Clauses

The case of SU relatives in MSA is different from the other cases of DO, IO and OBL. It is rather interesting because in this case of relativization in MSA, it is obligatory to leave the subject position phonologically null. Despite the fact that SU relatives in MSA do not observe the resumptive pronouns phenomenon, the analysis assumed here for SU relatives is that they are not generated by movement either, but instead contain a base-generated null resumptive[17]. Accordingly, the structure for SU relative clause is given in (8) below:

(8)

[$_{DP}$ ʔar-raʒul$_i$	[$_{CP}$ OP$_i$[$_C$ allaðii$_i$]		[$_{IP}$ ja-qraʔ	pro$_i$	l-kitaab]]]
the-man	that.3MS		3MS-reads		the-book

'The man who reads the book.'

Galal (2004) argues that the situation here is related in many ways to null subject 'pro-drop' phenomenon in general.[18] Arabic is a type of language that has the potential of realizing the trace of the wh-moved element as either a trace or an RP. In light of Speas' account (1995) for null subjects in matrix clauses, Galal argues that Arabic would be considered a language with strong agreement and, accordingly,

[17] See Suaieh (1980) for a non-movement solution in which the subject pronoun is assumed to delete, and Shlonsky (1992) for a movement analysis.
[18] This is what has also been observed by Bakir (1979) and Suaih (1980) for MSA subject relatives.

each agreement morpheme has its own lexical entry based on the assumption that those affixes are available to computations and can head their own projections. The null subjects account in matrix clauses can be extended to the non-overtness of subject relatives such that in Arabic AGRP is activated by the mere presence of a strong morpheme on the verb.

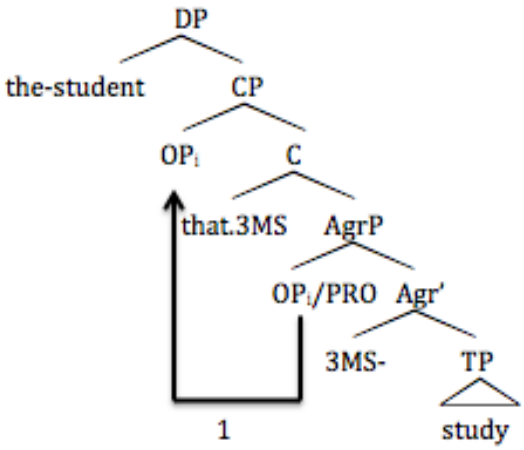
The following representation in (9) shows that in order to derive subjects via movement would cost one step; whereas their realization as a covert resumptive pronoun (PRO) is free:

(9)
a.

tˤ-tˤalib	llaðii	ja-drus
the-student	that.3MS	3MS-study

'The student who is studying.'

b.



Deploying *Minimality* (i.e., given a choice between two comparable operations, the smallest is chosen), as dictated in the MP (Chomsky, 1995), to account for the L2 acquisition of relative clauses, requires the comparison of

possible operations at a given derivational stage so that there is a way of assessing what counts as more economic computation vis-à-vis its less economic alternatives.

To start with, I showed that assuming a Matching/Adjunction analysis for relative clause derivation, two possible operations are available. One requires an operation Move of a null OP to [Spec, CP] position and the other involves no movement. Additionally, following Galal (2004), Shlonsky (1992), Sells (1984), among others, I showed that resumption is a "Last Resort" strategy when movement is blocked, and so the reason appears straightforward: resumptive pronouns insensitivity to island violations. Thus, I argued that the occurrence of resumptive elements within relative clauses counts is an indication that the relativization structure was derived through a non-movement strategy; i.e., a null OP is externally merged in the [Spec, CP] position.

If my assumptions regarding the cost to derivation to IL grammars (based on Platzack, 1996 and Kim, 2000; 2003) are on the right track; in the sense that less costly procedures are favored by L1 and L2 learners in the process of language acquisition matching the general human preference for economy, it is reasonable to assume that learners will start testing target grammar using the most economical syntax. Learners would thus procrastinate movement as late as possible in their derivation of relativization constructions. So, the maximally economic converging derivation of relativization constructions, by hypothesis, is one in which no movement operations apply (which should result in resorting to resumption (overt or null)). A way to explain such a tendency is that simple linguistic computations are

considered easier to process than complex computations involving syntactic movements.

Also note that this account requires *Merge-over-Move* to be enforced for all of the different types of relative clauses. Again, although it is true that under these assumptions, Merge should be preferred over Move all the time, examining each type of relativization independently indicates a possibility that this preference could also be related to the number of steps involved in movement derivations.

The contrast in the number of steps between the different types of relative clauses makes this issue clearer; the cheaper alternative involving the Merge of OP is related to the increased cost of an operation Move with regard to the number of steps required. Despite the fact that OBL relatives are the more costly type of relatives costing four movement steps, IO is still costly in requiring 3 movement steps, and DO requires lesser steps, and hence is cheaper with only 2 steps. On the other hand, SU relatives are the cheapest with one movement step .Consequently, structures that involve more complex computations, as related to the number of steps involved in the derivation, are more likely solved by resorting to Merge.

Concerning the acquisition difficulty, by assuming that economy conditions are operative in any process of acquisition, I predict the following:

Hypothesis (1): Individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of MSA relative clauses.

In the minimalist program design, the derivational procedure follows the economy principle, and the different operations in the derivational process of an element are constrained by the economy principle of derivation *Minimality*, which states that, 'given a choice between two comparable operations, the smallest is chosen.' In the current chapter, I argued that the MP could offer logical insights into IL grammars and the process of acquisition in general (also noticed by Platzack, 1996; and Kim, 2003).

I showed that *Minimality,* in resembling the *Shortest Derivation Requirement* and considering economy constraints on movement (*Merge-over-Move*), legitimates the assumption in which IL grammars of MSA relativization constructions would reflect a process of movement procrastination. Therefore the grammars show a preference towards deriving relative clauses via Merge over Move of a null operator (OP). Moreover, individual IL grammars are in accord with *Minimality* in that their representations of the different types of relative clauses follow the *Shortest Derivation Requirement*; the more steps in a derivation, the more likely learners will resort to merge the OP rather than moving it in their derivation of relative clauses. This is also a reasonable hypothesis from the perspective of learnability because direct and simple computation is initially preferable for language learners over complex linguistic computation.

My results will support this claim if individual IL grammars show a tendency towards deriving relative clauses through a non-movement strategy since alternative movement, strategies become more costly with respect to the number of steps involved in the derivation. Assuming that relativization constructions are

derived by OP movement, I showed in section (4.4) that OBL relatives involve four derivational steps, IO relatives involve three derivational steps, DO relatives involve two derivational steps, and SU relatives involving only one derivational step. I further noted that Merge is, by hypothesis, of a lesser cost than Move; consequently, given the learners' general preference towards simpler and less costly computations, the more steps a derivation of Move requires, the more likely IL grammars will reflect the Merge preference.

The predicted order for OP Merge-Over-Move within the different types of relatives can be represented as follows:

(10) OBL > IO > DO >SU

English-speaking learners of MSA would derive relative clause via OP merge (as indicated by their use of overt or null resumptive pronouns at the extraction site), most likely following the proposed order in (10) in bearing on economy considerations. Thus, a resumptive pronoun will most likely occur within relative clauses higher up in the hierarchy (e.g. OBL) rather than with those lower down (e.g. SU).

The next subsections examine two important aspects of this study with Minimalism; namely, the definite and indefinite dichotomy of MSA relatives and agreement features on relative complementizers and resumptive pronouns.

4.3.3. The definite/indefinite dichotomy of MSA relatives

The appearance/absence of the complementizer is assumed to be a phonological reflex of the definiteness feature [+DEF] on definite head DPs versus indefinite head DPs. The absence of the relative complementizer, according to Galal (2004), is more economical than its appearance. Galal based his assumption on (Suñer, 1998) who proposed a relation between the number of elements lexicalized in the CP layer and principles of economy of derivation; hence, following Galal, if onetakes economy in the wide sense of the word, not only in terms of the computations and distances, but also the number of the elements involved in the process, then one may say that using the minimal amount of elements to do the relativization process and the absence of the relative complementizer would indicate a tendency towards economy.

Question 2 of the study asks whether English-speaking L2 learners of MSA would recognize that in MSA, unlike in English, the obligatoriness of absence/presence of relative complementizers is determined by the definiteness of the head noun in the matrix clause or not.

Based on the given theoretical facts and review of literature I hypothesize that:

Hypothesis (2): Individual interlanguage grammars would show a systematic pattern in the use of relative complementizer within MSA definite and indefinite relative clauses.

Our claim is as follows: opposite to what an economy account regarding the number of elements involved in a CP layer (Suñer, 1998; Galal, 2004), which

proposes a relation between the number of elements lexicalized in the CP layer and principles of economy of derivation. IL grammars would not reflect such preference. Thus, absence of the relative complementizer indicating a tendency towards economy does not come into play in the process of acquisition given its irrelevance to economy principles of computation.

One of the studies I reviewed in Chapter 2 reported interesting findings regarding the use of complementizers and *wh*-pronouns by Arabic-speaking learners of L2 English relatives. Shaheen (2013) reported that although English allows for the use of null complementizers within definite and indefinite relative constructions, her Arabic-speaking learners showed more tendency towards using overt complemtizers in their IL English, despite the fact that it is obligatory to use null complementizers within indefinite relatives in their L1 too. Instead, Shaheen found that only the advanced learners used null complementizers in their IL English, in which she based her explanation on input effects and language proficiency.

Therefore, unlike the evidence in literature supporting the cost to derivation role in IL grammars, not many studies support the relevance of the number of elements involved in the derivation and language acquisition. My hypothesis would be supported if I find that L2 learners show a preference towards using overt relative complementizers over covert ones.

4.3.4. The features of the relative complementizer and resumptive pronoun

Chomsky (1995) introduces the notion of Interpretability; only [+interpretable] features are significant at *Logical Form* (LF), i.e. receive interpretation. Uninterpretable features, however, must be eliminated before LF.

Galal (2004) provides a thorough investigation of MSA relative constructions within the Minimalist framework (Chomsky, 1995). Relevant to the study is his proposal that the complementizer (C) head in MSA contains uninterpretable person, number, and gender (i.e., φ-features), in addition to case and definiteness features. These features enter into the derivation unvalued. I thus refer to them as [*u*PERSON], [*u*NUM], [*u*GEN], [*u*Case] and [*u*DEF], respectively, using [*u*] to represent unvalued features. These features must be valued and deleted by establishing an agreement relation by matching interpretable features with, as assumed in Galal (2004), a null relative operator (OP) in [Spec, CP]. For feature checking purposes, the OP needs to move from its argument position within TP to the [Spec, CP] position; however, in the case when the resumptive pronoun is generated and no movement occurs, the OP gets base-generated in [Spec, CP] position.

It is worth pointing that, in both definite and indefinite relatives, the relative OP has to be generated since it binds the relevant category within TP and links the relative CP to the preceding antecedent DP (Suñer, 1998:334, as cited in Galal (2004)).

Regarding the features of resumptive pronouns, on the other hand, Galal (2004) mentioned that the features on resumptive pronouns check features on V

and/or P in different relativization types. Hence, I assume that resumptive pronouns carry interpretable φ-features. Resumptive pronouns are arguments (N/D), and according to Chomsky's (2000, 2001) φ-features are assumed to be interpretable on N/D.

Based on this background and given that one of the study questions is concerned with the L2 participants' performance with respect to agreement features on relative complementizers and resumptive pronouns I hypothesize the following:

Hypothesis (3): Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on MSA relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases.

I pointed out that relative C carries uninterpretable agreement features; whereas resumptive pronouns carry interpretable features. Two main interrelated hypotheses (presented in Chapter 3) make general predications about feature interpretability and adult L2 acquisition; namely, Tsimpli's (2003) 'Interpretability Hypothesis' and Hawkins and Chan (1997) 'Failed Functional Feature Hypothesis'. Their main assumption, with respect to morphosyntactic agreement, is that properties associated with uninterpretable features not already activated in the L1 grammar will pose a learnability problem for older L2 speakers because they are inaccessible beyond a critical period. Assuming that these hypotheses reflect facts about IL mental representations, I predict that L2 learners will err more on agreement features on complementizers than they will do on agreement features on

resumptive pronouns. Our The result that would support the hypothesis is that the learners who are missing agreement relations on both relative complementizers and resumptive pronouns, even if they show abstract agreement suffixes, will have problems with spelling out the matching features required by Agree.

In conclusion, as is the case for all meaningful theoretical developments, I showed that the new formulations of the syntactic system could bring new tools to the explanation of language acquisition.

4.5. Chapter Summary

This chapter presented the theoretical framework of the study; i.e., the Minimalist Program (Chomsky, 1995), pointing out that unlike the previous generativist theories to language, the MP considers the language faculty in a broad cognitive and perceptual system. I have also presented some of the MP economy conditions: Last Resort, Minimality, Merge-Over-Move, and Procrastinate as dictated in the MP, and described the notion of features under MP as related to interpretability and checking. The chapter also highlighted some relevant studies in the field of L1 and L2 utilizing directly and indirectly minimalist predictions in their explanation of the learner's language, and pointed out that the explanatory factors a minimalist approach can provide to L2 acquisition data.

The chapter also outlined the rationale for thinking that the cost to analysis comes into play in L2 acquisition. In fact, I found that a minimalist approach to L2 relative constructions introduces ideas of considerable interest to IL grammars of relativization properties,, with independently proposed conceptions of typological

markedness (e.g. RPAH and the structural distance hypothesis), in accounting for IL grammars. Moreover, I presented an analysis of economy accounts for the acquisition difficulty of the different aspects of relative clauses as related to economy of derivation. A proposal in light of these minimalist ideas to account for the acquisition difficulty of the different relative clause types in terms of *Minimality* was also provided. That analysis led to the formulation of three working hypotheses for the current research.

The next chapter presents the empirical study.

Chapter 5

Methodology

5.0 Introduction

This chapter introduces the research methodology adopted in the empirical study. The aim of this study is to provide insights into the mechanism underlying the acquisition process of restrictive relative clauses by second language (L2) learners. In order to achieve such a goal, an experiment was designed to evaluate the ability of L2 learners of Modern Standard Arabic (MSA) to anticipate the nature of the syntactic structure of MSA relative clauses by using grammaticality judgments and elicited production tasks.

In order to answer the research questions and test the hypotheses outlined at the end of Chapter 4 with respect to relative clause formation, participants were chosen from a level (Fourth semester Arabic) whereby they are considered capable of producing relative clauses in MSA in an experimental situation as they were already exposed to the use of relative clauses in MSA during their studying of the language at the university[19]. Furthermore, three tasks were constructed specifically aimed at eliciting information about the knowledge and use of MSA relative clauses

[19] One issue of relevance here is that of classroom versus naturalistic L2 acquisition. Relative clauses and their different properties are, typically, explicitly taught in Arabic classes. In fact it was reported in White *et al*., (2004) that, in the event of successful performance by instructed learners on L2 structures, it might be claimed that some kind of explicit or prescriptive knowledge is involved rather than an abstract underlying representations; however, White *et al.,* (2004) pointed out that theories under both views of full access and partial access to UG (we reviewed in Chapter 2) assume that, even though input may differ in classroom and naturalistic contexts, the underlying mechanisms are similar the predictions should be the same and therefore there should not be a problem in using instructed populations in this study.

by the participants: (1) a Grammaticality Judgment task; (2) a Sentence Combination task; and (3) a Picture Description task.

The rationale behind selecting these tasks was based on (1) the fact that relative clause constructions are relatively infrequent in the spontaneous use of a target language by L2 speakers, (2) information about the participants' use and knowledge of both grammatical and ungrammatical relative clauses was required, and (3) because the study tests specific types, aspects and properties of relative clauses, tasks were needed where control could be exercised over the clause types involved. The choice of three tasks, rather than one, was to provide what White (2003) has described as 'converging evidence' about the nature of interlanguage grammars from different types of performance tasks.

Grammaticality Judgment Tasks have been widely used in second language acquisition (SLA) research, particularly studies concerned with relative clauses. While many researchers discussed their drawbacks (e.g., Schachter and Yip, 1990; and Ellis, 1991), a Grammaticality Judgment Task was used because it provides a measure of what is possible and what is not in learners' L2 internalized grammars (Gass and Selinker 2008). The Sentence Combination and Picture Description tasks were chosen because rather than asking participants to rate sentences as grammatical or ungrammatical, they ask them for written productions of the relative clause structures and allowed me to test different aspects involved in the formation of relative clauses by using fewer test items.

The structure of this chapter is as follows. Section 1 reports the purpose of the study. Sections 2 and 3 restate the questions and the hypotheses of the study. Section 4 describes the background of the participants and their language proficiency levels. Section 5 provides a detailed description of all tasks included in the study, with the aim to show how these were constructed and which variables are considered in the realization of each of them. Section 6 presents the procedures that were used to carry out the study. Section 7 specifies how the data analysis is conducted. Section 8 summarizes the chapter.

5.1 Purpose of the Study

The study aims to examine the process by which English-speaking adult L2 learners of Modern Standard Arabic (MSA) acquire different types of relative clauses with Subject (SU), Direct Object (DO), Indirect Object (IO), and Oblique (OBL) extraction sites. This study investigates the acquisition of relative clause structures in a more detailed way compared to other studies on L1/L2 relativization, by focusing on the use of relative complementizers and resumptive pronouns within the relative clause structure, their agreement features, as well as their interaction with the definiteness of the head noun in relation to the types of relative clauses investigated. The study considers different aspects involved in the formation of relative clauses. This will make it possible to weight the mechanism that derives these structures to provide empirical evidence about Universal Grammar (UG) constraints on interlanguage grammars (IL grammars). The study fundamentally

assumes that ILs are natural languages and that their grammars should obey UG principles.

By exploring L2 learners' difficulties with different types and properties of relative clauses in MSA, this study seeks to check whether, as in other languages, there is a graded difficulty in the acquisition of different types of relative clauses by L2 learners. It also seeks to explain the L2 acquisition patterns of relative clauses by appealing to Minimalist constructs such as economy conditions on syntactic derivations and feature interpretability status and check whether there are grammatical properties specific to MSA that determine the acquisition of the different types and properties of relative clauses. This will serve to enhance knowledge about the specific properties of MSA and the way L2 learners acquire relative clauses.

In the following subsections, I will present the questions of the study, the predicted hypotheses and the methodology of the study, respectively.

5.2 Questions of the Study

Question 1: Would English-speaking L2 learners of MSA show a systematic pattern in their use of resumptive pronouns within SU, DO, IO, and OBL relative clauses?

Question 2: Would English-speaking L2 learners of MSA show a systematic pattern in their use of relative complementizers as related to the definiteness of the head noun in the matrix clause?

Question 3: Would English-speaking L2 learners of MSA show a systematic pattern in their use of agreement features on relative complementizers and resumptive pronouns?

Question 4: Would individual IL grammars show a Noun Phrase Accessibility Hierarchy (NPAH) effect in the distribution of resumptive pronouns?

5.3 Hypotheses of the Study

To understand the possible effects of the research questions, three research hypotheses are proposed:

Hypothesis 1: Individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of MSA relative clauses.

Hypothesis 2: Individual interlanguage grammars would show a systematic pattern in the use of relative complementizer within MSA definite and indefinite relative clauses.

Hypothesis 3: Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases.

To test these hypotheses, the present study[20] tested a group of English-speaking L2 learners of MSA with three tasks. Details of participants and tasks are available below.

[20] This research was conducted with the UWM IRB approval, IRB #12.407

5.4 Participants

Sixteen L2 adult learners of MSA participated in the study. All participants were native speakers of English, ranging from 19 to 55 years of age. All were studying Modern Standard Arabic as a foreign language in the Department of Foreign Languages at the University of Wisconsin-Milwaukee in Milwaukee, Wisconsin. They were second-year students of fourth-semester (202 class) Arabic during the academic year (2012/2013). The primary three Arabic level-classes offered at the University of Wisconsin-Milwaukee are Beginning Arabic (101 & 102 levels), Intermediate Arabic (201 & 202 levels), and Advanced Arabic (301 & 302 levels). The structure of relative clauses is normally introduced at the Intermediate levels; i.e., at the 201 and 202 classes, which insured that the participants had knowledge of the structure of relativization that the tasks test for, and hence their Arabic was advanced enough to participate. Since the participants were enrolled in an MSA course at the time of testing, they received course credit in exchange for their participation.

Although an initial selection of study participants was made on the basis of their year of Arabic classroom study, a more reliable method of assessing L2 proficiency- ACTFL Oral Proficiency Interview (OPI)- was used in order to classify participants according to their level of MSA proficiency. Because the Arabic department conducts its own oral exams that are modeled after ACTFL's standard tests, and students have to take the exam at the end of each semester, the results of these oral exams were used to indicate the participants' proficiency in Arabic by ACTFL standards (See Appendix E for OPI-ACTFL standards).

All participants completed a language background questionnaire in which they were asked to indicate their contact information, their names and emails, their age and sex, their native language, length of study of Arabic as a foreign language, experience in Arabic-speaking countries, relations with Arabic native speakers, and knowledge of other languages. A copy of the language background questionnaire is in Appendix A.

Most of the participants did not have experience living in an Arabic-speaking country and were not related to any Arabic native speakers. There were five participants that were exceptions: one participant (P16) was related to Arabic native speakers by family ties and lived in Palestine for 5 years, one participant (P9) lived in Egypt for a year; a third participant (P10) traveled to Iraq for 8 months. (P7) spent 2 weeks in Morocco and the fifth participant (P13) spent 2 summers in Egypt. But these participants accuracy rate in the Grammaticality Judgment Task fell within the range of other participants. Detailed information about the participants is given in Table 5-1 below.

Table 5-1: Information about the Participants

Participant/ID	Age	Sex	Native Language	Arabic Proficiency[21]
P1	20	M	English	IntermediteM
P2	20	M	English	IntermediteM
P3	22	M	English	IntermediteM
P4	26	M	English	IntermediteM
P5	36	M	English/Spanish/Polish	IntermediteM
P6	20	M	English	IntermediateH
P7	25	F	English	NoviceH
P8	20	F	English/Bosnian/German	IntermediateH
P9	23	M	English	IntermediateH
P10	36	M	English	NoviceH
P11	20	M	English	IntermediateL
P12	22	F	English/Urdu	IntermediateH
P13	55	F	English	IntermediateH
P14	23	F	English	IntermediateM
P15	19	F	English	IntermediateL
P16	NA	M	English/Palestinian Arabic	AdvancedL

(Key: Sex: M for Male and F for Female, Arabic Proficiency: NoviceH for Novice-high, IntermediateL for Intermediate-Low, IntermediateM for Intermediate-Mid, IntermediateH for Intermediate-High and AdvancedL for Advanced-Low)

In addition to the 16 L2 learners, one control group of 5 Saudi-Arabic speaking adults completed the three tasks. Three of the 5 were members of one family (siblings). All native speakers of Saudi-Arabic were undergraduate students at the same university, the University of Wisconsin-Milwaukee.

5.5 Data Collection Method

A cross-sectional elicited production method was employed to acquire sufficient data for the target structures within few (i.e., two) experimental sessions. The tasks enabled the experiment to evoke complex syntactic structures such as the relative clause constructions, which occur quite infrequently in both L1 and L2

[21] For more details on the ACTFL standards and proficiency level classification see Appendix E

spontaneous speech. Elicited production makes it possible to evoke sentences with complex structure that only rarely occur in spontaneous speech and enables the experimenter to control the meaning that is to be associated with the targeted utterance (McKee *et al.* 1998).

The study consisted of three tasks: (1) a Grammaticality Judgments Task; (2) a Sentence Combination Task; and (3) a Picture Description Task. The experimental setting and linguistic environments during all sessions were managed in order to produce circumstances that were as similar as possible for each participant. Therefore, the experiments took place in the same classroom where the students met for their Arabic class.

All of the tasks were composed by the researcher. Before proceeding to the description of the tasks, a number of general principles in their design are outlined below. Attention was given to consistency within the same test and between the tests, the number of test items, the way they were presented, and the ordering of the test items. The items were constructed on the basis of a number of points:

1. The test properties are comparable to those in the other tasks.

2. The vocabularies are accessible to less proficient speakers.

3. All the sentences used had the same tense (simple present).

4. Only animate/human relative heads were used, belonging to beginning vocabulary.[22]

[22] According to Adani (2011), animate/inanimate referents seem to play different role in both adult and children studies. Hence, unless animacy is taken as an experimental factor, it is necessary to control for these effects. In the current study using human referents neutralized this factor.

5. All the relativized heads occupied the object position in the main clause except for items testing for Nominative case agreement.

6. All sentences within a given relative clause type were balanced for the number of words.

7. Because the length of a clause may affect relativization (as reported in Yamashita (1994) cited in Lee (2006)), the sentences being relativized were kept relatively short.

8. Humanness and definiteness of the head noun were controlled to be human and definite/indefinite.

9. All relative clauses had lexical DPs as subjects rather than pronominal subjects.[23]

10. All instances of relative clauses are right embedded.[24]

11. All instances of relative clauses include single embedding.

In what follows, I will present a description of these tasks as well as the reasons for using them.

---

[23] For example relative clauses such as "The nurse that ***the girl*** is drawing", with a lexical DP subject were used over relative clauses with pronominal subjects such as; "The nurse that ***I*** am drawing."

[24] A crucial classification concerning relative clauses and affecting child and adult language is the distinction between center-embedding and right-branching relative clauses. A sentence like (1) displays the relative clause on the right of the matrix clause:
(1) I watched the child that the mother hugs.
The main clause occurs before the relative clause and can be closed off once the relative pronoun has been identified.
In a sentence like (2), the relative clause is instead embedded in the center of the matrix clause:
(2) The child that the mother hugs is very cute
For adults and children, right-branching relative clauses are easier to understand and to process, and are acquired at an earlier stage than center-embedded relative clauses (de Villiers et al. 1979, Kidd & Bavin 2002, Sheldon 1974). The focus on right-branching relative clauses, a less complex structure, was therefore preferred over the use of center-embeddedness in this study.

5.5.1 The Grammaticality Judgments Task (GJT)

The GJT included sentences that tested extractions from SU, DO, IO, and OBL positions of relative clause constructions. The reason for including these different types of extraction is that in Modern Standard Arabic, unlike in English, these positions involve an obligatory resumptive clitic (except for the SU position and the optional use of these resumptive clitics in DO positions), and this provides a means for investigating the use of resumptive pronouns as related to the complexity of the structure of the relative clause type. Restrictive relative clause tokens involving manipulations in the use of resumption were included to test participants' knowledge of the distribution of these forms. Therefore, ungrammatical sentences involving resumptive pronouns violations were included. This was done in order to test whether the participants are sensitive to such violations.

There were 40 items in the test,10 of each of relative clause types (SU, DO, IO, OBL). Of the 40 test sentences; 20 included Masculine head DPs and the other 20 included Feminine head DPs. As far as agreement features are concerned, the test included 16 singular heads, 8 dual, and 16 plural. Because the test was already long, no distractors were used. Moreover, because the restrictive relative clause structures in this task are varied, they act as distractors for one another (Gass and Mackey, 2007).

The test consisted of 25 grammatical sentences and 15 ungrammatical sentences. The ungrammaticality included aspects of resumptive pronoun deletion or retention (15 test items: 5 of retention with SU relatives and 10 of deletion with IO and OBL relatives).

The distribution of restrictive relative clause types and the number of tokens representing each are summarized in Table 5-2 (see Appendix B for test items).

Table 5-2: Distribution of items in the Grammaticality Judgment Task

Type	Item No.	RP Status	Grammaticality in MSA	Grammaticality in English
SU	8,12,16,22,30	+	U	U
	4,18,26,34,38	-	G	G
DO	7,17,29,33,37	+	G	U
	3,11,15,21,25	-	G	U
IO	2,14,20,32,40	+	G	U
	6,10,24,28,36	-	U	U
OBL	1,13,23,35,39	+	G	U
	5,9,19,27,31	-	U	U

(Key: RP = Resumptive Pronoun; Comp = Complementizer; + = Retention; - = Deletion; G = Grammatical; U = Ungrammatical)

In Table 5-2 above, the left-most column contains the four types of relative clauses investigated in this task (SU = Subject relative clause, DO = Direct Object relative clause, IO = Indirect Object relative clause, and OBL = Oblique relative clause). The column next to the relative clause types includes the items numbers as represented in the actual GJT for the participants. It shows how the 10 sentences under each type of relative clause were randomly assigned. The next column describes the status of resumptive pronouns assigned to each item in column #2, "+" stands for the retention status and "-" stands for deletion of resumptive pronouns. The cells in the last two columns show the grammaticality status for each of the test items; "G" stands for grammatical and "U" stands for Ungrammatical in both MSA and English respectively.

For instance, item #22 from the GJT below is described as a SU relative clause in the table:

22. اعرف الطالب الذي ينجح في الامتحانات دائما

(1) ʔa-ʕrif	l-tˤaalib	llaði	ja-nʒaħ	fi	l-imtiħanaat	daaʔiman
1S-know	the-student	that.3MS	3MS-pass	in	the-tests	always

'I know the student who always passes the tests.'

The third column assigns item #22 a '-' resumptive pronoun status, which is clear in the example; the sentence does not include a resumptive pronoun and as shown in the very last columns this sentence is considered grammatical 'G' in both MSA and English.

5.5.2 The Sentence Combination Task

The second task that the participants completed in this study is combining pairs of sentences using 'relative complementizers'. In this task there were 28 sentences, 7 of each type of relative clauses (SU, DO, IO, and OBL). The test items allowed for the production of different aspects of relative clauses within the 4 types investigated, allowing to have data of IL grammars dealing with agreement (gender and number) and case features between relativized head nouns and the relative complementizers as well as their resumptive pronouns. The task also included indefinite and definite kinds of relative clauses, which allows for different tests of the use of relative complementizers and resumptive pronouns.

Of each of the 7 instances of the 4 kinds of relative clauses, 3 contained indefinite head DPs; (1 singular, 1 dual, and 1 plural), and 4 contained definite heads (1 singular, 1 dual nominative, 1 dual accusative, and 1 plural). Of all the test items, half of the sentences carried the Masculine gender while the other half carried the

Feminine gender. The 28 items were randomly ordered, as shown in Table 5-3 below: (See Appendix C for task items)

Table 5-3: Items in the Sentence Combination Task

Type	Item	Definiteness	Gender	Number	Case D
SU	1,3,6,10,15,16,17	-,-,+,+,+,+,-	M,M,M,F,F,M,F	S,P,D,S,D,P,D	A,N,A
DO	25a,21,20,18,12,11,5	+,+,+,-,+,-,-	M,F,F,FM,M,M	D,D,S,S,P,D,S	N,A,A
IO	28,27,24,23,22,19,4	+,-,+,+,-,-,+	F,F,M,M,M,F,F	D,P,D,S,D,S,P	N,A,A
OBL	2,7,8,9,14,25b,26	+,+,-,+,-,-,+	M,M,M,F,F,F,F	S,D,D,P,P,S,D	A,A,N

(Key: Definite RC= +, Indefinite RC= -, M = Masculine, F = Feminine, S = Singular, P = Plural, D = Dual, A = Accusative, N = Nominative)

The left-most column in the above table includes the four types of relative clauses tested; subject (SU), direct object (DO), indirect object (IO) and oblique (OBL) relative clauses. The item's column next to the relative clause type's column, lists the test items number. The third column describes the definiteness status of the head DP used in each item; "+" indicates that the head DP used is definite; whereas "-" indicates that it was indefinite. The last three columns describe the agreement status of the head DP of each item; their gender as M, masculine and F, feminine; their number as S, singular; D, dual and P, plural and the cells in the last column show the case assigned on the dual DP heads as N, nominative and A, accusative.

Consider for example item #2 classified under the OBL types of relative clauses:

2 a. قابلت الممرض • b. المريض يعتمد على الممرض •

قابلت الممرض الذي المريض يعتمد عليه •

(2) a.

a. qabal-t	l-mumarrid$^{\text{ʕ}}$	b. l-mariid	ja-ʔtamid	ʕala	l-mumarid$^{\text{ʕ}}$
a. met.1S	the-nurse.M	b. the-patient	3MS-rely	on	The-nurse

a. I met the nurse. b. The patient relies on the nurse.

b.

qabal-t	l-mumarrid$^{\text{ʕ}}$	llaðii	l-mariid	ja-ʔtamid	ʕalaj-hu
met.1s	The-nurse	That.3MS	the-patient	3MS-rely	on-him

'I met the nurse that the patient relies on.'

Item #2 from the test is, as the Table 5-3 shows, an OBL relative clause with a '+' definite head *l-mumarrid*$^{\text{ʕ}}$ = the nurse. '*l-mumarrid*$^{\text{ʕ}}$' is a masculine 'M' DP and is also singular 'S'.

The way this task is constructed allows us to test for different aspects of the acquisition of relative clauses in MSA (i.e., resumption and relative complementizer use with definite and indefinite head DPs) as well as for additional properties of morphological agreement between the relativized heads and the resumptive clitics as well as their agreement with relative complementizers.

5.5.3 The Picture Description Task

The Picture Description Task was made up of 54 picture slides (see Appendix D). The task was composed of 23 stimuli, 6 eliciting SU relatives; 2 singular, 2 dual and 2 plural head DPs were used; 6 eliciting DO relatives, in 2 sentences, the head

was singular, in 2 sentences it was dual and in 2 plural heads were used; 5 eliciting IO relatives; 2 singular, 2 dual, and 1 plural head DPs were used; and the last 6 items elicited OBL relatives, in 2 the head was singular, 2 dual, and 2 plural. All the relativized DPs were human nouns and all were definite. In half of the sentences the relative DPs were masculine and in the other half they were feminine. The purpose of this task is similar to the one described above for the SCT; however, this task contains definite heads only. Table 5-4 below gives detailed information about the Picture Description Task, its properties and number of items (see Appendix D for test items).

Table 5-4: Items in the Picture Description Task

RC-Type	**Items #**	**M**			**F**			**Grammaticality**		
		S	D	P	S	D	P	RP STATUS	A	E
SU	1,2,3,4,5,6	5	3	6	4	2	1	+ -	U G	U G
DO	7,8,9,10,11,12	7	8	12	11	10	9	+ -	G G	U G
IO	13,14,15,16,17	13	16	15	14	17		+ -	G U	U G
OBL	18,19,20,21,22,23	23	21	18 22	19		20	+ -	G U	U G

(Key: M = Masculine; F = Feminine; S = Singular; D = Dual; P = Plural; RP = Resumptive Pronoun; + = retention; - = deletion; A = Arabic; E = English; U = Ungrammatical; G = Grammatical)

The left-most column shows the range of restrictive relative clause types tested in the PDT (i.e., subject (SU), direct object (DO), indirect object (IO), and oblique (OBL) relative clauses). These were the same types tested in the GJT and the SC task. This is in order to increase the validity and reliability of the results gained from the previous tasks.

The items' column lists the items' number as used in the actual test under each relative clause type. The next two columns classify the items under the M (masculine) and F (feminine) categories as related to the type of the head DP provided in each test item. A detailed classification under the gender categories contain the number features assigned to each test item (S, singular, D dual and P plural). Next to the features column, a column that indicates the resumptive pronoun status as related to the matching types of relative clauses in that table, "+" refers to retention of resumptive pronouns and a "-" refers to its deletion. The last column describes the grammaticality status, in both Arabic (A) and English (E), of the use of resumption within each type of relative clauses, a 'G' means that resumption is grammatical in this type of relative clause in this specific language, whereas 'U' means it is ungrammatical to use resumptive pronouns with this structure in this specific language. A sample of the test items (item #10) appears in Figure (5-1):

Slide 15	الجديعانق الطفلتين 
Slide 16	من هاتان؟ هاتان هما الطفلتان اللتان الجد يعانق-يعانقهما  *Figure 2 5-1: Test #10 form the PDT*

Figure (5-1). Test item # 10 from the PDT

Slide 15
(3) a.

l-ʒad	ju-ʕaaniq	l-tˤifla-t-ajn
the-grandfather	3MS-hug	the-kid-F-DA

‘The grandfather hugs the two kids.’

b.
Slide 16

l-tˤifla-t-aan	llataan	l-ʒad	ju-ʕaaniq-(huma)
the-kid-F-DN	that.FD	the-grandfather	3MS-hug-(them.D)

‘The two kids that the grandfather hugs.’

As described in Table 5-5, item #10 from the PD task requires the production of a DO relative clause. The head DP, ‘l-tˤifla-t-aan’ the two girls/kids, is an (F) feminine DP and (D) dual. The use of resumption “+” is grammatical ‘G’ in Arabic and ungrammatical ‘U’ in English. The deletion of resumption “-“ is grammatical ‘G’ in both Arabic and English.

5.6. Data Collection Procedures

We collected data through elicited written-production tasks. All participants involved in this study completed three tasks: a Grammaticality Judgment, a Sentence Combination, and a Picture Description. In terms of the administration of the three tasks, they were conducted separately over two different days at the Department of Foreign Languages, University of Wisconsin-Milwaukee at the end of the academic year 2012-2013. Since test environment can affect performance (Backman, 1990), testing took a place in a location familiar to participants using a method (paper and pen) with which they were also familiar. All the participants in this research were gathered in one classroom where I was the class teacher, and I administered all tasks during a time when the participants normally had their classes.

The instructions for the tasks were given in English, the participants' native language. They were told they could ask about the meaning of any word, although every sentence in all tasks is provided with the Arabic translation of some potentially difficult words, so that the tasks would not be affected by the learners' vocabulary knowledge. The participants were not to go back to the completed tasks to correct or modify them. This was to minimize the L2 learners conscious monitoring of their IL grammar. No particular problems concerning the administration of the two tests were reported.

Before starting each task, the participants were given several examples and practice sentences; once they showed understanding of the tasks, they were allowed to go on. Participants were also given as much time as they needed to complete the three tasks, which took around one to two hours on average. The participants did the tasks in groups, each working independently. All participants were awarded extra course credit for completing the tasks.

The purpose of these three tasks was explained to the participants to make them provide reliable and valid results (i.e. they were told that these tasks would be used as a part of the university PhD research).

5.6.1 Grammaticality Judgment Task

Sentences were presented to participants on paper. Participants were required to judge the grammaticality of the sentence, reflecting their intuitions about their own internalized grammars. Participants were given a grammatical and ungrammatical choice. Where participants rated the sentence as ungrammatical,

they were asked to underline the part of the sentence that made the sentence ungrammatical and to provide a correction. The logic behind this is that 'one cannot be sure that a learner marked a sentence ungrammatical for the same reason that the researcher believes it to be ungrammatical '(Gass and Selinker, 2008:66).

Participants were given a few sentences as practice before the start of the actual task.

5.6.2 Sentence Combination Task

The test required the participants to combine sentences, using relative complementizers of *ʔallaðii*-type when needed. The participants were asked to complete the task in writing following the instructions:

1) *Please read each of the following pairs of sentences silently. Then, combine each two sentences by attaching sentence (b) to sentence (a). Always start with sentence (a) as written.*

2) *You can use words like 'ʔallaði', 'ʔallati': that, if needed, or any of their variant forms to combine each pair. Do not use the words ''wa' and, 'bajnama' while, 'ʕindama' when, 'baʕd' after, 'qabl' before, 'bi ruɣm ʔan' although, though or 'bisabab' because' to combine the two sentences.*

Example sentences were shown as part of the written instructions. After that, they were given a few practice sentences in order to get used to doing the task.

5.6.3 Picture Description Task

In this task, participants were asked to write a sentence that describes persons in pictures. A simple sentence and stimulus picture were presented for each slide (see Appendix D). In this task, a total of 23 relative clauses were to be constructed by each participant. The participants were asked to complete the task in writing following the instructions:

You will see a set of pictures. Read the description then identify the person(s) in the next slide. Write your descriptions in complete grammatical sentences.

5.7 Coding and Scoring

After the participants completed the tasks, I coded and scored the answers. It should be noted here that none of the tasks was scored according to correctness, but according to what the participants accepted or gave as an answer (whether correct or not). The general coding and scoring procedures for the participants' performance on each task in this study are outlined below. The symbol * is used before a relative clause construction to show the ungrammaticality of the structure of the relative clause. However, when no sign is used, the relative clause construction is grammatical.

It was necessary to make a number of scoring decisions regarding the responses given. Only aspects relevant to the structure of relativization regarding the resumption status and the relative complementizers status were considered in the analysis of the data. Any errors in verb tense, spelling, or word order were not analyzed in the data.

5.7.1 Coding and Scoring the Grammaticality Judgment Task

This section illustrates the coding procedure followed in the analysis of the data obtained from the participants on the grammaticality judgment task. The data obtained from the GJT was coded in terms of the relativization type and the status of resumptive pronouns.

Resumptive pronouns were coded for their retention status. The grammaticality judgments data included retaining resumptive pronouns (4a) when provided by the task, or deleting them (4b) and accepting gaps (no use of resumption) (5a) or providing resumptive pronouns when not provided by the task (5b).

(4) a.

*ʔa-	ʕrif	tˤ- tˤaalib	llaðii	***huwa***	ja- qraʔ
1S-	know	the- student.M	that.MS	***he***	3MS- reads

*'I know the student who ***he*** reads …'

b.

ʔa-	ʕrif	tˤ- tˤaalib	llaðii	~~***huwa***~~	ja- qraʔ
1S-	know	the- student.M	that.MS	~~***he***~~	3MS- reads

'I know the student who reads …'

(5) a.

raʔaj	-t	l-banaat	llawatii	ju- darris	ʔal-ʔustaað
saw	-1S	the-girls	that.FP	3MS-teach	the-teacher.M

'I saw the girls that the teacher teaches …'

b.

raʔaj	-t	l-banaat	llawatii	ju- darris	**-hunna**	ʔal-ʔustaað
saw	-1S	the-girls	that.FP	3MS-teach	**-them.F**	the-teacher.M

*'I saw the girls that the teacher teaches them …'

All of the data was coded and scored for each participant individually by calculating the numbers of resumptive pronouns used under each type of relative clause (SU, DO, IO, and OBL) for each participant. The scoring criterion for this task was a 70% criterion[25]. If a participant's calculation of resumptive pronoun use indicates use of resumption 70% of the time or more they were considered as showing a preference towards using resumptive over gaps within that certain type of relative clause, if they accepted all resumptive pronouns and at the same time accepted all gaps in a given relative clause type indicating a 50% use of resumption within a certain relative clause type, they were considered as allowing for optionality within that specific type of relative clauses. When participants used resumptive pronouns less that 70% of the time they were considered as showing a preference toward using gaps in that certain type of relative clause. In the results Chapter the status of resumptive pronouns under each type of relative clause is indicated by +/-("+" marks use of resumption 70% of the time or more, "-" marks use of resumptive pronouns less than 70% of the time and "+/-" indicates use of resumptive pronouns 50% of the time).

5.7.2 Coding and Scoring of the Production Tasks

The sentence combination and picture description tasks allowed for the testing of additional aspects of relativization constructions in MSA. The data were coded and scored in a similar way in both tasks. However, for the sentence

[25] It is hard to decide on a clear-cut point for whether that acquisition has occurred. However, in this study I am following the 70%-80% criteria, as this has been the tradition in the acquisition literature.

combination task data were coded for definite relative clauses separately from indefinite relatives.

For each participant under each relative clause type indicated by the extraction site (i.e., SU, DO, IO, OBL), the interlanguage productions were analyzed for aspects of resumptive pronoun status and agreement as well as for relative complementizer status and agreement. Before starting the coding and scoring of resumptive pronouns and relative complementizers, it was important to first decide if the structures produced by the participants on the task are relative clauses of the targeted relative clause type required by the task. Although the task had control over the different types of relative clauses, when participants instead produced other structures (of simple sentences and other types of complex sentences) or any other alternative type of relative constructions (e.g. SU instead of DO), those were not considered for further analyses. In this study only relative clauses of the targeted types were considered for resumption and relative complementizer analyses.

After deciding on the number of targeted relative clauses (see Appendix F for frequency and percentage tables on the count of relative clauses of each task), interlanguage relative clauses were coded for resumptive use. The scoring procedure I used here is the following: when the participant provided relative clauses with resumption all the time or missed providing resumption by only one instance of relative clause they were considered as showing a preference towards using resumptive over gaps in that given type of relative clauses, otherwise if they missed resumptive pronouns more than one time then this indicated their

preference for usage of gaps in these specific extraction positions. In the results chapter the status of resumptive pronouns under each type of relative clause is indicated by +/- ("+" marks use of resumption all the time or missing it by one item, and "-" marks no use of resumptive pronouns indicated by missing resumption by more than one item).

Resumptive pronouns, when produced by the participants (see Appendix F for resumptive pronoun counts on the production task), were further coded for agreement matching with the relativized head DP. For each participant, under each relative clause type, if agreement morphology on all provided resumptive pronouns matched the agreement on the relativized head noun (6) or missed it only by one item, then this is indicated by "+" marking use of agreement, if participants missed on agreement (7) in more than one instance this was indicated by "-" and marks their missing on agreement on resumptive pronouns.

(6)

ʃaahad	-t	***l-lisˁ-ajn***	ʔallaðajn	ʔar-raʒul	ju-ʕtˁii- ***huma***
saw	-1S	***the-theif-MDAcc***	that.MD	the-man	3MS-give-***them.D***
l-fuluus					
the-money					

'I saw the two thieves that the man gave the money.'

(7)

*ʃaahad	-t	***l-lisˁ-ajn***	ʔallaðajn	ʔar-raʒul	ju-ʕtˁii- ***hum***
saw	-1S	***the-theif-MDAcc***	that.MD	the-man	3MS-give-***them.P***
l-fuluus					
the-money					

'I saw the two thieves that the man gave the money.'

Each item of the targeted relativization structure produced by each participant was further coded and scored for relative complementizer use. When

relative complementizers were provided (8) within all items or only missed by one item produced by the participant under each specific category this indicated use of complementizers within this specific type of relative clause. When they missed it (9) by more than one item this indicated their lack of use of relative complementizers. In the results chapter the status of relative complemtizers under each type of relative clause is indicated by +/- ("+" marks use of relative complementizers all the time or missing it by one item, and "-" marks no use of relative complementizers indicated by missing relative complementizers by more than one item).

(8)

ʔa-ʕrif	r-riʒaal	***llaðiin***	ja-ʃmal-uun	fii
1S-know	the-men	***that.MP***	3M-work.P	at
l-matˤʕam	l-ʕarabi			
the-restaurant	the-Arabic			

'I know the men who work at the Arabic restaurant.'

(9)

*ʔa-ʕrif	r-riʒaal	ja-ʃmal-uun	fii	l-matˤʕam	l-ʕarabi
*1S-know	the-men	3M-work.P	at	the-restaurant	the-Arabic

Furthermore, the data obtained on complementizer use within relative clauses (see Appendix F for raw results) were coded and scored further for relative complementizer agreement with relativized head DP. The coding and scoring of agreement follows the same procedures followed in coding and scoring for resumption agreement. For each participant, under each relative clause type if agreement morphology on all provided relative complementizers matched the agreement on the relativized head noun (10) or missed it only by one item then this is indicated by "+" marking use of agreement. If participants missed on agreement

(11) in more than one instance, this was indicated by "-"and marks their missing on agreement on relative complementizers.

(10)

ʔa-ʕrif	***n-nisaaʔ***	***llawatii***	ʔal-ʔawlad	ja-htam-uun
1S-know	***the-women***	***that.FP***	the-boys	3M-take care-P
bi-hunna				
of-them.FP				

'I know the women that the boys take care of.'

(11)

*ʔa-ʕrif	***n-nisaaʔ***	***llatii***	l-ʔawlad	ja-htam-uun
1S-know	***the-women***	***that.FS***	the-boys	3M-take care-P
bi-hunna				
of-them.FP				

'I know the women that the boys take care of.'

5.8. Chapter Summary

Chapter 5 introduced the purpose of the study – to provide empirical evidence about Universal Grammar (UG) constraints on interlanguage grammar (IL grammar), which fundamentally assumes that ILs are natural languages and their grammars should obey economy conditions. I seek to explain the L2 acquisition patterns of relative clauses by appealing to Minimalist constructs such as economy conditions on syntactic derivations. The research questions asked about the characteristics of the IL relative constructions of L2 learners of MSA, whether their IL individual grammars would still adhere to UG principles (in Minimalist terms) and also the RPAH effect. The research hypotheses specifically proposed the possible outcomes out of the research questions.

Participants in the study were English-speaking adults who study MSA as an L2 at an American university and were considered capable of producing the intended relative clause structures. Initially, an oral proficiency test was given to all 16 participants for level classification into Novice, Intermediate and Advanced. Three cross-sectional elicited production tasks were employed as the method for data collection to acquire a sufficient number of target structures within a single experimental session. Such a complex structure occurs quite infrequently in spontaneous speech and has to be experimentally evoked to maintain the consistent data elicitation setting and linguistic environment for each and every participant.

Data collection was done using a grammaticality judgment task (GJT), a sentence combination task (SCT), and a picture description task (PDT). The grammaticality judgment task consisted of 40 items, 10 of each type of relative clauses. The task aimed mainly at getting intuitional data about resumption and gap use within different extraction sites of MSA relative construction.

The sentence combination task (SCT) consisted of 28 items of definite and indefinite heads. Definite and indefinite heads of relative clauses were used because in MSA indefinite relative heads disallow overt complementizers, and this is a potential measure of the acceptability and use of complementizers as related to the definiteness status of the head DP in relative clauses. The picture description task (PDT) consisted of 23 items. Both production tasks allowed for the production of different aspects of relativization in MSA, providing data on resumption comparative to the GJT data. In addition the tasks allowed for the testing of the interaction between the head DP definiteness status and the use of relative

complementizers. Moreover, the the tasks provided data about agreement morphology status within relative constructions.

The researcher administered the data elicitation process at the university that the participants were attending. The written output was then collected. Any production of relative clauses not containing the intended relative clause type was discarded. When more than one response was collected for a single item, the first relative clause was selected for analysis.

The data were analyzed for each participant separately and only individual results will be reported. For the Grammaticality Judgments, each sentence was coded for either use or no use of resumptive pronouns. Under each relative clauses type the use of resumption was calculated out of all responses (10 responses for each type of relative clause). The scoring criterion for this task is a 70% criterion. For both the Sentence Combination Task and the Picture Description Task, I calculated the number of relative clauses produced by each participant under each target category required by the task and coded the use of resumption and relative complementizers out of that total score. Because the numbers of relative clauses for each participant vary here, the scoring criteria for all of the aspects under both production tasks were the following: both use or agreement of resumption and relative complementizers were scored by all use and all agree or use and agree being missed only by one item and received “+”, otherwise the result was “no use of resumption or relative complementizers” as well as “no agreement” indicated by “-“.

The next chapter (6) deals with the quantitative and qualitative data analysis and a brief discussion of the results that the three tasks yielded.

Chapter 6

Results

6.0. Introduction

In this chapter, I report the results of the three tasks conducted for the purpose of answering the questions of the study and testing certain hypotheses, which I discussed in detail in Chapter 4. The purpose of the current empirical study is to investigate the acquisition of relative clauses and their specific agreement properties in Modern Standard Arabic (MSA) as a second language (L2), and to find out whether any of the hypotheses were supported by the interlanguage (IL) constructions of MSA relativization. For this purpose, this chapter presents the IL results, which comprise implicational scales regarding the status, use and agreement features of resumptive pronouns and relative complementizers within relative clause structures. I report the results with a brief discussion where needed. A detailed discussion of the results; however, will be dealt with in the next chapter (Chapter 7).

Before presenting the outline of the chapter and presenting the results, it is important to make some points clear. First, it is worth pointing that in this study I am dealing with individual data rather than group data, given that dealing with IL grammars gives more robust grounds to testing claims about L2 acquisition in obeying to natural language constraints. As Eckman (2007) noted, it is possible that grouped data could obscure IL grammars results and that some claims (he referred to the NPAH effect) about L2 acquisition cannot be tested using group data. Second,

I mentioned in Chapter 5 that none of the tasks were scored for correct or incorrect performance matching the target structure rules; rather, for each aspect of relativization under investigation data were coded and described according to what the participants accepted or gave as an answer (whether correct or not). Third, all of the results of the three tasks will be represented using implicational scales with +/- binary values rather than percentage or raw numbers[26], these however will be reported whenever it is necessary. Finally, all of the results' tables follow the implicational scalability of the Noun Phrase Accessibility Hierarchy (NPAH)[27], which, as I showed in Chapter 3, is a hierarchy of grammatical positions, for which there is a crosslinguistic evidence being: SU > DO > IO > OBL, that constitutes a hierarchy of implicational relationships among its categories such that SU is the highest in the hierarchy, followed by DO, which in turn is followed by IO and finally OBL which occupies the lowest position in the hierarchy. Thus, ">" in the hierarchy indicates that the position that follows is lower. Moreover, in describing the results when I use "higher" and "lower" positions or as "descending" or "ascending" the scale then I am referring to their positions within the NPAH scale without actually referring to the NPAH theoretical predictions.

The results of the Grammaticality Judgment Task are reported first in Section 1. The 40-item Grammaticality Judgment Task was used to test whether the L2 learners would identify the fact that resumptive clitics are obligatory in the IO and

[26] The tables displaying the raw results are available in Appendix F

[27] The NPAH can predict the acquisition order of relative clauses in that less marked structures of relative clauses will be acquired easier and faster than the more marked structures as I go further in the NPAH. Further, the hierarchy also implies an inverse relationship between the hierarchy and the resumptive pronouns, such that resumptive pronouns will be used more frequently in the lower position on the hierarchy than the higher ones.

OBL relative clauses in MSA, optional in DO relative clauses and are obligatorily deleted from SU relative clauses. The results obtained in the Sentence Combination Task and the Picture Description Task will be reported in the sections that follow. These tasks allowed us to look at additional aspects of relativization in MSA besides the use of resumptive elements. In section 2, the results obtained from the Sentence Combination Task are presented in the following order: the use of resumptive clitics/pronouns within definite and indefinite relative clauses and their agreement with the head DP in the matrix clause in (6.2.1), and the use of complementizers within definite and indefinite head DPs and their agreement with the head DP in the matrix clause in (6.2.2). The results of the Picture Description Task are reported in Section 3 in the following order: analyses of the use of resumptive pronouns/clitics within the relative clauses and their agreement with the head DP, in (6.3.1), and the status of relative complementizers use and their agreement features with the relative head DP, in (6.3.2). Finally, Section 4 summarizes the findings of the study.

We start with presenting the results obtained from the Grammaticality Judgments Task. The construct of the Grammaticality Judgments Task should provide information about the L2 learners' knowledge of movement and resumptive pronouns in the derivation of relative clauses. It is worth pointing out that no results for P10 will be reported because he completed only half of the task.

6.1. Results of the Grammaticality Judgment Task (GJT)

The Grammaticality Judgment Task (GJT) tested for L2 learners' knowledge of MSA resumptive pronouns' status (retention versus deletion) within relative clauses. More specifically, the task tested whether L2 learners identify the fact that resumptive clitics are obligatorily retained in IO and OBL relatives, optional in DO relatives and are not allowed in SU relatives in MSA. This allows us to test the effects of economy conditions on syntactic derivation in accounting for IL grammars.

Recall that the general assumption under a Matching/Adjunction analysis for relative clauses, as described in Chapter 3, is that a relative clause (CP) is right-adjoined to a head noun, and that, depending on the language, a relative operator (OP) either moves from some DP position within the relative clause to the specifier position of the relative clause [Spec, CP] leaving behind in the extraction site a copy/trace (e.g., as in English relative clauses) or that the OP is (externally) merged directly into the [Spec, CP] position and no movement is necessary (e.g., as in MSA relative clauses). Based on Galal (2004), no movement of a relative OP from DP to [Spec, CP] is involved in the derivation of MSA relatives in cases where overt or null resumptive pronouns are used in the derivation. These assumptions are especially important to account for the L2 learners' performance on their derivations of relative clauses.

The prediction is that, if the participants accept resumptive pronouns/clitics in the extraction site within the relative clause structure and reject gaps, then this could indicate that no OP movement is involved in their derivation of the L2 relative clauses, if however, they reject resumptive pronouns/clitics in all extraction

positions and allow gaps only within the relative clause structure, their relative clauses in this case are said to involve OP/*wh*-movement. One possibility is that the L2 learners will reject the resumptive pronoun option because in English, their first language, that option is not available (L1 transfer effect). Another possibility would be accepting resumptive pronouns, especially within the more costly types of relative clauses involving movement, showing a preference to derive relative clauses by OP merge over OP move in accord with the general computational efficiency principle of economy (i.e., *Minimality*). A third possibility would be allowing resumptive pronouns, and at the same time accepting gaps. This would indicate that the L2 learners have not acquired the MSA setting and an examination of their IL data would require further explanations.

Looking at different relative clause types identified by the extraction site (SU, DO, IO, and OBL), the data were analyzed quantitatively for resumptive pronoun status (see Appendix F for a display of the quantitative raw data calculations on the GJT). The results of resumptive pronoun judgments are represented in Tables 6-1 for the adult control participants and 6-2 for the L2 participants below, using implicational scales and following the NPAH scalability representation (based on a 70% criterion[28]).

The top row of the tables below lists the relative clauses types according to their extraction site. The left-most column in each table represents the participants of this study and the cells in the row for each participant are the results describing the participant's performance. The data is not necessarily ordered on the basis of

[28] The tradition in most SLA research mostly follows 70%-80% criterion in indicating that acquisition occurred.

the participant's number; rather the participants are sorted according to their fit within the NPAH scalability (following Hyltenstam's, 1984 and Maghrabi's, 1997 way of representing individual IL data). Under each relative clause type (SU, DO, IO, and OBL) column, the status of resumptive pronouns or clitics is indicated by +/- ("+" marking the retention of resumptive pronouns 70% or more of the time, "-" indicating retention of resumptive pronouns less than 70% of the time and "+/-" signifies the acceptance of both gap and resumption options 50% of the time within relative clauses).

Table 6-1 shows the results obtained from the control participants whereby all participants show rejection of resumption 100% of the time "-"within SU relative clauses, accept both the resumption and gap options equally "+/-" within DO relative clauses, and retain resumption/ reject gaps 100% of the time "+" within both the IO and OBL relative clauses; a pattern that follows the target language (MSA) pattern described in Chapter 2.

Table 6-1: Resumptive Pronoun Retention in the Different Types of Relative Clauses by the Controls on the GJT

Participants	SU	DO	IO	OBL
C1	-	+/-	+	+
C2	-	+/-	+	+
C3	-	+/-	+	+
C4	-	+/-	+	+
C5	-	+/-	+	+

For the L2 participants; however, Table 6-2 indicates that, for the most part, participants seemed to accept both resumption and gap options "+/-" to a varying extent. A few participants, 6 out of 15, rejected resumptive pronouns within SU relative clauses and 12 out of 15 participants seemed to reject gaps to varying degree within relative clauses lower down the NPAH scale.

P11, P12, and P14 accepted all resumptive pronouns as well as gaps on their judgments of the different types of relative clauses. They have not either accepted all of the instances on the task as grammatical; however, their grammaticality judgments, instead, were made towards changing the word order, relative complementizers, or tense of the verb, which are not of the concern in the current study. On the other hand, P5, P6, P7, and P8accepted both resumption and gap options within different relative clause types, but rejected most of the gaps and added resumptive clitics to the preposition within OBL relative clauses only. Only one participant, P2, accepted both resumption and gap options only within DO relative clauses behaving in a similar way to the control participants in Table 6-1.

Participants (P1, P13, and P16) rejected more resumptive pronouns within SU relative clauses only. They also rejected more gaps and added more resumptive clitics within non-SU relative clauses only.

Table 6-2: Implicational Scale Showing Resumptive Pronoun Retention in the Different Types of Relative Clauses by the L2 Learners on the GJT

Participants	SU	DO	IO	OBL
P11	**+/-**	**+/-**	**+/-**	**+/-**
P12	**+/-**	**+/-**	**+/-**	**+/-**
P14	**+/-**	**+/-**	**+/-**	**+/-**
P5	**+/-**	**+/-**	**+/-**	**+**
P6	**+/-**	**+/-**	**+/-**	**+**
P7	**+/-**	**+/-**	**+/-**	**+**
P8	**+/-**	**+/-**	**+/-**	**+**
P15	**+/-**	**+/-**	**+**	**+**
P9	**+/-**	**+**	**+**	**+**
P2	**-**	**+/-**	**+**	**+**
P3	**-**	**+**	**+/-**	**+**
P4	**-**	**+**	**+/-**	**+**
P1	**-**	**+**	**+**	**+**
P13	**-**	**+**	**+**	**+**
P16	**-**	**+**	**+**	**+**

Note: highlighted entries indicate deviations from the general implicational pattern in all tables throughout the chapter.

In general, the result presented in Table 6-2 above shows a strong tendency, with few exceptions, to have optional resumption "+/-" in higher positions, according to NPAH scalability, if one has optional resumption in lower positions too. Moreover, gaps were mostly rejected within lower positions and when participants rejected gaps and added more resumptive clitics with relative clauses on higher positions they did the same for relative clauses in lower positions. Recall that, on the NPAH SU is the highest and OBL is the lowest, so the direction from high to low is represented as SU > DO > IO > OBL. One final observation is that since none of the participants rejected resumptive pronouns in all types of relative clauses,the GJT results show no L1 transfer effects in the acquisition of resumptive pronouns in MSA.

Table 6-3 below groups the L2 data from Table 6-2 according to the IL grammar pattern. As Table 6-3 below shows, the IL pattern for 4 out of 15 (P1, P2, P13, and P16) participants is considered, to some extent, target-like. And the IL pattern for the rest of the participants 11 out of 15, (P3, P4, P5, P6, P7, P8, P9, P11, P12, P14, and P15) is neither native-like nor target-like. None of the participants rejected all instances of resumptive pronouns/clitics within all types of relative clauses 100% of the time and hence no native-like patterns appear in the results.

Table 6-3: IL Patterns of Resumption Use within Relative Clauses by L2 Learners on the GJT

IL Pattern	Participants
Native-like	0
Not Native-like or Target-like	P3, P4, P5, P6, P7, P8, P9, P11, P12, P14, and P15
Target-like	P1, P2, P13, and ***P16***

Note: Entries in ***bold italics*** are used to indicate that the participant's IL pattern is 100% Target-Like throughout the chapter.

In what follows I report the results of the two elicited production tasks. The participants' responses were coded in two steps: first I coded the correct production of the target relative clause type required by the task out of all responses expected by the task (representing the number of targeted relative clauses in each category in the two production tasks; the second step constituted analyses of the use and agreement of resumptive pronouns and relative complementizers out of only responses in which the targeted relative clause type was produced. (See Appendix F for tables representing the number of targeted relative clauses that were used for further analyses).

6.2 Results of the Sentence Combination Task (SCT)

Here I report the results obtained from the Sentence Combination Task (SCT). As mentioned earlier this task allowed for the testing of additional aspects of relativization in MSA, allowing for a more detailed analysis of the IL grammars of the L2 learners. The task required the participants to combine pairs of sentences using relative complementizers when needed, thus allowing me to test: (i) the status of resumptive pronouns and their use in different kinds of relative clauses;

providing data comparable to the GJT data allowing for further testing of Hypothesis 1; (ii) the status of relative complementizer use with different head types (definite vs. indefinite), allowing for testing Hypothesis 2; and (iii) Agreement features on the resumptive pronouns/clitics and relative complementizers within the different types of relative clauses, providing data to test Hypothesis 3.

Looking at different extraction sites (SU, DO, IO, and OBL), the results obtained from the SCT are presented in the following order. The first subsection reports the results of the participants' use of resumptive pronouns within the different relative clause types they produced. Whenever a resumptive pronoun was produced this was coded further for agreement with the relative head. The second subsection focuses on the results of the use of complementizers as another important aspect of the investigation of relativization in MSA, this task also allowed me to test whether the participants realized that the use of relative complementizers is obligatory with definite heads and is not allowed with indefinite heads. After that and focusing only on definite relative clauses the use of agreement features on complementizers will be reported.

It is worth pointing out here that P16 chose not to complete the task. Therefore, no results for him are reported. All the data were analyzed for definite relative clauses separately from the indefinite types and all of the results are presented for the controls participants first and then for the L2 participants.

6.2.1 Resumptive pronoun results on the SCT

This section reports the results of resumptive pronoun use and agreement within relative clauses produced by the participants with the different relative clause types investigated.

6.2.1.1 Resumptive pronoun status on the SCT

The results obtained from the L1 controls and the L2 participants regarding the use of resumptive pronouns within relative clauses on the SCT are displayed in the implicational scales presented in Tables 6-4 and 6-5. In this section I am only concerned about whether resumptive pronouns were provided or not in the IL data regardless of the correct type of pronoun or the correct morphosyntactic agreement. The section that follows reports the results regarding the agreement features match/mismatch on resumptive pronouns in turn.

The left-most column in each table represents the participants of this study and the cells in the row for each participant are the results describing the participant's performance. Similar to the GJT results' tables, the data is not necessarily ordered on the basis of the participant's number; rather the participants are sorted according to their fit within the NPAH scalability. Under each relative clauses type (SU, DO, IO, and OBL) column, the use of resumptive pronouns or clitics is indicated by +/- ("+" marking the use of resumptive pronoun within relative clauses all of the time or missing it by one instance, "-" indicating no use of the resumptive pronoun within relative clauses or missing it by more than one

instance)[29]. The template for these tables is used to portray the resumptive pronoun status and the complementizers' status results in both the L1 and IL throughout this chapter.

As was pointed out in Chapter 3, MSA allows for the optional use of resumptive pronouns (i.e., gap-resumption alternation) within DO relative clauses only. If I compare the results here in Table 6-4 with the results of resumptive pronoun use on the GJT in Table 6-1 I note that despite the fact that MSA allows the optional use of resumptive pronouns in the DO position and despite the fact that the control participants showed such awareness of the structure as indicated by their results on the GJT, when the SCT asked for relative clause productions, those same participants showed a preference towards the resumptive pronoun option with DO relatives over the gap option. Table 6-4shows that the L1 controls used resumptive clitics within all non-SU relative clauses. In fact they used resumption 100% of the time in all non-SU relative clauses including DO instances (See Appendix F for raw results).

[29] Even when a participant scored 2/4 (50%) on their resumptive pronoun use this was not considered as an optional production of both the gap and resumption setting. Knowledge of resumption-gap optionality would be counted as "+/-" if the written production of the participants indicated that both options producing two variants of the same relative clause type one with a gap and the other with resumption.

Table 6-4: Implicational Scale Showing Resumptive Pronoun Status within Definite Relative Clauses for the L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	-	+	+	+
C2	-	+	+	+
C3	-	+	+	+
C4	-	+	+	+
C5	-	+	+	+

As for the L2 learners' performance, Table 6-5 shows that most of the participants used resumptive clitics over gaps in DO (10 out of 15 participants) showing a *Minimality* effect indicated by the L2 participants tendency towards choosing the less costly, more economical derivation when given an option. None of the participants provided resumptive pronouns in the SU position nor did they show a native-like pattern resembling the L1 setting of gap use in all relativization positions. Although Table 6-5 shows that P11 did not used resumptive pronouns or resumptive DPs in all positions; the raw results indicate that they have not use gaps all the way as dictated by their L1 rules. Our analyses also revealed that 8 of the participants (P3, P5, P6, P7, P10, P8, P9, and P14) neither used gaps nor resumptive pronouns; instead they retained the resumptive DPs in the extraction site to a varying extent. For the most part, when participants retained resumptive DPs within relative clauses on higher positions on the scale they also, with few exceptions (P3, P10), retained them on the lower positions. 6 participants (P1, P4, P8, P9, P12, P13, P14 and P15) showed a preference towards using resumptive

pronouns within all non-SU relative clauses and their IL pattern is consistent with Hypothesis 1 as will be discussed in Chapter (7). P2 and P3 are exceptions. The IL grammar patterns are grouped and summarized in Table 6-6.

Table 6-5: Implicational Scale Showing Resumptive Pronoun Status within Definite Relative Clauses for the L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P7	**RDP**	**RDP**	**RDP**	**RDP**
P5	**RDP**	**RDP**	**RDP**	**RDP**
P11	**-**	**-**	**-**	**-**
P6	**-**	**-**	**-**	**+/RDP**
P10	**RDP**	**-**	**-**	**+/RDP**
P2	**-**	**+**	**-**	**+**
P3	**RDP**	**+**	**+**	**-**
P14	**-**	**+**	**+**	**RDP**
P1	**-**	**+**	**+**	**+**
P4	**-**	**+**	**+**	**+**
P8	**-**	**+**	**+**	**+/RDP**
P9	**-**	**+**	**+/RDP**	**+/RDP**
P12	**-**	**+**	**+**	**+**
P13	**-**	**+**	**+**	**+**
P15	**-**	**+**	**+**	**+**

Note: RDP refers to use of resumptive DPs. And +/RDP refers to use of both resumptive DPs and resumptive clitics.

Table 6-6: IL Patterns of Resumption Use within Definite Relative Clauses by L2 Learners on the SCT

IL Pattern	Participants
Native-like	0
Not Native-like or Target-like	P5, P6, P7, P8, P9, P10, P2, P3, P11 and P14
Target-like	***P1***, ***P4***, P12, P13 and ***P15***

Note: Entries in ***bold italics*** were Target-like 100%

With respect to resumptive pronoun use within indefinite relative clauses on the SCT, similar to their performance in definite relative clauses, the L1 controls used resumptive clitics 100% of the time within non-SU relative clauses and did not show gap-resumption optionality in the use of DO relatives either. Table 6-7 presents the results of the L1 controls on resumption use within indefinite relatives:

Table 1 6-7: Implicational Scale Showing Resumptive Pronoun Status within Indefinite Relative Clauses for the L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	-	+	+	+
C2	-	+	+	+
C3	-	+	+	+
C4	-	+	+	+
C5	-	+	+	+

On the other hand, as Table 6-8 shows, most of the participants produced SU relatives with gaps 100% of the time, 3 cases were exceptions as indicated in the table whereby they retained resumptive DPs instead (P3, P5, and P7). Only 8 out of 15 participants provide resumption on all non-SU positions of relative clauses.

Three other participants (P5, P7 and P10) showed no use of resumptive pronouns; however, they used resumptive DPs instead. Similar to his performance on definite relative clauses (see Table 6-5), P11 did not use resumptive pronouns or resumptive DPs; however his raw results (Appendix F) showed that he had not used gaps 100% of the time in a native-like manner on the task. For the most part, as the table shows, even when the participants performed in neither a target-like manner nor a native-like manner, their IL grammars show greater tendency to provide resumption with types of relative clauses at the higher positions of the NPAH scale when they also provide resumption within the lower positions. P4, P5 and P10 are exceptions. Table 6-9 groups the data and reflects on the IL patterns.

Table 6-8: Implicational Scale Showing Resumptive Pronoun Status within Indefinite Relative Clauses for the L2 Participants on the SCT

Participants	SU	DO	IO	OBL*
P5	**RDP**	**RDP**	**-**	**RDP**
P7	**RDP**	**RDP**	**RDP**	**RDP**
P10	**-**	**RDP**	**-**	**RDP**
P11	**-**	**-**	**-**	**-**
P2	**-**	**-**	**-**	**+**
P6	**-**	**-**	**-**	**+/RDP**
P4	**-**	**+**	**+**	**-**
P3	**RDP**	**RDP**	**+**	**0**
P9	**-**	**+**	**+**	**0**
P1	**-**	**+**	**+**	**+**
P8	**-**	**+**	**+**	**+**
P12	**-**	**+**	**+**	**+**
P13	**-**	**+/RDP**	**+**	**+**
P14	**-**	**+/RDP**	**+/RDP**	**+**
P15	**-**	**+**	**+**	**+**

Table 6-9: IL Patterns of Resumption Use within Indefinite Relative Clauses by L2 Learners on the SCT

IL Pattern	Participants
Native-like	0
Not Native-like or Target-like	P2, P3, P5, P6, P7, P10, P11, P13, P14, and P4
Target-like	***P1***, P8, P9, ***P12***, and ***P15***

Comparing the results obtained from the L2 learners on their resumptive pronoun use with the two different types of relative clauses; i.e. definite and indefinite, I found that three participants' IL grammars (P8, P9, and P4) fall within different IL patterns across the two types of relative clauses, whereas the rest of the participants' results were more consistent within the two types. It is beyond the scope of the study to account for these different resumption patterns across definite and indefinite types; therefore, I will not discuss this issue any further in the dissertation.

One striking difference between the resumptive pronoun use on the GJT and the SCT in the performance of both the control participants and the L2 learners is that while both groups of learners allowed for optionality (gap-resumption alternation) in relative clauses on the GJT, they showed a consistent behavior in only using one option on their production on the SCT by resorting to the resumptive strategy most of the time. I still need to see whether similar results were obtained on the PDT in the next section. If the pattern is consistent across tasks, then the *Minimality* economy-based account and the status of optionality as dictated on the Minimalist Program (Chomsky, 1995; Galal, 2004) should explain the case in the next chapter.

The results reported so far are concerned with the use of resumptive pronouns or gaps within the L2 relative clauses. The following section deals with data related to morphosyntactic agreement on resumptive pronouns as this bears directly on testing the third hypothesis.

6.2.2.2 Agreement on resumptive pronouns on the SCT

All resumptive clitics provided by the participants on DO, IO, and OBL extraction sites were further analyzed for their agreement status with the head DP of the matrix clause. It is worth pointing here that only third person object clitics were analyzed for agreement, other types of clitics (e.g., possessive pronouns, other object clitics and agreement suffixes) that were produced by the participants and counted/considered, on the previous subsection, as use of resumption, were not analyzed further in this dissertation (See Appendix F for numbers of resumptive pronouns analyzed for agreement).

Recall that in MSA, resumptive pronouns carry interpretable φ-features; these are: [Person], [NUM], and [GEN]. These features are normally spelled out on the resumptive clitic showing agreement with the head DO of the matrix clause. Question 3 asked whether L2 participants would err on agreement on resumptive pronouns and whether they would show any systematicity in their performance as related to the type of extraction position.

The following Tables 6-10 to 6-12 report the resumptive pronouns agreement results for the control and the L2 participants in both kinds of relative clauses; i.e. definite and indefinite. It is, however, beyond the scope of the study to account for any differences in performance of agreement across the definite versus indefinite relative clause types.

As shown in Table 6-10, the findings from this study indicate that the control participants demonstrate full matching agreement on resumptive clitics (100%). In particular, these five participants used correct agreement morphology on

resumptive pronouns matching the person, gender and number of the relativized head DP in the matrix clause.

Table 6-10: Implicational Scale Showing Agreement for Resumptive Pronouns within Definite Relative Clauses for the L1 Controls on the SCT

Participants	DO	IO	OBL
C1	**+**	**+**	**+**
C2	**+**	**+**	**+**
C3	**+**	**+**	**+**
C4	**+**	**+**	**+**
C5	**+**	**+**	**+**

On the other hand, the data for 9 out of 14 L2 participants, as the results in Table 6-11 indicate, show agreement-mismatching errors on the resumptive clitics on the different types of relative clauses. The table also shows a general tendency towards making more agreement errors on resumptive pronouns within relative clauses lower down the hierarchy rather than those in higher positions (P9 and P14 are exceptions). A closer look at the types of agreement errors made by the participants revealed that 5 of the participants (P2, P8, PP11, P12, and P14) used only masculine singular and/or plural forms with all head types. The rest of the L2 participants, while showing more variant forms of resumptive agreements still missed on supplying the correct features that match with the head DP. Only 2 participants used matching agreement on all types of relative clauses (P1 and P13).

P4, P5 and P6 used matching agreement on the resumptive pronouns but not 100% of the time (Appendix F).

Table 6-11: Implicational Scale Showing Agreement for Resumptive Pronouns within Definite Relative Clauses for the L2 Learners on the SCT

Participants	DO	IO	OBL
P8	-	-	-
P11	-	0	-
P3	-	-	0
P10	0	0	-
P14	-	+	-
P9	-	-	+
P2	+	0	-
P12	+	+	-
P15	+	+	-
P1	+	+	+
P4	+	+	+
P5	+	+	+
P13	+	+	+
P6	0	0	+
P7	0	0	0

In what follows I report the data of resumptive clitics use within indefinite relative clauses. Table 6-12, indicates that the L1 control participants of this study show a consistent performance in their use of agreement on resumptive clitics performing in a 100% target-like manner.

Table 6-12: Implicational Scale Showing Resumptive Pronoun Agreement within Indefinite Relative Clauses for L1 Controls on the SCT

Participants	DO	IO	OBL
C1	**+**	**+**	**+**
C2	**+**	**+**	**+**
C3	**+**	**+**	**+**
C4	**+**	**+**	**+**
C5	**+**	**+**	**+**

The results reported in Table 6-13 below, show that 6 of the L2 participants showed agreement most of the time on the resumptive clitics they produced across different types of relative clauses. On the other hand, 7 out of 15 participants missed on agreement assignments on resumptive clitics. However, they showed a tendency to miss on lower positions rather than higher positions, P13 is an exception (her raw results show that it might only be a matter of percentage). The same participants, P2, P8, PP11, P12, and P14, as in the definite relative clauses showed a preference towards using the Masculine plural agreement features. However, I cannot generalize the results given the small/limited number of test instances.

Table 6-13: Implicational Scale Showing Resumptive Pronoun Agreement within Indefinite Relative Clause for L2 Participants on the SCT

Participants	DO	IO	OBL
P2	**0**	**0**	**-**
P11	**-**	**0**	**-**
P3	**+**	**-**	**0**
P8	**+**	**-**	**-**
P12	**+**	**-**	**-**
P14	**+**	**-**	**-**
P13	**+**	**-**	**+**
P1	**+**	**+**	**+**
P4	**+**	**+**	**+**
P15	**+**	**+**	**+**
P9	**+**	**+**	**0**
P5	**0**	**+**	**+**
P6	**0**	**0**	**+**
P7	**0**	**0**	**0**
P10	**0**	**0**	**0**

By comparing the results obtained from the Sentence Combination Task on the agreement status of resumptive clitics, I noticed that P2, P3, P8, P9, P13 and P14 performance was different in definite versus indefinite relative clauses.

In general, the results on resumptive pronoun agreement for the L2 participants showed that this particular aspect of relativization in MSA is problematic for L2 learners. However, the pattern seems to be that more agreement is used in higher positions rather than lower positions on the scale (ascending the NPAH). Moreover, it is worth noting that on the SCT, whereas most of the participants had problems with agreement feature, only 5 out of 15 seemed to resort to the masculine plural and masculine singular default forms throughout the task. The other 9 participants did not show a preference towards using one resumptive form over the other. Nevertheless, eventhough they were still capable of spelling out different agreement features on the resumptive pronouns they failed in using the matching agreement features.

This section (6.2.2) presented the results of resumption (status and agreement) on the SCT. In the following section I present the results obtained from the participants with respect to their use of complementizers in their productions of relative clauses on the SCT.

6.2.3 Relative complementizer results on SCT

Definite relative clauses in MSA always involve the overt and variable linking form of *ʔallaðii*-type complementizer, between the head and the relative clause. It was pointed out in chapter 3 that *ʔallaðii* belongs to the C category. English allows three linking options in non-SU relative clauses: (1) *that*, (2) an overt relative operator (*who, which …*) and (3) a ø null operator/C. In Subject relative clauses only

the first two of these options are available. Two of the study questions are addressed here:

Question 2: Would English-speaking L2 learners of MSA show a systematic pattern in their use of relative complementizers as related to the definiteness of the head noun in the matrix clause? In other words, I am testing whether the L2 participants recognize that the presence/absence of the complementizer in MSA is determined by definiteness. This question is meant to test the predications in Hypothesis 2.

Question 3: Would English-speaking L2 learners of MSA show a systematic pattern in their use of agreement features on relative complementizers and resumptive pronouns? More specifically, I am testing whether L2 learners assign the correct agreement morphology on the complementizers when used with definite head DPs. This question is meant to test the predictions in Hypothesis 3.

In what follows, the analyses of the relative complementizers on the SCT are presented in two parts. The first part deals with the use of relative complemtizers within the different types of definite and indefinite relative clauses investigated. The second part, however, focuses on the complementizers used within definite relative clauses and their agreement with the head DP in the matrix clause.

6.2.3.1 Relative complementizer status on the SCT

Here I report the results obtained regarding the use of relative complementizers within definite and indefinite relative clauses. Tables 6-14 to 6-17 represent the status of the relative complementizer use in definite and indefinite relative clauses as obtained from the quantitative analysis of L1 and L2 data.

According to the results presented below in Table 6-14, the five L1 controls recognize the obligatory presence of relative complementizers within definite relative clauses indicated by the complementizer presence "+" in all types of relative clauses (100% of the time).

Table 6-14: Implicational Scale Showing Relative Complementizer Status within Definite Relative Clauses by L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	**+**	**+**	**+**	**+**
C2	**+**	**+**	**+**	**+**
C3	**+**	**+**	**+**	**+**
C4	**+**	**+**	**+**	**+**
C5	**+**	**+**	**+**	**+**

Similarly, the L2 participants' results, as Table 6-15 below shows, indicate that most of the L2 participants (11 out of 15) recognize the obligatory presence of relative complementizers within definite relative clauses. 11 out of 15 participants used relative complementizers in all types of relative clauses 100% of the time. Only for one participant (P15), the results show a complete absence of relative complementizers. Two participants (P3 and P9) show a tendency to use relative

complementizers within types of relative clauses lower on the NPAH, whereas one participant (P2) performed in the opposite way, missing relative complementizers only in OBL relative clause.

Table 6-15: Implicational Scale Showing Relative Complementizer Status within Definite Relative Clauses by L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P15	-	-	-	-
P3	-	-	-	+
P9	-	+	+	+
P2	+	+	+	-
P1	+	+	+	+
P4	+	+	+	+
P5	+	+	+	+
P6	+	+	+	+
P7	+	+	+	+
P8	+	+	+	+
P10	+	+	+	+
P11	+	+	+	+
P12	+	+	+	+
P13	+	+	+	+
P14	+	+	+	+

Now I need to report the results obtained from the participants performance with indefinite relative clauses and note whether they recognize that, unlike with definite relative clauses, relative complementizers are not allowed with indefinite relatives.

The performance of the control participants in both kinds of relative clauses, i.e., with definite relatives in Table 6-14 and indefinite relatives in Table 6-16, indicates that they recognize that the presence/absence of the complementizer in MSA is determined by definiteness.

Table 6-16: Implicational Scale Showing Relative Complementizer Status within Indefinite Relative Clauses by L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	**-**	**-**	**-**	**-**
C2	**-**	**-**	**-**	**-**
C3	**-**	**-**	**-**	**-**
C4	**-**	**-**	**-**	**-**
C5	**-**	**-**	**-**	**-**

The L2 participants of the study, as the results reported in Table 6-17indicate, do not seem to have yet realized how relative complementizers are used in MSA relatives. Only 5 out of 15 participants behaved in a way similar to the L1 controls and they have not used relative complementizers within indefinite relative clauses.

Table 6-17: Implicational Scale Showing Relative Complementizer Status within Indefinite Relative clauses by L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P3	**-**	**-**	**-**	**0**
P9	**-**	**-**	**-**	**0**
P1	**-**	**-**	**-**	**-**
P13	**-**	**-**	**-**	**-**
P15	**-**	**-**	**-**	**-**
P2	**+**	**-**	**+**	**+**
P4	**+**	**+**	**+**	**+**
P5	**+**	**+**	**+**	**+**
P6	**+**	**+**	**+**	**+**
P7	**+**	**+**	**+**	**+**
P8	**+**	**+**	**+**	**+**
P10	**+**	**+**	**+**	**+**
P11	**+**	**+**	**+**	**+**
P12	**+**	**+**	**+**	**+**
P14	**+**	**+**	**+**	**+**

In order to answer Question 4 of the study regarding whether L2 learners recognize that the presence/absence of relative complemtizers in MSA relatives is determined by the definiteness of the head DP, I will compare the complementizer results of the definite Table 6-15 and indefinite Table 6-17 relative clauses. The

comparison here yields three patterns regarding complementizer use within definite and indefinite relative clauses as represented in Table 6-18:

Table 6-18: Patterns of Complementizer Use with Definite and Indefinite Relative Clauses on the SCT

Pattern of Complementizer Use	Participants
Relative complementizers used with both definite and indefinite relative clauses	P4, P5, P6, P7, P8, P10, P11, P12, and P14
Relative complementizers used with definite but not indefinite relative clauses (Target-like)	***P1*** and P13
No use of relative complementizers with both definite and indefinite relative clauses (Native-like)	P3?, P9? and P15
Other	P2

The results represented above show that only 2 (P1 and P13) of the 15 L2 participants behaved systematically and showed recognition that relative complementizers in MSA behave differently from English in that they are obligatorily used within definite relative clauses and are not used within indefinite relative clauses. Nine out of 15 participants showed a preference towards using relative complementizers with the two kinds of relative clauses within the four different types of relative clauses, and only one chose not to provide relative complementizers at all, which is still not native-like because English does not allow null C in SU relative clauses. P2 behaved differently with definite and indefinite relative clauses; however, his results show a tendency toward using overt complementizers in both relative clause types.

The results in general conform with *Hypothesis 2* Individual interlanguage grammars would show a systematic pattern in the use of relative complementizers within MSA definite and indefinite relative clauses.

This section focused on the behavior of participants with respect to +/- use of the relative complementizer. Section 6.2.3.2 reports the results of the agreement features on relative complementizers.

6.2.3.2 Agreement on the relative complementizer on SCT

I here report the results of the agreement analyses on the complementizers provided within definite relative clauses by all of the participants of the study. Recall that definite relative clauses in MSA always involve the overt and variable linking form of *ʔallaðii*-type complementizer, which should also agree with the head DP of the matrix clause. I showed in Chapter 4, that the features on the relative complementizer are uninterpretable φ-features ([uNUM], [uGEN], [uPerson]), [uCase] and [uDEF]. All of these features are usually spelled out on the C form. The data obtained are presented in Table 6-19 for the control participants and in Table 6-20 for the L2 participants. The top row of the tables represents the relative clause types according to the extraction site. The left-most column represents the participants of this study and the cells in the row for each participant are the results describing the participant's performance.

As shown in Table 6-19, the findings of this study indicate that the control data showed agreement between the relative complementizer and the relativized head DP on all relative clause type matching the target language rules.

Table 6-19: Implicational Scale Showing Relative Complementizer Agreement Status by L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	**+**	**+**	**+**	**+**
C2	**+**	**+**	**+**	**+**
C3	**+**	**+**	**+**	**+**
C4	**+**	**+**	**+**	**+**
C5	**+**	**+**	**+**	**+**

The results obtained here serve the purpose of testing the third hypothesis (*Hypothesis 3:* Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on MSA relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases). L2 learners of MSA are expected to have problems with the assignment of agreement on relative complementizers. As Table 6-20 shows, results obtained from the L2 participants with respect to their use of complementizers within definite relative clauses, indicate that none of the participants behaved in a way similar to the control participants, who showed agreement on relative complementizers at all relative clause types. Even (P6) missed on one instance of agreement. Of the 15 participants, 6 participants (P2, P4, P5, P7, P8, P11 and P14) missed on agreement at all relative clause types (although not 100% of the time). Participants P10 and

P13 show agreement on relative complementizers with types of relative clauses as they descend the NPAH and P9 shows agreement with the types of relative clauses as they ascend the NPAH. P1 and P12 results do not fit within any of these patterns, but as the table on Appendix F indicates, they mostly use matching agreement and it is only a matter of percentage.

Table 6-20: Implicational Scale Showing Relative Complementizer Agreement Status by L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P2	-	-	-	-
P4	-	-	-	-
P5	-	-	-	-
P7	-	-	-	-
P8	-	-	-	-
P14	-	-	-	-
P11	-	-	-	-
P9	+	-	-	-
P10	-	-	-	+
P13	-	+	+	+
P12	-	+	-	+
P1	+	+	-	+
P6	+	+	+	+
P3	0	0	0	+
P15	0	0	0	0

The participants, who missed on agreement features on their IL interim, were not behaving in a native-like manner either. Our qualitative analysis revealed that although those L2 learners erred on agreement features on complementizers they were still spelling out agreement features on the C form, unlike in English, where no overt agreement morphemes are spelled out. Participants mostly missed on the dual agreement and used more singular and plural forms. P4, P5, P11, P9, P14 used mostly Masculine singular and plural variants of *ʔallaðii.*

In sum, in the SCT the participants behaved differently from the GJT and did not show a systematic use of optionality within the different relative clause types. The IL patterns, however, confirm the predictions in Hypothesis 1. The L2 learners erred on their use of complementizers with definite and indefinite relatives showing more use of overt complementizers even in illicit environments within indefinite relatives. In general their IL pattern supports Hypothesis 2. The results obtained regarding the agreement status on both resumptive clitics and complementizers confirm Hypothesis 3 so that L2 participants erred on using matching morphosyntactic features on both complementizers and resumptive pronouns. No clear pattern, however, appears as whether errors in agreement are related to the extracted position.

In the next section I present the results of the Picture Description Task.

6.3 Results of the Picture Description Task (PDT)

The purpose of the construction of the Picture Description Task (PDT) was to allow us to test various aspects regarding the relative clause structure types under investigation. Like the SCT, the PDT required the participants to produce relative clause structures of the four types of relative clauses under investigation, that is the PDT allowed us to investigate the production of SU, DO, IO and OBL relative clauses. However, this task is different from the SCT in that it allows to test the mechanisms that the participants apply in producing relative clauses out of simple information provided about a picture, unlike the SCT whereby participants are presented with two sentences and they must combine them using relative complemtizers. This task would therefore allow us to check the mechanism the participants use to derive the different types of relative clauses; whether they would still provide resumptive pronouns or resumptive DPs in the extraction sites of relative clauses and whether they would still show a consistent use of relative complementizers within relative clauses.

All of the 16 L2 participants completed this task. In what follows I report the results obtained from the PDT data for each participant. Similar to the GJT and the SCT, for each aspect of relativization under investigation (i.e., resumption and complementizer use), the results obtained by the L1 controls data are reported first, and then the results by the L2 participants data are provided.

The following subsections report the results obtained regarding resumptive pronouns and their agreement status followed by the results obtained regarding relative complementizers and their agreement status.

6.3.1 Resumptive Pronoun Results on the PDT

The results of the PDT would provide comparative data serving the purpose of testing the three hypotheses of the study. If the participants' performance here is comparable to their performance on the previous tasks, this would support the hypotheses; otherwise I would have to reconsider my predictions and possibly reject them. A detailed discussion of the results of the three tasks of the study as related to the hypotheses will be the next task in the next chapter (Chapter 7). In this section I am only reporting the results obtained from the data analysis with brief discussion of the findings in relevance to the questions of the study and the general predications.

6.3.1.1. Resumptive pronoun status on the PDT

Here I report the results obtained regarding the use of resumptive pronouns in the different types of relative clauses in implicational scales according to the NPAH scaling. Table 6-21 reports the results obtained from the L1 control participants showing that in the PDT, similar to the SCT results; L1 controls use resumptive pronouns in a target-like manner. The 5 control participants used resumptive clitics within all non-SU relative clauses 100% of the time (See Appendix F for raw results). Interestingly though, similar to the finding I reported for the SCT,

no optional use of resumption was noted, although the target-language legitimates an optional resumption at DO extraction site and the GJT results indicated participant awareness of such optionality status within definite DO relatives. This could be considered evidence in support of *Minimality* being operative even in the performance of native speakers of Arabic.

Table 6-21: Implicational Scale Showing Resumptive Pronoun Status by L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	-	+	+	+
C2	-	+	+	+
C3	-	+	+	+
C4	-	+	+	+
C5	-	+	+	+

Similar to the native control group, as Table 6-22 below indicates, 10 out of the 16 L2 participants produced relative clauses with resumptive pronouns at the extraction site of all non-SU positions (this however, does not necessarily entail that they produced resumption 100% of the time). Only 5 participants produced resumptive pronouns all the time within all of the non-SU positions. As it is clear from the table below, P2, P6, P7, P10, and P11 showed a greater tendency to use resumption within relative clause types on higher positions when they also used them in all lower positions. None of the L2 participants behaved in a native-like manner where they allowed gaps only and no resumptive elements in all relative

clause types all the time. Again none of the L2 participants or the L1 controls used overt resumptive pronouns in the SU relative clause type.

Table 6-22: Implicational Scale Showing Resumptive Pronoun Status by L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P5	-	+	-	RDP
P10	-	-	-	+
P7	-	-	+	+
P2	-	-	+	+
P6	-	-	+	+
P11	-	-	+	+
P1	-	+	+	+
P3	-	+	+	+
P4	-	+	+	+
P8	-	+	+	+
P9	-	+	+	+
P12	-	+	+	+
P13	-	+	+	+
P14	-	+	+	+
P15	-	+	+	+
P16	-	+	+	+

Note: RDP for resumptive DP/noun.

The results from the PDT confirm Hypothesis 1: Individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of MSA relative clauses. The results entail that, in general, OP merge was favored over move, and a systematic tendency appeared in the IL grammars whereby when participants resorted to resumption in relatives at the higher positions in the scale they did the same in all the types further down in the NPAH scale. No use of overt resumption within SU relatives was reported, except for P13, and resumption was favored over gaps even in DO relative clauses. Only one instance of resumptive DP appeared on the data within OBL position of P5 IL. Notice that one participant (P5) seemed not to produce resumptive pronouns in all relative clauses types except for the DO position. Deviations from the observed IL pattern will be discussed in the next chapter (Chapter 7).

In what follows I report findings regarding the morphosyntactic agreement status on the resumptive clitics the participants produced within DO, IO and OBL relative clauses on the PDT.

6.3.1.2 Agreement on resumptive pronouns on the PDT

Table 6-23 below indicates that the five controls show agreement on all resumptive clitics within the three types of relative clauses 100% of the time (see Appendix F for raw results). This behavior is in accord with the target language (MSA) rules I described in Chapter 2.

Table 6-23: Implicational Scale Showing Resumptive Pronoun Agreement for L1 Controls on the PDT

Participants	DO	IO	OBL
C1	**+**	**+**	**+**
C2	**+**	**+**	**+**
C3	**+**	**+**	**+**
C4	**+**	**+**	**+**
C5	**+**	**+**	**+**

Hypothesis 3 predicts that L2 learners would, unlike native speaker, err on the agreement features on resumptive pronouns. The results reported in Table 6-24, show that only 6 out of 10 (P1, P9, P13, P16, P5, and P10) participants' IL grammars mostly used agreement on resumptive clitics matching, for the most part, the head DP agreement features, with (P5 and P9) supplying matching features 100% of the time. Only one participant (P3) missed on agreement features on resumptive in all relativization types, although not 100% of the time. Three participants missed on agreement on resumptive clitics with relative clause types as they ascend the NPAH scale (P8, P14 and P15), whereas three others (P7, P11, and P12) showed correct agreement within relative clause types descending the NPAH. P2, P4 and P6 performance showed some exceptions here; their results varied and their use of agreement is not related to the types of relative clause. The qualitative analysis revealed that 4 learners (P2, P14, P7, P15) showed a consistent use of one type of resumptive pronoun across all types of relative clauses, that is the masculine plural

form. In general 10 out of 16 participants erred in the agreement of resumptive pronouns supporting the claims in Hypothesis 3.

Table 6-24: Implicational Scale Showing Resumptive Pronoun Agreement for L2 Participants on the PDT

Participants	DO	IO	OBL
P3	-	-	-
P14	+	-	-
P4	-	+	-
P7	-	-	+
P11	-	-	+
P12	-	+	+
P8	+	+	-
P15	+	+	-
P2	+	-	+
P6	+	-	+
P1	+	+	+
P9	+	+	+
P13	+	+	+
P16	+	+	+
P5	+	+	0
P10	0	0	+

Similar to the SCT, in the PDT I also coded the use of relative complementizers for production and matching agreement features. I present those results next.

6.3.2 Relative Complementizer Results on the PDT

All relative clauses on the PDT required the obligatory use of relative complementizers of *ʔallaðii*-type because all relative head DPs that the participants were required to answer the questions about using a relative clause were definite heads. Therefore, all types of relative clauses were analyzed for complementizer use. In this section I also report the results obtained regarding the use and agreement status of relative complementizers within the relative structures as produced by the participants of the study. Our results here are mainly used to test Hypothesis 3, which also predicts that L2 learners will err on agreement on relative complementizers. The results obtained should also be compatible with those obtained from the SCT, thus provide converging evidence in further supporting Hypotheses 2 and 3.

6.3.2.1 Relative Complementizer Status on the PDT

The PDT required productions of definite relative clauses with obligatory relative complementizers. In what follows I report the data obtained using implicational scaling again according to the scalability of the NPAH. Table 6-25below indicates that all of the L1 controls produced relative clauses with relative

complementizers within all types of relative clauses in resemblance to the target-like pattern.

Table 6-25: Implicational Scale Showing Relative Complementizer Status by L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	**+**	**+**	**+**	**+**
C2	**+**	**+**	**+**	**+**
C3	**+**	**+**	**+**	**+**
C4	**+**	**+**	**+**	**+**
C5	**+**	**+**	**+**	**+**

Similarly, the L2 participants of the study seemed to provide complementizers for the most part, as shown in Table 6-26. Twelve out of 16 participants used relative complementizers 100% of the time (see Appendix F for raw data), with all types of relative clauses (except P11). Most of participants showed more use of complementizers with relative clause types ascending the NPAH with few exceptions (P3, P13).

Table 6-26: Implicational Scale Showing Relative Complementizer Status by L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P3	+	-	-	-
P13	-	+	-	-
P7	-	-	+	+
P14	-	+	+	+
P1	+	+	+	+
P2	+	+	+	+
P4	+	+	+	+
P5	+	+	+	+
P6	+	+	+	+
P8	+	+	+	+
P9	+	+	+	+
P10	+	+	+	+
P11	+	+	+	+
P12	+	+	+	+
P15	+	+	+	+
P16	+	+	+	+

However, despite the fact that participants provided relative complementizers within the definite relativization structures, most of the time, as required by the target language (MSA), they still showed errors on agreement

features on the relative complementizer form. The next subsection presents the results.

6.3.2.2 Agreement of the Relative Complementizer on the PDT

Tables 6-27 and 6-28 report the data obtained about agreement on relative complemtizers by the L1 controls and L2 participants.

All of the L1 controls showed, as indicated in Table 6-27 below, correct use of agreement on the relative complementizers by matching the relativized head DP features in the matrix clause all the time in all types of relative clauses. L1 controls again behaved in a target-like manner.

Table 6-27: Implicational Scale Showing Relative Complementizer Agreement Status by L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	**+**	**+**	**+**	**+**
C2	**+**	**+**	**+**	**+**
C3	**+**	**+**	**+**	**+**
C4	**+**	**+**	**+**	**+**
C5	**+**	**+**	**+**	**+**

Hypothesis 3 predicts that Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on MSA relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases. The results obtained from the L2 participants presented in

Table 6-28 below, shows that 13 out of 16 participants have problems on agreement assignments on relative complementizers across different relative clause types. Only three participants (P6, P9, and P12) showed full agreement within the four types of relative clauses, acting in a target-like manner 100% of the time. As Table 6-28 shows, P3, P7 and P14 missed on agreements, for the most part, on the relative complementizers on all types of relative clauses. Five other participants (P2, P5, P10, P11 and P15) seemed to show agreement on the complementizers within lower position types of relative clauses with respect to NPAH. Three of the participants (P1, P13 and P16) performed in the opposite way and showed agreement on the complementizers they produced within the types of relative clauses at the higher positions of the NPAH but not on the OBL type. The results of P8 and P4 here do not fall within any of these patterns. No preference towards using a default form of C was noted except for P14 who mostly used singular forms of masculine and feminine and P7 who used only *masculine singular* and *plural* forms. In general, the participants' performance here shows a rather imperfect pattern where they err on C agreement on higher, less complex structures more than on lower, more complex structures. It is clear that uninterpretable features on relative complementizers in MSA are problematic for L2 learners; however, the results do not show that participants err on C agreement as the complexity of the relative clause type increases.

Table 6-28: Implicational Scale Showing Relative Complementizer Agreement Status by L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P3	-	0	0	0
P7	0	0	-	-
P14	-	-	-	-
P2	-	-	-	+
P5	-	-	-	+
P4	-	+	-	+
P10	-	-	+	+
P11	-	-	+	+
P15	-	-	+	+
P8	+	-	+	+
P1	+	+	+	-
P13	+	+	+	-
P16	+	+	+	-
P6	+	+	+	+
P9	+	+	+	+
P12	+	+	+	+

6.4. Chapter Summary

This chapter presented the results of the three tasks of the study: (1) the Grammaticality Judgment Task, (2) the Sentence Combination Task and (3) The Picture Description Task. Prior to the report of IL productions, it was noted that this study deals with individual results rather than group results. The results were presented in relation to the predictions of the hypotheses of the study. In what follows, I will summarize the general findings:

a. With respect to the distribution of resumptive pronouns, the results varied across both types of tasks (grammatical intuition versus production tasks) for both the control participants and the L2 participants. Whereas participants in general accepted both gap-resumption alternations on the GJT, they only resorted to one option rather than the other on the production tasks (mainly favoring resumption). L2 participants performed consistently through the tasks by systematically showing use of resumption in higher positions of the scale only when they used resumption in positions lower down the scale. Our results also show that participants did not supply resumption in the SU relative clause position. Use of resumptive DPs was reported mostly on the SCT.

b. With respect to the use of relative complementizers, the results indicate that the participants mostly used overt complementizers even with indefinite head nouns.

c. With respect to agreement, more mismatching errors were reported with relative complementizers than with resumptive pronouns. Agreement errors

do not appear to show a systematic pattern across tasks with regard to relative clause complexity.

The results of the data reported here will be discussed in the next chapter.

Chapter 7

Discussion

7.0. Introduction

In this chapter I discuss the predictions of the research hypotheses in light of the findings of the empirical study reported in chapter 6. My main goal is to explore the role of the Minimalist constructs of economy conditions on syntactic derivations and feature interpretability in accounting for the process of second language (L2) acquisition. The general prediction (based on Yang and Roeper, in press) was made such that, in the process of language acquisition, linguistic features need to be viewed as emergent properties falling out of the interaction of Chomsky (2005)'s three factors by which acquisition is accomplished: (1) a minimally specified UG (Genetic endowment); (2) Primary Linguistic Data (PLD), i.e., input; and (3) non-language faculty-specific considerations, including principles of efficient computation (e.g., economy conditions) and principles of data analysis employed in acquisition.

For this purpose, I carried out a study of L2 acquisition of Modern Standard Arabic (MSA) relative clauses by English-speaking learners. These languages (i.e., MSA and English) exhibit different syntactic features with regard to the availability of operator (OP) movement in deriving relative clauses, types of relative complementizers, and morphosyntactic agreement features, which should facilitate the task of investigating the different aspects of relativization in interlanguage (IL)

grammars with respect to computational efficiency and economy, among other factors.

I hypothesized that economy conditions are operative in the process of language acquisition and that individual interlanguage (IL) grammars of MSA relatives would obey the economy conditions. My prediction was that individual IL grammars are in accord with *Minimality* (i.e., which states that given a choice between two comparable operations, the smallest is chosen). In consequence, the individual IL representations of the different types of relative clauses would follow the *Shortest Derivation Requirement,* which says that the number of operations in a derivation should be minimized. The assumption here is related to the cost imposed by the number of steps involved in a Move operation in the derivation of relatives: the more costly a movement becomes as it involves more steps, the more likely learners will resort to *Minimality,* showing a preference towards deriving relative clauses by directly merging the relative OP into [Spec, CP] rather than moving it. This is also a reasonable hypothesis from the perspective of learnability (based on Kim, 2003) because direct and simple computations will be initially preferable for language learners compared to complex linguistic computations, thus matching the general human preference for economy.

With respect to relative complementizer's status in the IL grammar, I hypothesized that Individual interlanguage grammars would show a systematic pattern in the use of relative complementizers within MSA definite and indefinite relative clauses (Hypothesis 2). The assumption was made that individual IL grammars would not recognize that the presence/absence of relative

complementizers in MSA is determined by the status of head definiteness. The prediction, based on relevant literature (e.g., Shaheen, 2013), is that L2 participants would use overt complementizers with both definite and indefinite heads; however, as learners develop more proficient parsing strategies in the L2 (i.e., more advanced learners), their performance would reflect their 'favor economy of spell-out' (a UG Economy Principle which requires spelling out as little as possible at PF).

Finally, with respect to morphosyntactic agreement features, Hypothesis 3 of this study predicts that participants would err on agreement features of relative complementizers and resumptive pronouns. The claim is that the operation Agree, in general, is problematic for L2 learners.

This chapter is organized as follows. Section 1 highlights the significance of the findings with respect to *Hypothesis 1* and provides critical analyses of the findings regarding resumption status on the three tasks of the study, with respect to the availability of movement. Section 2 examines the predictions of *Hypothesis 2,* where I discuss the results of the status of complementizers use in MSA IL grammar of relative clauses, as obtained from the Sentence Combination Task, with respect to general assumptions highlighted in the literature. In Section 3, the results of the two production tasks with respect to the agreement features on complementizers and resumptive pronouns are critically reviewed serving the purpose of testing *Hypothesis 3*. The findings are also discussed with respect to recent predictions by Tsimpli and Dimitrakapoulou (2007)'s *Interpretability Hypothesis.* Section 4 provides further discussion highlighting the significance of the role of economy conditions on syntactic derivation, as part of the principle of general computational

efficiency, in providing a unified account for IL mental representations. Evidence is reported in relevance to general predictions highlighted on some related literature (in Chapter 3). Finally, Section 5 concludes and summarizes the chapter.

7.1. Testing Hypothesis 1

In this section I examine the findings of the empirical study with respect to the predictions of Hypothesis 1. Hypothesis 1 states Individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of MSA relative clauses. The claim is rather general here. The rationale behind this general claim is based on the idea that the Minimalist Program (MP) attempts to place linguistic theory in the broader cognitive sciences by proposing that principles of language follow the principle of economy. As noted in (Kim, 2000; 2003), human beings want to achieve a maximum of effects at a minimum of effort, and this principle also applies to the grammar of the language.

Moreover, in the process of the acquisition of non-primary languages, the assumption has been made such that, although the derivational mechanisms may certainly be different from those which led to the creation of primary systems, the individual and internal representation of the interlanguage in the L2 speaker's mind are I-languages and; therefore, mental representations of the speaker's knowledge (Liceras, 2010); in other words, interlanguages are natural languages (Adjémian, 1976). Thus, the prediction is that individual interlanguage grammars, like natural languages, conform to the economy conditions on syntactic derivations.

In considering the syntactic derivation of relative clauses in Chapter 4, I pointed out that under the Matching/Adjunction analysis (Chomsky, 1977; 1995), which I am adopting for relative clause derivation in this study, the head is base-generated and the relative clause adjoins to the maximal projection NP/DP. Further, the operator (OP) moves to [Spec, CP] in relative clause structures where movement is involved. OP; however, is directly merged in [Spec, CP] in the cases which do not involve movement, where only resumption is allowed. For convenience, I re-present both cases in (1) below:

(1)

a. Movement: [$_{DP}$[Head DP$_i$ …][$_{CP}$ OP$_i$ [$_{TP}$ … ~~OP$_i$~~ …]]]

b. No movement: [$_{DP}$[Head DP$_i$ …][$_{CP}$ OP$_i$ [$_{TP}$ … RP$_i$…]]]

In this study, I adopt the view that English relative clauses are derived by movement, whereas MSA relatives which contain resumption do not involve movement. More specifically, following Galal (2004), and focusing on relative clauses of the Subject (SU), Direct Object (DO), Indirect Object (IO), and Oblique (OBL) types, the assumption is that all indefinite and definite relative clauses in MSA are derived through directly merging OP in [Spec, CP] (no OP movement), where only resumption is allowed. The interesting definite DO case, which allows for gap/resumption alternation, however, involves movement when the gap is used. The optionality in the resumption use in DO relative clauses is considered as an apparent optionality case (Galal, 2004); where the use of one strategy (gap versus resumption) emanates from different numerations based on pragmatic considerations (see Chapter 4).

Given that, the same mechanism is involved in the derivation of relative clauses, i.e., Matching/Adjunction analysis, I assumed that the difficulty in the acquisition of relative clauses is rather dependent on computational considerations relevant to economy conditions on syntactic derivation. First, *Move* is a more costly operation than *Merge,* as dictated in the Merge-over-Move economy principle. Second, the different types of relative clauses under investigation involve different numbers of steps assuming the movement derivation, as I showed in Chapter 4; an OBL relative involves 4 steps, an IO relative involves 3 steps, and a DO relative involves 2 steps, and finally an SU relative involves 1 step. Our prediction in Hypothesis 1 regarding the IL grammar of relative clauses has been made such that individual IL grammars are in accord with *Minimality* (the economy condition) and their representations of the different types of relative clauses follow the *Shortest Derivation Requirement*. The more costly movement becomes involving more steps the more likely learners would resort to *Minimality* preferring to merge the OP rather than moving it.

I assumed that if IL grammars allow resumption (either resumptive pronoun/clitic or resumptive DP) rather than gaps in a given relativization position, then this would indicate that they derived relative clauses through OP merge rather than move (Galal, 2004; Shlonsky 1992; Sells, 1994; Friedmann et al., 2008; Bolotin, 1995). If participants, however, allowed gaps, then this is evidence that they derived relative clauses through OP movement (Bolotin, 1995; Galal, 2004; Bshara, 2012; Bshara et al., 2013).

I will first consider the performance of the native speakers' control participants on the three different tasks of the study. The focus here is on the results of the control group regarding the resumption/gap status. Resumptive pronoun retention in relative clauses was reported in both L1 (based on Friedmann *et al*., 2008) and L2 literature (Maghrabi, 1997 for MSA, Hyltenstam, 1984 for Swedish, Pavesi, 1989 for Italian and Eckman et al., 1988 for English). Several explanations were offered in the literature, which, for the most part, are related to typological universals and 'processing considerations'. In what follows, I try to provide an account for the nature of IL grammars based on principles of computational efficiency as it is relevant mental representations (i.e., knowledge of language) .

7.1.1. Discussion of native speakers' results

The results of the Individual native speakers (control) showed that their IL grammar pattern was target-like in both the Grammaticality Judgment Task (GJT) and the two elicited written production tasks. Two patterns appeared in the data, as represented in Table 7-1below:

Table 7-1: Control Group Results Pattern on the GJT and the Written Production Tasks

Tasks	**Pattern**			
	SU	DO	IO	OBL
Grammaticality Judgments	-	+/-	+	+
Elicited Written Productions	-	+	+	+

As Table 7-1 shows, the native control group's results with DO relatives were not consistent across the two types of tasks; whereas they allowed for optionality between resumption and gap strategies on the GJT, they resorted to resumption

100% of the time in their DO production on both the Sentence Combination Task (SCT) and the Picture Description Task (PDT). The control participants' performance is target-like (MSA-like), given that in MSA resumption is obligatorily used within IO and OBL relatives, is optional with definite DO relatives allowing for gap/resumption alternation, and is not permitted within SU relatives.

What the results show most clearly is that the control group showed knowledge of MSA resumption rules when accepting both gaps (100%) and resumptive pronouns (100%) on the GJT within the DO position. When the task asked for production data instead, they resorted to the more economical option, which suggests that the control group derived the DO relative clauses through a non-movement strategy. Their performance adheres to the economy condition *Minimality*, which dictates that given a choice between two comparable operations, the smallest is chosen. Looked at this way, when given a choice between Merge and Move, the cheaper, less costly operation of OP Merge was chosen. The controls 'results, in general are also consistent with Hypothesis 1 and conform to the hierarchy on (2).

With respect to the GJT result, the L2 participants are aware that there are two types of DO relatives, with and without resumptive pronoun in MSA, and that they (based on Galal's (2004) assumptions) emanate from two different numerations. In the case of definite relatives involving a resumptive pronoun in the object position that is sensitive to the semantics of the DP, the DP is endowed with [+de re] (specific) feature, thus giving an unambiguous reading about the identity of the DP. In the case the relativization position the is an empty trace, and no

resumptive pronoun is realized, even though the DP might have some degree of clarity, as its counterpart DP in the direct object case involving resumptive pronouns. The non-presence of a resumptive pronoun in the latter case is likely to create some degree of ambiguity.

Let us consider the L2 participants' results on the three tasks. Similarly, in the following subsection only results reported regarding the resumption/gap aspect will be discussed.

7.1.2. Discussion of L2 participants' results

The results indicate that the participants behaved differently on the GJT compared to the production tasks. Therefore, in this section I analyze the results with respect to the predictions for the GJT first and then I examine the written production results. The main difference in the results between the two types of tasks included the L2 participants showing more instances of accepting both gaps and resumptions on different extraction sites on the GJT. The analyses did not reveal the same results on the written production tasks. What is consistent throughout the tasks is that none of the participants' IL grammar patterns are consistent with their native language pattern.

7.1.2.1. The GJT results

Of the 15 L2 participants who completed the GJT, none performed in a native-like manner accepting all gaps and rejecting all resumptive pronouns. However, only 4 participants' (P2, P1, P13 and P16) IL patterns were target-like, with only one participant (P2) accepting both gaps and resumptions on DO relatives, the other three participants rejected gaps 70% of the time or more and supplied resumptives onto the structure instead.

The rest of the L2 participants' (11) IL patterns are neither native-like nor target-like. As shown in Table 6-2, the IL grammars of 9 out of 11 L2 participants adhere to the predictions of Hypothesis 1. When the L2 participants allowed for optionality in less complex clause types (e.g., SU or DO), they also allowed for optionality in lower positions (e.g., IO and OBL). Gaps were mostly rejected with OBL relatives and IO relatives, the IL representations are still consistent with the predictions: allowing for Merge on less complex structures entails that Merge was used with all structures that are more complex.

I reported two participants (P3) and (P4), as exceptions. Their results are reproduced in Table 7-2 below:

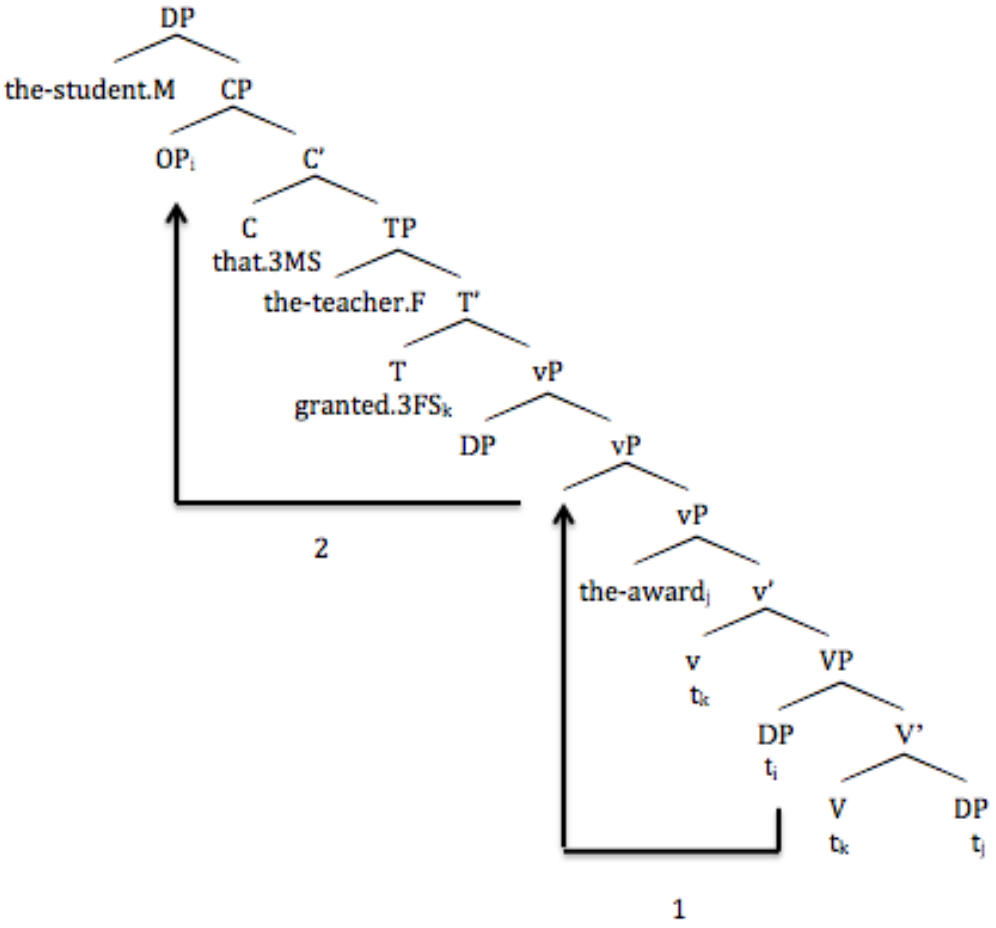
Table 7-2: L2 Participants Inconsistent with the Hierarchy Pattern

Participants	**Pattern**			
	SU	DO	IO	OBL
P3	-	+ (80%)	+/-	+
P4	-	+ (100%)	+/-	+

As Table 7-2 indicates, P3 and P4 results are not consistent with the predictions described in (2). The participants' IL grammar indicate that some

relative clauses were still derived by movement (50%) of the time even when a structure that requires lesser steps of movement was derived as a result of Merge. One explanation for the pattern could be that the syntactic derivation of IO relatives could be different than the one I provided in chapter 4. An alternative analysis, like the one in (3) below, involves 2 derivational steps rather than 3. And thus equates the cost of IO relatives with DO relatives.

(3)



It is possible that these L2 participants treat DO and IO equally, and thus their IL pattern is consistent with Hypothesis 1 such that when they allowed for Merge within IO/DO they did the same with OBL but not on higher positions (e.g., SU)

In the next section I discuss the results of the L2 participants on the production tasks.

7.1.2.1. The production tasks results

What the results showed most clearly is that Hypothesis 1 is supported in the area of relative clauses. The individual IL grammars for L2 participants were either target-like, where either no instances of gap/resumption alternation were produced or, if the IL pattern did not match the target language pattern, it was still not native-like. Only one participant seemed to behave in a native-like manner, (P11) producing relative clauses with gaps only in all types of relative clauses. Table 6-5 and 6-22 show that the neither the native-like nor the target-like reported pattern is consistent with the predictions of Hypothesis 1. The L2 participants when resorting to resumption chose to produce relatives via operation Merge in a less complex relative clause type then warranted deriving all more complex relative clause types, which, by hypothesis, involve more steps and is hence more costly my resorting to resumption. Very few exceptions were reported. This result is consistent with literature on resumptive pronoun acquisition in L2 that reported that IL grammars are consistent with the prediction made by the RPAH such that resumption if used on higher positions on the AH was also used in all lower positions based on

markedness implicational relations(Hyltenstam, 1984; Maghrabi, 1997; Pavesi, 1986 among others).

In general, the results of both the control and the L2 participants with regard to the derivation of relative clauses through movement or no movement supported Hypothesis 1. The economy principle is operative in the process of L2 acquisition. There was a general tendency whereby when resumption was used in the less complex relative clause types, it was also used in all more complex ones (complexity here is defined in term of the number of the steps involved in OP movement). IL grammars have not reflected the L1 value of using gap all the time, witin all relative clause types, suggesting that L1 features values cannot account for IL grammar. Instead, in many aspects the results were consistent with the prediction made by Hypothesis 1 that individual IL grammars are in accord with *Minimality* in that their representations of the different types of relative clauses follow the *Shortest Derivation Requirement* as related to the cost imposed by the number of steps involved in the derivation. In other words, in accord with the *Shortest Derivation Requirement* the more costly movement becomes involving more steps the more likely learners would resort to *Minimality* preferring to merge the OP rather than moving it.

Another important result of the study is that none of the participants produced overt resumptive pronouns within SU relatives. This result is unsurprising, since SU are not derived through movement either, and there is a null resumptive pronoun in the subject position within the relative clause. Our interpretation here is that the situation is related in many ways to null subject 'pro-

drop' phenomenon. Based on Galal (2004) the null subjects account in matrix clauses can be extended to the non-overtness of subject relatives such that in Arabic AGRP is activated by the mere presence of a strong morpheme on the verb. Since the IL productions showed inflections on their verbs, they seem to have realized that overt resumption is not necessary in virtue of economy. The AgrP is activated by the mere presence of inflectional agreement. Spelling-out the resumptive pronoun will produce additional cost, and thus it is avoided in the SU relative clause case. The acquisition of *pro-drop* as less costly operation is also attested for Koren-English IL in Kim (2000).

In the following section, I discuss the results of complementizers' use obtained from the Sentence Combination Task (SCT).

7.2. Testing Hypothesis 2

The results obtained from the Sentence Combination Task (SCT) allowed the testing of Hypothesis 2: *Individual interlanguage grammars would show a systematic pattern in the use of relative complementizers within MSA definite and indefinite relative clauses*. I based this claim on the structural difference between English, which allows for null complementizers in all non-SU positions within both definite and indefinite relatives and MSA, which obligatorily uses overt complementizers with all types of relative clauses within definite relatives and does not allow the use of overt complementizers within indefinite relatives of any relative clause type.

The assumption has been made such that L2 learners of MSA will not recognize the obligatoriness of the presence/absence of the relative complementizer as determined by definiteness in MSA relative clauses. The prediction, in accord with Shaheen (2013), is that L2 learners will use overt complementizers with both definite and indefinite heads; however, as learners develop more proficient parsing strategies in the L2 (more advanced learners), their performance will reflect their 'favor economy of spell-out' (a UG Economy Principle which requires spelling out as little as possible at PF).

According to the results reported in the previous chapter, the five L1 controls recognize that relative complementizers' use is related to the definiteness status of the head DP in MSA, performing in a target-like manner. The L2 participants' results, on the other hand, indicate that they do not seem to have yet realized how relative complementizers are used in MSA relatives. Only 5 out of 15 participants behaved in a way similar to the L1 controls and have not used relative complementizers within indefinite relative clauses. Eleven out of 15 participants used relative complementizers in all types of relative clauses. In general, three patterns regarding complementizer use within definite and indefinite relative clauses were reported (we reproduce the result in Table 7-3 below for convenience):

Table 7-3: Patterns of Complementizer Use with Definite and Indefinite Relative Clauses on the SCT

Pattern of Complementizer Use	Participants
Relative complementizers used with both definite and indefinite relative clauses	P4, P5, P6, P7, P8, P10, P11, P12, and P14
Relative complementizers used with definite but not indefinite relative clauses (Target-like)	P1 and P13
No use of relative complementizers with both definite and indefinite relative clauses (Native-like)	P15
Other	P9, P3 and P2

The results in general confirm Hypothesis 2: *Individual interlanguage grammars would show a systematic pattern in the use of relative complementizers within MSA definite and indefinite relative clauses.* Nine out of 15 participants preferred using the overt form with both types of relative clauses. However, counter to Shaheen's (2013) claim regarding the "favor economy of spell-out', the participants whose IL patterns were target like had Intermediate Mid and Intermediate High proficiency levels, which matches the proficiency level of most of the participants who have still shown errors in the use of complementizers with the correct relative clause type. Thus, the result is not consistent with Shaheen's (2013) prediction and not even with a hypothesis of "least effort" reported by Galal (2004), which considers the use of null complementizers more economic than spelling out the overt form. Although economy plays a role in IL grammatical constructions as supported by the discussion in the first section, only economy principles relevant to syntactic derivation appear to be operative in L2 processing. Economy considerations regarding the number of elements on CP layer for instance fail to

account for IL grammars. The testing of Hypothesis 3 should provide further evidence to the point here and to the relation between IL performance and economy principles of derivation.

In the next section I discuss the results of agreement morphology on the relative complementizers and resumptive pronouns I reported for both production tasks (i.e., SCT and PDT). The results will be discussed in relevance to claims related to feature interpretability of some recent literature (e.g., Tsimpli and Dimitrakopoulou, 2007) and within Minimalism (Chomsky, 1995; 2005).

7.3 Testing Hypothesis 3

The third hypothesis of this study makes predictions about the process of acquisition of L2 agreement markers within relative clauses. MSA relatives, as I pointed out in Chapter 2, manifest several morphosyntactic agreement aspects in the form of overt agreement suffixes on both relative complementizers and resumptive pronouns, which, by MSA grammatical rules, have to agree with the head DP in the matrix clause in order for the derivation to converge. Restated here again Hypothesis 3 makes the prediction that *Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on MSA relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases.*

In order to test the predictions of Hypothesis 3 in relevance to the claims made in the literature and in light of the Minimalist Program (Chomsky, 1995; 1999; 2005), the written production tasks provide IL data of agreement on both relative complementizers and resumptive pronouns. In what follows I analyze the results obtained from both tasks.

7.3.1. Discussion of relative complementizer agreement results

In MSA, a relative complementizer of *ʔallaðii*-type form varies in agreement with the preceding head noun in terms of gender, number and case (see Table 2-2 in Chapter 2), which are overtly spelled out on the complementizer's base form in form of suffixes endings. Its equivalent form in English *'that'* does not exhibit such overt agreement features.

Literature on the acquisition of relative clauses in L2 Arabic, although not focusing on investigating agreement on relative complementizers *per se*, reported some general findings with respect to L2 learners' difficulties with agreement assignments on relative complementizers in MSA (e.g., Kassabgy & Hassan, 2000 and Husein, 2012). Moreover, White *et al.*, (2004) on L2 Spanish and Alhawary (2005) on L2 MSA (both studies using L1 English and L1 French subjects) reported difficulties with gender assignments on adjectives by their L1 English participants, given that French exhibits such agreement features whereas English does not. More interestingly, both studies report an overuse of masculine adjectives even with feminine nouns.

Tsimpli and Dimitrakapoulou's (2007) *Interpretability Hypothesis* makes the claim that older L2 learners are unable to acquire uninterpretable syntactic features that have not been selected during L1 acquisition. The claim here, as in Hawkins & Chan (1997) *Failed Functional Feature Hypothesis*, is that while interpretable features remain available even if they are not selected during a critical period, uninterpretable features do not, as they cease to exist after the critical period. However, both White *et al.*, (2004) and Alhawary (2005) argued against the predictions of these hypotheses and provided evidence that advanced L2 learners are able to acquire uninterpretable agreement features that have not been selected during their L1 acquisition.

Recall that, the complementizer (C) head in MSA contains uninterpretable person, number, gender (i.e., φ-features). These features must be valued and deleted by establishing an agreement relation by matching interpretable features with, as assumed in Galal (2004), a null relative operator (OP) in [Spec, CP].

Therefore, with respect to the acquisition of agreement of relative C in MSA, Hypothesis 3 predicts that the L2 participants of this study will err on the agreement features of relative C. Both the SCT and the PDT constructs allow for testing this prediction.

The results of the study show that the L2 participants used overt relative complementizers, for the most part, on both production tasks. However, the results also indicate that L2 participants missed on the agreement features on the relative complementizers most of the time on both the SCT and PDT, confirming the prediction of Hypothesis 3, with respect to patterns on agreement features on

relative complementizers. When I compare the agreement results on both production tasks, four patterns appear as represented in Table 7-4 below:

Table 7-4: IL Patterns of C Agreement on the Production Tasks

IL Pattern	Tasks	
	SCT (13 participants)	PDT (14 participants)
Missing Agreement on all Types	P2, P4, P5, ***P7***, P8, P14, P11	P14
Missing Agreement on Higher Positions	P10, P13	P2, P5, P10, P11, P15
Missing Agreement on Lower Positions	P9	P1, P13, ***P16***
Target-like	P6	P6, P9, P12
Others	P1, P12	P5, P8

Note: No enough reported data on both tasks appeared for Participants entries appearing on ***bold italics***. Hence, their results will not be discussed further.

What is clear from Table 7-4 is that more participants produced matching agreement, to varying extents, on relative C on the PDT (12) than on the SCT (7). This could be considered as "task" effect on the L2 learners' performance. The pictures, on the PDT provided clearer cues of the gender and number of the head DP, which suggests that some of the L2 learners (e.g., P2, P4, P5, P8, P11) had the knowledge of these agreement features, for the most part, as is evident from their performance on the PDT; however, they erred more on the SCT probably because they have not identified the gender and number of the head DP from the beginning. Given the SCT construct, agreement markers, in MSA in general, appear as suffixes on the head noun and despite the fact that translations were provided on the task, these did not necessarily indicate agreement all the time (especially for the dual case). Only one participant (P4) missed on C agreement features on both production

tasks. A closer look at the forms of relative complementizers produced by P4 showed that this participant mostly uses the default singular complementizer forms: *ʔallaðii'* 'that.MS' and *'ʔallatii'* 'that.FS' on both tasks, which suggests that P4's IL pattern, similar to White *et al*.'s (2004) claim, manifests the use of a default form attributed to pressures on lexical retrieval process. Moreover, only one participant (P6) performed in target-like manner on both tasks where his IL pattern showed agreement on C all the time (the Tables in Appendix F, however, indicate that P6 did not supply correct agreement 100% of the time).

Another finding that the qualitative analysis has yielded, is that despite the fact that most of the participants erred with C agreement, they did not resort to using a default form. Very few cases were reported where participants only used one variant or two of *ʔallaðii*-type forms with different head DPs. This suggests that the problem is not with spelling out abstract uninterpretable features (also noted in White *et al*., 2004).

These results in general, thus, support the predictions of Hypothesis 3 regarding the C agreement status. L2 learners of MSA erred on relative complementizer agreement. One reason could tentatively be, in line with Tsimpli and Dimitrakopoulou's (2007) *Interpretability Hypothesis* and Hawkins and Chan's (1997) *Failed Functional Feature Hypothesis*, that the nature of the features on C in MSA being [- interpretable], which are different from those on C in English, most likely created a problem for L2 learners. Our results are not conclusive with respect to the predictions of these hypotheses; I will still need to gather more data on agreement morphology employing clearer cues for L2 learners.

The agreement results; however, do not show clear systematicity in which agreement difficulty within relative clauses is related to the complexity of the relative clause type as also predicted in Hypothesis 3. Although Tables 6-20 and 6-28 show an apparent tendency towards supplying correct agreement within relative clause types on the lower positions, individual IL grammatical patterns varied across tasks and only one participant (P10) showed consistent use of correct agreement features in lower positions on both tasks.

Before drawing any conclusions, I still need to consider the results on resumptive pronouns agreement and see whether the results bring data in support of Tsimpli's (2003) distinction between uninterpretable and interpretable features in L2 and whether this hypothesis can account for IL grammars.

7.3.2. Discussion of resumptive pronoun agreement results

One of the crucial differences between English and MSA relative clauses is the use of resumptive pronouns in MSA but not in English. Resumptive pronouns also carry agreement features. In Chapter 3, I pointed out that agreement features on resumptive pronouns are [+interpretable] and that gender and number are overtly spelled out on resumptive pronouns showing agreement with the head DP of the matrix clause.

Maghrabi (1997)'s study, on the acquisition of resumptive pronouns in L2 MSA by English L1 learners, reports interesting findings with respect to the acquisition of agreement on resumptive pronouns in general. Maghrabi (1997)

found that only the beginner-level participants erred on agreement features, whereas the advanced participants seemed to completely acquire agreement features on MSA resumptive pronouns. Although actual results were not reported. Maghrabi drew conclusions based on only 6 participants.

Hypothesis 3, therefore, makes similar predictions with respect to agreement features on resumptive pronoun. Our results in general showed that participants erred on agreement on resumptive pronouns on both production tasks. The IL patterns regarding agreement status are reproduced on Table 7-5below:

Table 7-5: IL Patterns of C Agreement on the Production Tasks

IL Pattern	**Tasks**	
	SCT (14 participants)	PDT (16 participants)
Missing Agreement on all Types	***P10***, P11	P3
Missing Agreement on Higher Positions	P9	***P7***, P11, P12
Missing Agreement on Lower Positions	P2, P3, P8	P8, P14, P15
Target-like	P1, P4, P5, ***P6***, P12, P15	P1, P5, P9, ***P10***, P13, ***P16***
Others	P13, P14	P2, P4, P6

Note: No enough reported data on both tasks appeared for Participants entries appearing on ***bold italics*** and thus those will not be considered for further discussion.

What is clear from Table 7-5 is that, unlike in the C data on Table 7-4, no task effects are apparent and the participants showed more mastering of agreement with resumptive pronouns (almost 10 participants on each task). Looking at the results of each task separately suggests that almost half of the learners showed agreement on resumptive pronouns correctly on each task. Only 2 (P1, P5) participants behaved consistently in both tasks where they supplied correct agreement most of

the time. Moreover, the qualitative analyses showed that a few participants tended to use default masculine singular forms of resumptive pronouns, however, only P2 supplied such a default form consistently through both tasks. The results, thus, in general support the predictions regarding agreement on resumptive pronouns and conform to Hypothesis 3.

As previously mentioned, no clear systematic IL pattern of acquisition of agreement on resumptive pronouns as related to the extraction position appeared in effect here. As is also shown in Tables 6-11 and 6-24, no systematicity appears in preference towards supplying correct agreement within higher or lower positions on the tables.

Our results of agreement on both the relative complementizer and resumptive pronoun are consistent with the literature on Arabic relativization in general whereby similar errors on agreement were reported (Kassabag and Hassan, 2000; Husein, 2012; Maghrabi, 1997)

We have also showed that although the L2 participants erred on matching agreement features of complementizers and resumptives, they have not resorted to using a default form. Very few cases were reported where participants only used one variant or two of *ʔallaðii*-type forms with different head DPs. This suggests that the problem is not with spelling out abstract interpretable or uninterpretable features (also noted in White *et al*., 2004). The problem is with using the correct agreement that matches the agreement on the head DP leading to grammaticality convergence.

Despite the fact that participants mostly erred on uninterpretable features which I, initially, attributed to the nature of the task constructs, such task effects appeared not to be effective on the performance of agreement on interpretable features on resumptive pronouns. This suggests that it is possible that the status of feature interpretability affects the process of language acquisition. I would further argue that the case here is rather related to the operation Agree in a syntactic derivation. As shown in Collins (2002), in an Agree relation (X, Y): X matches Y, and Y values X. IL knowledge can be explained in what is relevant to syntactic computations rather than mere economy principles of spell out. This argument is consistent with Chomsky's (1999) claim that syntax only cares about valuation, not interpretability. Unvalued features must be valued by agreement between a probe and a goal in order to assure convergence. I predict that this process is problematic to the language learners and should explain mismatching agreement errors in the current study.

7.4. Further Discussion

Our predictions based on *Minimality* seem to work in accounting for IL grammar patterns observed in the relative clause data of the current study. Minimalism, as I pointed out earlier in the study, has forced us to reconsider the relation between the language faculty and general cognitive systems, by assuming that parameters would need to be viewed as emergent properties falling out of the interaction of Chomsky (2005)'s three factors by which acquisition is accomplished: (1) a minimally specified UG (Genetic endowment); (2) Primary Linguistic Data

(PLD), i.e., input; and (3) non-language faculty-specific considerations, including principles of efficient computation and principles of data analysis employed in acquisition.

Such assumptions under new syntactic theories provide us with new tools in accounting for IL grammars. In the current study I deployed the cost of derivation to account for the IL grammars in relevance to Chomsky's third aforementioned factor. Our take off point was Platzack's (1996) study, which assumed that strong syntactic features are costly while weak features are not. Platzack's main claim is that performing overt operations costs more than performing covert operations or not performing operations at all. His assumption is that the grammar of human language is restricted by the economy principle (e.g., Procrastinate) as is evident from the child initially assuming the most economic form of syntax (e.g., Pro-drop). Platzack further claimed that the adult L2 learners genetically prefer less costly structures and their L2 initial stage should reflect that. Also noted in Kim (2000) and Kim (2003), the idea that learners initially assume a simple and economical grammar for the target language, which Kim's studies also supported by investigating *wh*-movement and pro-drop in English and Korean, showed that learners initially start with *wh*-in-situ and a *pro*-drop regardless of their native language or target language setting. Kim argued that given the general human preference for economy, from the perspective of the learning process, there is no reason for language learners to start with complex syntax before testing whether a simpler and economical syntax can satisfy communicative needs. If the initial grammar does not

match with the target grammar, then, the learner would keep testing the grammar with more complex syntax until it matches the target grammar.

By extending the work of Platzack (1996) and Kim (2000; 2003) and given general predictions attested in the Minimalism framework to language acquisition, I found that it is reasonable to assume that the process of language acquisition should be constrained by the economy principle; that is, learners will start testing the target grammar using the most economical syntax.

Our account based on Minimality also provides a structural basis for the typological generalization of the Accessibility Hierarchy of Keenan and Comrie (1977, 1979), in reference to resumptive pronoun retention/deletion. Like other structure-based theories such as Hawkins (1999; 2005), the alternative account for the acquisition of relative clauses based on Minimality provides such universal tendencies with structural substance. The accessibility hierarchy actually reflects the syntactic positions of the NPs. Those that are higher (e.g., SU, DO) in the hierarchy are also higher in the syntactic structure and therefore involve less derivational steps of OP to [Spec, CP] than those at lower syntactic positions.

Although this research was not set to deal with the kind of IL data provided in Hyltenstam, 1984; 1990, where the use of resumptive pronouns in Swedish as an L2 in his studies cannot be explained by either L1 nor L2 facts, this phenomena can be insightfully accounted for within a minimalist framework as an instance of the economy of derivation. Resumptive pronouns indicate that the L2 learners preferred less costly computational derivations, which involve no movement.

In reference to a Minimalist based account, cost to derivation was also noted to predict the direction of difficulty from one parameter setting to another. Bi-directional studies provide evidence as suggested in Kim (2003); the acquisition of less costly structures will be easier than the acquisition of more costly structure. In supporting such a claim Kim (2000) reported that the acquisition of wh-in-situ in Korean as an L2 was easier than the acquisition of L2 English wh-Spec-CP construction. Moreover, the acquisition of *pro-drop* in L2 Korean was easier than the acquisition of *non pro-drop* in L2 English.

One relevant study here is Maghrabi's (1997) MSA-English bi-directional study of the acquisition of relative clauses. Maghrabi (1997) pointed out that the Arabic learners of English groups in his study had a prolonged IL interim when compared with the English learners of Arabic groups. The Arabic learners of English/beginners did not progress in their IL interim towards the acquisition of L2 forms with greater precision (23%) because his subject still violate the structure of English relative clauses, whereas Arabic learners of English/Advanced progressed somewhat in their IL continuum (52%), yet still not with complete progressive precision because they still violate the structure of English relative clauses too. On the other hand, the results show that English learners of Arabic/Beginners and Advanced groups had progressed (86%) and (92%), respectively, in the acquisition of resumptive pronouns in Arabic relative clauses.

Maghrabi's (1997) findings can be examined in reference to the account I used in explaining resumption use by the L2 participants in the current study. Relevant to the predictions of resumptive pronouns are the result of OP merge in

[Spec, CP] rather than OP move, where gaps are used within relative clause structures. In the same vein acquiring a less costly structure happens more rapidly than a more costly structure involving *Move* given that the process of acquisition is constrained by the economy principle of *Merge-over-Move*.

It was also attested that given multiple embedded relative clauses, L2 learners would accept resumption in more deeply embedded structures. For instance, Erteschock-Shir (1992) argued that a resumptive pronoun becomes more acceptable as the interaction site becomes more deeply embedded. Similarly, Tsimpli (1999) argued that in Greek, a pronominal is acceptable when embedded at least one that-clause away from the matrix. Under the economy-based account of the number of steps involved in the derivation *Merge-over-Move* offers an explanation.

7.5. Chapter Summary

In this chapter I discussed the significance of the findings of the empirical study with respect to the predictions of the three hypotheses examined in this study. The results show that individual IL grammars conform to the study's predictions. Hypothesis 1 was supported in which the results indicate that when L2 participants resort to resumption they do so in favor of economy/Minimality. The results show that there is a great tendency towards using resumption in higher positions of the NPAH scale when resumption is also used in all lower positions. Thus, IL grammars are constrained by the economy principle. Given that relative clauses are derived through a non-movement operation where a null OP directly merges into the [Spec,

CP] when resumptive pronouns are used; and given the cost deployed by an operation *Move* involving more derivational steps to get OP to its [Spec, CP] the lower the position of the extraction site in a relative structure; then L2 learners showed a preference towards applying *Merge* when *Move* gets more costly involving more derivational steps. *Minimality* constrains IL grammar because resorting to *Merge* in less costly structures was conditioned by its use with more complex structures in the data.

Hypothesis 2 was also supported. The results showed that the overt complementizer was used most of the time even with indefinite relatives, which only allow covert complementizers. A pattern also attested in English as an L2 where even when null complementizers are allowed in all non-subject relativization structures, L2 learners use overt complementizers more often. This finding suggests that economy principles on spell out cannot account for language acquisition given its irrelevance to syntactic computations involved in the derivation of the structure.

Hypothesis 3 was also supported by the results. L2 participants erred on agreement features on both relative complementizers and resumptive pronouns. An interesting finding in support of the claim based on Hypothesis 2 testing was also confirmed for agreement results. Spelling out abstract interpretable and uninterpretable features on relative complementizers and resumptive pronouns was not problematic. What is problematic in such case is that Agree involves a matching and valuation process of features, which is considered costly.

My account for relative clause acquisition based on *Minimality* and related economy conditions seem to also account for many earlier studies' findings on

resumptive pronoun use. It works as well as other structural based accounts (Hawkins, 1999) to explaining facts related to external factors such as Keenan and Comrie's (1977) Noun Phrase Accessibility Hierarchy effect.

Chapter 8

Conclusion

This dissertation adopts as a theoretical framework the generative approach of the Minimalist Program (Chomsky, 1995; 1999; 2005) to the study of second language acquisition (SLA). More specifically, I employed different aspects of the Minimalist Program in the analysis of interlanguage data by focusing on the second language acquisition of relative clauses in Modern Standard Arabic.

According to Balcon (2001), working in SLA within the generative framework has always been a challenge, since researchers need to keep up with changes in syntactic theory as well as in the SLA literature. However, although syntactic theory has changed many times over the years, the underlying goal "explanatory adequacy" has been a constant thread running through generative grammar since its inception. Similarly, the fundamental goals in SLA have remained constant (Balcon, 2001).

By adopting the generative approach in the analysis of interlanguage data I speculated that a Minimalist approach to SLA could provide insights in accounting for individual IL grammars, based on the general claim that principles of computational efficiency on syntactic derivations, which are non-domain specific, are operative in the process of the acquisition of second languages.

8.1. General Summary of the Study

The empirical study in this dissertation investigated the acquisition of different aspects of relativization in MSA by 16 English-speaking L2 learners. Three tasks were employed to provide what White (2003) has described as 'converging evidence' about the nature of interlanguage grammars from different types of performance tasks: (a) a Grammaticality Judgments Task; (b) a Sentence Combination Task; and (c) a Picture Description Task. The aim is to test three hypotheses:

Hypothesis 1: Individual interlanguage grammars obey the economy conditions of *Merge-over-Move* and the *Shortest Derivation Requirement* in the distribution of resumptive pronouns within different types of MSA relative clauses.

Hypothesis 2: Individual interlanguage grammars would show a systematic pattern in the use of relative complementizer within MSA definite and indefinite relative clauses.

Hypothesis 3: Individual interlanguage grammars would show a systematic pattern in the distribution of agreement features on MSA relative complementizers and resumptive pronouns as the complexity of the relative clause structure increases.

Hypotheses 1 and 2 were confirmed in this study, whereas Hypothesis 3 was only partially confirmed. The general assumption of the study is that some Minimalist constructs of feature interpretability and economy of syntactic derivation can be implemented to specify the status of features, which are more difficult to acquire in the L2 acquisition process, given their cost and setting on the

first language. A Minimalist approach should, therefore, provide logical insights into the general question of how language is acquired.

English and MSA differ in many aspects with respect to relative clause formation. While English relative clauses are derived through movement of a *wh*-element or of a null relative operator (OP) leaving an empty copy (gap) in the extraction site, in MSA relative clauses are derived through a non-movement operation whereby a null OP is directly merged into its specifier position and a resumptive clitic is base-generated in the extraction site. Moreover, whereas in English null relative complementizers are legitimate in both definite and indefinite non-subject relative clauses, in MSA the use of null versus overt null complementizers is determined by the definiteness of head DP, such that only null complementizers are allowed with indefinite relative clauses and only overt complementizers are legitimate in definite relative clauses. A third important aspect of relativization in MSA is that both the relative complementizer and the resumptive pronoun should agree in person, number, gender and case with the head DP of the relative clause using overt agreement markers (suffixes).

We examined these different aspects of relativization with respect to the economy conditions of the Minimalist Program (1995). Our assumptions regarding the IL mental representation follow from the more general economy principle of *Minimality*, which states that given a choice between two comparable operations, the smallest is chosen.

Hypothesis 1 is relevant to humans' general preference towards economy and focuses on relative clauses mode of derivation (i.e., merge versus move) as

related to the nature of the element coreferential with the head NP (i.e., gap versus resumptive pronoun). I assumed that deriving relatives through Merging the OP in [Spec, CP] as indicated by supplying resumptive pronouns in the extraction site is more economical than resorting to the more expensive operation of OP Move (based on the economy principle Merge-over-Move of Chomsky, 1995; 1998). Moreover, given that I examined the acquisition of different types of relative clauses varying by the extraction site (Subject, Direct Object, Indirect Object and Oblique), I assumed, following the *Shortest Derivation Requirement* (of minimizing the number of operations necessary for convergence), that the more steps required for the derivation of a certain relative clause type through an operation Move, the more likely that learners would resort to merging OP rather than moving it.

For Hypothesis 2, with respect to the interesting fact that the appearance/absence of the relative complementizer in MSA is determined by the definiteness of the preceding head noun, the assumption in the literature is that the absence of the relative complementizer would indicate a tendency towards economy but is more likely acquirable in advanced stages.

Finally, for Hypothesis 3 concerning agreement features (typically referred to as φ-features) on both relative complementizers and resumptive pronouns, I pointed out that features have been divided according to their interpretability. Interpretable features (e.g., φ-features on resumptive pronouns) make a semantic contribution to interpretation. Uninterpretable features (φ-features) on relative complementizers do not make such a contribution and have to be checked and eliminated for the derivation of a sentence to converge (i.e., achieve

grammaticality). Interpretable features are checked, but they are not eliminated because they interface with the semantic-conceptual system of the mind.

8.2 Significance of the Findings

The focus in this section is on one of the major key findings of the study. In examining the L2 participants' IL grammars with respect to resumption-gap status within different relative clause types, no systematic pattern was reported for either an L1 transfer effect nor an L2 input effect. However, another systematic pattern characterized the individual IL grammars. A tendency appeared where individual learners supplied resumptive pronouns mostly within types of relative clauses in positions lower down the NPAH scale (i.e., OBL). More interestingly I found that when individual learners seemed to systematically, with few exceptions, supply resumptive pronouns within relative clause types on higher positions of the NPAH (i.e., DO), they also supplied resumption on lower positions. This IL pattern is also attested in the L2 literature across other different language pairings as well as in other natural languages (Keenan and Comrie, 1997).

Explanations of this IL phenomena varied in previous literature. Typological-based explanations based on implicational scales and typological markedness were proved effective only at the descriptive phase of research. Based on the assumption that learners might not have implicit knowledge of these typological facts, a processing account proposed in Hawkins, 1999; 2005) provide an explanation on why individual IL grammars adhere to such ordering in supplying resumptive pronouns. Hawkins suggested that humans operate with an economy strategy that

leads to reduced time for processing (gap) when there is little cost (as when the distance between the head noun and the gap is minimal) and an explicit strategy that leads to a resumptive pronouns in contexts of greater complexity.

Based on economy conditions of syntactic derivations with respect to the general human preference to economy, non-domain specific factors provides a strong account of this IL phenomenon. Cost to syntactic derivation makes strong predictions about second language acquisition. Economy conditions on syntactic derivations proved effective in explaining IL data of the acquisition of different aspects of relative clauses: the systematicity in the distribution of resumptive pronouns with respect to the relative clause type, the systematicity in deriving DO relatives with resumptive pronouns and SU relatives with null resumptive pronouns. *Merge-Over-Move* and *Minimality* also provides an account for the direction of difficulty.

The results of this study suggest that general principles of computational efficiency on syntactic derivations are operative in the process of second language acquisition.

8.3 Suggestions for Future Research

The acquisition of MSA relative clauses raises many interesting questions. One case that is worth further investigations is the Subject relative clause. The current study did not provide conclusive evidence to whether the interlanguage Subject relative clauses were derived through *Merge* of a null operator and a null resumptive pronoun or *Move* of a null operator. One way to test this is by including

test items which contain islands within relative clause. In fact, including test items that contain islands should strengthen the general claims of the current study even within Object relative clause structures.

The current study showed that the account based on the minimalist view could explain interlanguage grammatical patterns. We need to investigate whether the findings of this study can be generalized to account for other constructions, e.g., Questions. Moreover, it would be interesting to explore whether the general principle of computational efficiency constrain the interlanguage of the initial state grammar as well as advanced level grammars and whether economy conditions are operative in the different levels of acquisition.

REFERENCES

Adani, F. (2011). Rethinking the acquisition of relative clauses in Italian: towards a grammaticality based account. *J, Child Language, 38,* 141-165.

Adger, D. (2003). Core Syntax: A Minimalist Approach. Oxford, UK: Oxford University Press.

Adjémian, C. (1976). On the nature of interlanguage systems. *Language Learning, 26,* 297-320.

Al-Banyan, A. A. M. (1996). The accessibility of universal grammar in language acquisition: A cross-linguistic perspective. (Doctoral Dissertation). Michigan State University.

Al-Momani, I. (2010). Direct object relative clauses in Jordanian Arabic: A minimalist approach. *International Journal of Academic Research*, *2*, 226-237.

Alhawary, M. T. (2003). Processability theory: Counter-evidence from Arabic second language acquisition data. *Al-'arabiyya, 36*, 107-166.

Alhawary, M. T. (2005). L2 acquisition of Arabic morphosyntactic features: Temporary or permanent impairment? In M. T. Alhawary & E. benmamoun (eds.), *Perspectives on Arabic Linguistics,* 17-18, 273-312. Amsterdam: John Benjamins.

Alhawary, M. T. (2009). Arabic Second Language Acquisition of Morphosyntax. Yale University Press.

Alsayed, A. (1998). A government-binding approach to restrictive relatives, with particular reference to restrictive relatives in Standard Arabic. (Doctoral Dissertation). University of Essex.

Aoun, J. (1999). Clitic-doubled Arguments. In Kyle Johnson and Ian Roberts, (eds.), *Beyond Principles and Parameters: Essays in memory of Osvaldo Jaeggli,* Dordrecht: Kluwer, 13-42.

Aoun, J. & Choueiri, L. (1996). Resumption and last resort. Unpublished manuscript. University of Southern California.

Aoun, J. & Choueiri, L. (1997). Resumption and Last Resort. Ms., University of Southern California, Los Angeles.

Aoun, J. E., Benmamoun, E., & Choueiri, L. (2010). The Syntax of Arabic. Cambridge Syntax Guides: Cambridge University Press, Cambridge.

Aoun, J., & Li, Y. A. (2003). Essays on the Representational and Derivational Nature of Grammar: The Diversity of Wh-constructions. Cambridge, Mass.: MIT press.

Aoun, J., Choueiri, L., & Hornstein, N. (2001). Resumption, movement, and derivational economy. *Linguistic Inquiry, 32*(3), 371-403.

Balcom, P., A. (2001). Review article: Minimalism and beyond: Second language acquisition for the twenty-first century. *Second Language Research, 17*(3), 306-322.

Bley-Vroman, R. (1989). What is the logical problem of foreign language learning? In S. Gass & J. Schachter (eds.), *Linguistic perspectives on second language acquisition*, 41-68. Cambridge, UK: Cambridge University Press.

Bolotin, N. A. (1995). The effect of age on parameter resetting: Arabic-speaking children and adults' acquisition of English relative clause structure as assessed through interlanguages data and a universal constraint. (Doctoral Dissertation). Harvard University.

Bolotin, N. (1996). Arabic speakers' resetting of parameters. *Perspectives on Arabic Linguistics VIII*; papers from the eighth annual Symposium on Arabic Linguistics, 135-157.

Borsley, R. (1997). Relative clauses and the theory of phrase structure. Linguistic Inquiry, 28, 629-647.

Botwinik-Rotem, I. **(**2008). Accounting for the comprehension of Hebrew object relatives. In: Gavarró Algueró, A. & João Freitas, M. (eds.), *Language Acquisition and Development*. Cambridge Scholars Press: CSP.

Bshara, R. (2012). A study of the acquisition of relative clauses in Palestinian Arabic Vernacular. (Doctoral dissertation). Bar Ilan University.

Bshara, R., Botwinik, I., & Armon-Lotem, S. (2013). (Unique) errors in the acquisition of relative clauses in Palestinian Arabic and their (movement) account. Appeared in The Proceedings of IATL (The Israeli Association of Theoretical Linguistics).

Castillo, J., C., Drury J., E., & Grohmann, K., K. (2009). Merge over move and the extended projection principle: MOM and the EPP revisited. *IBERIA: An International Journal of Theoretical Linguistics*.

Chomksy, N. (1965). Aspect of the Theory of Syntax. Cambridge, MA: MIT Press.

Chomsky, N. (1981). Lectures on Government and Binding. Dorcrecht: Foris.

Chomsky, N. (1977). On wh-movement. In Cullicover, P. *et al*. (eds.), *Formal Syntax*, 71-132. New York: Academic Press.

Chomsky, N. (1982). Some Concepts and Consequences of the Theory of Government and Binding. MIT Press, Cambridge Mass.

Chomsky, N (1986). *Barriers*. MIT Press, Cambridge Mass.

Chomsky, N. (1993). A minimalist program for linguistic theory. In: Hale, K. & Keyser, S. (eds.), *The View from Building 20*, 1-52. Cambridge, MA: MIT Press.

Chomsky, N. (1995). The Minimalist Program. MIT Press, Cambridge Mass.

Chomsky, N. (1998). Minimalist inquiries: The framework. *MIT Occasional Papers in Linguistics* 15. Cambridge, MA: MITWPL. [Reprinted as Chomsky (2000).]

Chomsky, N. (1999). Derivation by phase. *MIT Occasional Papers in Linguisics, 18*, MITWPL, Cambridge, MA.

Chomsky, N. (2000). Minimalist Inquiries: The framework. In Martin M, Michaels D. and Uriagereka J. (eds.), *Step by Step: Essays on Minimalism in Honor of Howard Lasnik*, 89-155. MIT Press, Cambridge Mass.

Chomsky, N. (2001). Derivation by Phase. In Kenstowicz, M (ed.) Ken Hale: A Life in Language. Cambridge, Mass: MIT.

Chomsky, N. (2005). Three factors in language design. *Linguistic Inquiry, 36,* 1-22.

Choueiri, L. (2002). Re-visiting relatives: issues in the syntax of resumptive restrictive relatives. (Doctoral Dissertation). University of Southern California, Los Angeles, CA.

Clashsen, H. and Muysken, P. (1986). The availability of Universal Grammar to adult and child learners: a study of the acquisition of German word order. *Second Language Research, 5*, 1–29.

Clahsen, H., & Muysken, P. (1989). The UG paradox in L2 acquisition. *Second Language Research, 5,* 1-29.

Collins, C. (2001). Chapter 2. Economy Conditions in Syntax. *The Handbook of Contemporary Syntactic Theory.* Blackwell Publishers Ltd.

Comrie, B. (2002). Typology and language acquisition: The case of relative clauses In A. Giacalone Ramat (ed.), *Typology and Second Language Acquisition*, 19-37. Berlin: Mouton de Gruyter.

Comrie, B. (2007). COMMENTARY: The acquisition of relative clauses in relation to language typology. *SSLA, 29*, 301-309.

Corder, S. P. (1967). The significance of learner's errors. *International Review of Applied Linguistics, 9*(2), 147-159.

de Villier, P. A. (1988). Assessing English syntax in hearing-impaired children: Elicited production in pragmatically motivated situations. In: Kretchmer, R. R. & Kretchmer, L. W. (eds.), *Communication assessment of hearing-impaired children: From conversation to classroom*, Monograph supplement of *The Journal of the Academy of Rehabilitative Audiology*, *21*, 41-71.

de Villiers, J. G., Helen, B., Tager-Flusberg, Kenji, H. & Michael, C. (1979). Children's comprehension of relative clauses. *Journal of Psychological Research*, *8,* 518-499.

Diessel, H. & Tomasello, M. (2005). A new look at the acquisition of relative clauses. *Language*, *81*, 1-25.

Doughty, C. (1988). The effect of instruction on the acquisition of relativization in English as a second language. (Doctoral Dissertation). University of Pennsylvania.

Doughty, C. (1991). Second language instruction does make a difference: Evidence from an empirical study of SL relativization. *Studies in Second Language Acquisition, 13,* 431-469.

Eckman, F. (1977). Markedness and the contrastive analysis hypothesis. *Language Learning, 27,* 315-330

Eckman, F., Bell, L. & Nelson, D. (1988). On the generalization of relative clause instruction in the acquisition of English as a second language. *Applied Linguistics*, *9*(1), 1-20.

Eckman, F. (2004). Author's Response: 'External' universals and explanations in SLA. In Penke, Martina and Anette Rosenbach (eds.), What Counts as Evidence in Linguistics?: The case of innateness. *Special issue of Studies in Language 28*(3), 707-709.

Eckman, F. (2007). COMMENTARY. Hypotheses and methods in second language acquisition: Testing the noun phrase accessibility hierarchy on relative clauses. *SSLA, 29*, 321-327

Ellis, R. (1994). The study of Second Language Acquisition. Oxford, UK: Oxford University Press.

Ellis, R. (2008). The Study of Second Language Acquisition (2nd ed.). Oxfors, New York: Oxford University Press

Epstein, S., Flynn, S., & Martohardjono, G. (1996). Second language acquisition: Theoretical and experimental issues in contemporary research. *Behavioral and Brain Sciences, 19,* 677–758.

Erteschik-Shir, N. (1992). Resumptive pronoun islands. In H. Goodluck and M. Rochemont (Eds.) *Island Constraints*, 89-108. The Netherlands. Kluwer Academic Publishers.

Ferreiro, E., Othenin-Girard C., Chipman H., & Sinclair, H. (1976). How do children handle relative clauses? A study in comparative developmental psycholinguistics. *Archives de Psychologie 45,* 229–266.

Larsen-Freeman, D., & Long, M. H. (1991). An introduction to second language acquisition Research. London: Longman.

Friedmann, N., Belletti, A. & Rizzi, L. (2009). Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua*, *119,* 67-88.

Friedmann, N., Novogrodsky, R., Szterman, R., & Preminger, O. (2008). Resumptive pronouns as a last resort when movement is impaired: Relative clauses in hearing impairment. In S. Armon-Lotem, G. Danon, & S. Rothstein (Eds.), *Current Issues in Generative Hebrew Linguistics*, vii, 393, 267-290. Amsterdam: John Benjamins. http://opreming.mysite.syr.edu/files/Friedmann-et-al---Resumptives.pdf

Galal, M., M. (2004). A minimalist approach o relative clauses in Modern Standard Arabic. (Doctoral Dissertation), University of Kansas.

Gass, S. (1979). Language transfer and universal grammatical relations. *Language Learning, 29*(2), 327-344.

Gass, S. (1982). From theory to practice. In M. Hines and W. Rutherford (eds.), *On TESOL '81,* 123-139. Washington, D.C.: TESOL.

Gass, S. (1983). Second language acquisition and language universals. in R. DoPietro, W. Frawley, & A. Wedel (eds.), *Selected papers: The first Delaware symposium on language studies*, 249-260. Newark: University of Delaware.

Gass, S. M., & Mackey, A. (2007). Data Elicitation for Second and Foreign Language Research. Lawrence Erlbaum Associates.

Gass, S., & Ard, J. (1984). Second language acquisition and language universals. In W. Rutherfors (ed.), *Language Universals and Second Language Acquisition*. Amsterdam: John Benjamins.

Gass, S., M., & Selinker, L. (2008). Second Language Acquisition: An Introductory Course. Routledge, New York, NY.

Gibson, E. **(**1998). Linguistic Complexity: locality and syntactic dependencies. *Cognition*, *68*(1), 1-76.

Greenberg, J. H. (1966). Language Universals. The Hague: Mouton.

Grondin, N & White, L. (1996). Functional categories in child L2 acquisition of French. *McGill working paper in Linguistics 9,* 121-145.

Hamadallah, R. & Tushyeh, H. (1998). A contrastive analysis of English and Arabic in relativization. *Papers and Studies in Contrastive Linguistics. 34,* 141-151. Paznon.

Hamilton, R. (1994). Is implicational generalization unidirectional and maximal? Evidence from relativization instruction in a second language. *Language Learning, 44*(1), 123-157.

Hawkins, J. A. (1987). Implicational universals as predictors of language acquisition. *Linguistics*, 25, 453-73.

Hawkins, J. (1994). A Performance Theory of Order and Constituency. Cambridge: Cambridge University Press.

Hawkins, J., A. (1999). Processing complexity and filler-gap dependencies across grammar. *Language, 75*(2), 244-285.

Hawkins, J. (2005). Efficiency and Complexity in Grammars. Oxford: Oxford University Press.

Hawkins, R. (2001). Second language Syntax: A Generative Introduction. Oxford: Blackwell.

Hawkins, R. (2007). The Noun Phrase Accessibility Hierarchy: Lame Duck or Dead Duck in Theories of SLA? *Studies in Second Language Acquisition*: 29(2), 345-349.

Hawkins, R., & Chan, C. Y. (1997). The partial availability of Universal Grammar in second language acquisition: The failed functional features hypothesis. *Second Language Research*, *13*(3), 187-226.

Hawkins, R., & Hattori, H. (2006). Interpretation of English multiple wh-questions by Japanese speakers: A missing uninterpretable feature account. *Second Language Research, 22*(3), 269-301.

Herschensohn, J. (2000). The Second Time Around: Minimalism and Second Language Acquisition. Amsterdam: John Benjamins.

Hornstein, N., Nunes, J & Grohmann K. K. (2005). Understanding Minimalism. Cambridge University Press.

Hu, X., & Liu, C. (2007). Restrictive relative clauses in English and Korean learners' second language Chinese. *Second Language Research, 23*(3), 263-287.

Huddleston, R., & Pullum, G. K. (2002). The Cambridge Grammar of English Language: Cambridge University Press: Cambridge.

Husein, Alhassan, A. (2012). The acquisition of morphosyntactic agreement in the Interlanguage system of AFL learners in Ghana. (Master Thesis). The American University in Cairo.

Hyltenstam, K. (1984). The use of typological markedness conditions as predictors in second language acquisition: The case of pronominal copies in relative clauses. In R. Andersen (ed.) *Second Languages: A Cross-linguistic Perspective,* 39-58.

Hyltenstam, K. (1990). Typological markedness as a research tool in the study of second language acquisition. In Dechert (ed.) *Current Trends in European Second Language Acquisition Research*, 23-36.

Ioup, G. & Kruse, A. (1977). Interference versus structural complexity in second language acquisition: Language universals as a basis for natural sequencing. In H. Brown, C. Yorio, and R. Crymes (eds.). *On TESOL '77-Teaching and learning English as second language: Trends in research and practice*, 159-171. Washington, DC: TESOL.

Izumi, S. (2003). Processing difficulty in comprehension and production of relative clauses by learners of English as a second language. *Language Learning, 53*(2), 285-323.

Jackendoff, R. (1977). X Syntax: A Study of Phrase Structure. Cambridge, MIT Press: Mass.

Juffs, A., & Harrington, M. (1996). Garden path sentences and error data in second language sentence processing research. *Language Learning, 46*, 286-324.

Juffs, A. (1998a). Main verb vs. reduced relative clause ambiguity resolution in second language sentence processing. *Language Learning, 48,* 107-147.

Juffs, A. (1998b). Some effects of first language argument structure and syntax on second language processing. *Second Language Research, 14*, 406-424.

Juffs, A. (2004). Representation, processing and working memory in a second language. *Transactions of the Philological Society, 102,* 199-225.

Kassabgy, N. & Hassan, M., K. (2000). Relativization in English and Arabic: A bidirectional study. Diversity in Language: Contrastive Studies in English and Arabic Theoretical and Applied Linguistics. In Z. Ibrahim, N. Kassabgy, and S. Aydelott (eds.). The American University in Cairo Press.

Kayne, R. S. (1994). *The antisymmetry of Syntax.* Cambridge, MIT Press: Mass.

Keenan, E. L., and Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry, 8*(1), 63-99.

Keenan, E. L., and Hawkins, S. (1987). The psychological validity of the accessibility hierarchy. In E. L. Keenan, *Universal grammar: 15 essays.* London: Croom Helm.

Keenan, E., & Comrie, B. (1979). Noun phrase accessibility revisited. *Language, 55* (3), 649-664.

Kidd, E. & Bavin, E. L. (2002). English-speaking children's comprehension of relative clauses: Evidence for general-cognitive and language-specific constraints on development. Unpublished manuscript, La Trobe University, Bundoora, Australia.

Kim, Jung-Tae. (2000). The initial state of second language syntax: An investigation of L2 wh-movement and null-subjects from the minimalist perspective. (Doctoral Dissertation), The University of Texas at Austin.

Kim, Jung-Tae. (2003). L2 initial syntax: Wh-movement and the most economical syntactic derivation. In Barbara Beachley et al., *BUCLD Proceedings, 27*(1), 414-424.

Kong, S. (2011). The non-droppability of uninterpretable features in second language acquisition: On the interpretation of resumptive pronouns in L2 Chinese. *Taiwan Journal of Linguistics, 9*(2), 159-194.

Labelle, M. (1990). Predication, Wh-movement, and the development of relative clauses. *Language Acquisition*, *1*, 95-119.

Lado, R. (1957). Linguistics across Cultures. Ann Arbor: University of Michigan Press.

Larson. Richard. (1988). On the double object construction. *Linguistic Inquiry, 19*, 335-391.

Lee, I. (2006). Development of morphosyntactic features of the complementizer phrase in L2 relative clauses of Korean learners. (Doctoral Dissertation). Michigan State University.

Liceras, J.M. (2010). Second language acquisition and syntactic theory in the 21st century. *Annual Review of Applied Linguistics, 30*, 284-269.

MacWhinney, B. (1977). Starting points. *Language, 53(1):* 152-168. Malden, Mass: Blackwell.

MacWhinney, B., & Pleh, C. (1988). The Processing of Restrictive Relative Clauses in Hungarian. *Cognition, 29*, 95-141.

Maghrabi, A., A. (1997). The roles of psycholinguistic constraints and typological influence in the acquisition of pronominal copies in relativization by Arabic and English learners. (Doctoral Dissertation). Georgetown University, Washington, D.C.

Mansouri, F. (2000). Grammaticality Markedness and Information Processing of Arabic L2. Muenchen, Germany: Lincom Europa.

Mansouri, F. (2005). Agreement morphology in Arabic as a second language: Typological features and their processing implications. In M. Pienemann (ed.). *Cross-linguistic aspects of Processability Theory*, 117-153. Amsterdam: John Benjamins.

Marantz, A. (1995). The minimalist program. In Webelhuth, G (ed.). *Government and binding theory and the minimalist program*. Cambridge, Mass: Blackwell.

McKee, C., McDaniel D., & Snedeker, J. (1998). Relatives children say. *Journal of Psycholinguistic Research, 27,* 573–596.

Nemser. W. (1971). Approximative systems of foreign language learners. *International Review of Applied Linguistics, 9*, 115-123.

Nielson, H. L. (1997). On acquisition order of agreement procedures in Arabic learner language. *Al-'Arabiyya, 30*, 49-94.

Nunes, J. (2004). Linearization of Chains and Sideward Movement. Cambridge, MA: MIT Press.

O'Grady, W., Lee, M., & Choo, M. (2003). A subject–object asymmetry in the acquisition of relative clauses in Korean as a second language. *Studies in Second Language Acquisition, 25*, 433-448. 486.

Ouhalla, J. (2004). Semitic relatives. *Linguistic Inquiry,* 35(2): 288-300.

Owens, J. (1988). The Foundation of grammar: An Introduction to Medieval Arabic Grammatical Theory. Amsterdam: John Benjamins Publishing Company.

Pavesi, M. (1986). Markedness, discoursal modes, and relative clause formation in a formal and an informal context. *Studies in Second Language Acquisition, 8*, 38-55.

Pérez-Leroux, A. T. (1995). Resumptives in the acquisition of relative clauses. *Language Acquisition, 4*(1-2): 105-138.

Pesetsky, D. (1997). Optimality theory and syntax: movement and pronunciation. Diana A., and D. Terence Langendoen (eds.). *Optimality Theory: An Overview*. Oxford: Blackwell.

Pesetsky, D, & Torrego E. (2007). The syntax of valuation and the interpretability of features", in S. Karimi, V. Samiian & W. Wilkins (ed.) *Phasal and Clausal Architecture: Syntactic Derivation and Interpretation*, John Bejamins, Amsterdam, 62-294.

Pienemann, M. (1998). Language processing and second language development: Processability Theory. Amsterdam: John Benjamins.

Platzack, C. (1996). The Initial Hypothesis of Syntax: A minimal perspective on language acquisition and attrition. In Clahsen H. (ed.), *Generative Perspectives on Language Acquisition: Empirical findings, theoretical considerations and crosslinguistic comparisons,* 369-414. John Benjamins, Amsterdam.

Radford, A. (2004). Minimalist syntax: Exploring the structure of English. Cambridge, UK: Cambridge University Press.

Rizzi, L. (1990). Relativized Minimality. MIT Press, Cambridge MA.

Rizzi, L. (2000). Comparative Syntax and Language Acquisition. Routledge, London.

Ryding, K., C. (2005). A Reference Grammar of Modern Standard Arabic. Cambridge UP.

Sauerland, U. (1998). Two structures for English restrictive relative clauses: The meaning of chains. (Doctoral Dissertation). MIT.

Sauerland, U. (2000). Two structures for English restrictive relative clauses. In M. Saito *et al*. (eds.). *Proceedings of the Nazan GLOW,* 351-366. Nazan Universoty, Nagoya, Japan.

Schachter, J., & Yip, V. (1990). Grammaticality Judgments: Why does anyone object to subject extraction? *Studies in Second Language Acquisition, 12*(4): 379-392.

Schachter, P. (1973). Focus and Relativization. *Language*: 49(1), 19-46.

Schachter, P. (1974). An error in error analysis. *Language Learning, 24,* 205-214.

Schwartz, B. D., & Sprouse, R. (1994). Word order and nominative case in nonnative language acquisition: A longitudinal study of (L1 Turkish) German interlanguage. In Hoekstra T. and Schwartz B. D. (eds.), *Language Acquisition Studies in Generative Grammar*, 317-368. John Benjamins, Amsterdam.

Schwartz, B. D., & Sprouse, R. A. (1996). L2 Cognitive States and the Full Transfer/Full Access Model. *Second Language Research, 12*(1): 40-72.

Selinker, L. (1969). Language transfer. *General Linguistics, 9,* 67-92.

Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics,10,* 209-231.

Sells, P. (1984). Syntax and semantics of resumptive pronouns. (Doctoral Dissertation), University of Massachusetts, Amherst.

Shaheen, B. (2013). A comparative study of restrictive relative clauses in Latakian Syrian Arabic and English and the acquisition of English restrictive relative clauses by first language speakers of Latakian Syrian Arabic. (Doctoral Dissertation), University of Essex.

Sheldon, A. (1974). The role of parallel function in the acquisition of relative clauses in English. *Journal of Verbal Learning and Verbal Behavior*, 13, 272-281.

Shlonsky, U. (1992). Resumptive pronouns as a last resort. *Linguistic Inquiry, 23(3),* 443-468.

Smith, N. V., & Tsimpli, I. M. (1995). The Mind of a Savant. Blackwell, Oxford.

Speas, M. (1995). Economy, agreement and representation of null arguments. Ms., University of Massachusetts, Amherst.

Suaieh, S. (1980). Aspects of Arabic relative clauses: A study of the structure of relative clauses in Modern Written Arabic. (Doctoral Dissertation). University of Indiana.

Suñer, M. (1998). Resumptive restrictive relative clauses: A crosslinguistic perspective. *Language, 74,* 335-364.

Tarallo, F & Myhill, J. (1983). Interference and natural language processing in second language acquisition. *Language learning, 33*(1), 55-76.

Tsimpli, I.M. (1997). Resumptive strategies and L2A: A minimalist account. In E. Hughes, M. Hughes & A. Greenhill (Eds.), *Proceedings of the 21st annual Boston University Conference on Language Development*, *BUCLD 21*(2), 639-655.

Tsimpli, I.M. (2003). Interrogatives in the Greek/English interlanguage: A minimalist account. In E. Mela-Athanasopoulou (Ed.) *Selected Paper on Theoretical and Applied Linguistics*, 214-225, Thessaloniki: Aristotle University.

Tsimpli, I. M. & Roussou, A. (1991). Parameter setting in L2? *University College London Working Papers in Linguistics 3*, 149–69.

Tsimpli, I.M., and Dimitrakopoulou, M. (2007). The interpretability hypothesis: Evidence from *wh*-interroagtives in second language acquisition. *Second Language Research, 23*(2), 215-242.

Tsimpli, I-M., & Mastropavlou, M. (2008). Feature interpretability in L2 acquisition and SLI: Greek clitics and determiners. In J. M. Liceras, H. Zobl, & H. Goodluck (Eds.), The role of formal features in second language acquisition (pp. 142–183). New York: Erlbaum.

Varlokosta S. & Armon-Lotem, S. (1998). Resumptives and wh-movement in the acquisition of relative clauses in Modern Greek and Hebrew. *DUCLD*, *22*, 737-746. Somerville, MA: Cascadilla Press.

Vergnaud, J. R. (1974). French Relative Clauses. (Doctoral Dissertation). MIT, Cambridge, Mass.

Volpato, F. (2009). The acquisition of relative clauses and phi-features: Evidence from hearing and hearing-impaired populations. (Doctoral Dissertation). Universita Ca' Foscari Venezia.

White, L. (1998). Universal Grammar in second language acquisition: The nature of interlanguage representation. Colloquium paper from the Second Language Research Forum. http://nflrc.hawaii.edu/networks/nw09/white.pdf

White, L. (2003). Second Language Acquisition and Universal Grammar. Cambridge University Press. Cambridge.

White, L. (2004). 'Internal' versus 'external' universals: Commentary on Eckman. *Studies in Language, 28*(3), 704-706

White, L. (2007). Linguistic Theory, Universal Grammar, and Second Language Acquisition. In VanPatten B., and Williams J. (eds.), *Theories in Second Language Acquisition*, 37-55.

White, L., & Juffs, A. (1998). Constraints on Wh-movement in two different contexts of nonnative language acquisition: Competence and processing. In Flynn S., Martohardjono G. and O'Neil W. (eds.), *The Generative Study of Second Language Acquisition*, 111-129. NJ: Lawrence Erlbaum, Mahwah.

White, L., Valenzuela, E., Kozlowska-MacGregor, M., & Leung, Y. K. I. (2004). Gender and number agreement in nonnative Spanish. *Applied Psycholinguistics, 25*, 105-133.

Wright, W. (1975). A Grammar of the Arabic Language. London: Cambridge University Press.

Xu, Y. (2009). The syntax, processing and second language acquisition of Chinese relative clauses. (Doctoral Dissertation). The University of Arizona.

Yang, C. & Roeper, T. (in press). Minimalism and Language Acquisition. http://people.umass.edu/roeper/online_papers/Minimalism%20%20Yang-Roepe%20May%202010.pdf

APPENDICES

Appendix A. Language Background Questionnaire

Participant's number: ( )

Email address:

1. Age:
2. Sex:
3. Place of Birth, City, Country:
4. Occupation:
5. What is/are your mother tongues?
6. What language(s) did you speak at home as a child?
7. Were you educated in different language? _____ If yes, were they simultaneous _____ or was there a change of language in your education? At what age? _____ Please explain.
8. At what age did you start studying Arabic?
9. How many years have you studied Arabic?
10. Arabic courses taken at High school:
11. Arabic courses taken at college:
12. In which languages were your educated in …
    Elementary school:
    High school:
    University:
13. Have you lived in another place besides the USA? _____, Where? & For how long?
14. Have you studied Arabic in an Arabic-speaking country? For how long?
15. What other languages do you speak besides English & Arabic?
16. Comments you want to add:

Appendix B. Grammaticality Judgment Task (GJT)

Instructions:
Please read each of the following sentences silently. If the sentence is grammatical, write “Grammatical”. If the sentence is not grammatical, write “Ungrammatical” and provide a correction. Please make your judgment after you read each sentence immediately. You may only make one change to correct the sentence. You may not change the word order of the sentences or the tense on the verbs.
[The sentences are written in Arabic script for the participants and the participants will also be provided with Arabic-English gloss of the verbs, nouns, adjectives and adverbs of the test sentences]

1. أعرف الإمرأة التي الاستاذ يسافر معها دائماً.
2. أعرف الولد الذي البنت تهديه وروداً.
3. أعرف الإمرأة التي الرجال يحبون.
4. أعرف الأستاذتيْن اللتين تقدمأن الهدايا إلى الطلاب.
5. رأيت البنتيْن اللتيْن الرجل يرسل الهدايا إلى.
6. رأيت الرجال الذين المديرة تهدي سيارات.
7. أعرف الطالب الذي الأستاذة ترسبه في الإمتحان.
8. أعرف الصديقة التي هي تخبز الكعك يومياً.
9. أعرف النساء اللواتي الأستاذ يتحدث مع.
10. قابلت البنت التي الأستاذ يعطي الكتاب.
11. أعرف البنتيْن اللتين الطالب يقابل في الجامعة.
12. أعرف الطالبات اللواتي هن ينجحن في الإمتحانات دائماً.
13. أعرف الإمرأة التي الموظف يرسل الطرد لها.
14. قابلت الطالبة التي الأستاذ يدرّسها اللغة.
15. أعرف الاولاد الذين البنت ترا في السوق دائماً.
16. أعرف الولديْن اللذيْن هما يساعدان البنت الصغيرة.
17. قابلت الموظفيْن اللذين المديرة تعرفهما جيداً.
18. أشاهد البنات اللواتي يلعبن بالألعاب الجديدة.
19. أعرف الرجل الذي البنت تبحث عن.
20. قابلت البنت التي المدير يعطيها جائزة.
21. رأيت البنات اللواتي الأب يضرب كثيراً.

22. أعرف الطالب الذي هو ينجح في الإمتحان دائماً.
23. أعرف المدربين الذين الفريق يعتمد عليهم.
24. أعرف المعيدين الذين المشرف يعطي فلوس.
25. قابلت البنت التي الاستاذ يدرّس في الجامعة.
26. أشاهد الرجال الذين يساعدون البنت الصغيرة.
27. أعرف الأولاد الذين المدرب يلعب مع كل يوم جمعة.
28. أعرف الطالبيْن اللذيْنالاستاذة تعطي الكتب.
29. رأيت البنات اللواتي الاستاذ يدرّسهن في المساء.
30. قابلت الإمرأة التي هي تعمل دكتورة في المستشفى.
31. قابلت الطالبتيْن اللتين الاستاذة تتكلم عن.
32. أعرف الموظفات اللواتي المدير يعطيهن الراتب.
33. أعرف الأستاذ الذي الطالبة تقابله في حفلة.
34. أعرف الطالب الذي يقرأ الجريدة كل صباح.
35. رأيت الرجل الذي الجارة تتحدث معه دائماً.
36. أعرف الطلاب الذين الاستاذ يدرّس العلوم.
37. أعرف الأقارب الذين الولد يزورهم كل يوم.
38. أعرف الرجال الذين يكتبون الرسائل للبنات.
39. قابلت الامهات اللواتي الأطفال يعتمد عليهن.
40. رأيت المعيدتيْن اللتيْن المشرف يعطيهما الهدايا.

Appendix C. Sentence Combination Task (SCT)

Instructions:
Please read each of the following pairs of sentences silently. Then, combine each two sentences by attaching sentence (b) to sentence (a). Always start with sentence (a) as written. You can use forms of (ʔallaði) words like (ʔallaði, ʔallatii, ʔallaðiina, etc) to combine each pair. Do not use the words (and, while, when, after, etc…) to combine the two sentences.

1- a. أعرف ولد. b. الولد يشرب الحليب كل صباح.

أعرف ولد .....

2- a. قابلت الممرض. b. المريض يعتمد على الممرض.

قابلت الممرض .....

3- a. أعرف معيدين. b. المعيدون يدرسون اللغة العربية.

أعرف معيدين .....

4- a. أعرف النساء. b. الرجال يهدون النساء المجوهرات.

أعرف النساء .....

5- a. أرى ولد. b. الجد يأخذ الولد إلى السوق.

أرى ولد .....

6- a. أعرف الولديْن. b. الولدان يفشلان في الإمتحانات.

أعرف الولديْن .....

7- a. قابلت الولديْن. b. الأستاذة تتكلم عن الولدين.

قابلت الولديْن .....

8- a. أعرف ولديْن. b. الأب يرسل هدية إلى الولدين.

أعرف ولدين .....

9- a. أعرف النساء. b. الأولاد يهتمون بالنساء.

أعرف النساء .....

10- a. شاهدت البنت. b. البنت تحب الكلاب.

شاهدت البنت .....

11- a. شاهدت رجليْن. b. البنت تقابل الرجليْن في حفلة.

شاهدت رجليْن .....

12- a. أحب الناس. b. المدير يدعو الناس إلى الحفلة.

أحب الناس .....

13- a. أشاهد بنات. b. الجد يلعب مع البنات.

أشاهد بنات .....

14- a. هاتان الزميلتان. b. الزميلتان تدرسان في صف العربية.

هاتان الزميلتان .....

15- a. أعرف الرجال. b. الرجال يعملون في المطعم العربي.

أعرف الرجال .....

16- a. قابلت أختيْن. b. الأختان تعملان في صيدلية.

قابلت أختيْن .....

17- a. أرى بنت. b. الوالدة تصوّر البنت كثيراً.

أرى بنت .....

18- a. أعرف بنت. b. الأستاذة تدرّس البنت اللغة.

أعرف بنت .....

19- a. أعرف الأمرأة. b. المديرة تساعد الإمرأة في الوظيفة.

أعرف الإمرأة .....

20- a. أعرف الزميلتيْن. b. الأساتذة تحب الزميلتيْن كثيراً.

أعرف الزميلتيْن .....

21- a. أعرف ولديْن. b. الوالدة تعطي الولديْن الكرة.

أعرف ولديْن .....

22- a. قابلت الطالب. b. الأستاذة تعطي الطالب الكتاب.

قابلت الطالب .....

23- a. شاهدت اللّصيْن. b. الرجل يعطي اللّصين الفلوس.

شاهدت اللّصيْن .....

24- a. هذان الطالبان. b. الأستاذ يعرف الطالبيْن جيداً.

هذان الطالبان .....

25- a. أعرف مدربة. b. الأولاد يعتمدون على المدربة.

أعرف مدربة .....

26- a. هما الصديقتان. b. الأولاد يتكلمون عن الصديقتيْن.

هما لصديقتان .....

27- a. أعرف بنات. b. الرجل يعطي البنات السيارة.

أعرف بنات .....

28- a. هما الزوجتان. b. الأزواج يعطون الزوجتيْن الهدايا.

هما الزوجتان .....

Appendix D. Picture Description Task (PDT)

Instructions:
You will see a set of pictures. Read the description then identify the person(s) in the next slide. Write your descriptions in complete grammatical sentences.

- **Subject Relative Clauses:**

Slide 1	الامرأة تقطع الخضروات. 
Slide 2	من هذه؟ هذه هي ... الامرأة التي تقطع الخضروات  

Slide 3

النساء يعملن في والمارت

Slide 4

من هؤلاء؟

هؤلاء هن ...

Slide 5

البنتان تشاهدان التلفزيون

Slide 6

من هاتان؟

هاتان هما ...

Slide 7

الولدان يأكلان السندويشات

Slide 8

من هذان؟

هذان هما ...

Slide 9

الجده تعد الطعام

Slide 10

من هذه؟

هذه هي ...

Slide 11

الرجل يقرأ الجريدة

Slide 12

من هذا ؟

هذا هو ...

Slide 13

الاولاد يشربون الحليب

Slide 14

من هؤلاء؟

هؤلاء هم ...

- **Direct Object Relative Clauses:**

Slide 15	الجديعانق الطفلتين 
Slide 16	من هاتان؟ هاتان هما الطفلتان اللتان الجد يعانق-يعانقهما 

Slide 17

الكلب يعض الرجل

Slide 18

من هذا ؟

هذا هو ...

Slide 19

الاب يعانق الولدين

Slide 20

من هما ؟

هذان هما...

Slide 21

الشاب يصور البنات

Slide 22

من هن؟

هؤلاء هن ....

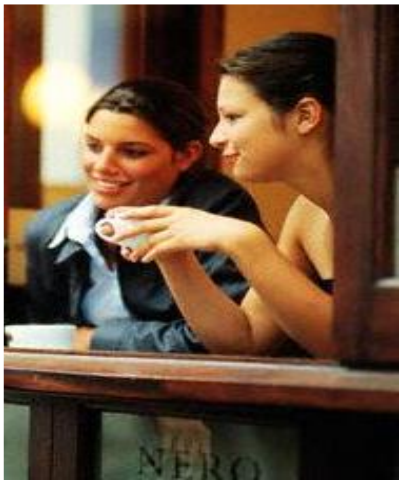
Slide 23

الرجل يكلم البنتين

Slide 24

من هما ؟

هاتان هما...



Slide 25

الولد يضرب البنت

Slide 26

من هي؟

هذه هي..

Slide 27

الأستاذ يساعد الطلاب

Slide 28

من هم؟

هؤلاء هم ...

- **Indirect Object Relative Clauses:**

Slide 29	الأستاذ يعطي الطالبة كتاب 
Slide 30	من هذه؟ هذه هي ... الطالبة التي يعطيها الأستاذ كتاب  

Slide 31

البنت تعطي الولد وردة

Slide 32

من هذا ؟

هذا هو...

Slide 33

الأستاذة تعطي الطالبة هدية

Slide 34

من هذه؟

هذه هي ...

Slide 35

الأستاذ يدرس الطلاب اللغة

Slide 36

من هم؟

هؤلاء هم ...

Slide 37

الاب يعطي الابنين الفلوس

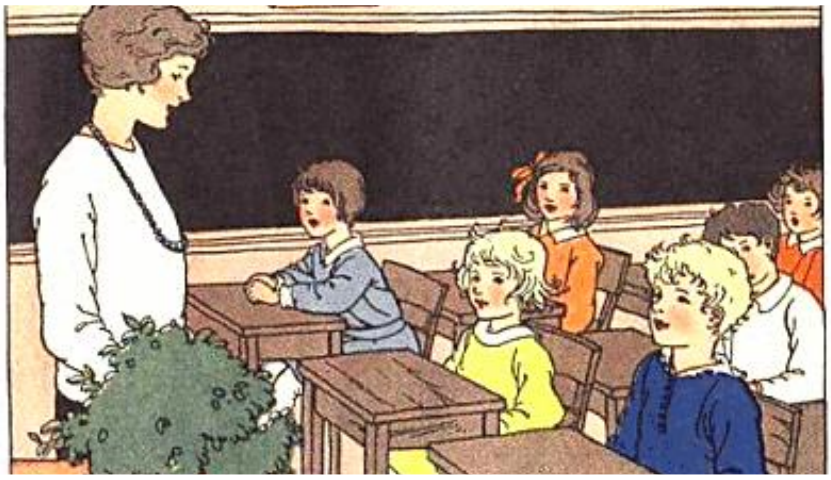
Slide 38

من هما ؟

هذان هما...

Slide 39	الأستاذة تعطي الطالبتين الورقة 
Slide 40	من هاتان؟ هاتان هما..  

- **Oblique Relative Clauses:**

Slide 41	الاستاذة تتكلم مع الطالبات 
Slide 42	من هؤلاء؟ هؤلاء هن الطالبات اللواتي الاستاذة تتكلم معهن 

Slide 43

الامرأة تقدم الحلوى إلى الاولاد

Slide 44

من هؤلاء؟

هؤلاء هم ...

Slide 45

البنت تقدم التفاحة إلى الأستاذة

Slide 46

من هذه؟

هذه هي ...

Slide 47

الطالب يتحدث مع البنات

Slide 48

من هؤلاء؟

هؤلاء هن ...

Slide 49

الوالد يلعب مع الطفلين بالألعاب

Slide 50

من هذان؟

هذان هما ...

Slide 51

الأستاذ يشرح الدرس إلى الطلاب

Slide 52

من هؤلاء؟

هؤلاء هم...

Slide 53

المريضة تعتمد على الممرض

Slide 54

من هذا ؟

هذا هو ...

Appendix E. OPI ACTFL Guidelines

http://www.actfl.org/sites/default/files/pdfs/ACTFLProficiencyGuidelines2012-Speaking.pdf

Appendix F. Detailed Quantitative Raw Data Calculations for Each Individual on the Three Different Tasks of the Empirical Study.

Grammaticality Judgments Task Raw Results

Table F-1: Numbers of Resumptive Pronouns Retained in Relative Clauses out of the Total number of sentences judged by the Controls on the GJT

Participants	SU	DO	IO	OBL
C1	0/10	5/10	10/10	10/10
C2	0/10	5/10	10/10	10/10
C3	0/10	5/10	10/10	10/10
C4	0/10	5/10	10/10	10/10
C5	0/10	5/10	10/10	10/10

Table F-2: Numbers of Resumptive Pronouns Retained in Relative Clauses out of the Total number of sentences judged by the L2 Participants on the GJT

Participants	SU	DO	IO	OBL
P1	3/10	10/10	10/10	8/10
P2	2/10	5/10	10/10	8/10
P3	3/10	8/10	5/10	10/10
P4	2/10	10/10	5/10	10/10
P5	5/10	5/10	5/10	9/10
P6	5/10	5/10	5/10	10/10
P7	5/10	5/10	5/10	9/10
P8	5/10	5/10	5/10	8/10
P9	5/10	10/10	7/10	10/10
P10	No data			
P11	5/10	5/10	5/10	5/10
P12	5/10	5/10	5/10	5/10
P13	2/10	8/10	10/10	10/10
P14	5/10	5/10	5/10	5/10
P15	5/10	5/10	7/10	9/10
P16	0/10	10/10	10/10	10/10

Table F-3: Percentage of Resumptive Pronouns Retained in Relative Clauses out of the Total number of sentences judged by the Controls on the GJT

Participants	SU	DO	IO	OBL
C1	0	50	100	100
C2	0	50	100	100
C3	0	50	100	100
C4	0	50	100	100
C5	0	50	100	100

Table F-4: Percentage of Resumptive Pronouns Retained in Relative Clauses out of the Total number of sentences judged by the Controls on the GJT

Participants	SU	DO	IO	OBL
P1	30	100	100	80
P2	20	50	100	80
P3	30	80	50	100
P4	20	100	50	100
P5	50	50	50	90
P6	50	50	50	100
P7	50	50	50	90
P8	50	50	50	80
P9	50	100	70	100
P10		No data		
P11	50	50	50	50
P12	50	50	50	50
P13	20	80	100	100
P14	50	50	50	50
P15	50	50	70	90
P16	0	100	100	100

Sentence Combination Task Raw Results

Table F-5: Numbers of Target Definite Relative Clauses out of all Responses by the Controls on the SCT

Controls	SU	DO	IO	OBL
C1	4/4	4/4	4/4	4/4
C2	4/4	4/4	4/4	4/4
C3	4/4	4/4	4/4	4/4
C4	4/4	4/4	4/4	4/4
C5	4/4	4/4	4/4	4/4

Table F-6: Numbers of Target Definite Relative Clauses out of all Responses by the L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	4/4	4/4	4/4	¾ (75%)
P2	4/4	3/3 (100%)	¾ (75%)	¾ (75%)
P3	4/4	4/4	4/4	2/4 (50%)
P4	4/4	4/4	4/4	4/4
P5	4/4	4/4	¾ (75%)	4/4
P6	4/4	4/4	¾ (75%)	4/4
P7	4/4	4/4	4/4	4/4
P8	4/4	4/4	¾ (75%)	4/4
P9	4/4	4/4	2/4 (50%)	¾ (75%)
P10	4/4	4/4	¾ (75%)	2/4 (50%)
P11	4/4	4/4	4/4	4/4
P12	4/4	4/4	4/4	4/4
P13	¾ (75%)	4/4	4/4	4/4
P14	4/4	4/4	4/4	4/4
P15	¾ (75%)	4/4	¾ (75%)	2/4 (50%)

Table F-7: Number of Resumptive DPs out of all Definite Relative Clauses produced by L2 Learners on the SCT

Participants	SU	DO	IO	OBL
P1	0/4	0/4	0/4	0/4
P2	0/4	0/3	0/4	0/4
P3	1/4	0/4	0/4	4/4
P4	0/4	0/4	0/4	0/4
P5	3/4	1/4	3/4	2/4
P6	0/4	0/4	0/4	1/4
P7	1/4	4/4	4/4	4/4
P8	0/4	0/4	0/4	1/4
P9	0/4	0/4	1/4	1/4
P10	1/4	0/4	0/4	1/4
P11	0/4	0/4	0/4	0/4
P12	0/4	0/4	0/4	0/4
P13	0/4	0/4	0/4	0/4
P14	0/4	0/4	2/4	2/4
P15	0/4	0/4	0/4	0/4

Table F-8: Numbers of Target Indefinite Relative Clauses out of all Responses by the Controls on the SCT

Controls	SU	DO	IO	OBL
C1	3/3	3/3	3/3	3/3
C2	3/3	3/3	3/3	3/3
C3	3/3	3/3	3/3	3/3
C4	3/3	3/3	3/3	3/3
C5	3/3	3/3	3/3	3/3

Table F-9: Numbers and Percentages of Target Indefinite Relative Clauses out of all Responses by the L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	3/3	3/3	3/3	3/3
P2	3/3	3/3	2/3 (67%)	3/3
P3	3/3	3/3	3/3	0/3 (0%)
P4	3/3	3/3	3/3	3/3
P5	3/3	3/3	3/3	3/3
P6	3/3	3/3	3/3	3/3
P7	3/3	3/3	3/3	3/3
P8	3/3	3/3	3/3	3/3
P9	3/3	1/3 (33%)	2/3 (67%)	0/3 (0%)
P10	3/3	2/3 (67%)	3/3	2/3 (76%)
P11	3/3	3/3	3/3	3/3
P12	3/3	3/3	3/3	3/3
P13	3/3	3/3	3/3	3/3
P14	3/3	3/3	3/3	3/3
P15	3/3	3/3	3/3	3/3

Table F-10: Number of Resumptive DPs out of all Indefinite Relative Clauses produced by L2 Learners on the SCT

Participants	SU	DO	IO	OBL
P1	0/3	0/3	0/3	0/3
P2	0/3	0/3	0/2	0/3
P3	1/3	1/3	0/3	0
P4	0/3	0/3	0/3	0/3
P5	3/3	3/3	0/3	2/3
P6	0/3	0/3	0/3	1/3
P7	1/3	3/3	3/3	3/3
P8	0/3	0/3	0/3	0/3
P9	0/3	0/1	0/2	0
P10	0/3	1/2	0/3	1/2
P11	0/3	0/3	0/3	0/3
P12	0/3	0/3	0/3	0/3
P13	0/3	1/3	0/3	0/3
P14	0/3	1/3	1/3	0/3
P15	0/3	0/3	0/3	0/3

Table F-11: Number of Resumptive Pronouns out of all Definite Relative clauses Produced by L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	0/4	4/4	4/4	4/4
C2	0/4	4/4	4/4	4/4
C3	0/4	4/4	4/4	4/4
C4	0/4	4/4	4/4	4/4
C5	0/4	4/4	4/4	4/4

Table F-12: Number of Resumptive Pronouns out of all Definite Relative clauses Produced by L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	0/4	4/4	4/4	3/3
P2	0/4	3/3	0/3	3/3
P3	0/4	4/4	4/4	0/2
P4	0/4	4/4	4/4	4/4
P5	0/4	2/4	1/3	1/4
P6	0/4	0/4	0/3	3/4
P7	0/4	0/4	0/4	0/4
P8	0/4	4/4	2/3	3/4
P9	0/4	4/4	1/2	2/3
P10	0/4	0/4	0/3	1/2
P11	0/4	1/4	0/4	1/4
P12	0/4	4/4	3/4	4/4
P13	0/3	4/4	3/4	4/4
P14	0/4	4/4	3/4	2/4
P15	0/3	4/4	3/3	2/2

Table F-13: Number of Resumptive Pronouns out of all Indefinite Relative clauses Produced by L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	0/3	3/3	3/3	3/3
C2	0/3	3/3	3/3	3/3
C3	0/3	3/3	3/3	3/3
C4	0/3	3/3	3/3	3/3
C5	0/3	3/3	3/3	3/3

Table F-14: Number of Resumptive Pronouns out of all Indefinite Relative clauses Produced by L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	0/3	3/3	3/3	3/3
P2	0/3	0/3	0/2	3/3
P3	0/3	3/3	3/3	0/0
P4	0/3	3/3	3/3	1/3
P5	0/3	0/3	1/3	1/3
P6	0/3	0/3	0/3	2/3
P7	0/3	0/3	0/3	0/3
P8	0/3	3/3	2/3	3/3
P9	0/3	1/1	1/2	0/0
P10	0/3	0/2	0/3	0/2
P11	0/3	1/3	0/3	1/3
P12	0/3	3/3	3/3	3/3
P13	0/3	3/3	3/3	3/3
P14	0/3	2/3	3/3	3/3
P15	0/3	3/3	3/3	3/3

Table F-15: Numbers of Object Resumptive Clitics out of all Resumptive Elements within Definite Relative Clauses produced by L1 Controls on the SCT

Participants	DO	IO	OBL
C1	4/4	4/4	4/4
C2	4/4	4/4	4/4
C3	4/4	4/4	4/4
C4	4/4	4/4	4/4
C5	4/4	4/4	4/4

Table F-16: Numbers of Object Resumptive Clitics out of all Resumptive Elements within Definite Relative Clauses produced by L2 Participants on the SCT

Participants	DO	IO	OBL
P1	4/4	4/4	3/3
P2	1/3	0	3/3
P3	4/4	3/4	0
P4	2/4	2/4	3/4
P5	2/2	1/1	1/1
P6	0	0	3/3
P7	0	0	0
P8	4/4	2/2	3/3
P9	4/4	1/1	2/2
P10	0	0	1/1
P11	1/1	0	1/1
P12	2/4	3/3	4/4
P13	4/4	3/3	4/4
P14	4/4	2/3	2/2
P15	2/4	2/3	1/2

Table F-17: Numbers of Object Resumptive Clitics out of all Resumptive Elements within Indefinite Relative Clauses produced by L1 Controls on the SCT

Participants	DO	IO	OBL
C1	3/3	3/3	3/3
C2	3/3	3/3	3/3
C3	3/3	3/3	3/3
C4	3/3	3/3	3/3
C5	3/3	3/3	3/3

Table F-18: Numbers of Object Resumptive Clitics out of all Resumptive Elements within Indefinite Relative Clauses produced by L2 Participants on the SCT

Participants	DO	IO	OBL
P1	3/3	3/3	3/3
P2	0	0	3/3
P3	3/3	3/3	0
P4	3/3	2/3	1/1
P5	0	1/1	1/1
P6	0	0	2/2
P7	0	0	0
P8	3/3	2/2	3/3
P9	1/1	1/1	0
P10	0	0	0
P11	1/1	0	1/1
P12	3/3	3/3	3/3
P13	3/3	3/3	3/3
P14	2/2	3/3	3/3
P15	2/3	1/3	2/3

Table F-19: Number of Resumptive Clitics Agreeing with the Definite Relativized Head DP out of all Resumptive Object Clitics Produced by the L1 Controls on the SCT

Participants	DO	IO	OBL
C1	4/4	4/4	4/4
C2	4/4	4/4	4/4
C3	4/4	4/4	4/4
C4	4/4	4/4	4/4
C5	4/4	4/4	4/4

Table F-20: Number of Resumptive Clitics Agreeing with the Definite Relativized Head DP out of all Resumptive Object Clitics Produced by the L2 Participants on the SCT

Participants	DO	IO	OBL
P1	4/4	4/4	3/3
P2	1/1	0	0/3
P3	2/4	1/3	0
P4	2/2	1/2	2/3
P5	1/2	1/1	1/1
P6	0	0	3/3
P7	0	0	0
P8	1/4	0/2	1/3
P9	2/4	0/1	1/2
P10	0	0	0/1
P11	0/1	0	0/1
P12	2/2	2/3	2/4
P13	4/4	3/3	4/4
P14	1/4	1/2	0/2
P15	1/2	1/2	0/1

Table F-21: Number of Resumptive Clitics Agreeing with the Indefinite Relativized Head DP out of all Resumptive Object Clitics Produced by the L1 Controls on the SCT

Participants	DO	IO	OBL
C1	3/3	3/3	3/3
C2	3/3	3/3	3/3
C3	3/3	3/3	3/3
C4	3/3	3/3	3/3
C5	3/3	3/3	3/3

Table F-22: Number of Resumptive Clitics Agreeing with the Indefinite Relativized Head DP out of all Resumptive Object Clitics Produced by the L2 Participants on the SCT

Participants	DO	IO	OBL
P1	3/3	2/3	3/3
P2	0	0	1/3
P3	2/3	1/3	0
P4	2/3	2/2	1/1
P5	0	1/1	1/1
P6	0	0	2/2
P7	0	0	0
P8	2/3	0/2	0/3
P9	1/1	1/1	0
P10	0	0	0
P11	0/1	0	0/1
P12	2/3	1/3	1/3
P13	3/3	1/3	2/3
P14	1/2	1/3	1/3
P15	2/2	1/1	1/2

Table F-23: Number of Relative Complementizers out of all Relative Clauses Produced by the L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	4/4	4/4	4/4	4/4
C2	4/4	4/4	4/4	4/4
C3	4/4	4/4	4/4	4/4
C4	4/4	4/4	4/4	4/4
C5	4/4	4/4	4/4	4/4

Table F-24: Number of Relative Complementizers out of all Relative Clauses Produced by the L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	4/4	4/4	4/4	3/3
P2	4/4	3/3	3/3	1/3
P3	0/4	0/4	0/4	1/2
P4	4/4	4/4	4/4	4/4
P5	4/4	4/4	3/3	4/4
P6	4/4	4/4	2/2	4/4
P7	4/4	4/4	4/4	4/4
P8	4/4	4/4	3/3	4/4
P9	2/4	4/4	2/2	3/3
P10	4/4	4/4	3/3	2/2
P11	4/4	4/4	4/4	4/4
P12	4/4	4/4	4/4	4/4
P13	3/3	4/4	4/4	4/4
P14	4/4	4/4	4/4	4/4
P15	0/3	0/4	0/3	0/2

Table F-25: Number of Relative Complementizers Agreeing with the Relativized Head DP out of all Relative Complementizers Produced by the L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	4/4	4/4	4/4	4/4
C2	4/4	4/4	4/4	4/4
C3	4/4	4/4	4/4	4/4
C4	4/4	4/4	4/4	4/4
C5	4/4	4/4	4/4	4/4

Table F-26: Number of Relative Complementizers Agreeing with the Relativized Head DP out of all Relative Complementizers Produced by the L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	3/4	3/4	2/4	2/3
P2	2/4	2/4	0/3	0/1
P3	0	0	0	1/1
P4	1/4	1/4	1/4	1/4
P5	2/4	2/4	0/3	1/4
P6	3/4	3/4	1/2	3/4
P7	1/4	1/4	0/4	1/4
P8	2/4	2/4	0/3	0/4
P9	1/2	1/4	0/2	1/3
P10	2/4	2/4	1/3	1/2
P11	2/4	1/4	0/4	0/4
P12	2/4	3/4	2/4	3/4
P13	1/3	3/4	3/4	3/4
P14	1/4	1/4	1/4	1/4
P15	0	0	0	0

Table F-27: Number of Relative Complementizers out of all Indefinite Relative Clauses Produced by the L1 Controls on the SCT

Participants	SU	DO	IO	OBL
C1	0/3	0/3	0/3	0/3
C2	0/3	0/3	0/3	0/3
C3	0/3	0/3	0/3	0/3
C4	0/3	0/3	0/3	0/3
C5	0/3	0/3	0/3	0/3

Table F-28: Number of Relative Complementizers out of all Indefinite Relative Clauses Produced by the L2 Participants on the SCT

Participants	SU	DO	IO	OBL
P1	0/3	0/3	0/3	0/3
P2	2/3	1/3	2/2	2/3
P3	0/3	0/3	0/3	0
P4	3/3	3/3	3/3	3/3
P5	3/3	3/3	3/3	3/3
P6	3/3	3/3	3/3	3/3
P7	3/3	2/3	3/3	3/3
P8	3/3	2/3	3/3	3/3
P9	0/3	0/1	0/2	0
P10	2/3	2/2	3/3	1/1
P11	3/3	3/3	3/3	3/3
P12	3/3	3/3	3/3	3/3
P13	1/3	0/3	0/3	0/3
P14	3/3	3/3	3/3	3/3
P15	0/3	0/3	0/3	0/3

Picture Description Task

Table F-29: Number of Targeted Relative Clauses Produced by the L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	6	6	5	6
C2	6	6	5	6
C3	6	6	5	6
C4	6	6	5	6
C5	6	6	5	6

Table F-30: Number of Targeted Relative Clauses Produced by the L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P1	6	5	5	6
P2	6	6	5	6
P3	6	6	5	6
P4	6	6	5	6
P5	6	6	4	3
P6	6	6	5	6
P7	6	6	5	4
P8	6	4	4	5
P9	2	2	4	3
P10	6	6	5	6
P11	5	6	5	6
P12	6	6	5	6
P13	6	6	5	5
P14	6	5	5	6
P15	6	3	5	5
P16	6	5	5	5

Table F-31: Number of Resumptive Pronouns out of all Relative Clauses Produced by the L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	0/6	6/6	5/5	6/6
C2	0/6	6/6	5/5	6/6
C3	0/6	6/6	5/5	6/6
C4	0/6	6/6	5/5	6/6
C5	0/6	6/6	5/5	6/6

Table F-32: Number of Resumptive Pronouns out of all Relative Clauses Produced by the L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P1	0/6	5/5	5/5	6/6
P2	0/6	3/6	5/5	6/6
P3	0/6	6/6	5/5	6/6
P4	0/6	5/6	5/5	6/6
P5	0/6	5/6	1/4	1/3
P6	0/6	1/6	4/5	6/6
P7	0/6	4/6	5/5	4/4
P8	0/6	3/4	4/4	5/5
P9	0/2	2/2	4/4	3/3
P10	0/6	0/6	0/5	6/6
P11	0/5	3/6	5/5	6/6
P12	0/6	6/6	5/5	6/6
P13	2/6	6/6	5/5	5/5
P14	0/6	4/5	5/5	6/6
P15	0/6	2/3	5/5	5/5
P16	0/6	4/5	5/5	5/5

Table F-34: Number of Resumptive Clitics Agreeing with the Relativized Head DP out of all Resumptive Clitics Produced by the L1 Controls on the PDT

Participants	DO	IO	OBL
C1	6/6	5/5	6/6
C2	6/6	5/5	6/6
C3	6/6	5/5	6/6
C4	6/6	5/5	6/6
C5	6/6	5/5	6/6

Table F-35: Number of Resumptive Clitics Agreeing with the Relativized Head DP out of all Resumptive Clitics Produced by the L2 Participants on the PDT

Participants	DO	IO	OBL
P1	4/5	5/5	5/6
P2	2/3	3/5	4/5
P3	3/6	3/5	3/6
P4	2/4	3/4	1/6
P5	5/5	1/1	0
P6	1/1	2/4	5/5
P7	1/3	2/5	4/4
P8	3/3	4/4	3/5
P9	2/2	4/4	3/3
P10	0	0	6/6
P11	2/3	3/5	5/6
P12	4/6	5/5	6/6
P13	6/6	5/5	4/5
P14	3/4	3/5	4/6
P15	1/2	3/3	1/5
P16	3/4	5/5	4/5

Table F-36: Number of Relative Complementizers out of all Relative Clauses Produced by the L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	6/6	6/6	5/5	6/6
C2	6/6	6/6	5/5	6/6
C3	6/6	6/6	5/5	6/6
C4	6/6	6/6	5/5	6/6
C5	6/6	6/6	5/5	6/6

Table F-37: Number of Relative Complementizers out of all Relative Clauses Produced by the L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P1	6/6	5/5	5/5	6/6
P2	6/6	5/6	5/5	6/6
P3	6/6	0/6	0/5	0/6
P4	6/6	6/6	5/5	6/6
P5	6/6	6/6	4/4	3/3
P6	6/6	6/6	5/5	6/6
P7	0/6	0/6	5/5	4/4
P8	6/6	4/4	4/4	5/5
P9	2/2	2/2	4/4	3/3
P10	6/6	6/6	5/5	6/6
P11	4/5	5/6	5/5	6/6
P12	6/6	6/6	5/5	6/6
P13	4/6	6/6	2/5	2/5
P14	4/6	5/5	5/5	6/6
P15	6/6	3/3	5/5	5/5
P16	6/6	5/5	5/5	5/5

Table F-38: Number of Relative Complementizers Agreeing with the Relativized Head DP out of all Relative Complementizers Produced by the L1 Controls on the PDT

Participants	SU	DO	IO	OBL
C1	6/6	6/6	5/5	6/6
C2	6/6	6/6	5/5	6/6
C3	6/6	6/6	5/5	6/6
C4	6/6	6/6	5/5	6/6
C5	6/6	6/6	5/5	6/6

Table F-39: Number of Relative Complementizers Agreeing with the Relativized Head DP out of all Relative Complementizers Produced by the L2 Participants on the PDT

Participants	SU	DO	IO	OBL
P1	6/6	4/5	5/5	4/6
P2	4/6	2/5	3/5	5/6
P3	4/6	0	0	0
P4	4/6	5/6	3/5	5/6
P5	3/6	2/5	2/4	2/3
P6	5/6	6/6	5/5	5/6
P7	0	0	2/5	2/4
P8	5/6	2/4	4/4	4/5
P9	2/2	2/2	4/4	3/3
P10	4/6	4/6	5/5	6/6
P11	2/4	3/5	4/5	6/6
P12	6/6	6/6	5/5	5/6
P13	4/4	6/6	2/2	2/5
P14	0/4	1/5	3/5	1/6
P15	3/6	1/3	4/5	4/5
P16	5/6	4/5	5/5	2/5

Appendix G. List of Phonetic Symbols

(The description given of the symbols here is based on Galal (2004)).

i. Consonants

Phonetic Symbol	Description
b	Voiced bilabial stop
t	Voiceless dental stop
tˤ	Voiceless (emphatic) dental stop
d	Voiced dental stop
dˤ	Voiced (emphatic) dental stop
k	Voiceless velar stop
q	Voiceless uvular stop
ʔ	Glottal stop
ʒ	Voiced palatal affricate
ʕ	Voiced pharyngeal fricative
f	Voiced labio-dental frictive
θ	Voiceless inter-dental fricative
ð	Voiced inter-dental fricative
ðˤ	Voiced (emphatic) inter-dental fricative
s	Voiceless dental fricative
sˤ	Voiceless (emphatic) dental fricative
z	Voiced dental fricative
ʃ	Voiceless palatal fricative
x	Voiceless velar fricative
ħ	Voiceless pharyngeal fricative
h	Voiceless laryngeal fricative
r	Dental trill
l	Lateral dental
m	Bilabial nasal
n	Dental nasal
w	Bilabial glide
j	Palatal glide

ii. Vowels

Phonetic Symbol	Description
i	Short high front unrounded vowel
ii	Long high front unrounded vowel
a	Short central unrounded vowel
aa	Long low central unrounded vowel
u	Short high back rounded vowel
uu	Long high back rounded vowel

CURRICULUM VITAE

DOLA ALGADY

Department of Linguistics
University of Wisconsin-Milwaukee
Milwaukee, WI 53202-0413
dfalgady@uwm.edu

Personal

Place and Date of Birth: Kuwait, 28th March 1984
Nationality: Jordanian

Education

2013 Ph.D. in Linguistics. University of Wisconsin-Milwaukee.
Dissertation: The Acquisition of Relative Clauses: How do Second Language Learners of Arabic do it?

2012 Certificate in Teaching of English to Speakers of Other Languages (TESOL)

2010 M.A. in Language, Literature and Translation. University of Wisconsin-Milwaukee.
Concentration: Arabic and Linguistics.

2009 M.A. in Linguistics. Yarmouk University, Jordan.
Thesis: The Acquisition of Genderlects by Jordanian Children.

2005 B.A. in English Language and Literature. Irbid National University, Jordan.

Academic Positions

2012–2013 Graduate Teaching Assistant of Linguistics, Department of Linguistics, University of Wisconsin-Milwaukee.

Aug 2009- May 2012	Graduate Teaching Assistant of Arabic, Department of Foreign Languages and Translation, University of Wisconsin-Milwaukee.
2008-2009	Fulbright Foreign Language Teaching Assistant (FLTA) of Arabic, Department of Foreign Languages and Literature, University of Wisconsin-Milwaukee.

Papers and Work in Progress

Genderlect Differences Among Jordanian Children
The Acquisition of Resumptive Pronouns by Second Language Learners of Arabic

Conference & Colloquium Presentations

Genderlect Differences among Jordanian Children. The 4th International Arabic Linguistics Symposium. Alexandria University, Alexandria, Egypt. December 11-12, 2010.

The L2 Acquisition of Resumptive Pronouns: A Minimalist Perspective. Colloquium Presentation. University of Wisconsin-Milwaukee. October 25th, 2013.

The L2 Acquisition of Modern Standard Arabic Relativization Constructions: A Minimalist Approach. Linguistics in Arabia Conference 1. King Abdulaziz University, Jedda, Saudi Arabia. December 4-5, 2013.

Conferences Attended

The 23rd Annual Symposium in Arabic Linguistics. University of Wisconsin-Milwaukee, USA. April 3-5, 2009.

The 26TH Linguistics Symposium: Language Death, Endangerment, Documentation, and Revitalization. University of Wisconsin-Milwaukee, USA. October 20-22, 2011

The 27th Annual Symposium in Arabic Linguistics. University of Indiana-Bloomington, USA. Feb 28th- Mar 2nd, 2013.

Workshops

Oral Proficiency Interview (OPI) training, University of Wisconsin-Milwaukee. 2011.

Micro-teaching at the University of Wisconsin-Milwaukee, 2008-2010.

Fulbright workshops: Cultural Awareness, Teaching and constructing teaching materials, Leadership, Teamwork, 2008-2009.

Teaching Arabic as a Foreign Language, Peace Corps Jordan, 2006-2007

Research Interests

The acquisition of Arabic as a second language (Syntax & Phonology)

Language Acquisition from the Generativist Perspective.

Code-switching and web-based data.

Cross-cultural communication.

Teaching Experience
University of Wisconsin-Milwaukee

2008-2010 Teaching Arabic for beginner non-native learners

2010-2012 Teaching Arabic for intermediate non-native learners

2012-2013 Teaching Linguistics 100 & 210 for university students.

The United Nations Relief and Works Agency for Palestine Refugees (UNRWA)

2007-2008 English language teacher at UNRWA preparatory school of Suf Camp, Jerash, Jordan.

Peace Corps-Jordan

2006 Language and Cross-cultural Facilitator (LCF)

Other Teaching and Professional Experience

2005-2006 Teaching English as a foreign language at Jordanian elementary schools.

2006-2008 Private tutoring of Jordanian Arabic for Peace Corps volunteers.

Grants and Awards

Graduate School Travel Grant, University of Wisconsin-Milwaukee, 2013. (700$)

Graduate School Travel Grant, University of Wisconsin-Milwaukee, 2010. (800$)

College of Letters and Science Travel Grant, University of Wisconsin-Milwaukee, 2010. (300$)

Linguistics Department Travel Grant, University of Wisconsin-Milwaukee, 2010. (400$)

Foreign Language Department Travel Grant, University of Wisconsin-Milwaukee, 2010. (300$)

The Chancellor Award for exceptional academic record, University of Wisconsin-Milwaukee, 2010. (2500$)

The Chancellor Award for exceptional academic record, University of Wisconsin-Milwaukee, 2009. (1500$)

Professional and Community Services

Conference Session Chair

One session, 26th Linguistics Symposium: Language Death, Endangerment, Documentation, and Revitalization. University of Wisconsin-Milwaukee, Milwaukee, Wisconsin. 2011

University of Wisconsin-Milwaukee, Linguistics Program Service

- Organization member of the 26th Linguistics Symposium: Language Death, Endangerment, Documentation, and Revitalization. University of Wisconsin-Milwaukee, Milwaukee, Wisconsin. October 2011

- Organization member of the 23rd Arabic Linguistics Symposium (ALS 23). University of Wisconsin-Milwaukee, Milwaukee, Wisconsin. April 2009

University of Wisconsin-Milwaukee, Foreign Languages Department

- Linguistics Graduate Assistant (2012-2013)
Linguistics 100 (Diversity of Human Language)
Linguistics 210 (Power of Words)

- Modern/Classical Arabic Language Instructor (2008-May 2012):
Arabic 101 (First Semester Arabic)
Arabic 102 (Second Semester Arabic)
Arabic 201 (Third Semester Arabic)

Arabic 202 (Fourth Semester Arabic)

- Language Resource Center workshops. Using technology (e.g. Wimba and Jing) in teaching.

- Phonetics and Phonology Labs practice.

- Developer of the Arabic Placement Test, Foreign Languages Department, University of Wisconsin, Milwaukee, 2011.

Fulbright Exchange Program Services
Foreign Language Teaching Assistant of Arabic (FLTA), 2008-2009.

Languages
Native Language: Arabic
Near-native Language: English
Other Languages: French & Hebrew (Basic knowledge)

References
Available upon Request.