CHAPTER ONE
INTRODUCTION

1.1 Motivation

After Chomsky (1977) postulated the existence of one discrete interpretative level, Logical Form (LF), there have been many studies attempting to adopt syntactic theories to interpret quantificational noun phrases (QNPs), which are assumed to be interpreted as LF representations. One reason for much attention to quantificational scope interpretations is that sentences containing more than one QNP may be ambiguous. Therefore, how to interpret these ambiguous sentences syntactically becomes a great issue. Another reason is that principles determining the quantificational scope interpretations differ from one language to another. For instance, there is a great contrast between English and Chinese scope interpretations (Aoun & Li 1989, Huang 1981, Huang 1982, 1983, Lee 1991) [1].

Besides the studies of QNPs at LF, there are also studies on the L1 acquisition of QNPs (Philip 1991; 1992, Roeper and de Villiers 1991, Takahashi 1991, Crain *et al.* 1996, Lee 1991). Some of these studies examine whether children have grammatical competence with QNPs as adults do. Some aim at understanding what principles children use to interpret QNPs. Interestingly, all of these studies focus on the L1 acquisition of QNPs. As I know, there is no research on how L2 learners interpret QNPs of the second language, especially when there is a great contrast between L1 and L2. As Lee (1991) points out, English exhibits scope ambiguity more freely than

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[1] Huang (1982) accounts for the contrast between English and Chinese by postulating the existence of an *Isomorphic Principle* (IP), as shown in (i):

(i) *The Isomorphic Principle*

Suppose A and B are QPs. Then if A c-commands B at S-Structure, A c-commands B at LF.

Aoun and Li (1989) assume that the existence of Subject Raising in English but not in Chinese, together with the Minimal Binding Principle and Scope Principle, accounts for the contrast between English and Chinese scope ambiguity.

Lee (1991) states that linear precedence is a principle for scope interpretation in Chinese, but linearity may be irrelevant in English.

Chinese. Hence, the differences between English and Chinese scope interpretations of QNPs in L2 inspire me to see how Chinese-speaking learners of English interpret English QNPs, since no research has done on this topic yet.

Quantificational noun phrases can be divided into two types: universal and existential (cf. Keenan 1971, May 1977, Kempson & Cormack 1981, Hornstein 1984, Haegeman 1994, Carpenter 1997). Sentences containing one existential QNP and one universal QNP sometimes have more than one reading. For these ambiguous sentences, if the existential QNP takes a wide scope interpretation, the universal QNP will take a narrow one, and vice versa. When the existential QNP has wider scope, the interpretation is collective. When the universal QNP takes wider scope, the sentence has a distributive reading. Hence, in the present study, I would like to examine Taiwanese students' interpretations of English sentences containing a universal QNP and an existential QNP in both sequences: a universal QNP preceding an existential QNP and the reverse sequence.

There is no research on how L2 learners interpret QNPs of the target language and it has been found that sentences with a universal QNP and an existential QNP are sometimes ambiguous. Therefore, I will conduct an experiment to see how Taiwanese students of English interpret English sentences containing one universal QNP and one existential QNP.

1.2 Theoretical Background

In this section, I will discuss the related L2 acquisition framework, and discuss the language typology and the linguistic framework adopted in the present study.

1.2.1 The SLA Framework

Several theories of L2 acquisition will be discussed in the present study.

First of all, there have been many studies on the influence of L1 on SLA (cf. Schachter1983, Ringbom 1987, Ard and Homburg 1992, Laufer & Eliasson 1993, Gass & Selinker 1992, 2001). As concerned with the similarities between L1 and L2, Ringbom (1987) and Ard & Homburg (1992) claim that because of the existence of the similarities, L2 learners can focus on differences between the two languages, thereby facilitating learning. As for the differences between L1 and L2, Laufer and Eliasson (1993) claim that L2 learners tend to avoid the differences between L1 and L2 and to apply their L1 knowledge to the acquisition of L2. In this study, I will examine how similarities and differences between Chinese and English quantificational scope interpretations influence Chinese-speaking learners' acquisition of English QNPs.

The other issue discussed in the present study is the effect of different task types. There were many kinds of methodologies used in the study of language acquisition, such as grammaticality judgment tasks, imitation tasks, translation tasks, and questionnaires (Larsen-Freeman & Long 1991). In the study of acquisition of quantification, the commonly adopted tasks were the picture identification task (Philip 1991; 1992, Roeper and de Villiers 1991, Takahashi 1991), the story-telling task (Crain *et al.* 1996), the truth value judgment task (Crain *et al.* 1996), and the act-out task (Lee 1991). However, none of these tasks focuses on the acquisition of L2 QNPs. In order to examine how L2 learners acquire the L2 scope ambiguity, I will design two tasks (i.e. a problem-solving task and a picture-selection task) to see whether there is any difference between these two tasks in the subjects' interpretations of English QNPs.

1.2.2 Language Typology

As noted above, the present study aims at investigating Taiwanese students' acquisition of English QNPs. Even though both English and Chinese exhibit quantificational scope ambiguity, English permits scope ambiguity more freely than Chinese, as can be seen in the following examples:

(1) Everyone is loved by a woman. (Aoun and Li 1993:18)

LF: [$_{I''}$ Everyone$_i$ [$_{I''}$ x_i [$_{I}$ is [$_{V''}$ a woman$_j$ [$_{V''}$ [$_{V''}$ love t_i] by x_j]]]]]

The Distributive Reading: For everyone, there is a woman such that everyone is loved by a woman.

The Collective Reading: There is a woman such that for everyone, everyone is loved by the woman.

(2) Mei ge ren dou bei yi ge nuren zhuazou le.
everyCL person all by one CL woman arrest Asp
'Everyone was arrested by a woman.' (Aoun and Li 1993:17)

LF: [$_{I''}$ Meige ren$_i$ [$_{I''}$ x_i [$_{I}$ [$_{V''}$ yige nuren$_j$ [$_{V''}$ dou bei x_j [$_{V''}$ [$_{V''}$ zhuazou $t_i$le]]]]]]

The Distributive Reading: For everyone, there was a woman such that everyone was arrested by a woman.

The Collective Reading: There was a woman such that for everyone, everyone was arrested by the woman.

(1) and (2) are simple passive constructions. In English and Chinese, passive sentences containing QNPs are ambiguous. In (1), *everyone* and *a woman* can have scope over each other and so can *meige ren* and *yige nuren* in (2).

(3) Every farmer is feeding a donkey. (Crain & Thornton 1998:294)

LF: [$_{I''}$ Every farmer$_i$ [$_{I''}$ x_i [$_{I'}$ is [$_{V''}$ a donkey$_j$ [$_{V''}$ t_i [$_{V''}$ feed x_j]]]]

The Distributive Reading: For every farmer, there is a donkey such that every farmer is feeding a donkey.

The Collective Reading: There is a donkey such that for every farmer, every farmer is feeding the donkey.

(4) Mei ge xuesheng dou mai le yi ben shu.
Every CL student all buy Asp a CL book
'Every student bought a book' (Huang 1995)

LF: [$_{I''}$ Meige xuesheng$_i$ [$_{I'}$ x_i [$_{V''}$ yiben shu$_j$ [$_{V''}$ dou mai le x_j]]]][2]

The Distributive Reading: For every student, there was a book such that every student bought a book.

(5) Every student persuaded one passenger to donate money.

LF: [$_{I1''}$ Every student$_i$ [$_{I1''}$ x_i [$_{I1''}$ [$_{V1''}$ one passenger$_j$ [$_{V1''}$ t_i [$_{V1''}$ persuaded x_j [$_{I2''}$ PRO$_j$ to donate money]]]]]]

The Distributive Reading: For every student, there was one passenger such that every student persuaded one passenger to donate money.

The Collective Reading: There was one passenger such that for every student, every student persuaded the passenger to donate money.

[2] Different from English, there is no VP-internal subject trace in Chinese, due to the lack of overt agreement.

(6) Mei ge kongbufenzi dou qiangpo yi ge renzhi
Every CL terrorist all force one CL hostage
qu gen jingcha tanpan
go with policeman negotiate
'Every terrorist forced a hostage to negotiate with policemen.'

LF: [$_{I1"}$ Mei ge kongbufenzi$_i$ [$_{I1"}$ x_i [$_{I1'}$ [$_{V1"}$ yi ge renzhi$_j$ [$_{V1"}$ qiangpo x_j [$_{I2"}$ PRO$_j$ qu gen jingcha tanpan]]]]]

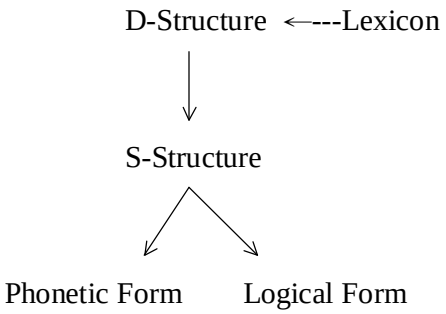
The Distributive Reading: For every terrorist, there was a hostage such that every terrorist forced a hostage to negotiate with policemen.

Unlike examples (1) and (2), simple active constructions like (3) and (4), and object control constructions like (5) and (6), exhibit different interpretations in English and Chinese. (3) and (5) are ambiguous in English. However, (4) and (6) are not ambiguous in Chinese. According to Aoun and Li (1989), the difference between English and Chinese is due to the constituent structure, which will be discussed later. As we can see from the above examples, English indeed exhibits scope ambiguity more freely than Chinese.

1.2.3 The Linguistic Framework

In this study, I will first discuss the notion, Logical Form (LF), postulated by Chomsky (1977). He proposes that Logical Form is a level of representation that interfaces the theories of syntax and semantics. LF represents whatever properties of syntactic forms are relevant to semantic interpretations. Chomsky further assumes that LF representations are derived from S-Structures. The relationship between LF and the other syntactic representations is as follows (Chomsky 1981):

(7)



To be more specific about the mapping between S-Structure and LF, May (1985), states that there is a transformational rule, "Move α". An instance of "Move α" that May argues for at LF representations is Quantifier Raising (QR). QR moves quantified noun phrases (QNPs) from an argument position (A-position) to a non-argument position (A'-position). The movement of a QNP leaves an empty category, which is referred to as a variable by logicians. The left empty category, also called a trace, must be bound by the moved QNP. Consider sentence (8) and its interpretations (8a) and (8b):

(8) Every boy likes some girl.

a. For every boy *x*, there is some girl *y*; such that it is the case that *x* likes *y*.

b. There is some girl *y*; such that for every boy *x*, it is the case that *x* likes *y*.

In (8a) and (8b), *x* and *y* are variables of *every boy* and *some girl*. The interpretations of these variables vary with and depend on the moved QNPs. One semantic feature of *every boy* and *some girl* is [+ Human], which restricts the range of *x* and *y* to humans. After QR applies, sentence (8) has two LF representations, as illustrated in (9a) and (9b):

(9) a. $[_{IP}$ every boy_i $[_{IP}$ some $girl_j$ $[_{IP}$ x_i likes y_j]]]

b. $[_{IP}$ some $girl_j$ $[_{IP}$ every boy_i $[_{IP}$ x_i likes y_j]]]

The LF representations as in (9) correspond to the interpretations as in (8a) and (8b). In (9a) and (9b), the left empty categories x_i and y_j are bound by the moved QNPs, *every boy* and *some girl*. In (9a), *every boy* c-commands *some girl*. In (9b), *some girl* c-commands *every boy*. The different c-commanding relationships between *every boy* and *some girl* can then account for the two interpretations of sentence (8).

QNPs such as *every boy* and *some girl* take scope over a certain domain and they can affect the meaning of other elements in that domain. May (1985) proposes that "the intent of the Scope Principle is that an LF-representation containing quantifiers forming a Σ-sequence is compatible either with there being interpretive dependencies among the member quantifiers of that sequence or with the quantifiers being interpreted independently of one another" (p.34). To account for the scope interpretations, two notions must be discussed. One is "c-command" and the other is the Empty Category Principle.

According to Aoun and Sportiche (1983), Huang (1983), and May (1985), the scope of a QNP is the domain c-commanded by it. The hierarchical notion "c-command", defined by Reinhart (1981), is stated as in (10):

(10) Node A c-commands node B if and only if

a. A does not dominate B and B does not dominate A; and

b. The first branching node dominating A also dominates B.

In (9a), *every boy* c-commands *some girl*. *Some girl* is in the domain c-commanded by *every boy*; therefore, *every boy* has scope over *some girl*. The wider scope interpretation of *every boy* in (9a) refers to a distributive interpretation as given in (8a). In (9b), *some girl* c-commands *every boy*. *Every boy* is in the c-commanding domain

of *some girl*. Accordingly, *some girl* has wide scope over *every boy*, yielding a collective interpretation as in (8b).

The other important notion for determining scope interpretations is the Empty Category Principle (ECP) [3], as stated in (11):

(11) The Empty Category Principle

Traces must be properly governed[4].

A properly governs B if and only if A theta-governs B or A antecedent-governs B.

At LF, QR moves QNPs from A-positions to A'-positions and the movement leaves traces behind. It has been suggested by Chomsky (1981), and Aoun, Hornstein, and Sportiche (1981) that the ECP can be extended, in its application to LF. If the traces cannot be properly governed, the movement will be illegal.

According to the ECP, only (9b) is the well-formed LF representation. That is, the wide scope of *some girl* over *every boy* is the only interpretation of sentence (8).

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[3] That the ECP holds of LF was first proposed by Kayne (1981a, 1981b), who argued that aspects of the distribution of the polarity item *personne* 'no one' in French. *Personne* normally comes paired with the particle *ne*, and though it need not occur in the same clause with *ne*, if it does not, then according to Kayne it can only occur in object position:

(1) a. Je n'ai exigé qu'ils arrêtent personne.
I neg have required that they arrest no one
b. *Je n'ai exigé que personne soit arrêté.
I neg have required that no one be arrested

Kayne attributes this to the requirement that *personne* must be an adjunct at LF of the clause containing *ne*, to be accomplished by QR:

(2) a. personne$_2$ [je n'ai exigé qu'ils arrêtent e_2]
b. personne$_2$ [je n'ai exigé que e_2 soit arrêté]

Although the trace is properly governed in (2a), since it is a complement to V, a lexical category, it is not in (2b), where it occurs as the complement subject, causing a violation of the ECP.

[4] The notion "government" is defined as follows by Chomsky (1986:8):

(i) Government
A governs B if and only if
A is a governor; and A c-commands B; and no barrier intervenes between A and B.
Maximal projections are barriers to government. Governors are heads.

However, the scope relationships in (9a) and (9b) are both possible in English. Accordingly, Aoun and Li (1989) propose two more principles, the Minimal Binding Requirement and the Scope Principle to account for the interaction of QNPs at LF. These theories proposed by Aoun and Li (1989) will be discussed in Chapter Two.

1.3 Research Questions

The research questions of the present study are as follows:

1) SLA Issues

a. Do Taiwanese students apply their L1 knowledge to interpret English QNPs? If yes, their interpretations of English sentences with QNPs should be different from native speakers of English.

b. Do high achievers differ from low achievers in interpreting English sentences with QNPs? If yes, the group effects should be significant.

c. Will different tasks influence Taiwanese students' interpretations of English QNPs? If yes, the methodological distinction should be obvious.

2) Linguistic Implications

a. Do EFL learners show construction effects when they interpret English QNPs in different constructions? If yes, the construction effect should be significant.

b. Does the sequence of a universal QNP and an existential QNP affect EFL learners' interpretations of English QNPs?

1.4 Organization of the Thesis

This thesis consists of five chapters.

In Chapter Two, I will discuss the similarities and differences between the ambiguity properties of English and Chinese QNPs in various syntactic constructions. Next, I will review three studies on syntactic theories of QNPs (Aoun & Hornstein 1985, Aoun & Li 1989, and Kuno *et al*. 1999). Last, I will evaluate two empirical studies of the acquisition of Chinese and English QNPs (Lee 1991, and Crain *et al*. 1996).

In Chapter Three, I will first introduce the L2 subjects (i.e., Chinese-speaking learners of English) and the native control groups (i.e., the English native controls and the Chinese native controls) of the present study. Later, I will describe the adopted methodologies and present the test materials, procedures, and statistical methods for data analysis. Finally, I will report the results analyzed by Statistical Package for the Social Science.

In Chapter Four, I will further interpret the present findings. I will first discuss the SLA issue, the L1 influence on L2 acquisition of QNPs. I will also evaluate the effect of methodology. Then, I will discuss the linguistic implications, such as whether there are construction effects on EFL learners' interpretations of English QNPs and whether the subjects have different interpretations of English QNPs when the sequences of QNPs are different.

In Chapter Five, I will discuss the implications of the present study. Then, I will present the limitations of the study and give some suggestions for further research.