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SECOND LANGUAGE ACQUISITION OF CHINESE
ANAPHOR BY NATIVE ENGLISH SPEAKERS

BY

XIA ZHANG ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment
of the requirements for the degree of DOCTOR OF PHILOSOPHY.

IN

PSYCHOLINGUISTICS
DEPARTMENT OF LINGUISTICS

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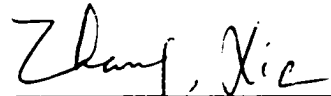
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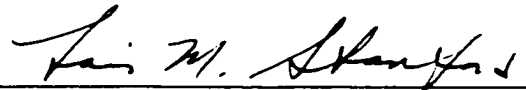
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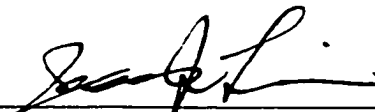
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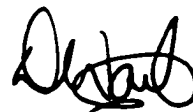
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TO MY FATHER AND MOTHER

SECOND LANGUAGE ACQUISITION OF CHINESE ANAPHOR

BY NATIVE ENGLISH SPEAKERS

Abstract

Chinese and English differ in the use of third person anaphor due to the different typological families to which they belong. English is a subject-prominent language in which syntactic constraints primarily determine the choice between a zero and a lexical anaphor. Chinese, on the other hand, is a topic-prominent language in which discourse constraints mostly govern such choice, though syntactic and semantic constraints also play some role. As a result, zero anaphor is widely permitted in Chinese whereas lexical anaphor is the norm in English. Furthermore, Chinese allows many situations where the choice between a lexical and a zero anaphor is optional while English requires an obligatory use of lexical anaphor in most situations. These different anaphor uses pose a great deal of difficulty for second language learners of Chinese (CSL) whose first language is English. It is thus the purpose of this study to discover an anaphoric pattern exhibited by these learners and the factors that determine this pattern.

In this study, we hypothesized that optionality (optional/obligatory selection of anaphor) and language similarity (similar/dissimilar anaphor use in first and target languages) are two important factors that play a significant role in CSL speakers' acquisition of Chinese anaphor. Thirty CSL speakers participated in three experimental tasks that investigated their anaphor use in three linguistic domains. A group of native Chinese speakers also carried out the same experimental tasks to establish baseline data

against which to make comparisons.

The results supported our hypotheses that the CSL anaphor pattern is substantially influenced by optionality and similarity in anaphor use. In addition, we found some relationship between experimental task and the impact of the two factors on participants' choice of anaphor. The results of the study also coincidentally show that native Chinese speakers do not always follow what prescriptive grammar says, and their anaphor use is both lexically and task sensitive, suggesting the importance of obtaining accurate native speaker data in the target language tasks when undertaking an experimental study of second language acquisition.

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CHAPTER ONE

Introduction and Overview

1.1 Introduction

During the process of acquiring a second language (L2), an L2 learner is faced with the task of overcoming both obvious and subtle linguistic differences between his/her mother tongue and the target language. It is, however, usually the subtle differences which keep an L2 learner struggling. This dissertation addresses the issue of how second language learners acquire subtle linguistic differences within three linguistic domains: discourse, syntax, and semantics. Chinese anaphora acquisition by English speakers learning Chinese as a second language (CSL) provides a rich linguistic domain to investigate this issue.

Anaphora, in the dissertation, is understood to refer to a relation between two linguistic elements wherein the interpretation of one (called the *anaphor*) is in some way determined by the interpretation of the other. While there are many types of anaphor in a language, the focus of this present investigation is on third person anaphors. In discussing such anaphora, the term *antecedent* is used to refer to the noun phrase (NP) to which the anaphor is related, whether it precedes the anaphor or follows it (Lust, 1986; Wason, 1986). The semantic notion which is coded by the antecedent and its related anaphor is called the *referent*. In both oral and written discourse, third person anaphors are generally adopted to point back to previously-mentioned referents for the sake of ensuring referential continuity and coherence. Anaphors, which are typically represented by more minimal linguistic coding material than their antecedents, are understood to be an example of the linguistic principle of using the minimal coding to accurately transmit the necessary information (Comrie, 1981).

In studies in discourse analysis and psycholinguistics, three forms of third person anaphor¹ are distinguished: noun phrases (usually Noun or Determiner + Noun), lexical anaphors, and zero anaphors. Unlike antecedent NPs, which can be either definite or

¹ "Anaphor", if not further specified, is used in the following dissertation to refer to third person anaphors only.

indefinite, anaphoric NPs are generally definite, e.g., *the man*, as they are the reiteration of their antecedent NP. Lexical anaphors² are pronouns, and have phonological content such as *he* (English), *ta* (Chinese, ‘he’/‘she’). Zero anaphors are referred to as syntactic holes in a sentence where a referent is understood but not explicitly mentioned, such as the \emptyset in the English sentence *He sang and \emptyset danced*. In a specific language, the choice of one of these three types of anaphor in any given utterance may depend on syntactic, discourse-pragmatic, or semantic factors, and on interactions among them (Pu, 1991).

Languages differ as to which factor plays the most important role in this selection of anaphor. One significant difference arises from the typological family to which a language belongs. According to Li and Thompson (1976), all languages can be divided into two types: topic-prominent (Tp) and subject-prominent (Sp). In a topic-prominent language, the notion of “topic”, which is discourse-dependent, plays an essential role, while in a subject-prominent language, the notion of “subject”, which is sentence-dependent, is crucial³. This difference is clearly instantiated by the use of “dummy” subjects such as *it* and *there* in an Sp language like English or French, but not in a Tp language such as Chinese. This is because in an Sp language a subject may be needed whether or not it plays a semantic role. In a Tp language, where the notion of subject does not play a prominent role, there is no need for “dummy” subjects (Li & Thompson, p. 468). This is illustrated by the following examples, given in both Chinese and English⁴:

- (1.1) Zher zhen re.
‘here really hot’

It is really hot here.

- (1.2) You yi tiao mao zai huayuan li.
‘exist one Cl cat at garden in’

There is a cat in the garden. (Li & Thompson, p. 468)

² Lexical anaphors are what we usually call “pronouns”. However, the term “lexical anaphor” is used throughout the dissertation.

³ The exact nature of “topic” and “subject” will not be discussed further. See Li and Thompson (1976), Tsao (1979, 1990), Shi (2000) for more extensive coverage.

⁴ Except for (1.1) and (1.2), examples in this chapter are written by the author.

Another prominent effect of this typological difference, and one which bears directly on the topic of this dissertation, is reflected in the pattern of preference between lexical and zero anaphors (Shi, 1989; Jin, 1994). Topic-prominent languages are characterized by extensive use of zero anaphor. One possible explanation is that in a Tp language, the crucial importance of “topic” makes the use of a discourse–pragmatic constraint the essential factor. The discourse-pragmatic constraint referred to here is the rule that as long as a referent is recoverable from discourse context, minimal coding, (in this case, Chinese zero anaphor) is a better choice for reference tracking (Givon, 1983; Levinson, 1987). For instance,

- (1.3) Zhang San zhan qilai, ϕ chuan hao yifu, ϕ jiu zou le. ϕ zou
 ‘Zhang San stand up, ϕ wear well clothes, ϕ then leave Asp. ϕ leave’
 yiqian, ϕ lengleng de kan le wo yi yan.
 ‘before, ϕ coldly Par look Asp me one look.’

Zhang San got up, put on his clothes, and left. Before he left, he looked at me coldly.

Subject-prominent languages, on the other hand, are characterized by limited use of zero anaphor and prevalence of lexical anaphor. A possible reason for this is that the central role of the grammatical “subject” makes a syntactic constraint the decisive factor in anaphor selection. This syntactic constraint is the rule that in most circumstances, sentences should have a subject, in this case, in English, a lexical anaphor. For example,

- (1.4) Little John wanted to go to school very much, but because he was feeling sick, he could not go. He looked really sad.

It is specifically because of the impact on anaphor choice resulting from this typological difference that English and Chinese were chosen for this research. In English, the choice between lexical and zero anaphors is primarily determined by syntactic rules; in particular, the rule that sentences require overt subjects. As a result, in English zero anaphors are only allowed in the subject position of closely linked coordinate constructions; lexical anaphors are obligatory in other subject positions as

well as in object positions. The strong influence of syntax in English has made lexical anaphor the preferred linguistic means of reference tracking. (See, *inter alia*, Dahl & Gundel, 1982)

In contrast to English, Chinese is a topic-prominent language where discourse-pragmatic constraints govern a great deal of anaphor use. In most cases, when a referent can be inferred from context, a zero anaphor is adopted to maintain reference in the topic, subject, and object positions of many different syntactic structures. Using a lexical anaphor in such situations can make a Chinese sentence sound syntactically right but inappropriate from a discourse point of view. However, it should also be noted that, in addition to these discourse-pragmatic constraints, the role of syntax and semantics in Chinese anaphor determination cannot be overlooked (Li & Thompson, 1976; Chen, 1986).

The major difference in anaphor use between English and Chinese has been observed to present a great obstacle to the process of second language acquisition (Charters, 1997; Gundel & Tarone, 1992; Jin, 1994; Yuan, 1997; etc.). This problem seems to be especially acute for native English speakers learning Chinese, for whom the complex interaction of lexical and zero anaphors is usually deeply puzzling. In my view, one of the reasons for this is that the Chinese discourse-based rules are often more variable than syntax-based rules, and this in turn creates many situations where an optional choice between lexical or zero anaphor exists. Optional use makes it more difficult for L2 instructors to form an explicit recipe for the appropriate anaphor choice and, lacking this, more difficult for L2 learner to perceive a pattern. In addition, Chinese anaphor use is also constrained by syntax and semantics, which leads to obligatory use of a certain anaphoric form under specific conditions. Therefore, when a CSL speaker produces a Chinese sentence, he/she has to consider not only syntactic and semantic correctness, but also discourse appropriateness as well. Specifically, he/she has to learn when an anaphor is obligatorily used and when it is optionally used. Furthermore, the pervasive occurrence of optional use makes L2 learners more likely rely on their L1 for assistance, resulting in a stronger L1 transfer effect. A native speaker of Chinese learning English as a second language (ESL), on the other hand, in most circumstances has only to

be aware of syntactic and morphological well-formedness when trying to construct an acceptable English sentence.

The greater difficulty in the acquisition of Chinese anaphors poses an interesting opportunity to explore the interplay among a number of constraints (discourse, semantics, and syntax) in a well-bounded aspect of second language acquisition. The primary purpose of the research, therefore, is to discover the anaphoric pattern produced by L2 speakers of Chinese, and to provide an account for such a pattern. This goal is pursued through an experimental study of Chinese anaphor use by CSL learners. In the study, we look at CSL learners' anaphor use in a range of contexts organized on discourse, syntactic, and semantic levels. The term "level" is used here in the traditional linguistic sense of a domain of rule-governed behaviors concerned with equivalent objects (e.g., sentences, discourse episodes, morphemes, etc.). Each level subsumes specific linguistic sites where anaphors can occur. These specific sites are called "contexts" in this research. For instance, when the choice of an anaphoric form is determined by a syntactic rule, e.g., the object position in an English transitive sentence cannot be represented by a zero, we would say that anaphor choice occurs in the "object context" on the syntactic level. Based on the results of previous studies (Williams 1988, 1989; Hartford, 1995; Gundel & Tarone 1992; Charters, 1997, etc.), the observed CSL anaphoric pattern will be best accounted for in terms of two factors, language similarity and optionality. By language similarity, we refer to similarities and differences in anaphor patterns in the participants' L1 and L2; by optionality, we mean whether a certain anaphoric form is required or whether there is a choice. These two factors will form the basis of the hypotheses in this research.

In order to understand how L2 speakers acquire Chinese anaphors, we need to know the nature of the system that they are acquiring. While there have been very good grammatical descriptions of the Chinese anaphoric system (see *inter alia* Li & Thompson, 1981; Chen, 1986; Chao, 1968), what is required in this research is a behavioral measure of native Chinese speakers' (CNL) performance in specific tasks against which behaviors of the second language learners can be compared. Although there has been a limited number of text analyses investigating anaphor production by native Chinese speakers on the discourse, syntactic, and semantic levels (Pu, 1997), no systematic, controlled,

experimental study has been carried out to look at how native Chinese speakers actually use anaphors on these three levels. Furthermore, although optional use of either lexical or zero anaphors has been predicated as a common phenomenon in Chinese, no studies have been done to find out what "optional" really means to native Chinese speakers. It was therefore important to establish a behavioral benchmark for native speakers in order to assess adequately the performance of the CSL learners.

Thus, in the study, two groups of subjects (CSL learners and CNL speakers) participated in three identical experimental tasks: a story-writing task designed to investigate anaphor use on the discourse level; a cloze task and an acceptability judgment task used to examine anaphor use on the semantic and syntactic levels. In addition, a third group of native English speakers (ENL) with no Chinese experience did the story-writing task to provide controlled English discourse data (see Chapter Six). In order to isolate possible task effects, both the cloze and judgment tasks were employed to look at the participants' anaphor selection in the same set of contexts.

The goals of this research are threefold;

- (1) To characterize the anaphoric choices of CNL speakers under specific task conditions;
- (2) To characterize the anaphoric choices of CSL speakers under those same conditions;
- (3) To characterize the ways which they differ and offer an explanation for why.

Through the achievement of these three goals, this present research seeks to (1) provide further empirical knowledge concerning the role of optionality in anaphor use in Chinese grammar, (2) provide further insight into the phenomenon of L1 transfer—that is, reliance on L1 rules, a case of notable dissimilarity between L1 and L2; and (3) provide a basis for improving L2 instruction and ultimately L2 learning in this domain.

1.2 Overview

The dissertation is organized in the following way.

Chapter Two starts with a review of different theoretical approaches to Chinese third person anaphor use, with a focus on two theoretical frameworks: syntactic analysis

and discourse analysis (or, more broadly, an extra-syntactic approach). Along with the review, advantages and disadvantages of each approach are evaluated and discussed. Through this discussion, we intend to establish the importance of the three factors governing anaphor use in Chinese, namely discourse, syntax, and semantics. We argue that neither the syntactic analysis nor the discourse analysis is sufficient to account for the complicated nature of Chinese anaphor use. Following this, we outline a comprehensive distribution pattern of Chinese anaphors on the three levels, based on grammatical descriptions. Each level contains specific contexts where anaphors occur, and the number of contexts varies with level. Predictions are made, also based on grammatical descriptions, for anaphor use in each context, either obligatory or optional. Finally, against this background, we lay out similarities and differences between Chinese and English anaphor use.

Chapter Three addresses the factors that influence second language anaphor acquisition by reviewing previous research on anaphor in L2 acquisition. Special attention is given to the examination of research carried out within L1 transfer and discourse-functional approaches. Advantages and disadvantages of each approach are presented. In addition, we also critically review other studies that indicate the effect of factors like optionality, input, and markedness. Before reviewing L2 anaphor studies, we give a brief discussion on two general but related issues in L2 anaphor acquisition; namely, interlanguage and L1 transfer.

Chapter Four presents the experiments carried out with the CNL, CSL, and ENL participants. This discussion includes a review of the scope and hypotheses of the research, a description of the general experimental design such as the participants, experimental procedures, and stimuli. Finally, but most importantly, this chapter presents analyses of the experimental tasks used. In each analysis, we discuss the rationale for using the task, the methodology, and performance expectations for both CNL and CSL participants.

Chapter Five presents an analysis of the experimental results of the CNL group. Chapter Six reports the experimental results of the CSL participants and compares them with the CNL and ENL results.

Chapter Seven, the last chapter, focuses on the results of this investigation and its implications in terms of the three goals proposed above. The chapter concludes with a discussion of implications for second language anaphor acquisition and classrooms. Suggestions for future studies are also included in this chapter.

CHAPTER TWO

Lexical and Zero Anaphors in Chinese and English

2.1 Introduction and overview

As stated in Chapter One, the primary objective of this thesis is to look at how native English speakers acquire Chinese third person anaphors; a preliminary objective is to investigate how native Chinese speakers actually behave in the choice between lexical and zero anaphors. To achieve these purposes, it is important for us to review the grammatical description of anaphor use in Chinese and English. Only with a clear understanding of the anaphor use in these two language systems can we examine the role of an L1 transfer effect, which we will argue is necessary to give a clear picture of second language anaphor acquisition. Therefore, in the first part of this chapter, I first review relevant literature on anaphor use in Chinese and English respectively. Then I lay out the distribution patterns of zero and lexical anaphors in both languages. Specific contexts in which anaphors occur are included in the distribution patterns. Due to its complicated nature, Chinese anaphor use is the focus of the first part of the chapter. Following this part, I outline the similarities and differences between Chinese and English anaphors.

2.2 Studies on Chinese third person anaphors

Chinese, like English, adopts full noun phrases, lexical anaphors, and zero anaphors to maintain reference. Sometimes the three forms of anaphor are interchangeable without involving a conspicuous change of the acceptability of the expression. In most cases, however, there is a definite preference in favor of one form over the other forms, and any switch away from the preferred one results in a highly awkward utterance (Chen, 1984, 1986). For several decades, linguists have tried to articulate the principles that govern a Chinese speaker's choices. Most of the research has been focused on the use of third person zero anaphors. The result obtained so far is quite varied. A possible reason for this is that the researchers (Li & Thompson, 1979, 1981; Chen, 1984, 1986; Pu, 1991,

1997) worked in different frameworks and with different data sources. The research has come mainly from two general perspectives: syntactic analysis or an extra-syntactic approach. The syntactic approach explores the effect of syntactic properties of sentences on anaphor selection, while the extra-syntactic approach (including discourse, neo-Gricean pragmatic, and cognitive analyses, which will be discussed in 2.2.2) investigates the effect of a larger discourse context on that selection. The following sections will exemplify the analyses of Chinese anaphora carried out within each approach, as a discussion of these approaches will reveal both a range of analyses that has been applied to the understanding of anaphora in Chinese and the complexity of the phenomenon itself.

2.2.1 A syntactic approach

The syntactic approach basically looks at the choice between lexical and zero anaphors within the local boundaries of the sentence (Huang, 1984, 1989; Xu, 1986). One recent syntactic analysis examines the distribution of Chinese zero and lexical anaphors within a Government Binding (GB) framework and proposes that the use of Chinese anaphors is crucially constrained by grammatical relations and functions (Huang, 1984, 1989). Within the GB theory, two major kinds of zero anaphors are distinguished: pronominals and variables. Pronominals are zero anaphors in subject position, where they are interpreted by the Generalized Control Rule (GCR), which determines that a pronominal is co-indexed with the closest NP. A pronominal is a *pro* if the clause is finite and a *PRO* if the clause is non-finite (Huang, 1984). A *pro* can optionally be dropped when the language has a rich agreement system (subject-verb agreement inflected in the verb), or when the language has no such agreement at all (Jaeggli & Safir, 1989). Chinese, being a non-inflected language, thus allows *pro-drop*. The second kind of zero anaphor results from variables left by fronted elements such as zero topics in subject position and those in object position (Huang, 1984). Variables are interpreted as coreferential with a fronted empty topic, not with the closest NP. The two kinds of zero anaphor are illustrated in examples (2.1) to (2.3).

- (2.1) Li Si shuo \emptyset mingtian yao qu Zhongguo.
 ‘Li Si say \emptyset tomorrow will go China’
Li Si said that he would go to China tomorrow.
- (2.2) Wo qing le Xiao Li \emptyset lai wo jia.
 ‘I invite Asp Xiao Li \emptyset come my house’
I have invited Xiao Li to come to my house.
- (2.3) \emptyset jian dao \emptyset le.
 ‘ \emptyset see \emptyset Asp’
I saw him.

According to Huang, the zero anaphor in (2.1) is a pro, as it occurs in a finite clause. The zero anaphor in (2.2) is a PRO due to its occurrence in a non-finite clause. The two zero anaphors in (2.3) belong to variables, which are \bar{A} -bound by an empty topic. Chinese PRO cannot alternate with a full NP or a lexical anaphor, so it constitutes an obligatory ellipsis (zero anaphor), but pro and variables can, and therefore constitute optional ellipsis (Charters, 1997). The ‘avoid pronoun⁵ principle’ (Chomsky, 1981) should be applied when the choice between a zero and lexical anaphor is left open by the grammar and when no contrast or special focus on the subject is needed. Specifically, this principle predicts that in situations where both lexical and zero anaphors can be used, zero anaphors should be employed when local coreferential interpretation is intended, but lexical anaphors should be adopted when a disjoint referential interpretation (non-local co-reference) is needed.

The GB analyses, however, have some serious problems (Huang, Y., 1994; Ariel, 1990; Pu, 1991, 1997). Firstly, the Generalized Control Rule can make a false prediction, since a pro can be co-indexed with an antecedent which is not its closest NP (see example (2.4) below). Secondly, in a real discourse, object zero anaphors may be co-indexed with an argument in the matrix clause, behaving like a pronominal rather than a variable (example (2.5)). Thirdly, the ‘avoid pronoun principle’ cannot account for the fact that

⁵ Pronoun here refers to lexical anaphor.

the occurrence of lexical anaphors in places where zero anaphors could exist may not generate a contrast in referential meaning (examples (2.6) and (2.7)).

- (2.4) Yishen_i shuo bingren_j zhidao $\emptyset_{*j/i}$ mingtian gei ta kaidao.
 'doctor say patient know $\emptyset_{*j/i}$ tomorrow for him operate'

The doctor_i says that the patient_j knows that he_i will operate on him tomorrow.

(Huang, Y. 1994)

- (2.5) Xiaotou_i yiwei meiren kanjian \emptyset_i .
 'thief think nobody see \emptyset_i '

The thief_i thought that nobody had seen him. (Pu, 1991)

- (2.6) Xiaoming_i shuo $\emptyset_{i/j}$ xia ge yue jiehun.
 'Xiaoming say $\emptyset_{i/j}$ next month marry'

Xiaoming_i said he will get married next month.

- (2.7) Xiaoming_i shuo ta_{i/j} xia ge yue jiehun.
 'Xiaoming say he next month marry'

Xiaoming_i said he_{i/j} will get married next month. (Huang, Y. 1994)

In spite of these problems, the syntactic theory may be able to explain many absolute occurrences of anaphors at the sentential level. Specifically, it can predict the occurrence of an obligatory ellipsis, and describe its distribution in terms of grammatical functions in specific structures (e.g., the occurrence of PRO). It can also describe the sites where an ellipsis is optional in terms of grammatical functions in syntactic structures. However, in these cases, nothing in the syntactic theory can account for the speakers' choice to elide in one instance and realize it lexically in another instance in an apparently the same syntactic structure (Charters, 1997). Finally, due to its limitation to the analysis of small syntactic units (within the sentence boundaries), the syntactic approach is insufficient to account for the distribution and interpretation of Chinese anaphoric expressions across stretches of actual discourse.

2.2.2 An extra-syntactic approach

The syntactic analysis has been strongly challenged by linguists who look at anaphor on the discourse level, arguing that discourse, pragmatic, and cognitive factors play an important role in determining Chinese anaphoric choices. The body of research conducted by these linguists forms an approach which we will call "extra-syntactic". Within this approach, there are three different camps, one working within a discourse framework (Li & Thompson, 1979, 1981; Chen, 1986); one within a neo-Gricean's pragmatic framework (Huang, Y, 1994), and another within a cognitive framework (Pu, 1991; Tomlin & Pu, 1991). The three camps are not mutually exclusive and each acknowledges the importance of the other factors, since discourse, pragmatic, and cognitive factors are interrelated and the explanation of anaphor based on one factor would not be complete without taking the other factors into consideration. In addition, they all recognize the importance of a referent's semantic nature, e.g., in Chinese inanimate referents are rarely referred to by lexical anaphors.

2.2.2.1 The discourse framework

The research conducted within a discourse domain is primarily guided by the universal discourse management (UDM) rules (Givon, 1984, *inter alia*), i.e., anaphoric encoding is strongly affected by topic continuity; the more continuous a topic is, the more likely that it will be encoded by means of a reduced anaphoric expression. Topic continuity itself depends on referential distance, potential ambiguity, and persistency. Referential distance refers to the number of clauses between the anaphor and the referent, potential ambiguity denotes the number of other referents that could be confused with the given referent, and persistency is the number of clauses to the right of the point where the referent is first introduced. Therefore, referents that are low in referential distance, low in ambiguity, and high in persistence, are considered the most continuous and thus more likely to be represented by a zero anaphor as opposed to a lexical anaphor. Following the universal discourse management rule (UDM), Li and Thompson (1979, 1981) and Chen (1986) have suggested detailed discourse factors which are characteristic of Chinese anaphor use. Having examined the use of third-person anaphors in Chinese discourse, Li and Thompson (1979) found that one crucial factor governing the choice between a

Chinese zero and lexical anaphor is conjoinability. Conjoinability refers to the extent to which a clause constitutes a single unit with the preceding clause. Two clauses are conjoinable if the speaker wishes to present them together as one discourse unit, as opposed to two independent units. Therefore, conjoinability actually refers to a speaker's perception of the degree of connection between clauses in discourse. A high degree of conjoinability between two clauses tends to favor zero anaphor occurring in the second clause. The result of this is a topic chain. The appearance of topic chains indicates that the topic is in the most continuous state. Based on Li and Thompson's theory, a topic-chain refers to the situation where the topic established in the first clause serves as the referent for the unrealized topics in the chain of clauses following it. This can be illustrated in example (2.8) taken from the story-writing data of one native Chinese speaker in the present research. (Note the English translation produced by an English-speaking participant, which encodes the same conjoined events.)

(2.8) Zai xuexiao Xiao Li hen mang, Ø xian shang yingwen ke, Ø zai shang
 'at school Xiao Li very busy, Ø first take English class, Ø then take'
 jisuanji ke, ran hou Ø you qu jian laoshi.
 'computer class, later Ø then go see professor'

At school, Xiao Li was very busy; first he had his English class, then his computer class. Later on, he went to see his professor.

A topic-chain like (2.8) is a very common phenomenon in a topic-prominent language like Chinese, in which the use of zero anaphors is not as syntactically restricted as it is in English. This can also be well supported by the translation in the above example, where the native English speaker used lexical anaphors while the native Chinese speaker adopted zero anaphors to continue reference in the sentences introduced by adverbials *first*, and *later on*.

Besides proposing the notion of conjoinability in Chinese anaphor use, Li and Thompson also singled out three factors that affect the degree of conjoinability. They are: (a) the clauses in question shift from background information to foreground information or vice versa, (b) the second clause is marked with an adverbial expression or a contrastive morpheme, (c) the clauses in question constitute different turns in

conversation, specifically, when the antecedent and its anaphor reside with different speakers in conversation. It is suggested that on those occasions where a topic becomes less continuous and conjoinability is low, a lexical anaphor is likely to occur in Chinese. The three conditions are demonstrated in examples (2.9) to (2.11) respectively.

- (2.9) Wai bian jin lai le yi ge ren, Ø liang ge hong yanjing, yi fu da yuan lian,
 ‘outside come Asp a Cl man, Ø two Cl red eyes , a Cl big square face’
 Ø dai zhe yi ge xiao maozi, ta xin Xia.
 ‘Ø wear Asp a Cl small hat , he surname Xia’

From outside came a person. He had two red eyes and one big round face, and he was wearing a small hat. He had the surname Xia. (Li & Thompson, 1981, p. 662)

In (2.9), according to Li and Thompson’s analysis, the last clause is different from the preceding clauses, in that it states the name of the man instead of adding to his physical description; it is highlighted by the use of a lexical anaphor. Thus the final reference to Xia (a Chinese surname) is not conjoinable with the previous ones because it switches from foreground to background information.

- (2.10) (Zhei fu hua) hou lai song dao Beijing qu zhanlan, Ø bian de hen youming,
 ‘(this Cl painting)later send to Beijing for exhibition, Ø become very famous’
 Ø hai mai le wushi wan. Hen duonian yihou, zhei fu hua you zai
 ‘Ø also sell Asp 50 10,000. Many years later, this Cl painting again in’
 Shanghai chuxian le.
 ‘Shanghai appear Asp’

This painting was later sent to Beijing for an exhibition. It became quite famous and sold for half a million dollars. Many years later, it appeared in Shanghai again.

Example (2.10) was taken from the short narratives written by one native Chinese speaker and one native English speaker in the present research. Here, both the native Chinese and English speakers employed a lexical anaphor after the adverbial phrase *hen duonian yihou* (‘many years later’).

- (2.11) A: Li Ruijing lai guo le.
 'Li Ruijing come Asp Asp'
 B: O.
 A: Li Ruijing.
 B: Ta xianzai hai zai Minhang?
 'he now still in CAAC'
 A: Ta haoxiang ye kaoqu le yanjiusheng le.
 'he seem also pass exam Asp graduate student Asp'
 A: *Li Ruijing has been here.*
 B: *Oh.*
 A: *Li Ruijing.*
 B: *Is he still in CAAC?*
 A: *He seems to have passed the exams for graduate studies.*

(Huang, Y., 1994)

In (2.11), the referent "*Li Ruijing*" was coded by lexical anaphors, as it was mentioned by two different speakers. In addition to these discourse constraints, Li and Thompson indicate that the semantic feature animacy also has an important effect in the choice between Chinese lexical and zero anaphors.

On the basis of Li and Thompson's theory, Chen (1984) attempted to "explicate the mechanisms of zero anaphora for third person referents in Chinese through the analysis of the discourse context in which it occurs" (p. 3). He hypothesized that the choice among a full NP, a lexical, or a zero anaphor is determined by the fulfillment of the conditions along two dimensions: predictability and negligibility. The predictability condition includes parameters like "availability vs. unavailability of competing nouns" and "low vs. high conjoinability with preceding clauses" (p. 6). The negligibility condition is related to "the need to emphasize the identity of its referent per se" (p. 20).

One of its parameters is the semantic factor: "the animacy vs. inanimacy of its referents" (p. 26). Following Comrie (1981), who implies that people tend to pay more attention to animate referents than inanimate referents, Chen posits that an inanimate referent is more negligible than an animate referent. Therefore, high conjoinability,

unavailability of competing nouns, and an animate referent guarantee the use of zero anaphors. In addition, Chen points out six factors that can influence topic continuity and trigger the use of lexical anaphors or full NPs instead of zero anaphors. Of the six factors, three are similar to those identified by Li and Thompson; the other three are “insertion of some digression into the theme development”, “pauses”, and “paragraph boundary” (p. 12). Chen argues that lexical anaphors are likely to be adopted following a change of theme or a pause, and at paragraph boundaries. Compared to Li and Thompson, Chen provides a more detailed list of conditions where zero anaphors are preferred over lexical anaphors.

2.2.2.2 The neo-Gricean pragmatic framework

Instead of looking at anaphors in terms of discourse factors such as conjoinability or availability of competing referents, Huang (1994) investigated Chinese anaphor use using neo-Gricean pragmatic principles. According to Huang, anaphora is primarily determined by the systematic interaction of two neo-Gricean pragmatic principles, M[anner] and I[nformativeness]. In this order of priority, they are in turn constrained by a Disjoint Reference Presumption (DRP), and other pragmatic considerations (p. 17). The M-principle states that a speaker should not use a lengthy or marked expression without reason. Therefore, the use of a lexical anaphor where a zero anaphor could occur implies a contrast in reference and the lexical anaphor should not be interpreted as synonymous with the zero anaphor. The I-principle states that a speaker should say as little as necessary. The DRP indicates that co-arguments of the same predicate, except reflexives, tend to be interpreted as disjoint rather than coreferential. The DRP actually reflects a general language phenomenon that an object NP can not take the subject as its antecedent. This theory can be illustrated with the following examples (Huang, Y., p. 142-143):

- (2.12) Yang Daniang danxin nüer bu ken cihou Ø.
 ‘Yang Grandma worry daughter not willing look after Ø’

Grandma Yang is worried that her daughter is not willing to look after her.

- (2.13) Yang Daniang danxin nüer bu ken cihou ta.
 ‘Yang Grandma worry daughter not willing look after her’

Grandma Yang is worried that her daughter is not willing to look after her.

In (2.12), according to the I-principle, the zero anaphor should be coreferential with the full NP *nüer* ('daughter') in its local domain, however, this interpretation is rejected by the DRP constraint. As a result, it is preferably co-indexed with the matrix subject: *Yang Daniang* ('Grandma Yang'). In (2.13), according to the M-principle, the lexical anaphor should not be co-indexed with the matrix subject, as the use of a more marked anaphoric form indicates a contrast. However, this M-principle does not work here due to its violation of pragmatic constraints.

The neo-Gricean pragmatic theory seems to be able to provide a good explanation for anaphor use in general, as the two pragmatic principles are directly motivated by general economy/efficiency principles governing human cognition and behavior. However, it is less effective in describing the specific details of anaphora in Chinese.

2.2.2.3 The cognitive framework

The selection of Chinese anaphoric forms has also been studied within a cognitive framework (Tomlin & Pu, 1991; Pu, 1991, 1995, 1997; Pu, Prideaux, & Stanford, 1992). According to this framework, Chinese anaphor use is determined by memorial and attentional processes during discourse production. It is claimed that the speaker will use lexical or zero anaphors if he or she believes that the referent is already within the activated memory of the hearer. If the speaker believes that a referent is not yet activated in the hearer's mind or requires reactivation, he/she will use a full NP in order to achieve that. This alternation between full NPs and lexical/zero anaphors is reflected very well within an episode and at an episode boundary. The reason for this is that in discourse

production, the speaker, constrained by his/her attentional and memorial resources, has to organize the discourse into a sequence of episodes. The encoding load for discourse representation is assumed to be greater at an episode boundary than that within an episode since an episode is a memory unit that represents sustained attentional effort and endures until an episode boundary is reached (Pu, Prideaux, & Stanford, 1992). Therefore, more full NPs and fewer lexical/zero anaphors are expected at an episode boundary than within the episode. However, this theory mainly accounts for the choice between full NPs and lexical/zero anaphors and provides insufficient explanation for the choice between Chinese lexical and zero anaphors.

2.2.2.4 Comparing the three frameworks

Although linguists from the three theoretical frameworks all investigate Chinese anaphor use at the discourse level, each group has reached a different conclusion about the governing factors. The discourse account of Chinese anaphora claims that conjoinability is the most important factor in determining anaphor choice. The neo-Gricean pragmatic theory maintains that anaphor choice is primarily constrained by pragmatic principles. The cognitive framework argues that anaphoric choice is mainly determined by the referent's status in the mind of a speaker. Each approach has its advantages. The pragmatic and cognitive approaches have the advantage of being able to account for anaphor use in general because their principles are directly motivated by general human cognition and behavior. On the other hand, the discourse approach has the advantage of capturing the details of anaphora in Chinese. Since the purpose of the research was to explore how second language speakers acquire Chinese anaphors in specific contexts on the discourse, syntactic, and semantic levels, the discourse approach, which provides the best characterization of the details of Chinese anaphora, is most useful in the construction of stimuli and in the framing of hypotheses. It was for this reason that the present research adopted the discourse approach to investigate Chinese anaphor use on the text level.

2.2.3 Summary of previous studies on Chinese lexical and zero anaphors

As reviewed above, Chinese lexical and zero anaphors have been studied in both a syntactic and an extra-syntactic framework. The syntactic approach argues that Chinese anaphor use can be accounted for in terms of its syntactic properties. On the other hand, the extra-syntactic approach maintains that discourse, pragmatic, and cognitive factors play a more important role. This difference may be accounted for by the fact that the two approaches look at Chinese anaphor use on different levels. As a result, syntactic analysis makes the use of zero anaphors appear more constrained than it actually is whereas the extra-syntactic approach makes it appear more widespread than it is (Pu, 1997).

Therefore, in order to give a full account of Chinese anaphor use, we have to look at this use on all three levels -- semantic, syntax, and discourse, since within each level there are factors or constraints that can influence this anaphoric choice. In Pu's words: "...without syntactic factors, the use of anaphora would appear to be random. Without discourse considerations, the description of anaphor use would not be complete" (1991).

2.3 Distribution pattern of Chinese lexical and zero anaphors

As can be seen from the above, the choice between a zero and a lexical anaphor in Chinese is a rather complex issue. Ignoring any one of the three linguistic levels, discourse, syntax, or semantics, will make it impossible to describe completely all anaphor use. However, although previous studies have proposed some constraints at each level that govern the choice between lexical and zero anaphors, they have not provided a detailed description of the distribution pattern of Chinese anaphors. Therefore, my goal in this section is to provide such a description in order to both make a contribution to the characterization of anaphor use in Chinese and to provide a foundation for the present experimental study which investigates the acquisition of Chinese third person anaphor by second language speakers. To do so, I first establish a set of specific contexts based on the literature reviewed above (e.g., Chen, 1984; Pu, 1991), Chinese grammars (e.g., Chao, 1968; Li & Thompson, 1981), and Chinese language textbooks for second language speakers (e.g., Ch'en, Link, et al., 1994). These contexts capture the ways in

which the use of Chinese anaphora is governed by the three linguistic levels. Then, based on the same references, I lay out the appropriate anaphor use in each context. The contexts represent both those where the use of either a zero or a lexical anaphor is obligatory and those where the choice is optional. Please refer to a summary in Table 2.1 at the end of this chapter (p. 34) for a list of contexts. In Table 2.1 contexts tested in this research are indicated by an asterisk. These contexts will be revisited in Chapter Four, where they will form the basis for the development of the experimental stimulus materials.

2.3.1 Semantic level

The choice of Chinese anaphor is strongly affected by the semantic factor animacy⁶ (Li & Thompson, 1981; Chen, 1984; Pu 1991, 1997). Whether a referent is animate or not can oblige the non-use of lexical anaphor in some syntactic positions.

2.3.1.1 Inanimate context

When the referent of the anaphor is inanimate, lexical anaphors are rarely used; zeros are generally used. The use of a lexical anaphor in such a context can make the sentence sound awkward and unacceptable (Li & Thompson, 1981, Chen, 1984). This is illustrated in example (2.14a), which sounds more natural; and example (2.14b), which sounds awkward.

(2.14a) Zhei ben shu bu tai hao, wo bu xiang mai Ø.
 ‘The CI book not too good I not want buy Ø’
The book is not very good; I don't want to buy it.

(2.14b) *Zhei ben shu bu tai hao, wo bu xiang mai ta.
 ‘The CI book not too good I not want buy it’
The book is not very good; I don't want to buy it.

⁶ The semantic feature humanness also plays some but not a crucial role in Chinese anaphor use.

2.3.1.2 Animate context

When the referent of the anaphor is animate, either zero or a lexical anaphor may be used. However, zero anaphors are often preferred.

- (2.15a) Zhe gou tai tiaopi wo bu xiang mai ta le.
 ‘The dog too naughty I not want buy it Asp’
The dog was too naughty; I don't want to buy it.

- (2.15b) Zhe gou tai tiaopi wo bu xiang mai Ø le.
 ‘The dog too naughty I not want buy Ø Asp’
The dog was too naughty; I don't want to buy it.

Although both (2.15a) and (2.15b) are grammatical and acceptable sentences, (2.15b) with zero anaphor sounds more acceptable than its counterpart.

2.3.2 Syntactic level

In Chinese discourse, when a referent is easily recoverable from context, a zero anaphor can occur in almost any syntactic position where an NP can appear. This, however, does not mean that there are no syntactic constraints that govern this anaphor use. According to Chen (1984) and Pu (1997), the occurrence of zero anaphors is influenced by the grammatical position of the referent in a sentence. Both Chen and Pu have found that the frequency of zero anaphors is highest in subject position, next in direct object position, and lowest in indirect object position. This tendency was controlled for in the development of stimulus material in this experiment.

Many other grammatical positions and syntactic structures also influence or determine the use of zero and lexical anaphors in Chinese. These syntactic contexts include syntactic positions and specific constructions to which anaphor use is particularly sensitive. Grammatical descriptions of anaphor use in such syntactic contexts follow.

2.3.2.1 Pivotal construction

A pivotal construction, as defined by Chao (1968), “consists of a succession of a verbal expression V1, a nominal expression, and another verbal expression V2, with the nominal expression serving at once as object of V1 and subject of V2” (p. 124). Grammatically speaking, the position of the dual-purpose pivotal noun phrase⁷ in a pivotal construction cannot be empty and has to be filled lexically. If the choice is between a lexical and a zero anaphor, a lexical anaphor must be selected and zero anaphor must not be used (Li & Thompson, 1981; Pu, 1991). For example,

(2.16) Xiao Li da sheng shuohua, laoshi jiao ta likai jiaoshi.

‘Xiao Li loud voice speak, teacher ask him leave classroom’

Xiao Li talked loudly in the class, so the teacher asked him to leave.

In (2.16), *jiao* ('ask') is V1 and *likai* ('leave') is V2, between the two verbs is the pivotal noun phrase: *ta* ('he') which functions as both the object of V1 and the subject of V2. Without the anaphoric *ta*, the sentence would be ungrammatical.

2.3.2.2 Oblique position

Oblique position refers to the position after a preposition. The object of a preposition cannot be empty. In the case of lexical vs. zero anaphor, a lexical anaphor must be adopted to fill this oblique position and no zero anaphor is allowed (Li & Thompson, 1981; Pu, 1991).

(2.17) Xiao Li zheng zhan zai menkou, nei ge ren chao ta zou le guolai.

‘Xiao Li just stand Asp entrance, that Cl man towards him walk over’

Xiao Li was standing at the door when that man walked towards him.

In (2.17), the use of a zero anaphor instead of the lexical anaphor *ta* will yield an unacceptable sentence.

⁷ “Noun phrase” is used here in contrast to verb phrase. Lexical and zero anaphors are considered as noun phrases.

2.3.2.3 Serial verb construction

The subject of a non-finite clause, which is expressed as a serial verb construction in Chinese has to be a zero anaphor. In Chinese, verbs can be collocated without any linguistic marker such as English *to* or *-ing*.

(2.18) Xiao Li jueding \emptyset mashang zou.

‘Xiao Li decide \emptyset at once leave’

Xiao Li decided to leave at once.

In (2.18), there is an implied subject of *zou* (‘leave’) after the main verb *jueding* (‘decide’), which is coindexed with the subject *Xiao Li*. We describe this as an obligatory use of zero anaphor.

2.3.2.4 Complex sentences

The occurrence of zero and lexical anaphors in complex sentences in Chinese is a rather complicated issue. There are types of complex sentences which allow an optional use of either a zero or a lexical anaphor and there are others which require an obligatory use of one form or the other. Complex sentences, for the purposes of this research, are defined as sentences involving two clauses: one main clause and one subordinate clause. The subordinate clauses are embedded clauses, adverbial clauses, and correlative clauses.

2.3.2.4.1 Sentences with embedded clauses

In this research, an embedded clause functions as the complement of a main verb in a sentence⁸. Chinese embedded clauses are not introduced by a conjunction or complementizer such as *that*. Both lexical and zero anaphors are permitted in Chinese embedded clauses. The optional anaphor use in this context is illustrated in the following examples.

⁸ Some grammarians call this an “object clause”.

(2.19a) Lao Li_i shuo Ø_j mingtian yao qu Zhongguo.
 ‘Lao Li say Ø tomorrow will go China’
Lao Li_i said he_j would go to China tomorrow.

(2.19b) Lao Li_i shuo ta_j mingtian yao qu Zhongguo.
 ‘Lao Li say ta tomorrow will go China’
Lao Li_i said he_j would go to China tomorrow.

2.3.2.4.2 Sentences with adverbial clauses

In these sentences, subordinate adverbial clauses usually precede main clauses unless they are afterthought (Chao, 1968, p. 113). Commonly used adverbial clauses are those of time, cause, concession, and condition. Adverbial clauses are generally introduced and sometimes connected to the main clause by conjunctions⁹. There are two views on the occurrence of zero and lexical anaphors in these structures. According to Chen (1984), Chinese sentences with adverbial clauses have four possible occurrence patterns of zero and lexical anaphors:

	Subordinate Clause	Main Clause
A	Lexical anaphor (noun)	Lexical anaphor
B	Zero anaphor	Zero anaphor
C	Lexical anaphor	Zero anaphor
D	Zero anaphor	Lexical anaphor

Among the four types, Chen argues that C and D are the most preferred structures, A is the least preferred, and B is in the middle. As for C and D, Chen argues that the occurrence of zero anaphor in either a subordinate clause (C) or a main clause (D) depends on the discourse context of a referent. This view, however, is quite broad and makes no distinction between obligatory and optional anaphor use. As a result, it is not useful for making accurate predictions for specific adverbial clauses.

⁹ Chinese grammarians are not consistent in the terms they use. Some use “correlative markers”, some “adverbs”, or “linking elements”. For the sake of simplicity, I use “conjunctions”.

Other linguists maintain that the distribution of zero and lexical anaphors correlates with the position of the conjunction with respect to the subject in the main and subordinate clause (Liu, 1981; Liang, 1986; Huang, Y, 1994). Therefore:

	Subordinate Clause	Main Clause
E	Subj + Conj,	Subj + Conj (obligatory zero)
F	Subj + Conj,	Conj + Subj (optional zero)
G	Conj + Subj,	Conj + Subj (lexical preferred)

Note. Subj = subject Conj = conjunction

In E, where both subjects occur before the conjunctions, a zero anaphor is used obligatorily in the main clause. In G, where both conjunctions occur before the subjects, lexical anaphors are preferred, though zero anaphors are also used.

This analysis provides greater specificity than Chen's (1984). However, it is unable to account for anaphor use in complex sentences where only one conjunction is used (see example ((2.23) below). In addition, we must bear in mind that except for E, the rules given in this second analysis are by no means absolute; in F and G, the choice between a zero vs. a lexical anaphor is also influenced by the information provided by discourse and pragmatic contexts.

The following examples (2.20-2.24) show specific adverbial constructions and the anaphor use in these constructions based on the above two analyses (Chen, 1984; Liu, 1981; Liang, 1986; Huang, Y., 1994).

(a)adverbial clauses involving yi ('as soon as')...jiu ('then'): this kind of adverbial clause can be either of time or condition depending on the context.

(2.20a) Lao Wang yi chi wan fan, Ø jiu qu tushuguan le.

‘Lao Wang as soon as eat finish rice, Ø then go library Asp’

As soon as Lao Wang finished eating, he went to the library.

(2.20b) Lao Wang yi zuo wan zhe jian shi, Ø jiu keyi huijia le.

‘Lao Wang once do finish this Cl matter, Ø then can return home Asp.’

Once Lao Wang finished this work, he could go home.

Examples (2.20a) and (2.20b) represent adverbial clauses of time and condition respectively. They are both introduced by *yi* and connected to the main clause by *jiu*. Their subjects in the main and subordinate clauses occur before the conjunctions, as in pattern E above. As a result, an obligatory use of zero should occur in the main clause.

(b) adverbial clauses of concession: they are typically introduced and connected to the main clause by conjunctions *suiran* ('although') and *danshi* ('but') respectively. The conjunction word *suiran* can appear both before and after the subjects.

(2.21a) Xiao Li *suiran* hen mang, *danshi* Ø/ta haishi lai ie.
 'Xiao Li although very busy, but Ø/he still come Asp'
Although Xiao Li was very busy, he still came.

(2.21b) *Suiran* Xiao Li hen mang, *danshi* ta/ Ø haishi lai le.
 'although Xiao Li very busy, but he/ Ø still come Asp'
Although Xiao Li was very busy, he still came.

In (2.21a), the positions of the conjunctions are the same as F in the second analysis, therefore, there is no preference in anaphoric use and either zero or lexical anaphors can be used in the subject position of the main clause. In (2.21b), both conjunctions precede their subjects which follows pattern G, thus, lexical anaphors are preferred, though zero anaphors can also be used.

(c) adverbial clauses of cause: they are typically represented by sentences introduced and connected by *yinwei* ('because')...*suoyi* ('so'). Their anaphoric behavior is exactly the same as in example (2.21) above. That is, in (2.22a), either a lexical or a zero anaphor can be used. In (2.22b), although an optional anaphor use is allowed, lexical anaphor is the preferred form.

(2.22a) Li San *yinwei* hen mang, *suoyi* Ø/ta bu neng lai
 'Li San because very busy so Ø/he not able come'
Because Li San was very busy, he couldn't come.

- (2.22b) *Yinwei* Zhang San hen mang, *suoyi* ta/ Ø bu neng lai.
 ‘Because Zhang San very busy so he/ Ø not able come’
Because Zhang San was very busy, he couldn’t come.

(d) adverbial clauses of time marked by one conjunction word: these clauses are mainly marked by words like *yiqian* ('before'), *yihou* ('after'), or *de shihou* ('when'), which only occur at the end of an adverbial subordinate clause. The anaphoric occurrences in such constructions can only be roughly predicted through Chen’s analysis, which claims that the occurrence of a zero anaphor in one of the clauses is preferred in Chinese sentences involving adverbial clauses (see patterns C and D, p. 25). As no obligatoriness is indicated in this analysis, an optional anaphor use should occur in the main clause of such structure.

- (2.23) Lao Li lai Jianada *yiqian*, Ø zai Zhongguo xue guo Yingwen.
 ‘Lao Li come Canada before, Ø in China study Asp English’
Before Lao Li came to Canada, he had studied some English in China.

2.3.2.4.3 Correlative clauses

According to Chao (1968, p. 121), sentences which are connected by *yue* ('the more')...*yue* ('the more') are called correlative clauses. The anaphor use in this construction can be explained based on A in the second view above (p. 25). That is, when both conjunctions appear after their subjects, zero anaphors are obligatorily used.

- (2.24) Xiao Li *yue* shuo, Ø *yue* gaoxing.
 ‘Xiao Li more talk Ø more happy’
The more Xiao Li talks, the happier he is.

2.3.2.5 Topicalized construction

According to Shi (1989), when an object is topicalized and fronted to the topic position, its original position is left empty and a lexical anaphor is not used to fill it.

- (2.25) Zhongguocai, wo bu xihuan chi \emptyset , ye bu xihuan zuo \emptyset .
 'Chinese food, I not like eat \emptyset , also not like make \emptyset '
Chinese food, I don't like to eat it, I don't like to make it either.

However, when a prepositional object or an indirect object is topicalized, its original position is not left empty and a lexical anaphor must be adopted.

- (2.26) Lisi, wo yizhi dui ta hen zunjin.
 Lisi, I always to him very respect'
Lisi, I always have respect for.

In sum, the above examples have shown that the use of Chinese zero and lexical anaphors is not as random as we might think. It is to some extent constrained by the grammatical positions and syntactic structures in which it occurs. However, we should be aware that in the case of optional anaphor use, the degree of optionality and the preference pattern is mainly determined by discourse and pragmatic factors in a larger discourse context, and sometimes by semantic factors as well.

2.3.3 Discourse level

Although the factors at the syntactic and semantic levels influence and sometimes determine the use of Chinese anaphors, Chinese anaphor use is significantly influenced by discourse factors. Three important factors have already been proposed to influence the anaphor use on the discourse level: discourse, pragmatic, and cognitive factors. In this research, I adopt the discourse framework that maintains the crucial role of a discourse factor of conjoinability in the selection of Chinese anaphors (see section 2.2.2. for a detailed discussion). At the discourse level, the occurrences and non-occurrences of lexical and zero anaphors are not as rigidly constrained as are those at the syntactic and semantic levels. Thus, the anaphor use at this level is postulated to be optional with a high preference for either lexical or zero anaphors. Based on the discourse framework, two contexts are distinguished.

2.3.3.1 High conjoinability

High conjoinability is manifested most conspicuously in the form of topic chains, where the topic established in the first clause serves as the referent for the elided topics in the subsequent chain of clauses (Li & Thompson, 1979; Chen 1984). In topic chains, the events described are semantically closely related. In this context, zero anaphors are more likely to be used than lexical anaphors (see section 2.2.2.1 for an example (2.8)).

2.3.3.2 Low conjoinability

In real discourse, the conjoinability status of a referent can change from high to low. Possible causes of such a change are: (a) the clauses in question shift from foreground to background information or vice versa¹⁰, (b) the following clause is marked with an adverbial expression of time or place, or a contrastive morpheme, (c) the clauses in question shift from the story to the narrator's comments, (d) other referents are interposed in the cause of theme development, (e) the clauses in question constitute different turns in conversation. (See examples (2.9) to (2.11) above for reference). These five causes are a summary of those presented by Li and Thompson (1979), Chen (1984), and Pu (1991, 1997). In this context of low conjoinability, lexical anaphors are more likely to be used than zero anaphors.

2.4 English anaphor use

Compared to the use of Chinese third person anaphors, English anaphor use is much simpler. According to Li and Thompson, English is typologically a subject-prominent language, and the anaphor use in English is primarily governed by factors at the syntactic level. The most important factor is the syntactic position of a referent. At the syntactic level, zero anaphors can only appear in serial verb construction and the subject position of coordinate structures (Quirk, 1985), e.g., *he sang and danced*. In other syntactic positions, lexical anaphors have to be used.

¹⁰ For example, the clauses in question shift from the appearance of a participant to her/his activities; from actions or events to state of mind.

On the discourse level, English, like Chinese, follows the universal discourse management rules, i.e., the more continuous a topic is, the less coding material it needs. With respect to the use of zero vs. lexical anaphors, this discourse rule can only be realized in a rather limited syntactic context, namely the coordinate structure. On the semantic level, human referents are found to be more often coded by zero anaphors than are non-human referents (Pu, 1991), although this can, of course again, only be manifested in the subject position of coordinate structures. The limited role of discourse and semantic factors in English anaphora use highlights the crucial importance of syntactic factors.

2.5 Similarities and differences between English and Chinese lexical and zero anaphors

The first part of this section will present the differences and the second part, the similarities between English and Chinese.

2.5.1 Differences between lexical and zero anaphor use in Chinese and English

The most important difference between Chinese and English lies in the wide use of zero anaphor in Chinese and the limited use of zero anaphor in English. Specifically, firstly, in English, permissible contexts for zero anaphors are very restricted; zero anaphors may be used only in the subject position of the second clause of parallel coordinate constructions (Quirk, 1985). Therefore, no matter how readily recoverable a referent is from context, the use of a zero anaphor is judged incorrect if it is used in another position. Chinese zero anaphor, as we have seen, is such a common linguistic device that it may occur in almost any syntactic position of any grammatical construction where an NP could appear (Chen, 1984). Secondly, there are more optional uses (either a lexical or zero anaphor is acceptable) in Chinese than in English. Finally, there are more syntactic positions and structures where the use of zero anaphor is obligatory in Chinese.

At the semantic level, anaphor use is more constrained by semantic factors in Chinese than in English. In Chinese, whether a referent is animate or inanimate can be a crucial factor in determining the acceptability of an anaphor choice. However, in English, although animacy may have some weak effect on anaphor use when a referent is in

subject position, it exerts no influence elsewhere. At the discourse level, information obtained from discourse and pragmatics is far more important in Chinese anaphor use than in English. For instance, the effect of topic continuity is stronger on anaphor use in Chinese than in English.

2.5.2 Similarities between English and Chinese anaphors

In spite of their differences, English and Chinese possess several common characteristics for anaphors at the discourse and syntactic levels. On the discourse level, Chinese and English both follow the universal discourse management rules, i.e., less minimal coding material is needed for the more continuous referent.

On the syntactic level, English and Chinese also share similar anaphoric use in some syntactic constructions. They are: (a) pivotal constructions, (b) oblique positions, (c) serial verb construction, (d) in the subject position of parallel coordinate construction. In (a) and (b), zero anaphor is not allowed while in (c), zero anaphor must be used; finally, in (d), an optional use of either a lexical or a zero is allowed.

2.6 Summary

The present chapter has shown that a full account of anaphor use cannot be achieved without reference to factors at all three levels: discourse, syntax, and semantics. However, due to typological disparity, Chinese and English differ in the degree of influence of the factors at each level. Chinese is a topic prominent language, therefore the anaphoric choice is more subject to constraints arising from the discourse level and a zero anaphor becomes the norm to maintain reference. English, on the other hand, is a subject prominent language; as a result, its anaphor use is more subject to constraints from the syntactic level, which in turn makes lexical anaphor the more frequently used form in reference tracking. Besides the differences at the discourse and syntactic levels, English and Chinese also differ on the semantic level. At this level, animacy can play a decisive role in determining the optionality pattern of an anaphor in Chinese but not in English.

Of the two languages, Chinese anaphor use is the more complex and the rules are more difficult to state, because it incorporates and combines constraints at discourse, syntactic, and semantic levels and makes wide use of optionality. Table 2.1 lists examples of these constraints, gives the appropriate anaphor use based on grammatical descriptions and analyses, and cites examples given in the discussion above. (It should be noted that although full noun phrases are not included here, they can be also used in some of the following contexts. The choice among a zero anaphor, a lexical anaphor, and a full noun phrase depends on the conjoinability status across the clauses.)

Table 2.1. A list of contexts and prescriptive anaphor use in each context in Chinese

Level	Context	Anaphor choice	Examples
Semantics	Animate*	L/Z +	(2.14a) (2.14b)
	Inanimate*	Z +	(2.15a) (2.15b)
Syntax	Pivotal construction*	L +	(2.16)
	Oblique*	L +	(2.17)
	Serial verb construction*	Z	(2.18)
	Embedded*	L/Z	(2.19a) (2.19b)
	Yi...jiu*	Z	(2.20a) (2.20b)
	Adv clause of concession*	L/Z	(2.21a) (2.21b)
	Adv clause of cause*	L/Z	(2.22a) (2.22b)
	Adv clause with one conjunction*	L/Z	(2.23)
	Correlative clauses	Z	(2.24)
	Object topicalization	Z	(2.25)
Prep/indirect object topicalization	L	(2.26)	
Discourse	High conjoinability*	L/Z	(2.8)
	Low conjoinability*	L/Z +	(2.9) (2.10) (2.11)

Note. Single L or Z indicates obligatory use of that form; L/Z means optional use of one or the other, the letter in bold indicates the preferred form. * indicates that this context is tested in the present study. + indicates that full noun phrases can also be used in that context.

CHAPTER THREE

Previous Research on Second Language Anaphor Acquisition

3.1 Introduction and overview

As noted in Chapter Two, Chinese anaphor use differs markedly from English: optionality is far more widespread, zero a common anaphoric form, and decisions about anaphor choice must be made on a complex set of factors. Given the disparity between anaphoric uses in Chinese and English, a significant problem confronts native English speakers learning Chinese as a second language (CSL).

It is only recently that second/foreign languages¹¹ researchers have started to explore how L2 learners produce anaphors in actual speech and why they use them in certain ways (e.g., Klein & Perdue, 1992; Perdue, 1993; Williams, 1989). Among the studies, only a limited number has been carried out to investigate the acquisition of Chinese anaphor by native English speakers. Overall, L2 anaphor research has been primarily set in one of two theoretical frameworks: a discourse functional approach and an approach based on assumptions about L1 transfer. The discourse-functional approach claims that anaphoric selection in L2 is determined by the discourse function that an anaphor is supposed to achieve. The L1 transfer approach argues that selection is constrained by the syntactic structures in an L2 learner's native language.

This chapter reviews previous studies of second language anaphor acquisition in the dominant discourse-functional and L1 transfer approaches, and several studies within other frameworks are also examined. Most of the studies reviewed are concerned with anaphor production in the interlanguage of second language speakers, and due to the range of different theoretical approaches used, they suggest several different factors that may contribute to anaphor production in interlanguage. Before starting to review the literature on L2 anaphor acquisition, I briefly discuss two commonly-used notions, interlanguage and L1 transfer in second language research, as most of the studies which are reviewed (and also the present study reported in this thesis) are tied to these notions.

¹¹ For simplicity, second language is also used to refer to foreign language throughout the dissertation. It is also used interchangeably with nonnative language.

3.2 Interlanguage

The development of language-learner language, i.e., interlanguage (IL), has been the primary research object in second language acquisition since research findings documented that language learners with a wide range of L1s go through similar stages of second language acquisition (Dulay & Burt, 1974). Interlanguage is defined as a unique language system that is distinct from a learner's L1 and L2, but contains elements of the two languages (Selinker, 1972). It is a learner's language constructed by the learner in the process of learning an L2. Like any natural language, it is variable and goes through different stages of development. Each stage of development overlaps with the one that precedes and follows it, so that at any given stage of development the learner's interlanguage contains a number of competing language rules with "one rule guiding performance on one occasion and another rule on a different occasion" (Ellis, 1985, p. 75).

According to Selinker (1972), the creation of an interlanguage involves a number of basic processes: (1) language transfer, in which the learner uses his/her own L1 as a resource, particularly in the early stages of language acquisition; (2) overgeneralization, in which the learner uses an L2 rule in situations in which a native speaker would not; (3) simplification, in which the learner uses speech that resembles that of very young children or a pidgin, because either he/she cannot produce the target forms, or does not feel certain of them.

Interlanguage has been studied within a number of theoretical domains such as universal grammar, discourse analysis, and psycholinguistics (e.g., White, 1984; Huebner, 1985; Larsen-Freeman & Long, 1991; Selinker, 1988). These studies have consistently shown that interlanguage has characteristics of the learner's native language, some characteristics of the second language, and most importantly some characteristics which are very systematic, i.e., rule-governed and common to all learners (Selinker, 1972).

3.3 L1 transfer

Understandably, first language is widely understood to play a very important role in second language acquisition (Corder, 1983; Gass, 1988; Kellerman, 1983; Odlin, 1989, etc.). The study of L1 influence was initiated by Fries in 1945 and expanded by Lado (1957) because of their interest in foreign language pedagogy. According to them, a major cause of errors in learning and using a second language were the differences between L1 and L2; they proposed that second language learning primarily involves overcoming the differences between the two linguistic systems. Therefore, they believed that in order to better teach an L2, an extensive contrastive analysis of the learner's L1 and L2 should be conducted. In the seventies, this contrastive analysis approach was seriously challenged by several researchers, who found in their studies that many errors made by L2 learners did not result from L1 transfer, and a number of errors predicted by contrastive analysis did not occur (Corder, 1971; Whitman & Jackson, 1972; George, 1972; Larsen-Freeman, 1978; Dulay, Burt, & Krashen, 1982). Instead, these researchers claimed that most learner errors in English as an L2 were developmental, similar to those produced by native English-speaking children in their L1 acquisition processes (Dulay & Burt, 1974). As a result, L1 came to be viewed as not having a strong effect on L2 learning and the influence of L1 was minimized in L2 acquisition theories.

However, with increasing study of the nature of interlanguage, this L1-transfer minimalist position met some objections. Ellis (1994) provides a review of pidgin language studies, and argues that Japanese speakers of Hawaiian pidgin produce sentences which are structurally identical to their L1. Ellis further discusses how strongly researchers' theoretical beliefs influence their methods of error collection and their interpretation of the errors, and claims that "there can be little doubt that some scholars were too ready to reject transfer as a major factor in L2 acquisition" (1994, p. 315). Having provided substantial evidence from a large number of studies, Ellis maintains that "there is now clear evidence that the L1 acts as a major factor in L2 acquisition" (1994, p. 342).

Although the focus is again on an L1 effect, recent research on L1 transfer differs greatly from that conducted under the Contrastive Analysis Hypothesis (CAH), as it has been shown that learners neither tended to transfer everything nor that nothing is

transferred (Gass, 1994). As a result, L1 transfer is no longer seen as the only factor that determines the structure of interlanguage system. Instead, it is only one, though an important, factor that interacts with other factors to influence the development of an IL system. Other factors can be such things as nature and amount of input in the target language, frequency of the structure in the native language, and extralinguistic matters such as cultural, social and cognitive factors. In addition, unlike the contrastive approach, which mainly looks at L1 influence in terms of negative transfer (differences result in errors), transfer is now viewed as a general cover term for different kinds of influence from languages other than the target language. The study of transfer now involves the study of errors (negative transfer), facilitation (positive transfer), avoidance of target language forms and their over-use (Ellis, 1994, p. 341). Negative transfer occurs when the rules are different between L1 and L2 and language learning will be impeded. On the other hand, positive transfer will occur when the rules are similar in both languages and language learning will be facilitated. Avoidance of using certain L2 structures and overuse of certain L1 structures can also be the result of L1 transfer. In recent years, the study of L1 transfer has probed the differences and similarities between target and native languages at a much deeper level than did Contrastive Analysis and has been considered in the frameworks of universal grammar, language universals, psycholinguistics, and discourse analysis.

3.4 A discourse-functional approach to second language anaphor production

A discourse-functional approach addresses not just how linguistic knowledge is represented in the mind of the learner, but also how this knowledge is used in discourse. It posits that most actual language use consists not of a single sentence but of multipropositional speech whose organization is guided by discourse principles (Cooremen & Kilborn, 1991), and that it is the discourse organization rather than the native or the target language syntax that constrains the gross overall shape of the interlanguage (Rutherford, 1983). In Kumpf's words (1984): "grammatical form(s) appear to fulfill a function in the discourse: it is the discourse context which creates the conditions under which the forms appear, and in order to explain the forms, it is

necessary to refer to the context" (p. 132). There is, therefore, a direct relationship between form and function. In regard to second language anaphor production, this approach agrees that anaphoric forms are mostly constrained by discourse-functional rules, and L2 speakers, especially those at lower proficiency levels, may even create some forms and use them systematically to achieve discourse functions. Studies working within the discourse-functional framework have mainly investigated how second language speakers' selection of anaphors is determined by the "quantity universal" discourse rule, which is stated as the following hypothesis:

More continuous, predictable, non-disruptive topics will be marked by less marking material; while less continuous, unpredictable/surprising, or disruptive topics will be marked by more marking material. (Givon 1984: 126)

3.4.1 Previous studies on L2 anaphors in a discourse-functional framework

Pfaff (1987) reports a study of how acquired forms from the target language serve to indicate discourse functions. Her study involved an analysis of determiners and reference systems in the German interlanguage spoken by Turkish adolescents on the basis of two short elicited narratives. She observed that protagonists in the stories are mostly indicated by a pronominal form¹² whereas all other participants are marked by an article plus a noun. In addition, given information is indicated through anaphors or definite noun phrases whereas new information is marked through indefinite noun phrases. These observations are in congruence with the "quantity universal", i.e., protagonists are necessarily highly topical and known in the discourse so that their marking by pronominal forms is expected. Other participants are less continuous in the discourse than the protagonist and are thus expected to be coded as definite noun phrases. New information is by definition not referentially continuous and must be marked by indefinite noun phrases.

More recently, Sasaki (1997) conducted a study looking at how anaphors were used to introduce and maintain a referential topic in a Japanese speaker's English interlanguage. Data were collected from a 45-minute interview in English between a Japanese ESL speaker and a native English speaker. The anaphoric function and

¹² Pronominal form refers to "lexical anaphor" here.

distribution in these data was then compared with that in native English and Japanese data established by previous researchers. Using Givon's measurement of topic continuity/predictability, Sasaki found that the anaphoric forms used by her ESL subject were mainly determined by the discourse function that they were supposed to achieve; i.e., the greatest topic continuity was achieved by zero anaphors, the next greatest by lexical anaphors and the least by full NPs. However, she also found that the subject behaved more like native English speakers when the referent was in the subject position but acted more like her native language (Japanese) when the referent was in the object position. Furthermore, she found that her subject had also developed a third topic marking system that had features independent of her L1 and L2, and the formation of this system was based on her pragmatic assumptions and considerations. Overall results of the study seem to support the claim that there is always a form and function relationship in the interlanguage of second language speakers.

Williams (1988, 1989) examined the use of zero anaphors, lexical anaphors, and pronoun copies¹³ in the English production of three speaker groups: native English speakers, second language learners of English, and speakers of a non-native institutionalized variety¹⁴. The subjects produced forty-five minutes of free conversation, which was then transcribed and analyzed. Using Givon's measurement of topic continuity/predictability, which includes referential distance, potential ambiguity, and persistence, Williams found that pronoun copies were likely to be found when there were potential processing difficulties such as the introduction of a new referent. Lexical anaphors were likely to be adopted to reintroduce themes and topics. Zero anaphors mostly appeared in contexts when referents were easily recoverable and where there was little ambiguity. He also found that the discourse functions of these anaphors were quite consistent across the three groups with choice of a certain anaphoric form always constrained by the discourse function that it aimed to achieve, further supporting Kump's (1984) claim about the close relationship between form and function. Besides this, the data also showed that the two groups of non-native English speakers used significantly

¹³ Pronoun copies refer to the cases like "he" in *Your brother he has a car?*

¹⁴ Subjects who speak an institutionalized regional second language variety of English, namely Singaporean English.

more zero pronouns than the native English-speaking group. Although Williams tried to explain this wide use of zero anaphors in a discourse-functional approach, he could not eliminate the possibility that it might also be the result of first language influence, since the L1 of most of his subjects was Chinese, which is [+prodrop]. However, due to the unconstrained nature of the data, it was not possible to tell how much of this zero use might be attributed to discourse constraints and how much to an L1 transfer effect. In addition, in my view, this use of zero anaphors could also be an avoidance strategy adopted by the non-native speakers, especially by the second language speakers of lower proficiency, as the English anaphoric system is morphologically more difficult than that of their L1.

Hartford (1995) investigated the occurrence of null objects (zero anaphors) in a stable non-native variety of English spoken in Nepal (Nepali English). The data for this study were drawn from several oral and written sources of the highly educated elite in Nepal who had high proficiency level in English. These participants' native language "extends across Indo-Aryan and Tibeto-Burman" (p. 251). The result showed that in their construction of English texts, the speakers of Nepali English omitted both direct and indirect objects in contexts where native English speakers do not. Hartford indicated his belief that it was the pragmatic principles in discourse which governed these occurrences of zero anaphors in object positions. That is, zero anaphors could be used when shared or given information occurred either textually or situationally in the object position. He concluded, therefore that because this group of advanced speakers of English has already developed an anaphoric usage system based on their own pragmatic rules, they would never acquire the native English target norms, which disallow null objects. In other words, the anaphoric forms adopted by this group of Nepali English speakers stemmed from pragmatic rules. Although Hartford did not explicitly mention the form-function relationship, the conclusion he reached seems to be in accord with the theory proposed by the discourse-functional approach. However, besides the pragmatic rules, Hartford also suggested that this use of zero anaphors in object positions could come from the influence of Nepali, which allows zero objects, and in which the subjects had high proficiency. This implies that language transfer does not necessarily originate from one's first

language; it can also come from any language in which the learner has already acquired proficiency.

The above studies conducted in the discourse-functional framework seem to indicate that in the interlanguage of L2 speakers, there is a close relationship between the anaphoric form and the discourse function that it is supposed to achieve. This relationship is reflected in the following two aspects: firstly, like first language speakers, non-native speakers follow Givon's universal discourse management rule in their choice of anaphors, i.e., the anaphoric forms become more attenuated when the referent is more continuous in discourse. Specifically, zero anaphors are adopted to maintain the most continuous topic while lexical anaphors are utilized for a less continuous topic. Secondly, in order to achieve a certain discourse function, learners are likely to develop a third anaphoric system based on their own pragmatic rules or considerations, this third system may be a combination of some features in both L1 and L2 (see above, the Hartford and the Williams studies) or a new one that consists of features independent of L1 and L2 (see above, the Sasaki and the Pfaff studies). The creation of such a new system can happen even with advanced second language speakers. This development of a learner language in anaphor use is congruent with the hypothesis proposed for interlanguage.

3.4.2 Problems of the discourse-functional approach

Overall, the discourse-functional approach indicates that L2 speakers, regardless of proficiency level, follow the universal discourse management rule to keep track of reference, and that it is the discourse-function that determines the L2 speakers' anaphoric selection. This approach seems capable of accounting for the finding that different anaphoric forms are adopted in different discourse contexts, and to make general predictions for L2 anaphor use. However, it is unable to explain why some anaphoric patterns produced by the L2 speakers are similar to their L1. This effect of L1 has been either explicitly or implicitly mentioned in most of the studies reviewed above. For instance, in Williams and in Hartford, non-native speakers of English tended to overuse zero anaphors in their discourse. Even though a form-function analysis was used to explain this phenomenon, i.e., that zero anaphors are used when the referent is readily

recoverable from context, both Williams and Hartford explicitly indicate that L1 or another language the subjects knew well might be another reason for their overuse of zero anaphors. Also, since these two studies were conducted in a context in which the subjects' L1s (or the language they knew well) allow pro-drop and the target language was English, it is impossible not to attribute the overuse of zero anaphors to two possible factors: (1) L1 influence, or (2) an avoidance strategy, in which using zero anaphors might be a highly favorable strategy to avoid the difficult anaphoric forms in English.

The other issue with this type of research is that most of the data were collected from natural conversations that are highly informal. In informal conversations, getting the message across is the most important goal, and consequently, the language produced in such situations may be highly constrained by discourse and pragmatic rules. As a result, this kind of experiment may show more about a speaker's communicative skills than his/her true linguistic skills. Finally, most of the studies reported here involved a very small number of subjects on which generalizing is difficult. For these reasons, we can suggest that the discourse-functional approach alone is not able to provide a full account of anaphor use in the interlanguage of second language speakers, and the role of L1 or another second language(s) should not be neglected. In spite of these considerations, the discourse-functional approach does make valid general predictions about L2 anaphor selection.

3.5 An L1 transfer approach to second language anaphor production

As in many other areas of second language acquisition, an L2 learner's mother tongue is also considered to be a significant factor that influences L2 anaphor acquisition. Work in this vein is mostly conducted either in the Universal Grammar (UG) framework or through consideration of typological universals. The most representative studies are those done within a UG framework.

3.5.1 L1 transfer in second language anaphor production in a UG framework

The most recent research on anaphor use has been within the framework of Universal Grammar. According to Chomsky (1981, 1986), UG consists of principles and

parameters, which may take one or two parameter settings. Principles are invariant properties of syntax common to all languages. Parameters are the principles which vary according to a particular language. Second language researchers who argue for a UG perspective on transfer generally view second language acquisition as a process of resetting parameters. Specifically, when L1 and L2 share the same parameter setting, positive transfer will take place. On the other hand, if the L1 and L2 settings differ, negative transfer may occur (White, 1985). As for anaphors, Universal Grammar assumes the existence of a pro-drop parameter that has binary values: [+prodrop] for languages that allow deletion of subject anaphors and [-prodrop] for those that do not allow such deletion (Hilles, 1986; White, 1985). Languages like Chinese, Japanese, and Spanish are classified as [+prodrop] while English, French, and German are [-prodrop]. The issue of concern was whether the setting (plus or minus) in one's first language would be transferred to the parameter setting in a second language. The general finding is that learners with [+prodrop] L1s tend to omit subject lexical anaphors in the L2 to begin with and later learn to include them. Thus, L1 appears to play an important role in anaphora parameter determination in L2.

3.5.1.1 Previous studies on L2 anaphors in a UG framework

White (1985) was the first to examine whether speakers of a [+prodrop] language would transfer this L1 setting when learning a second language that is [-prodrop]. In this study, she looked at whether Spanish learners of English would carry over the L1 value of the pro-drop parameter into the L2. The subjects were 54 native Spanish speakers learning English at various proficiency levels. Nineteen native French speakers learning English acted as a control group. The test was conducted by means of a grammaticality judgment task. The results showed that the Spanish subjects were more likely than the French subjects to accept an ungrammatical English sentence with a missing subject. However, as their proficiency level increased, they became better at detecting the incorrectness in such sentences. The results of this study indicate that having to change this parameter setting causes problems for language learners and that this is a source of transfer errors, particularly at lower levels of proficiency (White, 1985). However the gradual improvement in performance with the increase of proficiency level suggests that

L2 speakers will eventually be able to reset the parameter even if L1 and L2 do not share the same parameter setting. The result that L2 speakers tend to transfer their L1 parameter setting in acquiring L2 anaphors also finds further support in another study done by White (1986).

Like White (1985), Hilles (1986) also assumed that second language learners will transfer their L1 parameter setting when learning an L2. In his study, Hilles looked at how a 12-year old Spanish boy acquired English anaphors over a 10 month period of time. Data were collected from informal spontaneous conversation and with an elicitation task. The results showed that the learner initially used zero anaphors extensively in the subject position, suggesting a transfer of the L1 pro-drop value. In addition, Hilles found that this overuse of zero anaphors decreased over time, supporting the possibility of eventual parameter resetting. These results are quite congruent with those found in White (1985), that is, L2 speakers tend to transfer their L1 parameter setting in their initial stage of L2 learning. However, as their second language proficiency improves, they are able to reset this parameter.

In contrast to White and Hilles, Phinney (1987) investigated anaphor acquisition from both directions, i.e., native Spanish speakers learning English (ESL) and native English speakers learning Spanish (SSL). The data were drawn from informal written compositions. The results showed that although the ESL speakers seldom omit lexical anaphors in sentence initial position, they tended to use zero anaphors in subordinate or conjoined clauses. This suggests that the ESL speakers were likely to partially carry over their L1 value of the pro-drop parameter. However, the transfer effect was not obvious in the SSL group who could correctly omit lexical anaphors in subject positions, indicating that they had reset the parameter to the L2 value. According to White (1989), these different results for the ESL and SSL participants could be attributed to many factors, such as the unmatched language proficiency level in the two groups or whether the parameter setting in the speakers' L1 is marked or unmarked. The issue of markedness issue will be discussed later in this chapter.

3.5.1.2 Problems of the UG approach to L2 anaphor production

The UG studies discussed above indicate that L1 plays an important role in the

acquisition of second language anaphors. However, as the UG studies are aimed at examining syntactic competence, the results of these studies may only provide predictions for absolute occurrences of anaphor omissions in the L2 data (Williams, 1989, Charters, 1997). Even this, however, is challenged by Gundel and Tarone (1992), who found that learners whose L1 is [-prodrop] do occasionally use zero anaphors in obligatory contexts in an L2. In addition, no discourse and semantic factors are included in most of the UG studies, and they are therefore unable to predict optional occurrences of zero anaphors; specifically, they can not explain why a lexical anaphor occurs in a natural discourse when a zero anaphor is predicted in a [+prodrop] language. Finally, most of the studies within the UG framework investigated the acquisition of null subjects and made no predictions for the use of null objects (Williams, 1989). Consequently, the studies conducted within a UG approach fail to give a full explanation of L2 anaphora use in natural discourse, and they fail to provide a comprehensive distribution pattern of anaphor use. In spite of these problems, the UG approach studies have provided a further insight into the study of L1 transfer.

3.5.2 L1 transfer in second language anaphor production in a typological universal framework

In contrast to the UG approach, which looks at the influence of L1 in terms of parameter resetting, Gundel and Tarone examined the L1 effect on anaphor use using a typological universal framework. In their study, Gundel and Tarone (1992) distinguished two kinds of language universal for anaphor use: pragmatic and structural. The pragmatic condition posits that:

The use of a pronoun will be felicitous only if its referent is activated, i.e., if a speaker can justifiably assume that the addressee is currently aware of the referent.
(p. 88)

The structural condition states that:

Two NPs cannot be coreferential if one is in the syntactic domain of the other and is not a pronoun. The syntactic domain of some node A consists of A and all and only the nodes dominated by the first branching node above A. (p. 89)

Alongside the two universal conditions, the authors also looked at language specific

conditions for anaphor use. Based on these language universal and language specific conditions, they formed an L1-L2 Facilitation Hypothesis, which states that facilitation is guaranteed if a certain feature, such as a permissible context for lexical anaphor, is shared by all languages (language universal conditions). If, on the other hand, the L1 and L2 share the property of the feature, but it is not universal feature, transfer may occur, but facilitation is not necessarily guaranteed.

In order to test their hypothesis, they examined the occurrence of zero anaphors in both subject and object positions among five adult learners of English. Three of the subjects were native Spanish speakers and two were native Chinese speakers. In addition, the study also involved a group of native English speakers learning French. Although both Spanish and Chinese are [+prodrop] languages, Spanish zero anaphor, unlike Chinese, is only allowed in the subject position and not the object position. Data were collected in the form of tape-recorded conversations, recorded picture descriptions, and written judgment tasks. Overall results showed that all the subjects followed the two universal conditions in their L2 anaphor production. The results also demonstrated that while the English group learning French made virtually no errors by producing zero subjects, both the Spanish and Chinese speakers employed null subjects in positions not permissible in English. Gundel and Tarone indicated that these errors could be attributed to L1 influence. However, the study also revealed that both the Spanish subjects and the Chinese subjects used null objects in their L2 English. It is suggested that for speakers of a [+prodrop] L1, the use of zero anaphors in environments not allowed in English is developmental, i.e., there is a developmental stage in language acquisition in which such learners omit lexical anaphors, even in contexts where lexical anaphor is required in the target language and in their own L1. However, further studies are needed to support this developmental account of zero anaphor use.

3.5.3 Studies indicating L1 influence on second language anaphor production

Besides the above studies that directly indicate the influence of L1 on L2 anaphor production, there are others that indirectly support the L1 transfer role in a second language speaker's choice of anaphors.

Charters (1997) is among the limited number of researchers who have looked at

where native English speakers learning Mandarin omit their anaphors in their Chinese discourse. In contrast to other studies, which examined only third person anaphors, this study also looked at anaphor omissions in first and second persons. The results of this study provide some insight into the L2 acquisition of Chinese third person anaphors by speakers of English as an L1. The subjects consisted of eight native speakers of English learning Chinese as an L2 (CSL) and eight native Chinese speakers. Data were collected from a set of personal letters written by the subjects, which were then compared with letters written by the native Chinese speakers. The results showed that more lexical anaphors were observed in L2 texts than in L1 texts. Moreover, Charters found that learners made no errors of ellipsis in structures where ellipsis is grammatically prescribed and the discrepancies between the native and L2 groups arose only in contexts where the use of zero anaphors is optional. She further concludes that "some learners use ellipsis only in syntactic contexts where it is permissible in English, and most learners use ellipsis in a narrower range of discourse contexts than is typical of native speaker use" (p. 57). This seems to indicate that optionality of anaphoric form (obligatory/ optional use) can influence CSL speakers' anaphor selection. The importance of optionality had not been noted in previous studies on second language acquisition of Chinese anaphor.

Although it is not clearly stated in the Charters paper that L1 plays an important part in anaphor production, its conclusions have made the effect of L1 transfer quite evident. However, (1) as this study is not targeted at third person anaphors, and includes first and second person anaphors, it is unknown how many of these reported ellipses belong to third person anaphors; (2) the number of subjects is quite small, and the results should therefore be looked at carefully and should not be overgeneralized. Coupled with these problems, although the author distinguishes between an obligatory and optional anaphora use in Chinese, she is not explicit as to the structures and levels in which each kind of use should occur. Therefore, this study does not provide a comprehensive distribution pattern of Chinese anaphors and cannot fully account for the actual anaphor use by L2 learners. Nevertheless, the study does provide some evidence for L1 transfer effect in L2 anaphor acquisition.

As shown above, the effect of L1 has been directly and indirectly manifested in the studies examining anaphor use. This effect was also demonstrated in research where

anaphor use was not the focus but rather the byproduct. Jin (1994) conducted a study which investigated the interlanguage of English-speaking students learning Chinese. This study was not focused on anaphor use per se, but on whether learners would transfer features of subject-prominent language to a topic-prominent one. Zero anaphors are classified as one of the features significant in topic-prominent languages. In this study, native English speakers learning Mandarin who had been selected from four proficiency levels were asked to do three tasks: an oral interview, a story retelling, and a free composition. Overall results show that the second language speakers produced fewer zero anaphors than the native speakers. Jin concluded that "L2 learners with limited proficiency in Chinese tend to rely on structures that are similar to English" (p. 114). She attributes the overall production of lexical anaphor to the typological transfer of a subject-prominent language to a topic-prominent language. Similar results were also found in Xie's study (1992), which compared the topic-controlled deletion in topic chains by native Chinese speakers and native English speakers learning Chinese. In this study, Xie found that English speakers showed no difference in anaphor use when telling stories in English and Chinese but used significantly fewer topic-controlled deletions than did the native Chinese speakers, which suggested an excessive use of lexical anaphor in their Chinese discourse due to L1 influence. Although Jin and Xie's studies are not directly concerned with third person anaphor acquisition, the results of these two studies again indirectly suggest that second language anaphor use is to a large extent determined by the learners' first language.

3.6 Other factors which influence second language anaphor production

The studies reviewed so far have either directly or indirectly suggest that L1 is an important factor in second language anaphor acquisition. Although those conducted within the discourse-functional approach emphasize the crucial importance of discourse-functions in the interlanguage, they also indicate that a learner's source language does contribute to shaping the IL system. Notwithstanding this, there are other studies which suggest a different conclusion, i.e., that L1 does not play any role or a very important role in L2 anaphor acquisition. Instead, they claim that other factors such as markedness,

formal instruction, and input are the most essential variables in determining L2 anaphor acquisition.

3.6.1 Markedness

The concept of markedness has been a highly notable issue in many SLA studies. According to the review by Chaudron and Parker (1990), “markedness is a description of a relationship that is based on the least marked member of a set, being either more frequent cross-linguistically, simpler structurally, having a wider distribution within a particular language (Eckman, Moravcsik & Wirth, 1986), being acquired earlier with fewer errors (Mazurkewich, 1985; Rutherford, 1982), or being easier to process (Bates et al., 1980; Davison, 1984; Givon, 1983a)” (p. 47). Despite the fact that various criteria have been used to define markedness, researchers in L1 and L2 have generally agreed that what is unmarked will be easier to acquire in language acquisition (Polio, 1995). In the context of anaphor acquisition, first language researchers have found that children of different language backgrounds prefer using zero anaphors in the early stages of acquisition, with an increasing use of lexical anaphors and full nouns in a later stage (Hyams, 1986; MacWhinney & Bates, 1978).

In second language research, Chaudron and Parker (1990) distinguish two kinds of markedness: discourse markedness and structural markedness. Discourse markedness refers to a range of discourse contexts, with the most continuous context the least marked. Structural markedness in the case of anaphors refers to anaphors used to encode the topic in the discourse contexts, with the least complicated structural form (zero anaphors) the least marked. Chaudron and Parker assume that “the production of less marked structural forms precedes more marked forms in acquisition” (p. 49). Therefore, zero anaphors are acquired before lexical anaphors, which should in turn precede full noun phrases. Free production and elicited imitation recall tasks were used by Chaudron and Parker to test Japanese learners' acquisition of English noun phrase forms. The data were compared with those produced by the native English speakers. The results show that the L2 learners acquire the least marked structural forms earlier than the more marked ones. No sign of L1 influence was detected in the results. However, this study mentioned no examples of zero anaphors, so we are not certain how the authors would

account for the assumption that zero anaphors should be acquired earlier than other anaphoric forms. However, based on their claim that a less structurally complex form should be acquired earlier than the more marked form, this study seemed to have indirectly suggested that zero anaphors are easier to acquire than lexical anaphors. This hypothesis, based on structural markedness, is challenged by Munoz (1995).

Subsequent to the study by Chaudron and Parker (1990), Munoz (1995) conducted a study examining the effects of discourse and structural markedness on second language anaphor acquisition, with a focus on the use of zero anaphors in written text. In this study, Munoz looked at how native Spanish speakers acquire English zero anaphors. It was expected that as zero anaphors are the least marked structurally and Spanish is a pro-drop language, the subjects could easily acquire the limited zero anaphor use in English. However, contrary to the prediction, the results showed that the subjects, especially those at the beginning level, overused lexical anaphors. For instance, they used more lexical anaphors than did the comparison group of native English speakers in conjoined clauses, where zero anaphors are allowed in English. The results also showed that zero anaphors only appeared in the writing of highly proficient L2 learners. This signifies that English zero anaphor use was not easy to acquire for these subjects; however, the acquisition of lexical anaphor came much earlier for them, even for those at the beginning level. The author attributed this overuse of lexical anaphors to formal instruction and input. This result was contradictory to Chaudron and Parker's claim based on structural markedness, i.e., L2 speakers acquire the least marked forms first. Munoz suggests that when two languages vastly differ, instruction and input can override markedness predictions. However, as the author noted, most of his beginner subjects were already highly exposed to English in their school and were therefore "false beginners". The other problem with this study was that instead of requiring the subjects to write a coherent story, the subjects were instructed to write "sentences" describing the pictures. From our own experience, this instruction might mislead the subjects into writing only single sentences, and when writing single sentences, the subjects were more likely to be conscious of their grammatical correctness, perhaps leading to more use of lexical anaphors. Therefore, the results of the study should be interpreted with caution.

3.6.2 Other factors

Polio's work (1995) focused on how speakers of languages with zero anaphors (Japanese) and without them (English) use zero anaphors when acquiring a language that has them (Chinese). Japanese is similar to Chinese, where zero anaphors are widely permitted. The subjects involved were 21 native Japanese speakers and 21 native English speakers. Each language group was divided into three subgroups according to proficiency level: low, middle, and high. The subjects were asked to retell the story of a short movie that they just had watched. The results showed that both language groups used fewer zero anaphors than native Chinese speakers and the use of zero anaphors increased with proficiency. In addition, while the subjects had no difficulty using zero anaphors when there were syntactic and semantic restrictions, they did have problems when the discourse factor was involved. This seems to suggest that second language speakers' use of anaphors can vary with the linguistic level on which an anaphor occurs.

Since there was no significant difference found between the Japanese and the English groups in their anaphor use, Polio suggested that L1 was not the reason why the participants used more lexical anaphors and fewer zero anaphors in their oral discourse than the native Chinese speakers did. Instead, he posited that factors like pausing, clarity, and input could be responsible for the overuse of lexical anaphors. However, I cannot agree entirely with the suggestion that L1 played no role in the results. It is known from our previous discussion that Chinese and English differ greatly in anaphor use on the discourse level, and therefore it is hard to decide whether the overuse should be attributed to the L1 effect or to a pausing effect, though pausing can be a possible cause in such an uncontrolled experimental task. In our view, the very fact that the native English subjects overused lexical anaphors could be taken as an indication of L1 influence in the case of the native English group. This can be strengthened by the comment made by the author that the statistical test showing no difference between the groups (Japanese and English) was weak.

More recently, Yuan (1997) reported an empirical study investigating how Chinese learners of English acquired English anaphor use in subject and object positions. In the study, the subjects were asked to do an acceptability judgment test that involved sentences with lexical anaphors and those with zero anaphors. The results of the study

indicate that there is an asymmetry in Chinese learners' English: Chinese learners are able to reject the incorrect null subject in English but are unable to detect the ungrammaticality of the null objects. Yuan argued that the reason why the Chinese learners of English can unlearn their use of zero anaphors in subject position is that they have obtained more positive evidence during their process of learning English. Specifically, they are exposed more to the input such as tense and agreement, which are related to subject position. Zero anaphors in object position, on the other hand, do not have so much positive evidence to lean on, and therefore the Chinese speakers learning English tend to fall back to their L1 parameter setting. This interpretation seems to imply that input is the crucial factor in determining L2 anaphor acquisition and L1 might play some, but not such an important role in determining such acquisition.

However, I would argue that result of the better learning to suppress zero anaphors in subject position might also be due to the experimental design of the research. In this study, the stimuli were complex sentences with a main clause and a subordinate clause, involving no connected discourse with "topic chains". However, Chinese and English anaphor use differs greatly on the discourse level when "topic chains" occur. Therefore, I think that the results may have been different if the experiment had been conducted using stimuli with a larger discourse context involving a series of semantically closely connected sentences. In such a situation, we would expect that the subjects might also have judged the sentences with zero anaphors as more acceptable.

3.7 Summary

As the discussion above shows, second language acquisition of anaphors has been studied from several quite varied approaches, and each approach suggests a different factor that is crucial in governing this acquisition. The discourse-functional approach claims that it is the discourse-functional rules that determine the second language speakers' anaphor selection. The L1 transfer approach maintains that L1 plays a significant role in influencing such selection, especially at the early stage. Besides these two approaches, there are additional studies indicating that factors like optionality of anaphoric form, input, and markedness are important in determining second language

anaphor acquisition. They suggest that L1 does not play any or an important role in this acquisition. However, as I have pointed out in my review, most of these studies could produce a somewhat different result if their methodology were altered a little, and in such cases, the effect of L1 might be easily revealed.

From all the literature that I have reviewed, we can see that there is only a limited number of studies conducted to explore how learners whose L1 is [-prodrop] acquire the anaphor use in a target language which is [+prodrop], such as English speakers acquiring Chinese. Most of the studies have been carried out in the context where a learner's L1 is [+prodrop] and L2 is [-prodrop]. One possible reason is that it is more difficult to find a CSL subject group than an ESL subject group. Although there are two studies that have directly investigated the acquisition of Mandarin anaphors by native English speakers (Charters, 1997; Polio, 1995), they both have some common problems that could also make their results incomplete and biased. The problems are listed below:

- (1) although both studies touched upon the anaphor use on the discourse, syntax, and semantic levels, due to the uncontrolled nature of the experimental tasks used, there are many contexts within each level that they have failed to encompass;
- (2) both studies involved natural data, which makes the comparison between the L2 and the L1 groups less accurate, as the structures and content produced by both groups can deviate;
- (3) the studies involved only one task examining all three levels, which makes it difficult to decide which L2 anaphora use should be attributed to the discourse level and which to the syntactic and semantic levels;
- (4) using only one task also makes the results harder to generalize;
- (5) both studies involved a small number of subjects: eight in Charters, and although 21 subjects were involved in Polio, they were subdivided into three groups, which makes seven for each proficiency group.

Therefore, in the present research, we employed three language tasks to investigate how native English speakers acquire Chinese anaphors in eleven contexts at the three linguistic levels. Following the results of the studies reviewed above, L1 transfer was considered as an important factor to influence L2 anaphor acquisition in this research. In

addition, since optional anaphor use is a very important characteristic of Chinese, and it has been suggested to have a significant effect on the acquisition of Chinese anaphor (Charters, 1997), this research also took this factor into consideration as an important variable. These two factors will form the basis of the hypotheses that direct the study reported in this dissertation.

CHAPTER FOUR

Research Design

4.1 Introduction and overview

As stated in Chapter One, the present research addresses the following three questions: (1) What anaphors do speakers of Chinese as a native language (CNL) actually use in specific linguistic contexts in real language tasks? (2) What anaphor choices do speakers of Chinese as a second language (CSL) make in the same contexts and the same tasks? (3) How do the CNL and CSL speakers differ in their anaphoric choices and what factors might cause such differences?

This chapter presents the experimental design of the study carried out to answer these questions. Section 4.2 presents the set of factors that have been suggested as influencing the participants' anaphor choices. These independent variables motivate the general and specific hypotheses at each level of investigation. Section 4.3 discusses the experimental design of the research, and includes the rationale for using controlled tasks, the participants, and the experimental procedure. Sections 4.4, 4.5, and 4.6 provide detailed task analyses for the three experimental tasks used, namely, a cloze task, a judgment task, and a story-writing task. In these analyses, the stimulus design and the rationale for using the task are discussed. In section 4.7, different expectations for each task are presented.

4.2 Factors and hypotheses in the experiment

As we have seen in Chapter Two, Chinese anaphor use is shaped by semantic, syntactic, and discourse constraints. Within each level, there is a number of specific linguistic contexts, which are postulated either to require an obligatory or allow an optional use of lexical/zero anaphors (Li & Thompson, 1981; Pu, 1991; *inter alia*). The present research looks at eleven such contexts. They were chosen because they

representatively sample the three levels, because they are central in the language, and because they are not difficult for intermediate-level learners of Chinese.

In the experimental work described below, the eleven contexts are distributed among the semantic, syntactic, and discourse levels of the language: two operating at the semantic level, seven at the syntactic, and two at the discourse. At the syntactic and discourse levels, there are both contexts in which the use of zero/lexical anaphors is similar in Chinese and English and contexts in which the use is different in the two languages. At the semantic level, anaphor choice dependent on the notion of animacy is new to the CSL speakers. On the discourse level, all anaphor choice is postulated to be optional; on the syntactic and semantic levels, both optional and obligatory use contexts are found.

In this study, I first investigated the extent to which theoretical predictions regarding optionality of anaphor use found in the literature on Chinese grammar correspond to the actual behavior of native speakers in the tasks employed. The results of this investigation, reported in Chapter Five, formed the basis of my study of second language learner behavior, which is reported in Chapter Six.

In the sections directly below, I discuss my expectations for the behavior of Chinese native speakers and speakers of Chinese as a second language in terms of the factors presumed to affect their anaphor use.

4.2.1 Optionality

Optionality is the first independent variable that we looked at in this research. The variable was treated as having two levels – optional and non-optional (obligatory). It was expected that in optional contexts, native Chinese speakers would use both lexical and zero anaphors but would also show preference for a certain anaphoric form. For the non-optional contexts, they were expected to use either exclusively lexical anaphors or exclusively zero anaphors as predicted by the grammatical descriptions of the language.

Charters (1997) suggests that obligatory anaphora use in Chinese is acquired earlier than optional use by native English speakers learning Chinese. In this research, we expected that when obligatory use was required, the behavior of the CSL participants would most closely approximate that of the CNL participants; when optional use was

allowed, we expected less correspondence between the two groups. The reason for this is easy to see. Obligatory uses have rules; optional uses do not – or at least not rules that can be easily explicitly stated. Therefore, second language learners are less likely to receive instructional rules for optional use than for obligatory use. In addition, it is easier for them to form generalizations for obligatory uses than for optional uses, because they receive invariant modeling.

For this same reason, the measurement for correctness of usage of obligatory or optional anaphor is different. In the case of obligatory use, the measurement is easy: the performance is either grammatically correct or it is not. However, in the case in which the choice of one or the other anaphor is optional, the measurement is not right versus wrong, but is rather the extent to which an L2 speaker's anaphor choice matches that of a native Chinese speaker.

4.2.2 Language similarity

The second independent variable, language similarity, of course applies only to the second language learners in the study. As noted above, in this study some of the eleven contexts tested show similar anaphor patterns in Chinese and English, and some different or new. According to theories of L1 transfer, one would expect that a CSL speaker's anaphor use would not be the same as a native speaker's and would be to some extent influenced by the rules of L1. When L1 and L2 share the same anaphora use, L2 anaphora use is easier to acquire, but when they are different, acquisition is more difficult and more errors occur. Therefore, we expected that in this research the CSL speakers' anaphor use would approximate more closely that of the CNL speakers in contexts that are similar than in contexts that are dissimilar.

Besides looking at the main effect of language similarity, we also examined whether there is any relation between this factor and the factor of optionality discussed above. We expected that the L2 anaphor use would best approximate the L1 standard in contexts that are obligatory and similar and worst in contexts that are optional and dissimilar. For cases of obligatory zero anaphors, the CSL speakers' propensity to employ lexical anaphors throughout using the predominant pattern of their English L1 was expected to result in errors. In the cases of optional use, the result of language

transfer was not considered to be errors, but rather an optionality pattern that is distinct from that of native speakers.

In addition to these general expectations, the following level-specific issues were investigated, against the background of optionality and language similarity.

Table 4.1 summarizes in graphic forms the overview of this research.

Table 4.1. Factors and hypotheses in the experimental study

Independent variables		Hypotheses
Name of Variable	Level	
Optionality	Optional	
	Obligatory	
Language Similarity	Similar	
	Different	
Relation between language similarity and optionality	Obligatory/similar (Ob/sim)	
	Obligatory/dissimilar (Ob/dis)	
	Optional/similar (Op/sim)	
	Optional/dissimilar (Op/dis)	

4.2.3 Semantic level

At the semantic level, the feature of animacy was tested in two contexts: anaphor use where referents are inanimate and where they are animate. As shown in Chapter Two, in the direct object position, inanimate referents require that no lexical anaphor be used. Animate referents in that grammatical role may optionally be replaced by either a zero or lexical anaphor. Thus, for inanimate direct object referents, the rule and the expected CNL behaviour are pretty clear; however, for animate referents, we still needed to see what optionality really means in operational terms to native speakers. We therefore expected quite confidently that native Chinese speakers would not use lexical anaphor for an inanimate referent. In the animate optional context we expected an optional use with a preference for zero anaphor.

For native English speakers who are learning Chinese, selecting an anaphor based on the semantic feature of animacy of referent is a new requirement. However, because the concept of animacy is relatively accessible to both L1 and L2 learners (Bates & MacWhinney, 1982; Gass, 1987; Harrington, 1987; MacWhinney, 1987), we also expected them to show a distinction between anaphors used for animate and inanimate referents, with a preference toward zero anaphors for inanimate referents, since this is an obligatory use. In the optional case, we still expected their degrees of optionality and preference to be different from those of native speakers, both because of the infrequent use of zero overall in English, and its complete inadmissibility in direct object position.

4.2.3 Syntactic level

Although Chinese is described as a topic-prominent language in which anaphor use is heavily determined by discourse rules, there are also syntactic rules that constrain anaphor selection. As noted in Chapter Two, there are syntactic rules governing anaphor selection that English and Chinese share and many in which they differ. Seven syntactic contexts were selected for inclusion in this experimental study. (As direct object position is directly related to the semantic level in this research, it is studied there rather than on the syntactic level.) Specific syntactic constructions were chosen for the following reasons. First of all, they are of common occurrence in the language, playing an essential part in forming everyday utterances. Secondly, they have high frequencies in the

textbooks designed for CSL learners at an intermediate proficiency level, and consequently, it was supposed that they would pose no difficulty for the participants. Thirdly, they reflect both similarities and differences of anaphor use in English and Chinese. Finally, they represent not only cases of obligatory but also those of optional use of zero and lexical anaphors.

The seven contexts are those in which referents can appear in the following syntactic positions and constructions (see Chapter Two and Sections 4.4.1 and 4.5.1 below for examples). Table 4.2 summarizes the contexts and the predicted anaphor use based on standard grammatical descriptions of Chinese (Li & Thompson, 1979, 1981; Chao, 1968; Huang, Y, 1994; etc.).

Table 4.2. Syntactic contexts and predicted anaphor choice in Chinese and English

Context	Chinese	English	Notes
(1) adverbial clauses of cause <i>yinwei</i> ('because')... <i>suoyi</i> ('so') and concession <i>suiran</i> ('although')... <i>danshi</i> ('but') ¹⁵	L/Z	L	The reason that these two contexts are put together is that they are described as behaving exactly the same as far as anaphor use is concerned.
(2) embedded clause	L/Z	L	
(3) adverbial clauses with one conjunction... <i>yiqian</i> ('before') and... <i>yihou</i> ('after') ¹⁶	L/Z	L	Same note as in (1)
(4) <i>yi</i> ('as soon as')... <i>jiu</i> ('then') and <i>yue</i> ('the more')... <i>yue</i> ('the more') ¹⁷	Z	L	Same note as in (1)
(5) serial verb ¹⁸	Z	Z	
(6) pivotal	L	L	
(7) oblique	L	L	

Note. Single L or Z indicates obligatory use of that form; L/Z means optional use of one or the other, the letter in bold indicates the preferred form.

We expected that the CNL speakers would pay attention to these different syntactic contexts and use the anaphoric forms predicted in Table 4.2. For the CSL speakers, we also expected that they would be sensitive to these contexts, being able to distinguish obligatory contexts from optional contexts, contexts requiring zero from contexts requiring lexical anaphor. In addition, we expected that for the obligatory syntactic contexts the CSL speakers would behave similarly to the CNL speakers, however they would also make some errors; for the optional contexts, the CSL speakers would show

¹⁵ Context (1) is simply referred to as *because* clause in the following text.

¹⁶ Context (3) is simply referred to as *before* clause in the following text.

¹⁷ Context (4) is simply referred to as *more* clause in the following text.

¹⁸ Context (5) is simply referred to as *serial* in the following text.

some degree of optional use, but their degree of optionality and preference would be different from that of the CNL speakers.

4.2.4 Discourse level

On the discourse level, we explored anaphor use in two contexts: high conjoinability (HC) and low conjoinability (LC), as introduced in Chapter Two. The HC context refers to the situation in which a referential topic is continuous and the series of sentences encoding this referent are conjoinable. In this context, anaphors occur in topic chains, where the events described are semantically closely related or similar in nature. According to the universal discourse management (UDM) rule¹⁹ (Givon, 1984, *inter alia*), this is the context where English and Chinese may be supposed to share the same anaphora distribution pattern, i.e., a wide use of zero anaphors. However, due to typological differences, Chinese being a topic-prominent language and English a subject-prominent language, zero anaphor is the predominant form in Chinese for continuous referents while lexical anaphor is the norm in English. As a result, anaphor use in this high conjoinability context can differ in the two languages.

The second context is that of low conjoinability, in which topic discontinuity occurs and a topic ceases being the focus (or center) of a discourse, interrupted by a change of place, referent, descriptive mood, etc. In such a context, lexical anaphors rather than zero anaphors are more likely to be selected according to the UDM rules. This is the context in which English and Chinese should more closely share the anaphor distribution pattern.

We expected that the CNL participants would be sensitive to the difference between the HC and the LC contexts. That is, although they would use lexical and zero anaphors in both contexts, they would show a different preference pattern, with a more extensive use of zero in HC context than in the low. For the CSL participants, we also expected them to show sensitivity to the differences between these two contexts, with their choice of anaphoric form varying with context because of the constraints on anaphor use by the UMD rule. However, due to typological differences, i.e., anaphor use in English is more

¹⁹ Universal discourse management rule (UDM): the more continuous a topic is, the less coding it needs to maintain reference.

constrained by syntactic rules while such use in Chinese is more influenced by discourse rules, we expected that the degree of optionality exhibited by the CSL participants and the preference pattern used would differ from those of the native speakers.

Table 4.3 summarizes the detailed information in each context on the three linguistic levels.

Table 4.3. Summary of the information on the Chinese contexts tested

	Context	Obligatory	Similar	Total of +
Semantic	Animate	-	-	0
	Inanimate	+	-	1
Discourse	High Conj	-	-	0
	Low Conj	-	+	1
Syntactic	<i>Because</i> clause	-	-	0
	Embedded	-	-	0
	<i>Before</i> clause	+	-	1
	<i>More</i> clause	+	-	1
	Serial	+	+	2
	Pivotal	+	+	2
	Oblique	+	+	2

Note. ‘+’ indicates *yes* and ‘-’ *no*. In the right-hand column, the number of “+” is shown.

Using this table, it was expected that the higher the number in the final column, the easier the L2 anaphor use in that context would be and the more closely the anaphor use of the CSL speakers would approximate that of the CNL speakers.

4.3 Experimental design and procedure

4.3.1 Determining experimental tasks

Researchers (e.g., Gundel & Tarone, 1992; Sasaki, 1997; Williams, 1988, 1989) in L2 anaphor use have generally employed naturally elicited data from such tasks as story-telling. Natural data are indeed good, because they reflect L2 speakers’ ability to produce

anaphors in real discourse. However, after two pilot studies with story-telling/story-writing tasks, we discovered several disadvantages with naturally elicited data in this investigation of anaphor use.

- (1) In the pilot studies where story-telling tasks were conducted, anaphors did not occur with sufficient frequency in the contexts of interest. This might have been due either to the nature of the stimuli or to an avoidance strategy that the participants adopted. As noted by Li (1996), non-controlled tasks may produce data that the learners choose to show, but not what the researchers want to discover. As the research aims to uncover a comprehensive distribution pattern of anaphors, it was unsatisfactory not to obtain the complete range of the eleven anaphor uses of interest. Using controlled tasks made it easier to achieve the goals of the research.
- (2) Second language speakers at an intermediate level seem to have a more difficult time doing an oral task than a written task. Consistently, in the pilot studies, the L2 subjects performed much more poorly in their oral tasks than in their written tasks. A possible reason for this may be that an oral task imposes more mental pressure (stress) on the participants than a written task does. As a result, a written task may better measure L2 speakers' understanding of the second language constraints.
- (3) It is hard to compare across subjects the data obtained from a naturally-elicited task, as subjects may use different structures to express the same meaning. Worst of all, subjects may tell different stories about the same picture stimuli, so that varying content in turn makes comparison much more difficult.
- (4) As naturalistic tasks may allow the production of quite different lexical items from different participants, and lexical items have an impact on anaphor choice, a well-controlled task is required.

For all of the above reasons, controlled tasks were selected as the vehicle to obtain data in the present research.

To recapitulate, the research objective of the study reported here was to provide a description of the anaphor distribution pattern of CSL speakers, to compare this to equivalent data elicited from native speakers of Chinese (not just to grammatical

descriptions), and to investigate how much L1 influence and optionality of anaphor choice were involved in determining the CSL pattern. To achieve these purposes, three tasks were employed:

- (1) *A cloze task*: This task was designed to examine the participants' anaphor use in the two semantic contexts and the seven syntactic contexts while holding most of the discourse contexts constant.
- (2) *An acceptability judgment task*: This task was developed to investigate the CSL participants' metalinguistic knowledge of anaphor use in the same nine syntactic contexts as the cloze task did.
- (3) *A story-writing task*: This task was constructed to investigate the participants' anaphor use in the high and low conjoinability contexts on the discourse level while holding most of the semantic and syntactic contexts constant.

These three tasks will be discussed more fully in sections 4.4, 4.5, and 4.6.

In order for these tasks to reveal the desired information about Chinese anaphor use, it was necessary to ensure that all tasks would be appropriate to the language proficiency level of the CSL participants. This was accomplished by employing vocabulary which was selected based on a group of textbooks for second language Chinese speakers at a high intermediate level. Efforts were made to ensure comparability of the vocabulary used in the three tasks. In addition, in cases where the researcher was not certain about the familiarity of CSL subjects with a particular word, an English gloss was provided. Similarly, the level of syntactic complexity was controlled. Difficult structures like *ba* (coverb) or *bei* (marker for the passive voice) were avoided wherever possible in the test items. Efforts were also made to ensure comparability of syntactic structures across the tasks.

It was expected that the results of these three tasks would allow us to identify patterns of Chinese anaphor use by the CNL and CSL participants. The differences in these patterns were expected to reflect the roles played by the two major factors: optionality of anaphor choice and L1-L2 language similarity. As noted above, the results of the CNL group will be presented in Chapter Five and those for the CSL group in Chapter Six.

4.3.2 Participants

The CSL participants were 30 native English speakers learning Chinese as a second language. At the time they participated in the study, their proficiency level was from intermediate to high intermediate. There are two reasons why intermediate participants were chosen. First, previous research (Klein, 1986) found that due to limited language proficiency, overuse of ellipsis is characteristic particularly of L2 beginners' pronoun use. Therefore, the present research tried to reduce this possibility by using subjects with higher language skills. Second, as L1 transfer is an important factor of interest in this study, possible influences from L2 should be controlled, so advanced students were not used. Due to the difficulty of finding enough participants in one place, the participants in the research were recruited from two sources: the United States and China. The proficiency level of these participants was determined by their placement in the university they were attending at the time of experiment. However, as every second language instructor knows, it is quite common to have great discrepancies in proficiency level even within the same class. Therefore, it was necessary to adopt another method to determine more accurately the participants' proficiency level. In this research, the CSL participants' level was also determined by the number of correct answers they made to the 47 distractors occurring in the cloze and acceptability judgment tasks. The correctness of the answers was based both on Chinese prescriptive grammar and on the answers obtained from the majority of native Chinese speakers who did the experimental tasks. If a participant's answers to the distractors were near perfect with only a few errors (maximum 5), or if they presented more than 15 errors, that participant's data was discarded from the analysis.

There were originally forty CSL speakers taking part in the research, but only thirty were eventually usable. Five were discarded due to the above-mentioned screening. Another five were not used because their questionnaires showed that their first language was not English. According to the information gathered from Language Background Questionnaires (see Appendix A) given at the time of the experiment, all the participants were undergraduate university students. Among the 30 CSL participants, 18 were from the University of Virginia, and 12 were from Hangzhou University in China. Of the participants from the University of Virginia, ten were second year students and eight

were in their third year. The 12 participants from Hangzhou University were undergraduate students from the United States who had studied Chinese in China for six months to one year. The questionnaire also showed that 20 subjects had studied Chinese for two years and ten for three years. Among the subjects, 14 were female and 16 were male with an age range from 18-35 years old.

Finally, we found from the questionnaires that besides their mother tongue, English, 15 of the participants had some to good knowledge of French or German, and 5 had some to good knowledge of Spanish or Japanese. The other 10 reported that they were unable to speak, read, and write any other language except English. This was a very important piece of information, for Spanish and Japanese belong to [+prodrop] languages, as does Chinese. Had most of the subjects had good knowledge of Spanish or Japanese, the results of the present experiment might have been attributable to this factor. Close inspection of the data of the five participants who had studied a [+prodrop] language showed that they were not different from the data obtained from the other 25 subjects.

As the use of Chinese anaphor is quite sensitive to surrounding contexts, it was necessary to establish clear base-line data in the experimental tasks from native Chinese speakers. Although there are several grammatical descriptions of Chinese anaphor use, no controlled studies have been carried out to see to what extent the actual anaphor use of native Chinese speakers corresponds to the predictions made by these grammatical rules. Therefore, 19 native Chinese speakers also carried out all of the same experimental tasks that the CSL speakers did. At the time of their participation in the experiment, these Chinese speakers held at least a university degree from China and were studying at the graduate level at the University of Alberta, Canada. They were all able to speak Mandarin fluently. Ninety per cent of them were linguistically naïve science students, with Mandarin as their primary communication language at home. Their years of residence in Canada varied from one year to four years. The age range was from 30 to 45 years old and nine of them were female and ten were male. As the use of zero anaphors is a common phenomenon in all Chinese dialects, dialectal differences among the participants were not a confounding factor in this research, especially when written tests were used.

Besides the two main groups, there were 11 native English speakers (ENL) who participated in a limited aspect of this research. Five of them were 4th year undergraduate

students and the others had graduated from the university and were working at the time of experiment. Among the subjects, eight were from a science background and three from the humanities, but none of them had a strong background in linguistics. Unlike the other two groups, this group only took part in one of three tasks in the experiment: the story-writing task. The reason for their inclusion was that this task is the one that may elicit variation among native English speakers, since it is a task where discourse factors play an important role in English anaphor use. (Recall that the other two tasks dealt with anaphor use on the syntactic and semantic levels, where rules for using particular form of anaphor are quite rigidly fixed in English.). The results produced by this group of subjects provided an English base-line datum against which the CSL group could be compared and thus allowed the assessment of L1 transfer effects as a possible explanation for their behaviors in Chinese anaphor use.

4.3.3 Experimental procedure

The participants completed the three tasks either individually or in small groups. General instructions (see Appendix B) were given to the participants at the beginning of the experiment. Detailed instructions for each task were clearly laid out before the task. In order to avoid misunderstanding of the instructions, the instructions for the three tasks were prepared in English for the CSL speakers and in Chinese for the CNL group (see Appendix C).

Doing the judgment task first might have alerted the CSL participants to the patterns under investigation. In order to avoid such a learning effect, the CSL participants were first asked to do the story-writing task and the cloze-test. Several days after they completed these two tasks, they were asked to do the acceptability judgment task, and also to complete the Language Background Questionnaire. For the native Chinese speakers, as the tests were not difficult for them, they were asked to take several minutes' break after they finished the first two tasks, and then proceed to the acceptability judgment task. Since Chinese anaphor use is highly sensitive and discourse-constrained, after finishing each task, participants in both groups were asked to go back to their texts, check whether the texts were coherent or not, and make any changes they wished to make them more coherent. In this way, they were led to consider not only the syntactic

correctness of isolated sentences but also the discourse appropriateness of sentences in contexts.

All test materials were prepared in both Pinyin²⁰ and Chinese characters, and the participants had a choice of which one they used. Ninety per cent of the CSL participants did all the tasks using Chinese characters and the other 10% used Pinyin. All the CNL participants used characters. No time limit was imposed, and the time to complete all tasks ranged from twenty-five to forty minutes for the native Chinese speakers, and one to one hour and a half for the CSL group.

4.4 Task 1: the cloze task

The cloze-test was originally devised to measure readability and reading comprehension with native English speakers (Taylor, 1953). It has been widely adopted to measure the general proficiency of second language learners (Anderson, 1976; Oller, 1979; Bailey, 1998; *inter alia.*). This is because results on most cloze tests have been found to correlate highly with those on listening, writing, and speaking tests. The explanation for this is that taking a cloze test involves more than passive reading; it requires the utilization of both productive and receptive skills of language. Furthermore, processes like sampling and hypothesis-testing which are involved in completing a cloze-test are the mirror image of what takes place in speaking and writing (Oller, 1973).

To some researchers on language testing, the cloze-test is considered to be linked to the notion of “redundancy” provided by information theory. That is, the redundancy provided by the natural language makes it possible to restore missing words in order to reconstruct textual coherence. In Anderson’s words, a cloze test “measures success at reconstruction” (1976, p. 18). It is an integrative task encompassing both comprehension and production at a number of levels. To successfully reconstruct a text requires a familiarity with the grammatical structure of the language, an understanding of lexical meaning, and an appreciation of discourse structure.

There were two major reasons why a cloze task was adopted in the present experiment. Firstly, a cloze task deals with a continuous passage of text, which is ideal

²⁰ Pinyin is the romanization of Chinese characters.

for the investigation of anaphors because of their discourse sensitivity. Secondly, a cloze task can provide a carefully controlled task, which makes it possible to include all the contexts of interest for this research.

4.4.1 Stimulus development for the cloze task

The cloze task focused on eliciting the CSL speakers' anaphor use in the two contexts on the semantic level and the seven on the syntactic level. As it is almost impossible to find a single Chinese text covering such a wide range of anaphor distribution which is also suitable for a group of second language speakers at an intermediate level, a cloze task with two passages of continuous discourse was constructed by the researcher. The first passage is a short narrative story and the second is a conversation between two interlocutors. Both passages deal with daily-life issues, and use a total of 376 Chinese characters. The nine tested contexts are distributed across the two passages.

Generally, there are two ways to delete words in cloze tests: fixed ratio deletion deletes every n^{th} (e.g., 5th) word in a test passage and rational deletion deletes the words selected by a test developer (Bailey, 1998). The rational deletion method was chosen for the present cloze test, as only in this way could the researcher make sure that (1) all the anaphors under investigation were tested, and (2) the deleted distractors were words that should not cause comprehension difficulty for this group of CSL speakers. Distractors were used to minimize learning effect.

In this cloze task, there are 43 cloze items across the two passages. Twenty-two of them are test items and 21 of them are distractors. As each of the nine contexts is tested twice, four gaps were used to elicit anaphora production for the two semantic contexts and 14 should logically have been required for the seven syntactic contexts. However, two of the syntactic contexts require two gaps each, i.e., *yinwei* ('because')...*suoyi* ('so')

and *yiqian* ('before')²¹. As a result, 18 test gaps were created for the seven syntactic contexts yielding a total of 22 test items. The 22 test gaps could be filled appropriately with either a zero anaphor, a lexical anaphor or a full noun phrase, depending on the context. Here are some examples. (see Appendix C for the complete test.)

Example (4.1) tested anaphora use on the syntactic level, where (a) and (d) were distractors, (b) and (c) tested the syntactic context which involved a subordinate clause connected by *suiran* ('although')...*danshi* ('but'). In this context, an optional but preferred use of lexical anaphor was predicted in the subject position of the main clause (c) and the subordinate clause (b).

- (4.1) A: Ni juede Zhang San (a) kao shang daxue ma?
 'you think Zhang San (a) pass the entrance exam to the university QueW'
Do you think that Zhang San can pass the entrance examine to the university?
- B: Keneng keyi. Suiran (b) bu tai congming, danshi (c) hen yonggong,
 'possible. Although (b) not very smart, but (c) very work hard'
 wo xiang ta yinggai (d) wenti.
 'I think he should (d) problem'
Possibly. Although he is not very smart, he works very hard. I don't think he should have any problems with the exam.

Example (4.2) tested Chinese anaphor use on the semantic level, in which (c) and (d) were used to test the semantic context where an animate referent was involved, and (a) and (b) were distractors. In this case, an optional but preferred use of zero anaphor was predicted in both (c) and (d).

- (4.2) Ta de gou hen (a) yisi, zhi chi niurou. Xiao Li bu (b) xihuan(c),
 'he Pos dog very (a) interesting, only eat beef. Xiao Li not (b) like (c)',
 xiang mai le (d).
 'want sell Asp (d)'

His dog is very interesting. It eats only beef. Xiao Li doesn't like it and wants to sell it.

²¹ Context (4), *yi* ('as soon as')...*jiu* ('then') could also have required two gaps. However, the referent involved in this context is not the same as the previous clause, therefore, the subject position of its subordinate clause has to be filled.

After the stimuli were completed, two pilot-studies were carried out with native speakers, in the belief that if one cannot get good clear results from native speakers, one cannot expect to be able to say anything with confidence about the results obtained from second language speakers.

To complete the cloze task, the participants were instructed to fill in the gaps with a lexical item if one was needed; if nothing was needed, they were asked to put a zero sign (ϕ) in the gap. As anaphors function a cohesive device in text, the participants were also instructed to go back and read the completed passage in order to see whether this passage was coherent and connected. This instruction was given for every task in the experiment.

4.5 Task 2: the acceptability judgment task

Judgment tasks have been widely used to test the intuition of native speakers about the well-formedness of sentences. The result of a judgment task may be supposed to reveal a speaker's linguistic competence -- specifically, whether he/she has metalinguistic knowledge in a test area. Many first and second language researchers have relied on this kind of test to support their theoretical claims. Although it still remains a controversial issue as to whether a judgment task really taps into the linguistic competence of a native or a second language speaker (e.g., Davies & Kaplan, 1998; Ellis, 1991; Goss, Ying-hua & Lantolf, 1994; Lantolf, 1990), it has been suggested that with a proper design, a judgment task can be a good way to measure linguistic competence (Sorace, 1996). Specifically, this task may be supposed to tap more directly into a speaker's conscious metalinguistic knowledge than any other language task (Gass, 1994; Muninich, Flynn & Martohardjono, 1994). Thus, with a judgment task, we may see whether the L2 speakers actually possess metalinguistic knowledge of Chinese anaphor use on the semantic and syntactic levels.

We chose to use the judgment task as a complementary task to the cloze task to find out whether the CSL participants actually know the rules. In addition, this task allowed us to find out whether the nature of a language task can influence the CSL and CNL speakers' behavior in their anaphor selection. The requirements of a grammaticality judgment task differ from those of the cloze test, in that the former is a recognition task

and focuses strongly on form while the latter is a type of integrative task and focuses more on content. Therefore, the linguistic demands of a judgment task should be different from those of a cloze task.

There are two kinds of judgment: judgment of grammaticality in which a sentence is only judged grammatical if it is generated by the prescribed grammatical rules of a language, and judgment of acceptability, in which the acceptability of a sentence depends on variables other than the speaker's metalinguistic knowledge about the prescribed grammatical rules. Such variables may be the pragmatic appropriateness of the sentence, possibility in a given dialect, contextualizability, etc. (Sorace, 1996).

An acceptability judgment task was adopted in the present research for two reasons: firstly, in Chinese, the use of zero/lexical anaphors is to a great extent determined by context. Consequently, in many cases, the choice of zero vs. lexical anaphor is a matter of degree of acceptability rather than a matter of grammaticality. Secondly, through two pilot studies, we found that the word "grammaticality" was liable to mislead the participants to think that all sentences should have a subject in order to be grammatical (as happened in one pilot study where a participant considered only the sentences with lexical anaphors as grammatical). Therefore, naming the experiment an acceptability judgment task steered the participants to consider not only syntactic factors but also discourse and semantic factors in their decision.

Methodologically, acceptability judgment tasks generally require participants to rate the acceptability status of a sentence on a five-point scale. However, the two pilot studies showed that participants tended to get confused with this kind of task, which in turn created many inter and intra-subject variations. In the data from the pilot studies, one could easily find cases where the same person gave a different rating for exactly the same sentence that appeared in two different places. Therefore, a forced-choice task was used, in which the participants were required to choose between members of a pair of sentences and indicate the one that they considered the more acceptable. The participants were also given the option of rating the sentences in a pair as equally acceptable. Giving participants this choice ensured that they (especially second language speakers) would not guess when they were not sure of their judgment. This kind of paired comparisons

(preference task) has also been found to be likely to discriminate well and yield a fairly precise measurement by Chaudron (1983).

4.5.1 Stimulus development for the judgment task

The judgment task investigated the same nine linguistic contexts as the cloze task on the syntactic and semantic levels. As noted above, the nature of this task differs from that of the cloze task, with the cloze task being a type of integrative language task, in which a participant has to produce an anaphor in a segment, and a judgment task being a kind of recognition task, in which a participant is asked to recognize relative acceptability. For this reason, the design of the acceptability judgment test was relatively easier, as it did not require the construction of a continuous discourse passage. The test stimuli were mostly composed of two connected clauses with a minimum discourse context. In order not to confuse the participants, each pair of sentences was designed to test only one linguistic context. In a test pair, everything is the same except that one sentence was presented with a lexical anaphor and the other with zero anaphor.

As in the cloze task, each of the nine contexts where anaphor occurs was tested twice, therefore there are two test pairs for each context. The level of structural and vocabulary complexity was kept as similar as possible for the matched test items. With the same structure and vocabulary in a test pair, we could minimize the possibility that subjects were not focusing on the aspects of the sentences being tested (White, 1987). There are altogether 44 items, in which 18 are test items and 26 are distractors. These items in the pairs were presented to the participants in a random order. Here are some examples:

Examples (4.3a) and (4.3b) test the linguistic context at the semantic level. The context of interest is the inanimate referent in the object position, where an obligatory use of zero anaphor is expected, as in (4.3b).

(4.3a) Zhe che tai gui le, wo bu xiang mai ta.

'This car too expensive Asp, I not want buy it'

This car is too expensive; I don't want to buy it.

- (4.3b) Zhe che tai gui le, wo bu xiang mai.
 ‘This car too expensive Asp, I not want buy’

This car is too expensive; I don't want to buy it.

(4.4a) and (4.4b) show an example of the examination of anaphor use on the syntactic level. In this example, a lexical anaphor is not allowed in the second clause of the sentence, which is connected by *yue* (‘the more’)...*yue* (‘the more’), so (4.4a) is correct.

- (4.4a) Li Laoshi yue shuo yue jidong.
 ‘Li teacher more talk more excited’

The more teacher Li talked, the more excited he became.

- (4.4b) Li Laoshi yue shuo ta yue jidong.
 ‘Li teacher more talk he more excited’

The more teacher Li talked, the more excited he became.

For a complete set of items on the judgment task, please refer to Appendix C. As with the cloze task, after the stimuli were developed, two pilot-studies were carried out with native speakers.

To complete the judgment task, the participants were asked to circle the sentence in each pair that they thought was a more acceptable Chinese sentence. If they felt that both sentences were equally acceptable, they were asked to write an E, meaning equally acceptable.

4.6 Task 3: the story-writing task

As noted in Chapter Two, one of the most important distinctions between English and Chinese anaphor use is at the discourse level. At this level in Chinese, zero anaphors can be used as long as there is a high conjoinability across sentences. However, in English, the use of zero anaphors is not only constrained by the discourse context but also

by syntactic factors since they can only occur in the subject position of conjoinable clauses. Therefore, even if native speakers in both languages perceive the same degree of conjoinability across clauses, the form used to encode this conjoinability is likely different. In Chinese, high conjoinability is generally realized in the form of topic chains, where the topic established in the first clause serves as the referent for the unrealized topics in the chain of clauses following (Li & Thompson, 1979, 1981). Topic chains often occur in situations in which a referential topic is continuous and the series of sentences encoding this referent concern semantically closely linked and uninterrupted actions. In this research, the investigation of topic chains is limited to those based on the syntactic subject position, as referents occurring in other positions are syntactically constrained in English and have to be coded by lexical anaphors.

Besides examining the discourse context that elicits different forms of anaphor for the CNL and CSL speakers, we also looked at another discourse context -- one which is likely to induce the same anaphora forms for the two groups, i.e., low conjoinability. Low conjoinability is the context where conjoinability between clauses breaks down and a lexical anaphor is used to re-establish the referent. This research combines some of the findings about topic discontinuity (low conjoinability) by Li and Thompson (1979), Pu (1991, 1997), and Chen (1984), and makes use of five situations to trigger a breakdown of discourse continuity. They are:

- (1) change of local topic, such as from a description of actions to that of a state of mind,
- (2) change of time,
- (3) change of place,
- (4) change of referent,
- (5) change of descriptive mood, such as from story to narrator's comment.

In order to examine the Chinese anaphor use in these two discourse contexts, we required a production task that could induce use of a large number of zero and lexical anaphors. A story-telling task has frequently been used to achieve this purpose. However, as the stimuli of this task needed to include discourse contexts with (1) a series of conjoined events happening to the same referent and (2) the five conditions causing referential discontinuity, a controlled story-writing task was adopted. The results of this

task were expected to reveal variation patterns of anaphora use on the discourse level by the native Chinese speakers and the CSL learners.

4.6.1 Stimulus development for the story-writing task

Six short scenarios were developed around which participants were to construct little stories. In order to test anaphora use in high and low conjoinability contexts, these scenarios included stories containing a series of events coded by action verbs and one to three conditions where low conjoinability occurred. The five low conjoinability conditions listed above were the ones used. Each was tested twice, giving a total of ten discontinuity conditions. The total number of events and discontinuity conditions varies from story to story. (See Tables 4.4-5 for detailed distribution information.)

Since the sentence(s) signaling discontinuity occur(s) at different places, the maximum number of conjoinable events differs in the stories. Specifically, in stories 1, 2, and 6, there is one discontinuity clause occurring at the very end of the story, therefore the maximum number of conjoinable events is 5. In stories 3 and 4, there are two discontinuity clauses, one appearing in the middle and one at the very end, therefore the maximum number of conjoinable events is 2. Finally in story 5, although there are ten events, with three discontinuity clauses at three different places, the maximum number of conjoinable events is only 3 in this story.

Table 4.4. Stimulus information in the story-writing task

Story	Number of events	Maximum number of conjoinable clauses	Referent type
Story 1	6	5	Human
Story 2	6	5	Inanimate
Story 3	6	2	Human
Story 4	7	2	Human
Story 5	10	3	Human
Story 6	6	5	Animate

Table 4.5. The distribution of topic discontinuity in the story-writing task

Story	Topic change	Time change	Place change	Referent change	Mood change
Story 1	(6 th)				
Story 2		(6 th)			
Story 3	(6 th)			(3 rd)	
Story 4				(3 rd)	(7 th)
Story 5		(10 th)	(3 rd) (7 th)		
Story 6					(6 th)

Note. For example, in story 1, 6th indicates that the clause signaling topic change is the 6th clause in the story.

In the development of the stimuli, the level of vocabulary difficulty was kept as similar as possible for each scenario. In order to present the story in a form that was as neutral as possible with respect to anaphor use, the following two steps were taken: (1) no punctuation marks were shown except in the first and last sentences, (2) the story events were presented line by line instead of in running paragraphs.

One major concern with the design of the story-writing task was the presentation of the actual referents. That is, should we present the referents with lexical anaphors or zero anaphors? Several pilot studies indicated that presenting the event series using lexical anaphors for the referent was likely to induce the use of more lexical anaphors than zero anaphors. On the other hand, more zero anaphors were observed when the series was presented with zero anaphors. Finally, we decided that to minimize such an effect, small pictures were used to represent the main referent. This procedure was also piloted and yielded satisfactory results. These presentation principles are illustrated in the following, which is story 1.

(4.5) Li Ming zhongyu hui dao jia le,	'Li Ming finally return home Asp'
☺tuikai men	'☺push-open door'
☺dakai deng	'☺open light'
☺zoujin ziji de fangjian	'☺walk-into self 's room'
☺tuo xia dayi	'☺ take off coat'
☺tang zai chuangshang	'☺lie in bed'
Zhe shihou, ☺juede zhenshi shufu ji le.	'this time, ☺feel really comfortable Asp'

In this example, a picture representing the main character Li Ming was presented before the main verb of each event. The first five events were considered highly conjoinable and zero anaphors were expected to occur. In the last event, an adverbial phrase: *zhe shihou* ('this time') appeared before the main verb, which induces a change of local topic, signalling topic discontinuity. Therefore, a lexical anaphor was expected to occur to keep track of reference in such context. It should be noted that the stimuli were presented in English to the native English participants (ENL) as shown in (4.6).

- (4.6) John Smith²² finally arrived home
- ☺opened the door
 - ☺turned on the light
 - ☺walked into his room
 - ☺took off his coat
 - ☺lay down in his bed
- At this time, ☺ felt really wonderful.

To do the task, all the participants were asked to write six coherent and connected short stories based on the six event scenarios provided by the researcher, the CNL and CSL participants in Chinese and the ENL participants in English. In their writing, they were allowed to add some words if necessary, but were not allowed to change, delete or add contents. They were encouraged to go back to read the stories in order to see

²² English names instead of Chinese names were used in all stimuli presented to the ENL group.

whether they were truly coherent and connected (see Scenarios and Instructions in Appendix C).

4.7 Summary

In order to achieve the three goals of the study, the design of this study focused on the factors of optionality and language similarity in the anaphora use of both L1 and L2 speakers. The effect of these factors across semantic, syntactic, and discourse domains was investigated through three experimental tasks: a cloze task, an acceptability judgment task, and a story-writing task. Each task was designed to tap into different aspects of anaphor use by the L1 and L2 speakers. Subjects participated in this study were native Chinese speakers, second language speakers learning Chinese, and native English speakers. Results of the experiment will be presented in Chapters Five and Six.

CHAPTER FIVE

Experimental Results of Native Chinese Speakers

5.1 Introduction and overview

This chapter reports on the results obtained from the speakers of Chinese as a native language (CNL) on the three experimental tasks. The purpose for obtaining CNL data was two-fold. (1) Given that certain predictions are found in grammatical descriptions of Chinese anaphor use, we wished to investigate what anaphors native speakers actually produce and how consistent they are in their anaphor choice in contexts at the semantic, syntactic, and discourse levels of language. (2) We wished to use this information, to establish base-line data against which to compare the experimental results of the participants learning Chinese as a second language (CSL) on the specific test materials used in the study.

Section 5.2 presents the results of the cloze task and the judgment task. In this section, the anaphor use in selected semantic and syntactic contexts is discussed individually. Since both the cloze and judgment tasks tested the same set of contexts, comparisons are also made between the results obtained from these two tasks. Section 5.3 provides possible explanations for any differences observed in results from the two tasks. Section 5.4 presents and analyzes the results from the story-writing task, which tested contexts from the discourse level of language.

5.2 Results of the cloze task and the judgment task

The cloze and judgment tasks were constructed to examine anaphora distribution patterns on the syntactic and semantic levels. To recapitulate, on the semantic level we looked at two contexts in which animacy and inanimacy of referent directs anaphor choice. On the syntactic level we examined seven contexts, including anaphor use in embedded clauses, three types of adverbial clauses, serial verb construction, pivotal construction, and oblique position. In both tasks, each context was tested twice.

As both tasks examine the distribution pattern of anaphors on the semantic and syntactic levels, the results are presented and analyzed by level. Similarities and differences in the results of both tasks are discussed. In cases where discrepancies in anaphor use occur, possible explanations for these discrepancies are suggested.

5.2.1 Results on the semantic level

The use of anaphor is tested in two semantic contexts, animate and inanimate with the referent in object position in a syntactic structure. As noted in Chapter Four, we expected that

- (1) in an animate context (i.e., the referent is animate), either a lexical or a zero anaphor would be used by the CNL subjects, and a zero anaphor would be preferred,
- (2) in an inanimate context (i.e., the referent is inanimate), a lexical anaphor cannot be used.

In order to test these predictions, the results in each task were initially tabulated according to the anaphor type (or choice in the judgment task) that the participants produced. In each task there were two test items used for each context and 19 participants did the test. Therefore, the maximum number of anaphors produced for each context was 38. Table 5.1 displays the total number of anaphor types produced or anaphor choices made by the participants in the two tasks.

Table 5.1. Total number of anaphor types (choices) on the semantic level in the cloze and judgment tasks (CNL group)

Context/anaphor type	Cloze task			Judgment task		
	ZA	LA	FNP	ZA	LA	EQ
Animate	15	22	1	21	9	8
Inanimate	33	0	5	26	3	9

Note. ZA: zero anaphor LA: lexical anaphor FNP: full noun phrase
EQ: the types of sentences are equally acceptable

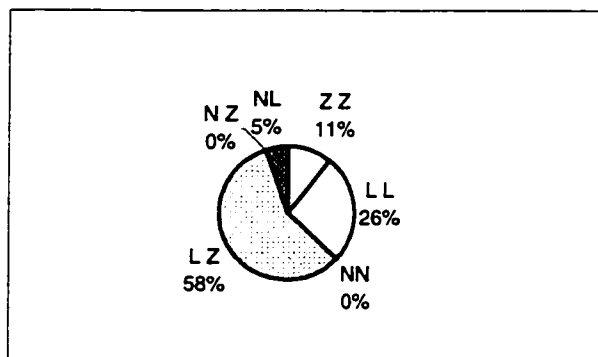
The result in Table 5.1 shows that in the cloze task, both types of anaphor were used in the animate context and no lexical anaphors were used in the inanimate context.

These results seemed to be in accord with the above predictions, i.e., an optional use of either a lexical or a zero anaphor in the animate context and an obligatory use of zero anaphor in the inanimate context. However, the prediction for a preferred use of a zero anaphor was not supported. In the judgment task, the prediction for a preferred zero for the animate context was supported, but that for the inanimate context was not, since a few lexical anaphors and “equally acceptable”s are noted.

What is shown in Table 5.1 is a pooled result of all test items from the participants. For instance, “15”, “22”, and ‘1” in the cloze task were the total numbers of each anaphor type produced by the 19 participants for the two animate context test items. It indicates that out of the 38 anaphors used, 15 were zero anaphors, 22 lexical anaphors, and 1 a full NP. These numbers, however, do not show how consistent each individual participant was in his/her choice of anaphor in the matched test items. Specifically, these numbers do not tell us the number of participants who used zero and lexical anaphors interchangeably in the two test items. As a result, it is impossible to obtain a picture of the true optionality of the anaphor use in such a semantic context. In order to see the behavior pattern of the participants, all the data were calculated based on the six possible combinations that an individual could produce for the two items. The combinations are two zero anaphors (ZZ), two lexical anaphors (LL), two full noun phrases (NN), a noun phrase and a zero anaphor (NZ), a lexical and a zero anaphor (LZ), and a noun phrase and a lexical anaphor (NL) (in the judgment task, “*noun*” should be replaced by “*equally acceptable*”). These results are illustrated in Figures 5.1-5.4, which are presented and discussed below.

5.2.1.1 Consistency of results in the animate context

In the animate context, we predicted that either a lexical or zero anaphor can be used to maintain reference. This prediction was supported by the fact that over half of the participants used zero and lexical anaphors interchangeably (see Figure 5.1).



Note. Z: zero anaphor

L: lexical anaphor

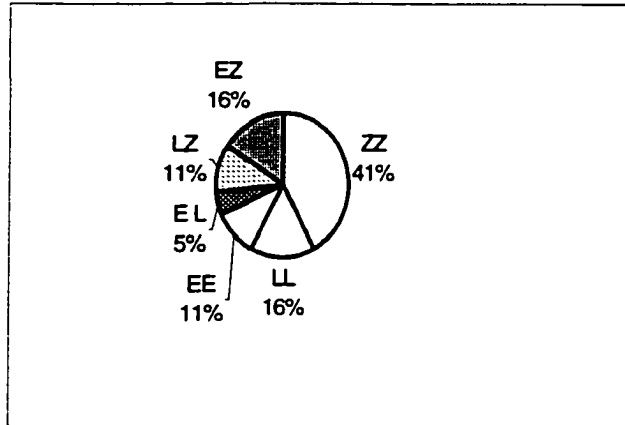
N: full noun phrase

Figure 5.1. CNL participants' consistency of behavior in the animate context in the cloze task

However, for this prediction to be fully supported, explanations are needed for the 26% use of lexical anaphors in both test items, and the 11% use of only zero anaphors. In my opinion, the very fact that some people used lexical anaphors and some used zero anaphors is in itself an indication of an optional use. This observation highlights the fact that optionality can be looked at in two ways: (1) an optionality in which a single individual uses lexical and zero anaphors interchangeably (within-subject); (2) an optionality in the subject population, in which some participants use only lexical anaphors and some only zero anaphors (between-subject). Accordingly, the measurement of the degree of optionality should take these two criteria into consideration, i.e., the absolute number of the within-subject optionality (LZ in the cloze task and EE in the judgment task) and the difference between the between-subject anaphor combinations, namely between ZZ and LL combinations. High within-subject optionality and low between-subject optionality yield a high degree of optionality.

In this case, the within-subject optionality is 58%, and the between-subject optionality is only 15% (26% of LL minus 11% of ZZ). Hence, it can be concluded that in the cloze task, the degree of optionality is quite high and both zero and lexical

anaphors can be used to keep track of an animate referent. However, the figure of 26 % of the participants who always used lexical anaphors in the test items does suggest that in such semantic context, lexical anaphor seems to be the preferred anaphoric form for reference tracking.



Note. E: both sentences are equally acceptable

Figure 5.2. CNL participants' consistency of behavior in the animate context in the judgment task

Figure 5.2 displays the result obtained in the animate context in the judgment task. It shows that the results were distributed across all six possible combinations, indicating an optional use of anaphor and large variation among the participants. Based on the above measurement of the degree of optionality, the rather low 11% of EE combination (within-subject) and the 25% difference between the LL and ZZ combinations could be interpreted as a low optionality of anaphor use. In addition, the 41% of ZZ combination could suggest a high preference for zero anaphors.

As shown above, overall results in both tasks support the prediction that on the semantic level, when the referent in object position is animate, lexical and zero anaphors can be used interchangeably. They also show that this optionality is not 100% optional, namely, for the two test items in the animate context, neither 100% of the participants used zero and lexical anaphors interchangeably, nor 50% of them adopted only lexical anaphors and 50% used only zero anaphors. A high optionality was observed in the cloze task while a low optionality in the judgment task. In addition, the results also demonstrate that optionality appears to be accompanied by a preference for one type of

anaphor to the other. The cloze task produced a preference for lexical anaphors and the judgment task for zero anaphors. Given the same semantic context, what might have caused these differences? Could the differences be due to a task effect or a stimulus effect? An item analysis was carried out to try to answer this question. It was hypothesized that if there was no test item showing a special behavior, then the difference should be attributed to a task effect. Special behavior refers to the situation when one type of anaphor was predominantly observed in one item.

To conduct an item analysis, the frequency of each response in each test item was expressed as a percentage and illustrated in a pie chart, one per test item. (Item analyses were carried out for contexts in which special behaviors were observed. The resulting 20 pie charts may be seen in Appendix D, and are referred to throughout the discussion of the cloze and judgment tasks.) Charts a) and b) show that the first test item in the cloze and judgment tasks exhibited a special behavior, i.e., lexical anaphor was used twice as much as zero anaphor in the cloze task, but zero anaphor was preferred three times more often than lexical anaphor in the judgment task. This special behavior of the two test items seemed to indicate that in the animate context, the differences in the preference pattern and degree of optionality between the two tasks might be due to a stimulus effect rather than a task effect. But what aspect of the stimulus might have led to such a big difference in the anaphora distribution pattern?

We looked first at the first item in the cloze task and found that the anaphor occurs in the following discourse context:

- (5.1) (Zhe gou) zhi chi niurou, Xiao Li bu xihuan____, xiang mai le ____.
 '(this dog) only eat beef, Xiao Li not like ____, want sell Asp____'

This dog eats only beef; Xiao Li doesn't like it and wants to sell it.

When no lexical anaphor is used after the verb *xihuan* ('like'), this sentence could have two possible interpretations: (a) Xiao Li does not like the fact that the dog only eats beef, (b) Xiao Li does not like the dog, because it eats only beef. Therefore, in order to express the second meaning, some participants used a lexical anaphor instead of a zero. This in turn, created a large number of lexical anaphors in the cloze task. A stimulus effect could also be used to account for the slightly higher preference for lexical anaphors

(53%) over zero anaphors (47%) in the second item of the cloze task (see the second gap in example 5.1). Here, lexical anaphors might be used in order to achieve emphatic effect.

In the judgment task, the test items provided no such context where ambiguity could occur; therefore more zero anaphors were used. A close look at the stimuli did not show any significant difference in the lexical items in the two test items, and the much higher preference for zero anaphor in the first test item could be attributed to some inter-subject variation when doing the judgment task.

These findings from the item analysis suggest that Chinese anaphor use is highly sensitive to its surrounding context, and the preference for a certain type of anaphor is also constrained by such factors as surrounding lexical items, especially the verb immediately preceding an anaphor. This result underlines the wisdom of establishing the behavior of native speakers on complex test materials before using them with second language participants. Based on the results from the judgment task, we may conclude that should there exist no stimulus effect in the cloze task, zero anaphor would be the preferred choice in this animate context regardless of the nature of the task.

5.2.1.2 Consistency of results in the inanimate context

On the semantic level, previous theories (Li & Thompson, 1981; Chen, 1984) claim that lexical anaphors are rarely adopted to refer to an inanimate object, which leads to a prediction for an obligatory non-use of lexical anaphor in the inanimate context. This prediction is fully supported by the results in the cloze task, which is illustrated in Figure 5.3, where a rather concentrated distribution pattern is displayed with no sign of lexical anaphors, although we do find some full noun phrases in this context.

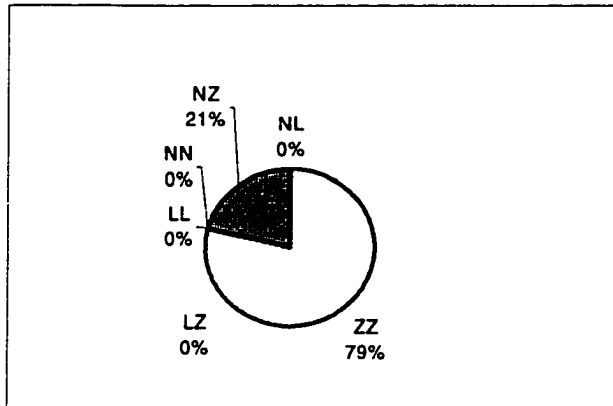


Figure 5.3. CNL participants' consistency of behavior in the inanimate context in the cloze task

This result of a unanimous non-use of lexical anaphors is in contrast with the rather scattered distribution pattern in the animate context, which suggests that in the language-integrative cloze task, native Chinese speakers are sensitive to the distinction between an animate context and an inanimate context.

However, the situation in the judgment task is not nearly as clear as that in the cloze task. Unlike the fairly homogeneous result obtained from the cloze task (see Figure 5.3), Figure 5.4 demonstrates a rather mixed result, with response pairs distributed across five of the six possible combinations.

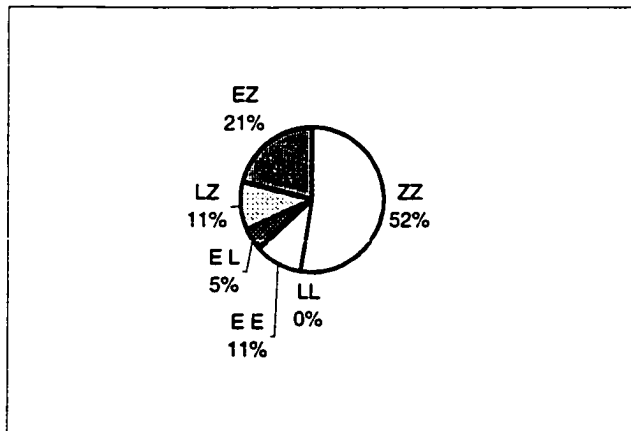


Figure 5.4. CNL participants' consistency of behavior in the inanimate context in the judgment task

Note that in this context and task, only a little over half of the participants always judged both sentences with zero anaphor as more acceptable. Thirty-seven percent were not

consistent in their judgment, and 11% considered either lexical or zero sentences equally acceptable. This very divided result does not seem to support the prediction for an obligatory use of zero anaphor in the inanimate context. Instead, it suggests an optional use of either a lexical or a zero anaphor. However, as there is only 11% of EE responses (within-subject optionality) and the between-subject optionality is quite low, the degree of optionality is considered rather low. On the other hand, the 52% of ZZ responses suggests a fairly high preference for zero anaphors. These results indicate a low optional anaphor use with a high preference for zero anaphors. Consequently, the prediction for an obligatory use of zero anaphors in the inanimate context could only be partially supported by the judgment results. What might have caused the full support for the prediction in the cloze task while a partial support in the judgment task? An item analysis in this context (see Appendix D, pie charts c) and d)) did not show that one test pair behaving significantly differently from the other. A detailed look at the test stimuli showed that the sentential discourse context and the lexical item immediately preceding the anaphors did not cause any ambiguity. Therefore, the different result in the two tasks can only be explained in terms of the nature of the tasks, which will be discussed in Section 5.3.

5.2.1.3 Summary of the results on the semantic level

Overall, the results on the semantic level show that native Chinese speakers are very sensitive to the difference between animate and inanimate referents. They use more lexical anaphors than zero anaphors to keep track of animate referents. However, they rarely use lexical anaphors to refer to inanimate referents. Comparing the results of the two tasks, we can see that both tasks support the prediction for an optional choice of lexical or zero anaphor in the animate context. However, their degree of optionality is not the same: a high optionality is observed in the cloze task and a low optionality in the judgment task. For the inanimate context, the prediction of an obligatory use of zero anaphor is fully supported by the cloze task results. However, it is only partially supported by the judgment task and large variation is observed here. Unlike the inconsistent results in the animate context, which were caused by the stimulus effect, this difference may be chiefly attributable to the nature of the tasks, namely to the difference

between a language-integrative task and a metalinguistic judgment task. Finally, the results in the cloze task show that full noun phrases can also be used in both animate and inanimate contexts. However, it should be noted that the small amount of use of full noun phrases may represent some individual preference rather than a general pattern in Chinese anaphor use in these two semantic contexts when rich discourse information is provided.

5.2.2 Results on the syntactic level

As discussed in Chapter Four, anaphor use was also explored in seven contexts on the syntactic level. They were: (1) *because* clauses, (2) embedded clauses, (3) *before* clauses, (4) *more* clauses, (5) serial verb construction, (6) pivotal construction, and (7) oblique position. According to grammatical descriptions by Chao (1968), Chen (1984), and Huang, Y. (1994), the following predictions were made:

- (a) in the contexts (1) - (3) above, optional choice of lexical or zero anaphors is predicted, with lexical anaphors preferred in (1);
- (b) in (4) and (5), obligatory use of zero anaphor is predicted;
- (c) in (6) and (7), obligatory use of lexical anaphor is predicted.

To test these predictions, results of the CNL participants were tabulated and analyzed in a similar fashion to those on the semantic level. As each context was tested twice, the maximum number of the anaphors produced in each context by 19 participants should be 38 for each task—cloze and judgment. Table 5.2 displays the total number of the anaphor types (or choices in the judgment task) that the participants produced in the two tasks.

Table 5.2. Total number of anaphor types (choices) on the syntactic level in the cloze and judgment tasks (CNL group)

Context/anaphor type	Cloze task			Judgment task		
	ZA	LA	FNP	ZA	LA	EQ
<i>Because</i> clause (1)	32	6	0	21	7	10
Embedded clause (2)	28	10	0	14	13	11
<i>Before</i> clause (3)	38	0	0	38	0	0
<i>More</i> clause (4)	38	0	0	38	0	0
Serial (5)	38	0	0	38	0	0
Pivotal (6)	0	20	18	0	38	0
Oblique (7)	6	32	0	0	38	0

Table 5.2 shows that some results in the two tasks are homogeneous while others are not. Specifically, in contexts (4) and (5), where an obligatory use of zero anaphor was predicted, the CNL speakers provide a unanimous result in both tasks. In context (3), though predicted to be optional, these speakers also demonstrate a consistent result of an obligatory use of zero anaphor. However, in the other contexts, the results show some differences between the two tasks. Roughly speaking, there is less variation in the cloze task than in the judgment task. The contexts where inconsistent results occurred ((1), (2), (6), and (7)) are discussed separately in the following sub-sections.

5.2.2.1 Consistency of results in syntactic contexts (1) and (2)

In contexts (1) and (2), the results of both tasks indicate an optional use of either a zero or a lexical anaphor, with zero anaphor being the preferred form for these Chinese participants. This is true even in syntactic context (1), where a preferred use of lexical anaphors was predicted. These results seem to suggest that when a referent is recoverable in the discourse context, native Chinese speakers prefer to select zero anaphors to maintain reference.

However, a close look at the results shows some different behavior patterns between the cloze and judgment tasks. In context (1), the cloze task evokes considerably more use of zero anaphor than the judgment task does. In context (2), the cloze task

results show participants high preference for zero anaphors, while the judgment task demonstrates an almost equal distribution of lexical and zero anaphors.

In order to obtain a finer resolution of the optionality pattern in the cloze and judgment tasks, we calculated how consistent participants were in their choice of anaphor in contexts (1) and (2). As at the semantic level, counts were made of all of the six possible combinations of choices that participants could produce for the pairs of items. The results are shown graphically in Figures 5.5-5.8.

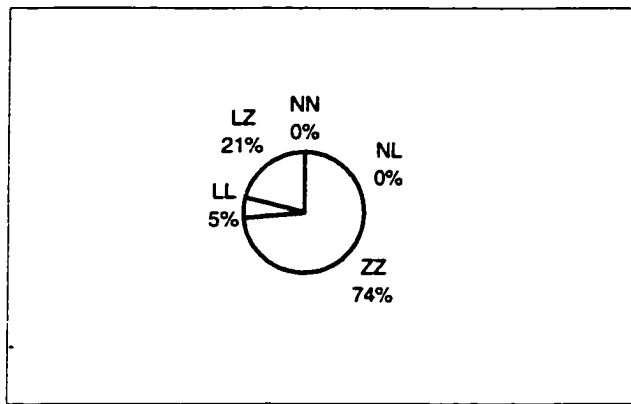


Figure 5.5. CNL participants' consistency of behavior in syntactic context (1) in the cloze task

Figure 5.5 shows that although some optional anaphor use was observed, a majority of the participants use only zero anaphors in context (1) in the cloze task. The rather low within-subject optionality (21%) and low between-subject optionality indicates an overall low degree of optionality. In addition, the 74% choice of the ZZ combination demonstrates a high preference for zero anaphors.

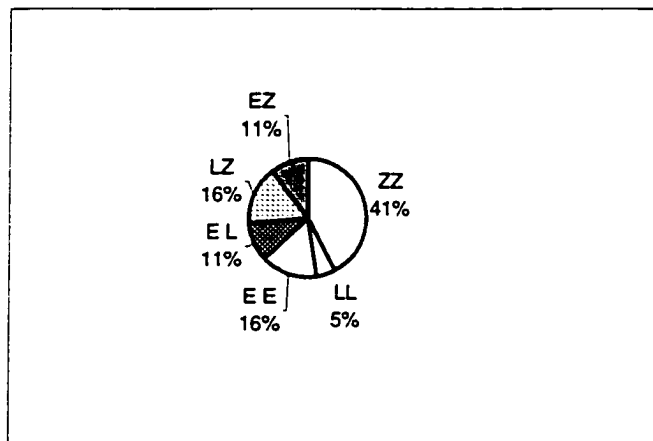


Figure 5.6. CNL participants' consistency of behavior in syntactic context (1) in the judgment task

In contrast, in the judgment task, Figure 5.6 shows substantial variation in the participants' judgment for context (1), indicating optional anaphor use. However, the rather low within-subject optionality (16% of "EE" combination) and the somewhat low between-subject optionality actually suggest a low degree of optionality. The 41% of ZZ choices indicates a high preference for zero anaphors. These judgment task results are in

accord with those in the cloze task, although the degree of optionality is higher and the preference for zero anaphors is much lower in the judgment task.

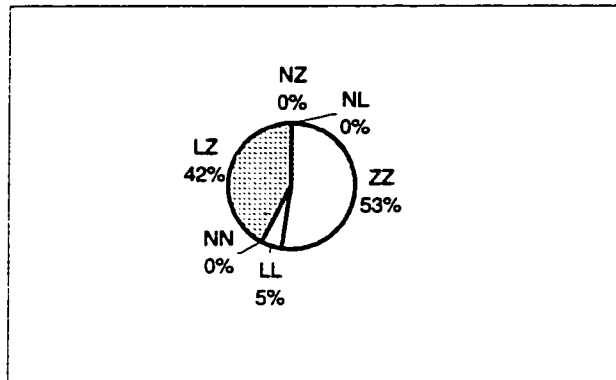


Figure 5.7. CNL participants' consistency of behavior in syntactic context (2) in the cloze task

For context (2), Figure 5.7 shows a mixed result in the cloze task, indicating optional use. However, the degree of optionality is interpreted as being low, since even though the within-subject optionality is a somewhat high 42%, the between-subject optionality is quite low. In addition, the 53% of ZZ choices suggests a high preference for zero anaphor.

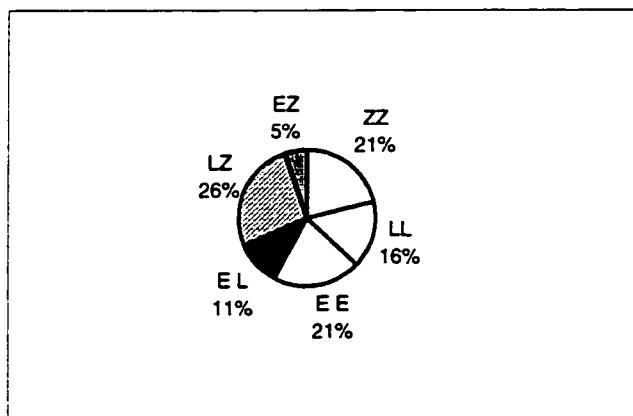


Figure 5.8. CNL participants' consistency of behavior in syntactic context (2) in the judgment task

Figure 5.8 displays the more varied result of the judgment task compared to the cloze task. Although the within-subject optionality is not terribly high (26%), the between-subject optionality is quite high. This result can be interpreted as indicating a high optionality of choice between a lexical and zero anaphor with a slight preference for

zero anaphors.

To sum up, in context (1), an optional use of the two anaphors is observed in both cloze and judgment tasks. However, the cloze task reveals much less variation, lower optionality, and higher preference for zero than the judgment task. A close look at the stimuli did not show any significant difference in the test items between these two tasks, indicating that the different result in the cloze and judgment tasks does not seem to be due to a stimulus effect. However, the results of an item analysis (see Appendix D, pie charts e) and f)) do show one consistent difference in behavior in the anaphor use across the test items: in both tasks more zero anaphors and fewer lexical anaphors are used in clauses introduced by *yinwei...suoyi* ('because...so'), i.e., test item 1 than in those by *suiran...danshi* ('although...but'), i.e., test item 2. This suggests that although anaphor use is supposed to be exactly the same in these two kinds of adverbial clause, the different conjunctions may have some impact on the anaphor choice.

In context (2), although both tasks indicate an optional use of lexical and zero anaphors, the results show a difference in the degree of optionality. In the cloze task, optionality is low while the preference for zero anaphors is high. In the judgment task, the situation is just the opposite. An item analysis was also conducted to see whether there was any special behavior in either of the test items. The results show that instead of evoking a preference for zero anaphor, as do the other three test items, the first item in the judgment task shows participants' preference for a lexical anaphor. In fact, in this item, lexical anaphors are used almost three times as often as zero anaphors. (See Appendix D, pie charts g) and h).)

A look at the stimulus items may reveal the source of this anomaly. Example (5.2) below is taken from the stimuli in the judgment task and (5.3) from those in the cloze task.

(5.2a) Wo zuotian pengjian Lao Wang le, ta shuo Ø mingtian yao qu Zhongguo.
 ‘I yesterday meet Lao Wang Asp, he said Ø tomorrow will go China’

(5.2b) Wo zuotian pengjian Lao Wang le, ta shuo ta mingtian yao qu Zhongguo.
 ‘I yesterday meet Lao Wang Asp, he said **he** tomorrow will go China’

“I met Lao Wang yesterday, he said that he would go to China tomorrow.”

(5.3) (Xiao Li de nüpengyou) wen ta zai nali mai de wazi , Xiao Li shuo ____ shi zai
 (Xiao Li Pos girlfriend) ask him at where buy sock, Xiao Li say ____ is at’
 yi jia xiao shangdian li mai de.
 ‘a Cl small shop in buy’

“Xiao Li’s girlfriend asked him where he bought the socks. Xiao Li said that he bought them in a small store.”

In these two examples, the lexical item *shuo* (‘say’) before the anaphor is the same. However, in the judgment task, more participants consider the sentence with the lexical anaphor (5.2b) as the more acceptable of the pair, while in the cloze task they use chiefly zeros to fill in the test blank. A close look at the examples indicates that avoiding ambiguity in (5.2) might be a possible reason for such a difference. In (5.2a), the use of a zero anaphor may cause an ambiguous interpretation for some speakers, since a zero anaphor may refer either to *Lao Wang* or a third person, though *Lao Wang* is the preferred interpretation. Therefore, it was possible to avoid an ambiguous interpretation that more speakers chose (5.2b). The situation in (5.3) is different. The larger discourse context provided by the cloze task is quite unlikely to allow an ambiguous interpretation for the speakers, and zero anaphors are consequently frequently adopted. The special behavior in (5.2) seems to suggest that the high and low optionality in the two tasks might be due to a stimulus effect. This stimulus effect, however, could also be very well understood as a result of the nature of the tasks, which will be considered in section 5.3.

5.2.2.2 Consistency of results in syntactic contexts (6) and (7)

It has been consistently agreed among Chinese linguists and grammarians that zero anaphors should not be used in a pivotal construction (6) and after a preposition (7). This prediction is fully supported by the results of the judgment task, where all 19 CNL participants judged the sentences with lexical anaphors as more acceptable in the two test pairs. However, in the cloze task, this prediction could only find support for context (6) but not for context (7). In context (6), no sign of zero anaphors is observed, but both lexical anaphors and full noun phrases are noted. An item analysis indicates that most of the full noun phrases are found in the second test item. (See Appendix D, pie charts i)) A close look at the stimuli shows that this result stems from the discourse context in which the anaphor is situated. In this item, the referential distance between the introduction of the referent and the site of the anaphor is longer than that in the first test item: specifically, more clauses occur between the anaphor and its antecedent. The experimental result for these two items suggests that the anaphor use of these CNL speakers is sensitively constrained by universal discourse management rules.

For context (7), the prediction for an obligatory use of lexical anaphors is not completely supported by the results of the cloze task.

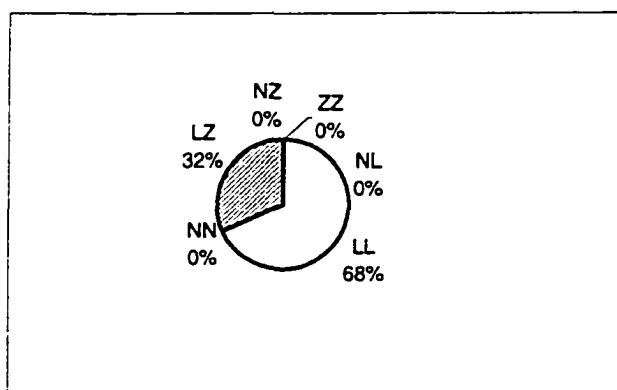


Figure 5.9. CNL participants' consistency of behavior in syntactic context (7) in the cloze task

Figure 5.9 shows that in the two test gaps in the cloze task, 68% of the participants use lexical anaphors consistently, 32% adopt zero and lexical anaphors interchangeably. An item analysis (See Appendix D, pie charts j)) shows that all of the zero anaphors appear in one test item, where the anaphor gap occurs after the preposition *gei* ('for').

The special behavior of *gei* has not been observed in previous linguistic research. This finding suggests that not all Chinese prepositions subcategorize lexical anaphors as their complements. Moreover, it implies that in order to give a full account of the distribution pattern for Chinese anaphors, the lexicon surrounding the anaphors should also be considered. With this exception, however, the results in contexts (6) and (7) indicate an obligatory use of lexical anaphors in both tasks.

5.2.2.3 Summary of the results on the syntactic level

To sum up, the results of the cloze and judgment tasks show that the native Chinese speakers are sensitive to the distinction between obligatory and optional contexts. In both tasks, they behave quite consistently in contexts where an obligatory use of anaphor is required, though some exceptions were noted due to a stimulus effect. However, in contexts where an optional use of anaphor is predicted, they behave considerably differently in the two tasks, though the general prediction for an optional use is supported in both tasks. Specifically, the cloze task demonstrates a lower degree of optional use and a higher degree of preference for zero anaphors than the judgment task. In addition, more variation is observed among the speakers in the judgment task than in the cloze task. The results of the item analysis indicate that these differences are attributable to either a stimulus effect or a task effect; the latter issue will be explored in the next section.

5.3 Possible explanations for the differences produced in the cloze and judgment tasks

Comparing the results of the cloze and the judgment tasks, we can see that the two tasks have occasionally produced different results among the native Chinese speakers. The differences are: firstly, more variation among subjects is observed in the judgment task than in the cloze task; secondly, the preference for zero anaphor is much higher in the cloze task than in the judgment task (except in the semantic animate context, due to a stimulus effect from the ambiguity of one test item). These differences are primarily

found in those contexts where an optional anaphor use was predicted²³, i.e., the animate semantic context, syntactic context (1), and syntactic context (2). One possible reason for this result is that anaphor use in optional contexts depends on discourse and pragmatic rules. These rules are as not rigid as those for obligatory contexts, which in turn allows more variation.

What might have caused these observed differences in the two tasks? In my view, these differences can only be explained by the differing nature of the tasks, which determines how much discourse information is provided to the participant and what kind of language activity is involved. These factors, in turn, will to some extent influence the distribution pattern of anaphors produced.

The cloze task is an integrative task requiring anaphor **production** in situations with rich discourse context information. Because of this, the cloze task in this study provided a substantial discourse context, where a unified story was involved. Generally speaking, with more context comes more information. The more context information that is provided, the more restrictions that will be put on the imagination of a participant. This seems to be the case for the cloze task, where the situational context is well controlled. In the cloze task, the stimulus material consisted of two continuous discourse passages of natural linguistic data. In contrast, in the judgment task the participant deals with pairs of sentences with minimum discourse context; specifically the discourse context information is limited to only one sentence. This limited context information provides less restriction on a subject's imagination which, in a way, gives him/her more choices, since different participants can bring different understandings of the same sentence unbeknownst to the experimenter. This is one possible reason for the variation in response which occurred more frequently in the judgment task than in the cloze task.

In addition, the considerably larger discourse context in the cloze task provides a basis for much higher recoverability for anaphors than do the limited contexts of the judgment task items. Based on the principle of economy in language production, zero anaphors are more preferred in the cloze task where referents are easily recovered. On the other hand, the limited context of information provided by the judgment task creates

²³ It should be noted that these differences were also observed in one obligatory context: semantic inanimate.

more possibilities for ambiguous interpretations, yielding more lexical anaphors for referent identification.

Another possible reason for the differences in performance on the two tasks may come from the different language activities required of the participants. In the cloze task, CNL participants were encouraged to focus on producing a discourse in the most natural way in their native language. And presumably, because they were so instructed, they cared about the flow of discourse. Thus in doing this task, they would tend to choose the anaphor that was highly activated in their minds, without the necessity of considering all possible choices. Accessing the highly activated form is an automatic process for them.

However, the acceptability judgment task is a **recognition** task involving the use of metalinguistic knowledge. In this task, the CNL speakers were faced with choices that forced them to think consciously, compare, and then make their decision. For these native speakers, judging the acceptability status of anaphor involved more than considering the correctness with respect to prescribed grammatical rules. Their decisions could be made on the basis of a number of variables in their metalinguistic knowledge: the naturalness of a sentence in their version of standard, correctness according to known prescribed grammatical rules, possibility of occurrence in their own language, etc. These considerations are especially important when the choice between lexical or zero anaphor is not obligatory. Thus, a varying focus on different aspects of a participant's knowledge may lead to different results when doing a judgment task.

Finally, the different response requirements of the two tasks may also cause more performance variation in the judgment task than in the cloze task. Although both tasks had three possible responses, the participants were actually faced with more options in the judgment task than in the cloze task. In the cloze task, for most contexts except the semantic inanimate and syntactic pivotal construction (6) contexts, the possibility of using a full noun phrase was quite remote, and as a result, there were really only **two** instead of **three** possible responses in the cloze task (zero or a lexical form). The judgment task allowed three possibilities: zero, the lexical form, or "equally acceptable". When faced with more choices, it may be natural for the participants to produce more variation in the judgment task than in the cloze task.

The above discussion suggests that the nature of an experimental task may play a

non-trivial part in the anaphora distribution patterns in certain contexts in this group of native Chinese speakers. But is there any way to investigate this claim? A subject analysis was conducted to try to provide some answers to the question. In this analysis, we examined two things: one, whether there was any subject consistency across tasks; the other, whether subjects behaved the same or similarly in all the contexts within the same task.

Firstly, to examine whether there was any subject consistency across the tasks, we compared the anaphors that each participant employed in the three contexts in which variation was observed: the semantic inanimate context, the syntactic context where adverbial clauses are connected by *yinwei* 'because' (1), and the syntactic context where embedded clauses are involved (2). (Animate semantic context was not included here because of the observed strong stimulus effect.) Then we added up the number of participants who behaved consistently in these three contexts in both tasks. The assumption in this analysis was that if, for the same context, a majority of the participants did not behave consistently in the two tasks, we could conclude that the result difference exhibited in the two tasks might be attributed to task effect.

Table 5.3. Subject analysis: the number of CNL participants showing consistency between the cloze and judgment tasks

Context	Inanimate	<i>Because</i> clause	Embedded clause
Number of subjects showing consistency	9	8	3

Table 5.3 shows that out of the 19 participants, fewer than half of the participants behaved in a consistent way in the three contexts and in the worst case, only three were consistent. This inconsistent behavior by the participants seems to suggest that the nature of the language task may have a strong effect on anaphora distribution in these contexts. Table 5.3 also shows that the semantic inanimate context showed, by a slight margin, the most consistent performance of these three contexts. However, this result should not shake our conclusion about the effect of the nature of task effect, as this consistency should be within our expectation based on the prediction for an obligatory use of zero anaphors in this context. Inconsistency on what should be an obligatory use, in fact, does

add support for the claim of task effect.

The second way to see whether the differences in results in the two tasks are attributable to task effect is to find out whether subjects behaved the same or similarly in the semantic and syntactic contexts within the same task. The assumption underlying this is that, if no consistency is found at all, we may conclude that the different results obtained in the two tasks was because of some arbitrary reason. In other words, in such a case task effect would not be well supported. On the other hand, if some consistency were found, we might be able to suggest that the nature of the task does make a difference in the participants' behavior. In this subject analysis, we added up the number of subjects who behaved consistently in the two semantic contexts and the two syntactic contexts respectively in each task. (As a stimulus effect was found in the animate context of the cloze task, only the two syntactic contexts were taken into consideration in the cloze task.)

The results showed that within the cloze task, twelve out of the 19 participants behaved consistently in the two syntactic contexts, where only zero anaphors were observed. In the judgment task, the results also revealed some degree of consistent behavior, since twelve participants behaved consistently in two semantic contexts, and eight of them showed consistency in the two syntactic contexts. These consistency results in the cloze task and judgment task indicate some tendency for participants to behave the same way in the same task. This result seems to suggest that the different result obtained in both tasks might not be due to subject variation, but rather to a task effect.

5.4 Results of the story-writing task

As discussed in Chapter Four, two discourse contexts were tested in this study. The first part of this section presents the results of the high conjoinability context, the second part the low conjoinability context.

5.4.1 Results in the high conjoinability context

In the high conjoinability context, we predicted an optional anaphor use with a high degree of preference for zero anaphor. In each of the six stories tested, there was a set of events, which were considered highly conjoinable. The number of conjoined events varied in each story (see Table 4.1 in Chapter Four for detailed information). There were altogether 28 conjoinable events and 19 participants did this task, yielding a total of 532 cases of anaphor. Figure 5.11 displays the percentage of the anaphor types used in the six stories.

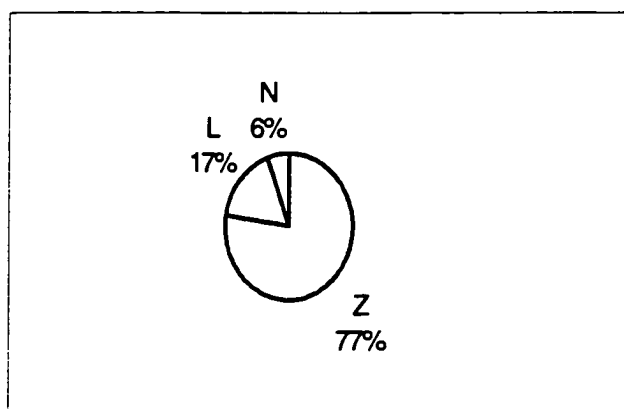


Figure 5.10. Percentages of anaphor types in the high conjoinability context in the story-writing task (CNL group)

Figure 5.10 shows a high preference for zero anaphor and a low degree of optionality in this CNL result. This figure, however, does not indicate how and where the anaphors were distributed. In order to obtain a better picture of the distribution pattern, the percentages of the anaphors produced in each story were calculated and this is presented in Table 5.4.

In Table 5.4, the number in brackets refers to the total number of conjoinable events in a story. For instance, story 1 had five high-conjoinable events and 19 participants wrote the story with the five events. As a result, a total of 95 anaphors were produced for these events. In this case, out of the 95 anaphors produced, 78% are zero anaphors, 21% lexical anaphors, and 1% full NP.

Table 5.4. Percentages of anaphor types in the high conjoinability context in the story-writing task (CNL group)

	ZA	LA	FNP
Story 1 (5)	78	21	1
Story 2 (5)	76	5	19
Story 3 (3)	72	25	4
Story 4 (3)	75	19	5
Story 5 (7)	88	10	1
Story 6 (5)	67	27	5

From table 5.4, we can see that the predominant use of zero anaphors is true in all stories. This suggests that zero anaphor is the preferred form to maintain reference in the high conjoinability context. A further look at the result also indicates that lexical anaphors are hardly used in story 2, which can be attributed to the fact that the referent in the story was inanimate. This finding is in accord with the claim by Li & Thompson that lexical anaphors are rarely used to refer to an inanimate referent.

5.4.2 Results in the low conjoinability context

In the low conjoinability context, we predicted an optional use with a high preference for lexical anaphors. There were ten discontinuity conditions where lexical anaphor was expected. Nineteen participants did the task, producing a total of 190 cases of anaphor use in low-conjoinability contexts. Figure 5.11 shows that almost all the participants use either a lexical anaphor or a full noun phrase to maintain reference in the context where continuity among sentences was broken down. However, Figure 5.11 also demonstrates that 6% of the anaphor use was zero anaphors.

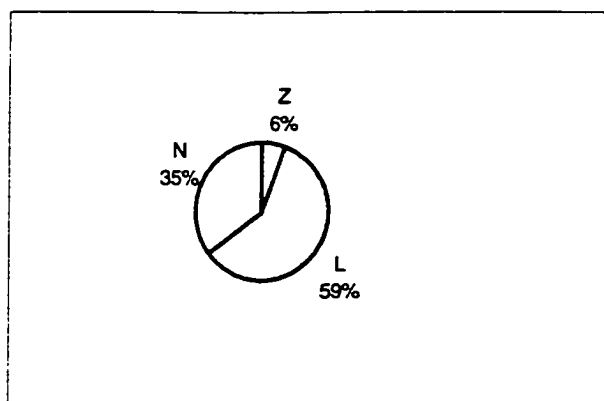


Figure 5.11. Percentages of anaphor types in the low conjoinability context in the story-writing task (CNL group)

A close look at the data indicates that this 6% had its source primarily in story 6. Looking back at Table 5.4, where the result of the high conjoinability context was shown, we find that story 6 displays the smallest percentage of zero anaphors and the biggest percentage of lexical anaphors among all the six stories. Example 5.4 was taken from a section in story 6.

- (5.4) kan le you kan
 'look Asp again look'
 shenme ye mei kan dao
 'anything either not see'
Ø da jiao le qilai (HC)
 'scream Asp start'
Ø kan qilai Ø haoxiang shi e huai le shi de. (LC)
 'look as if is starve Asp death'

It (The dog) searched and search but saw nothing. Then it started to howl. It sounded as if it were starving to death.

A detailed analysis of all responses showed that instead of using a zero anaphor in the event (see the event in bold in example 5.4) that was supposed to be conjoinable with its previous events, some participants had chosen to adopt a lexical anaphor to maintain the reference. However, in the final event where discontinuity was supposed to be happening, some participants used zero anaphors, which explains the 6% of zero

anaphors in Figure 5.11. This result seems to suggest that some of the participants do not consider the particular discontinuity condition (change of descriptive mood) in story (6) as disruptive of reference. And the definition of low conjoinability and high conjoinability might also be constrained by other factors such as an individual's psychological perception.

5.5 Summary

This chapter has characterized the anaphoric choices of the CNL speakers at three linguistic levels in the cloze, judgment, and story writing tasks. Overall results support the predictions that were made based on grammatical descriptions of Chinese. However, some discrepancies were also found. Possible causes for most of the discrepancies were the nature of the experimental task, and aspects of the stimulus material, such as the lexical items surrounding an anaphor.

The results discussed in this chapter have also provided further empirical knowledge about optionality, a key notion in Chinese anaphor use. That is,

- (1) Optionality has two levels, optional and obligatory. This is shown by the result that on the semantic and syntactic levels, the CNL speakers showed different anaphor behaviors in obligatory and optional contexts.
- (2) An anaphor use is considered as optional when there is either a between-subject or a within-subject optionality.
- (3) In each optional context, there is no 100% of optional use, namely, 50% use of zero and 50% of lexical anaphor. In addition, there is always a preference for a certain anaphoric form.
- (4) The degree of optionality and preference pattern are to some extent influenced by the discourse information, the nature of the task, and the lexical items surrounding an anaphor.

Based on the results in this chapter, Chapter Six will investigate the anaphoric distribution pattern of the English speakers learning Chinese.

CHAPTER SIX

Experimental Results of English Speakers Learning Chinese as a Second Language

6.1 Introduction and overview

This chapter reports the experimental results obtained from the English speakers learning Chinese as a second language (CSL). As in Chapter Five, in which the results of the native Chinese speakers were presented, the CSL results are reported and analyzed in terms of the participants' anaphor use in the three experimental tasks on the semantic, syntactic, and discourse levels. Comparisons are made in each context between the CSL and the CNL speakers.

The chapter is organized in the following manner: Section 6.2 presents the CSL speakers' results in the cloze task and the judgment task. This section consists of two parts: the results on the semantic level and the results on the syntactic level, which are further divided into several subsections. Each subsection starts with the presentation of the general results followed by more detail results such as the subjects' consistency of results. Section 6.3 is a brief discussion of the cloze and judgment tasks. Section 6.4 presents the results in the story-writing task. The results in each section are compared with those of the native Chinese speaker group. The last section, section 6.5, summarizes all the results on the three levels in the three tasks.

6.2 Results of the cloze task and the judgment task

The cloze and judgment tasks investigate anaphora distribution patterns on the syntactic and semantic levels. To recapitulate, on the semantic level, we looked at two contexts where animate and inanimate referents are distinguished. On the syntactic level, we examined seven contexts, including anaphors in the subject positions of three kinds of adverbial clauses, and embedded clauses, serial verb construction, pivotal construction, and oblique position. As both experimental tasks examined the distribution pattern of anaphor on the semantic and syntactic levels, the results are presented and analyzed

according to the level in which the anaphors occurred. Within each level, comparisons are made with the results of the CNL group. In the cases of optional use, comparisons are made in terms of the degree of optionality and preference patterns in both groups; in the cases of obligatory use, measurement of whether CSL performance is right or wrong is based on the results of the CNL participants.

6.2.1 Results on the semantic level

On the semantic level, the expectations are (a) when a referent is animate, both zero and lexical anaphors can be used, and (b) when a referent is inanimate, lexical anaphors are rarely used. The analyses of the CNL results have shown that prediction (a) was fully supported. However, for prediction (b), supporting evidence was only found in the cloze task but not in the judgment task. Table 6.1 gives an overview of the performance of the CSL speakers. In this table, we present the percentages of the total number of the responses that the participants produced in the cloze and judgment tasks. For the sake of comparison, the results of the CNL group are also included in this table.

Table 6.1. Percentages of responses in semantic contexts in the cloze and judgment tasks (CSL and CNL groups)

Context		Cloze task				Judgment task		
		ZA	LA	FNP	IR	ZA	LA	EQ
Animate	CSL	32	28	23	17	69	23	8
	CNL	39	58	3	0	55	24	21
Inanimate	CSL	60	0	33	7	82	8	10
	CNL	87	0	13	0	68	8	24

Note. ZA: zero anaphor LA: lexical anaphor FNP: full noun phrases
 IR: answers that are irrelevant to the context
 EQ: both types of sentences are equally acceptable

Table 6.1 shows that in the cloze task, the CSL speakers behave similarly to the CNL group in that an optional result is observed in the animate context and an obligatory result in the inanimate context. The only difference is that the CSL group uses many more full noun phrases than the CNL speakers. In the judgment task, both groups also

behave quite similarly, although there are fewer CSL speakers who judge both sentences as equally acceptable. Chi-square tests were carried out to see whether the factor "subject group" was associated with the responses. All the irrelevant answers were excluded from the statistical analyses. The results of these tests are reported in Table 6.2.

Table 6.2. Chi-square results in semantic contexts (CSL and CNL comparison)

	Cloze task	Judgment task
Animate	35***	3.3
Inanimate	4.8*	3.4

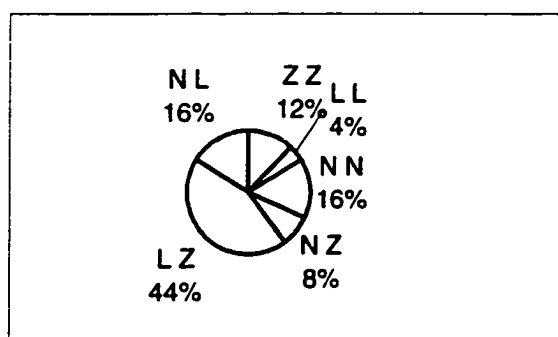
Note. * indicates significance level < 0.05, *** indicates significance level < 0.0001

Table 6.2 shows that there is no association between subject group and responses in the animate context in the judgment task. However, there is a significant difference in the cloze task, specifically, the number of anaphors that the CSL and CNL speakers produce is significantly different in this task. The chi-square results in the inanimate context also reveal a significant difference between the CSL and CNL groups in the cloze task but not in the judgment task. The difference lies in the use of fewer zero anaphors but more full noun phrases by the CSL group.

What is shown in Table 6.1 is a pooled result of all test items from the CSL participants. Since each context was tested twice, we would like to know how consistent each individual participant was in his/her choice of anaphor. These numbers are not shown in Table 6.1. In order to see the behavior pattern of the participants, we looked at each subject's consistency of behavior in all contexts (as we did in Chapter Five for CNL speakers). The results are illustrated in Figures 6.1- 6.4 below.

6.2.1.1 Consistency of results in the animate context

Figure 6.1 displays a rather mixed result of the CSL group in the animate context of the cloze task.



Note. Z: zero anaphor L: lexical anaphor N: full noun phrase

Figure 6.1. CSL participants' consistency of behavior in the animate context in the cloze task

Based on the two criteria for judging the degree of optionality, the 44% of LZ combination and the small difference between ZZ and LL combinations suggest a high optional use of either a lexical or a zero anaphor in the cloze task. A slight preference for full noun phrases is also observed in this result.

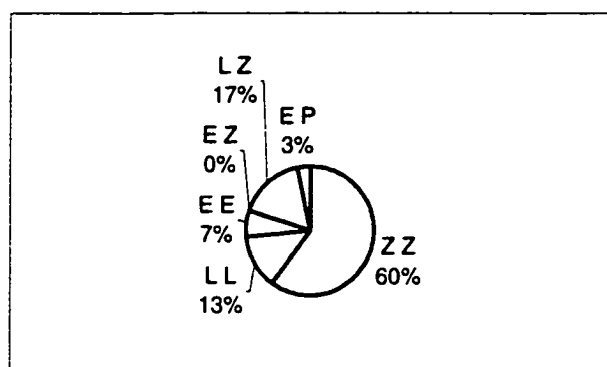


Figure 6.2. CSL participants' consistency of behavior in the animate context in the judgment task

Figure 6.2 demonstrates a less varied result in the judgment task. Although a majority of the participants (60%) use only zero anaphors, the occurrences of “EE”, “LL”, “LZ”, and “EL” indicate some degree of optional use. Thus, the result in the judgment task can be interpreted as an indication of a very low optionality with a high preference for zero anaphors.

Overall, the results of the two tasks show that in the animate context, the CSL speakers use zero and lexical anaphor optionally. In addition, full noun phrases are preferred in the cloze test, while zero anaphors are preferred in the judgment task.

6.2.1.2 Consistency of results in the inanimate context

Figure 6.3 displays the result of the CSL participants in the inanimate context in the cloze task. It shows that no lexical anaphors are used, suggesting an obligatory avoidance of lexical anaphors. In addition, it demonstrates that full noun phrases are also widely used, which in turn lowers the preference for zero anaphor, though zero is still the preferred form.

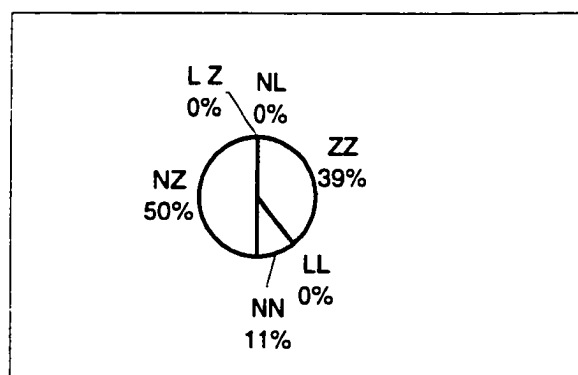


Figure 6.3. CSL participants' consistency of behavior in the inanimate context in the cloze task

Figure 6.4 shows that in the judgment task, 74% of the CSL speakers use only zero anaphors, 3% consider both sentences as equally acceptable, and the other 23% of the CSL speakers are not consistent in their judgment. This varied result with a high percentage of ZZ indicates a low degree of optional anaphor and a very high preference for zero anaphors.

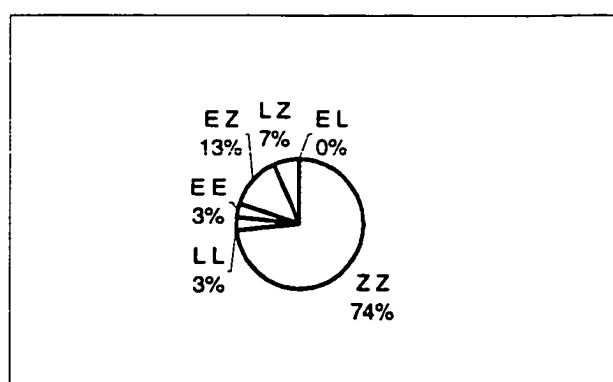


Figure 6.4. CSL participants' consistency of behavior in the inanimate context in the judgment task

The above results show that in the inanimate context, the CSL speakers behave differently in the cloze and judgment tasks. They use no lexical anaphor in the cloze task, suggesting an obligatory avoidance of lexical anaphor. In addition, they use both zero and full noun phrases, showing a low preference for zero anaphor. However, in the judgment task, they showed a low degree of optional use with a high preference for zero anaphor.

6.2.1.3 Comparing the degrees of optionality and preference between the CSL and CNL groups in semantic contexts

From the above analyses, we can see that on the semantic level, the CSL speakers share the same anaphora use as the CNL group in the following ways:

- (a) in the animate context, an optional use of zero and lexical anaphors is observed in both cloze and judgment tasks,
- (b) in the animate context, a high preference for zero anaphors is observed in the judgment task,
- (c) in the inanimate context, no lexical anaphors are used in the cloze task,
- (d) in the inanimate context, a mixed result is observed in the judgment task, indicating a low optionality with a high preference for zero anaphors.

However, a close look at the results shows that except for (c), these two groups do not actually behave in exactly the same way. The different behaviors are revealed in the degrees of optionality and preference. Table 6.3 compares the degree of optionality between the CNL and CSL groups in situations where optional use was involved. (Optional use was not observed in the inanimate context in the cloze test, therefore no comparison was made.)

Table 6.3. Comparison of the degree of optionality between the CSL and CNL groups in semantic contexts

Context		Cloze task		Judgment task	
		LZ%	LL%-ZZ%	EE%	LL%-ZZ%
Animate	CSL	44	8	7	47
	CNL	58	15	11	25
Inanimate	CSL	/	/	3	71
	CNL	/	/	11	52

In Table 6.3, the degree of optionality is compared based on two criteria: (1) the percentage of the anaphor combination that indicates absolute optionality (within-subject optionality), i.e., LZ for the cloze task and EE for the judgment task, and (2) the difference between LL and ZZ combinations in each task (between-subject optionality). Table 6.3 shows that, like the CNL group, the CSL group produce a higher degree of optionality in the cloze task than in the judgment task. Compared to the CNL group, the CSL group show a much lower degree of optionality in the judgment task.

Besides the difference in the degree of optionality, the results show that although both groups share the same preference for a ZZ combination, they differ in the degree of preference. Table 6.4 compares their degree of preference by presenting the percentages of the ZZ combination in both groups. The result in the animate context in the cloze task is not included here, as zero anaphor is not the preferred form for either group due to a stimulus effect (the ambiguous test item about the dog). In addition, the groups differ in their preference pattern, lexical for the CNL group and full noun phrases for the CSL group.

Table 6.4. Comparison of the degree of preference for zero anaphor between the CSL and CNL groups in semantic contexts

		Cloze task	Judgment task
Animate	CSL	/	60
	CNL	/	41
Inanimate	CSL	39	74
	CNL	79	52

Table 6.4 indicates that the CSL group choose more sentences with zero anaphors than the CNL group in the judgment task. On the other hand, they use fewer zero anaphors than their counterparts in the cloze task. In addition, the CSL group has a higher degree of preference for zero anaphor in the judgment task but a lower one in the cloze task. These results seem to suggest that the CSL speakers do possess some metalinguistic knowledge about Chinese anaphor use which they were bringing into play in this situation, i.e., zero anaphors are widely permitted in Chinese.

6.2.1.4 Further comparison between the CSL and CNL groups on the semantic level

The above comparison results demonstrate that although the CSL speakers show optional use and preference for zero anaphor just as the CNL speakers did, they differ from the CNL group in the degrees of both optionality and preference. In addition to these differences, the two groups also diverge in the following aspects. These differences can be seen in Table 6.5.

Table 6.5. Consistency of results in semantic contexts in the CSL and CNL groups

		Cloze task						Judgment task					
		NN	NL	NZ	LL	LZ	ZZ	EE	EL	EZ	LL	LZ	ZZ
Animate	CSL	16	16	8	4	44	12	7	3	0	13	17	60
	CNL	0	5	0	26	58	11	11	5	16	16	11	41
Inanimate	CSL	11	0	50	0	0	39	3	0	13	3	7	74
	CNL	0	0	21	0	0	79	11	5	21	0	11	52

(1) More NN combinations and combinations with N are used by the CSL group than by the CNL group in the cloze task.

One possible reason for this might be the use of an avoidance strategy by the CSL learners. That is, when a CSL speaker is not sure of a Chinese anaphor use, it is always safe to repeat the noun phrases that are already specified in the discourse. This high use of full noun phrases does not correspond to the expectation established on the basis of “language similarity” in Chapter Four. That is, lexical anaphors should be observed more in the CSL results in contexts in which L1 and L2 differ in anaphor use. However, this result cannot totally override the transfer effect, as the fact of using ‘something’ instead of ‘nothing’ itself can be an indication of an L1 transfer effect. Therefore, the high use of full noun phrases here could be a result of an avoidance strategy and could also be a result of an L1 transfer effect.

(2) Fewer EE but more ZZ combinations are used by the CSL group than by the CNL group in the judgment task.

A possible reason for this result may be that the judgment task is a recognition task involving the use of one’s metalinguistic knowledge and the metalinguistic knowledge possessed by the L1 and L2 speakers is likely to be different. The CNL speakers’ metalinguistic knowledge may include grammatical correctness and also some notion of acceptability (see Chapter Five). On the other hand, the CSL speakers’ metalinguistic knowledge may be mostly based on prescribed grammar, i.e., unlike their L1 English, zero anaphors should be the preferred form in Chinese discourse. In fact, this knowledge seems to have been so strong in their minds that they exhibit less flexibility in their judgments and are less likely to consider both sentences as equally acceptable. Their

strong reliance on zero anaphor in their judgment indicates that they possess as part of their metalinguistic knowledge a general grasp of this aspect of Chinese anaphor use.

(3) The CSL group differs from the CNL group in the amount of variation in both tasks.

In the cloze task, the CSL group show more variation than the CNL group, while in the judgment task the result was just opposite. This result is mostly an epiphenomenon of the above two differences (1) and (2). That is, the greater use of full noun phrase causes a greater variation in the CSL results in the cloze task, while the greater use of “equally acceptable” leads to greater variation in the CNL results in the judgment task.

6.2.1.5 Summary of the results on the semantic level

Overall results indicate that the CSL and CNL groups behave similarly, specifically, in demonstrating an optional anaphora use for the animate context and, in the inanimate context, an obligatory avoidance of lexical anaphor in the cloze task but an optional one in the judgment task. These results support our hypotheses in Chapter Four; that is, the CSL speakers are sensitive to the two contexts: animate and inanimate. They suggest that the semantic feature “animacy” is easily accessible to the second language speakers, which adds further support to previous experimental results (Gass, 1987; Harrington, 1987; etc.). Furthermore, the results suggest that these CSL participants have grasped the notion that anaphor choice can be directed by this semantic feature in Chinese.

However, the results of the detailed comparisons show that the two groups differ in the degrees of optionality, preference, and variation in the two tasks. These differences suggest that although the CSL speakers are able to make the distinction between an animate and an inanimate context, they have not yet fully acquired the subtle aspects of Chinese anaphor use. The results also show that the CSL group use more full noun phrases in the cloze task but more ZZs and fewer EEs in the judgment task. This finding indicates the use of an avoidance strategy and something about the status of the metalinguistic knowledge possessed by the CSL speakers.

6.2.2 Results on the syntactic level

To review briefly, the seven anaphor contexts on the syntactic level are: (1) subject position in the adverbial clauses connected by *yinwei* ('because') ...*suoyi* ('so'), and *suiran* ('although')...*danshi* ('but'), (2) subject position in embedded clauses, (3) subject position in the adverbial clauses with ...*yiqian* ('before') and ...*yihou* ('after'), (4) subject position in the adverbial clauses connected by *yue* ('the more')...*yue* ('the more') and by *yi* ('as soon as')...*jiu* ('then'), (5) serial verb construction, (6) pivotal construction, and (7) oblique position. The analyses in Chapter Five showed the following results for the CNL speakers. Firstly, for contexts (4) - (7), where obligatory anaphor use was predicted, the CNL speakers demonstrate a homogeneous result, using only lexical or zero anaphor as appropriate in both tasks²⁴. Secondly, for contexts (1) to (3), where an optional choice was predicted, the CNL results show optional use in contexts (1) and (2), but obligatory use of zeros in context (3) in both tasks (see Table 6.6 below). Finally, in the two optional contexts, the results reveal a strong task effect, i.e., more zero anaphors are observed in the cloze task than in the judgment task.

The situation in the CSL group, however, is more complicated. Table 6.6 displays in percentages the total number of anaphoric choices of the CSL speakers in all seven syntactic contexts. The results of the CNL speakers are also included in the table for ease of comparison.

²⁴ Context (7) displays some exceptions where zero anaphora was found. However, this discrepancy was found to be attributed to a stimulus effect.

Table 6.6. Percentages of responses in syntactic contexts in the cloze and judgment tasks (CSL and CNL groups)

		Cloze task				Judgment task		
		ZA	LA	FNP	IR	ZA	LA	EQ
<i>Because</i> clause (1)	CSL	43	57	0	0	57	30	13
	CNL	84	16	0	0	56	18	26
Embedded (2)	CSL	58	32	0	10	68	25	7
	CNL	74	26	0	0	37	34	29
<i>Before</i> clause (3)	CSL	82	18	0	0	74	13	13
	CNL	100	0	0	0	100	0	0
<i>More</i> clause (4)	CSL	80	7	0	13	77	18	5
	CNL	100	0	0	0	100	0	0
Serial (5)	CSL	97	0	0	3	100	0	0
	CNL	100	0	0	0	100	0	0
Pivotal (6)	CSL	18	32	37	13	15	85	0
	CNL	0	53	47	0	0	100	0
Oblique (7)	CSL	5	78	10	7	17	83	0
	CNL	16	84	0	0	0	100	0

The following points are evident from Table 6.6:

- (1) Like the CNL speakers, the CSL speakers are able to distinguish obligatory contexts from optional contexts. Specifically, they use zero and lexical anaphor more interchangeably in contexts (1) and (2) than in (3), (4), (5), (6), and (7) in both tasks;
- (2) Like the CNL speakers, the CSL speakers are able to distinguish contexts where zero anaphor is required from contexts where lexical is required. Specifically, they use significantly more zeros in (3), (4) and (5) than (6) and (7) in both tasks;
- (3) In obligatory contexts, the CSL speakers show a similar trend to the native speaker group, though some errors are observed except in context (5);

(4) In optional contexts (1) and (2), overall results indicate that the CSL speakers exhibit a similar pattern to the CNL group; however, they also differ in the following aspects:

- (a) in the cloze task, the CSL group use more lexical anaphors and fewer zero anaphors than the CNL group. In the judgment task they use slightly more zero anaphors than the CNL group in (1) and significantly more in (2),
- (b) in the judgment task, fewer CSL speakers consider the sentences equally acceptable.

Chi-square tests were carried out to see whether the two groups behaved significantly differently or not. All the irrelevant answers were discarded from these analyses. The results are shown in Table 6.7.

Table 6.7. Chi-square results in syntactic contexts²⁵ (CSL and CNL comparison)

	Cloze task	Judgment task
<i>Because</i> clause (1)	14.4**	3.3
Embedded (2)	0.81	12.3**
<i>Before</i> clause (3)	6.1*	12.4**
<i>More</i> clause (4)	1.5	10.56*
Pivotal (6)	7.29*	4.6*
Oblique (7)	1.7	5.4*

Note. * indicates significance level < 0.05, ** indicates significance level < 0.001

Table 6.7 gives the chi values for each syntactic context. In the cases of optional use, for context (1), significant differences are found in the cloze task but not in the judgment task. The differences in the cloze task result from less use of zero anaphor and more use of lexical anaphor by the CSL group than by the CNL group. In context (2), although the groups do not differ significantly in the cloze task, they do in the judgment task. That is, the CSL speakers use more lexical anaphors than the CNL speakers, and there were fewer CSL subjects who consider the test pairs equally acceptable.

In contexts (4) and (7), where an obligatory anaphor use is predicted, the results

²⁵ The two groups behaved exactly the same in context (5); therefore context (5) is not included here.

show that the difference between the CSL and CNL groups is significant in the judgment task but not in the cloze task. Specifically in context (4), where only the sentences with zero anaphors should be selected, the CSL speakers choose significantly fewer sentences with zero anaphors but more with lexical anaphors. In context (7), where an obligatory use of lexical anaphors is predicted, the CSL speakers select more sentences with zero anaphors but fewer with lexical anaphors than the CNL group. In context (6), where the use of lexical anaphors is obligatory, significantly different results are observed in both cloze and judgment tasks. The difference is reflected in the greater use of zero anaphors in the CSL group. Context (3) also produces a significant difference between the two subject groups in both tasks. In this context, the CSL group use significantly more lexical anaphors than the CNL group. The observed significant differences between the two subject groups in both tasks in contexts (3) and (6) seem to suggest that the anaphor use in these two contexts poses the most difficult learning task for the CSL speakers.

What has been discussed above is a pooled result of all test items from the participants. However, the results for contexts (1) and (2) do not indicate how consistent each individual participant was in his/her choice of anaphor in the two matched test items. Therefore, in order to know the true optionality of the CSL anaphora use in the two optional contexts, all the data in contexts (1) and (2) were tabulated based on the six possible combinations that could be produced in the two paired test items. The results are presented and discussed below.

6.2.2.1 Consistency of results in syntactic contexts (1) and (2)

Figures 6.5 and 6.6 display the results from the cloze task and the judgment task respectively for the CSL group in context (1). Figure 6.5 indicates an optional anaphor use in the cloze task. According to the two criteria for measuring the degree of optionality, this result indicates low optionality. In addition, the 40% of LL combination suggests a high preference for lexical anaphor.

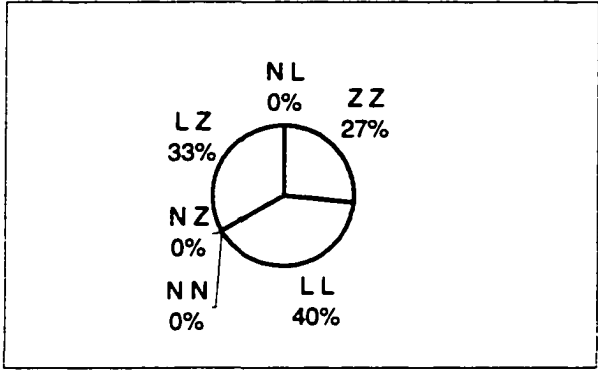


Figure 6.5. CSL participants' consistency of behavior in syntactic context (1) in the cloze task

The case of the judgment task is a little complicated. Figure 6.6 demonstrates a rather mixed result, with all the six possible combinations occurring. The 3% of EE combination and 37% of ZZ suggest a low optionality with some preference for zero anaphor.

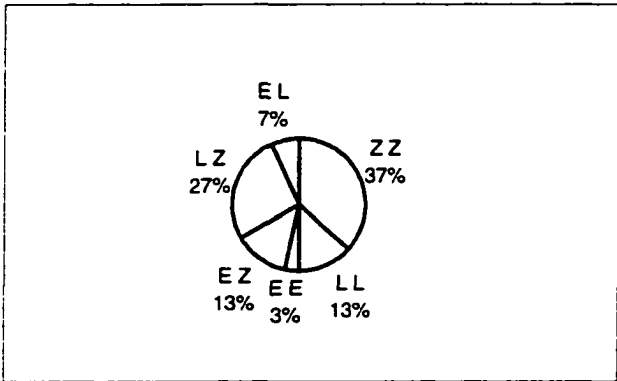


Figure 6.6. CSL participants' consistency of behavior in syntactic context (1) in the judgment task

In a word, the CSL results in both cloze and judgment tasks indicate a low optional anaphor use for context (1). However, the results show a difference in the preference pattern in the two tasks, lexical for the cloze and zero for the judgment task. This finding seems to suggest that in this context, the CSL speakers, while conscious of the rules of Chinese anaphor use, were not yet good at applying this knowledge in a language task such as a cloze task, and the influence of their L1 became more evident.

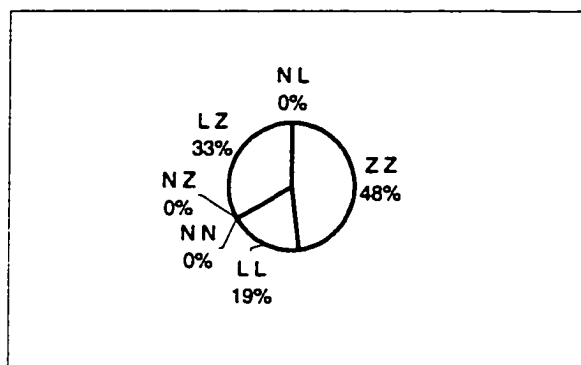


Figure 6.7. CSL participants' consistency of behavior in syntactic context (2) in the cloze task

Figure 6.7 displays a mixed CSL result in the cloze task for context (2). The 33% of LZ combination and a 48% of ZZ indicate a low optional use and a high preference for zero anaphor.

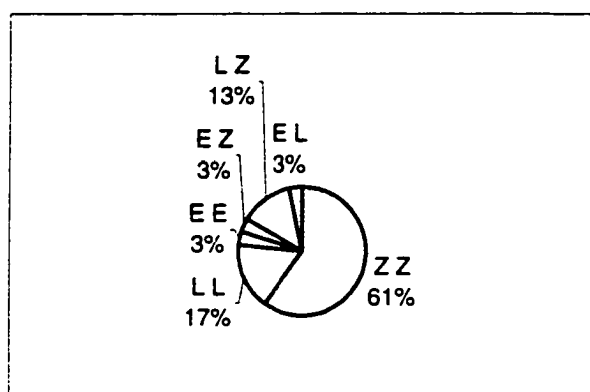


Figure 6.8. CSL participants' consistency of behavior in syntactic context (2) in the judgment task

In the judgment task, the CSL group demonstrates a more consistent result in spite of the fact that all the six possible combinations are found. Figure 6.8 demonstrates that only 3% of the participants consistently considered both sentences as equally acceptable, indicating a low degree of optionality. Meanwhile, the high percentage of ZZ (60%) suggests a high preference for zero anaphor.

Overall, the results in context (2) suggest a low degree of optionality with a high preference for zero anaphor in both tasks.

6.2.2.2 Comparing the degrees of optionality and preference between the CSL and CNL groups in syntactic contexts (1) and (2)

The above analyses have shown that for the syntactic contexts (1) and (2), the CSL group shows an optional anaphor use, as does the CNL group. In order to see whether the optionality observed in contexts (1) and (2) is similar in the CSL and CNL groups, the degree of optionality was calculated. This result is shown in Table 6.8.

Table 6.8. Comparison of the degree of optionality between the CSL and CNL groups in syntactic contexts (1) and (2)

		Cloze task		Judgment task	
		LZ%	ZZ%-LL%	EE%	ZZ%-LL%
Context (1)	CSL	33	13	3	24
	CNL	21	69	16	36
Context (2)	CSL	33	31	3	44
	CNL	42	48	21	5

Table 6.8 shows that in both contexts, the CSL speakers exhibit a greater degree of optionality in the cloze task than in the judgment task. On the other hand, the CNL speakers show an opposite result when both criteria are considered. The results of the between-group comparison show that in the cloze task, the CSL speakers generate a higher degree of optionality than the CNL group, especially in context (1). However, in the judgment task, they show a much lower optionality in context (2) and equal degree of optionality to the CNL group in context (1).

Besides the difference in the degree of optionality, the results also show that although both groups share the same preference for the ZZ combination in the two contexts except in context (1) of the cloze task, they differ in the degree of preference. (In context (1) of the cloze task, the preference pattern is different in the two groups: lexical for the CSL and zero for the CNL group.) This is shown in Table 6.9. The numbers in the table are the percentages of ZZ combination in the optionality results in the two contexts.

Table 6.9. Comparison of the degree of preference for zero anaphor between the CSL and CNL groups in syntactic contexts (1) and (2)

		Cloze task	Judgment task
Context (1)	CSL	27 ²⁶	37
	CNL	74	41
Context (2)	CSL	48	61
	CNL	53	21

Table 6.9 demonstrates that the CSL learners show more preference for zero anaphor in the judgment task than in the cloze task, which is opposite to the CNL speakers. This table also shows that in the cloze task, more zero anaphors are observed in CNL group than in the CSL group. These results suggest again that the CSL group have metalinguistic knowledge about the use of zero anaphors. That is, zero anaphors should be the norm to maintain reference in Chinese. However, in actual production (in the cloze task), the CSL speakers appear to be influenced by their L1, in which the use of zero anaphor is highly constrained syntactically.

The effect of L1 transfer in the cloze task can be most clearly seen in context (1), where the CSL group show a much lower preference for zero anaphor. However, the transfer effect is only weakly shown in context (2). A possible reason for this different transfer effect is that English and Chinese differ more substantially in the anaphor use in context (1) than in context (2). That is, although choice of anaphor in both contexts is optional in Chinese, the degree of optionality, as indicated by the CNL result (see Table 6.8), is much higher in context (2) than in context (1). Higher optionality, in this case indicates more use of lexical anaphors in context (2) than in context (1) by native speakers, which in turn makes the anaphor use in context (2) more similar to English anaphor use.

²⁶ The number is written here for comparison's sake, as lexical instead of zero is the preferred form here.

6.2.2.3 Summary of the results in syntactic contexts (1) and (2)

Table 6.10 summarizes the results of the two syntactic contexts, (1) and (2). Overall, it shows an optional anaphor use by the CSL speakers, which is in line with the CNL results. However, a detailed look at Table 6.10 indicates that these two groups differ in the degrees of optionality and preference in the two tasks. For instance, in the cloze task, the CSL speakers generate a higher degree of optionality than the CNL group, especially in context (1), where the between-subject optionality (LL minus ZZ) is much higher in the CSL group (13) than in the CNL group (69). They also use fewer ZZ combinations but more LL combinations than the CNL group. In the judgment task, they produce fewer EE combinations than their counterparts. Finally, the CSL speakers' anaphor use varies with the task, i.e., the CSL speakers show a higher degree of optionality in the cloze task than in the judgment task and they use significantly more zero anaphors in the judgment task than in the cloze task.

Table 6.10. Consistency of results in syntactic contexts (1) and (2) in the CSL and CNL groups (%)

		Cloze task						Judgment task					
		NN	NL	NZ	LL	LZ	ZZ	EE	EL	EZ	LL	LZ	ZZ
Context 1	CSL	0	0	0	40	33	27	3	7	13	13	27	37
	CNL	0	0	0	5	21	74	16	11	11	5	16	41
Context 2	CSL	0	0	0	19	33	48	3	3	3	17	13	61
	CNL	0	0	0	5	42	53	21	11	5	16	26	21

6.2.2.4 Error analyses of anaphor use in obligatory syntactic contexts in the two tasks

It has been agreed among Chinese linguists that lexical anaphors should be used after a preposition (7) and in a pivotal construction (6), and zero anaphors should be used in contexts (4) and (5). These predictions were all supported by the CNL results:

- (a) For contexts (4) and (5), CNL speakers used no lexical anaphors in either task,
- (b) For context (6), they used no zero anaphors in either task, and more full NPs were observed in test item 2 than in item 1,

- (c) For context (7), no zero anaphors were observed in the judgment task while some zero anaphors were found in the cloze task. However, the item analysis shows that all the zero anaphors used occurred in the one test gap that follows the preposition “*gei*”, as was the case with the CNL participants.

Besides these four contexts for an obligatory use, the CNL speakers also demonstrated an obligatory use of zero anaphor in context (3), where an optional anaphora use was predicted.

For the CSL subjects, the measurement for obligatory use is different from that for optional use, namely, the measurement for obligatory use is a matter of right or wrong, therefore, an optionality comparison does not apply here. Whether an anaphor use was right or wrong depends on the CNL results. Table 6.11 presents the percentage of errors in the obligatory contexts.

Table 6.11. Percentages of errors made by the CSL speakers in obligatory syntactic contexts in the cloze and judgment tasks

	Cloze task	Judgment task
<i>Before</i> clause (3)	18	26
<i>More</i> clause (4)	8	23
Serial (5)	0	0
Pivotal (6)	21	15
Oblique (7)	11	17

Table 6.11 shows that except for context (5), the CSL speakers make some errors in these contexts in their anaphor choice in both tasks. Item analyses were carried out to see whether a specific test item posed more difficulty in the CSL speakers' selection of Chinese anaphor. The results of the item analyses show that except for context (6), there were no substantial differences between the items tested within a task and between the tasks.

Concerning context (6), the CNL speakers overall demonstrate an obligatory use of lexical anaphor in both tasks. However, the CSL speakers use some zero anaphors in the cloze task. An item analysis indicates that all the errors by the CSL subjects come from

item 1, where 43% of zero anaphors is observed. This suggests that the use of lexical anaphor after the verb *jiao* ('ask') poses an acquisition difficulty for the CSL learners. On the other hand, a similar amount of error is found in both test items of the judgment task (13% and 17%). In addition, this item analysis result showed a trend similar to that of the CNL group, i.e., in context (6) more full NPs are found in the second test item than in the first (see Chapter Five). As discussed in Chapter Five, the greater use of full NPs in the second item may be due to a difference in discourse contexts provided by the two test items. In the second item, the referential distance is greater than that in the first item. Specifically, in item 2, there are more clauses between the anaphor and its antecedent than in item 1. This similar trend suggests that even in a partially-learned second language, these CSL participants are sensitive to the universal discourse management rule, i.e., the less continuous a referent is, the more coding material it needs.

In context (7), where obligatory lexical anaphors were predicted, an item analysis of the CNL result indicated a stimulus effect. Specifically, all the zero anaphors occurred after the preposition *gei* ('for') in test item 2. The results of the CSL item analysis show that zero anaphors are used in both items, which indicates error productions in item 1. In item 2, the percentage of zero anaphor found in the CSL result (13%) is not as large as that in the CNL data (32%), but it is higher than that in item 1, where only 4% of zero anaphor are observed. In spite of the errors, this result seems to suggest that some CSL speakers have also acquired anaphor use that is acceptable in Chinese, namely, the non-use of lexical anaphor after the preposition *gei*.

6.2.2.5 Summary of the results on the syntactic level

Overall, the above comparisons show that the CSL and CNL speakers in general share the same tendency in their anaphoric use on the syntactic level. The CSL learners seem to be able to distinguish optional contexts from obligatory contexts, in that lexical and zero anaphors are more likely to be used interchangeably in optional contexts than in obligatory contexts. In optional contexts, although the CSL learners used zero and lexical anaphors interchangeably and in most situations shared the same preference pattern as the CNL speakers, their degrees of optionality and preference differ from those of the CNL group. This is especially evident in the cloze task, where the CSL

participants always show a higher optionality but a lower preference for zero anaphor than the CNL speakers. In obligatory contexts, the performance of the CSL speakers is quite similar to that of the CNL speakers, in being able to distinguish contexts where zero anaphors are required from contexts where lexical anaphors are required, although errors are also observed in these obligatory contexts. These results support the hypotheses established in Chapter Four; that is, the CSL participants would also show sensitivity to optional and obligatory contexts as the CNL speakers. However, in part due to the different anaphor use in the participants' L1 and L2, the groups would differ in the degrees of optionality and preference, and errors would occur in the CSL results in obligatory contexts.

Finally, the results show that the nature of the task seems to influence the CSL speakers' anaphor use in optional syntactic contexts. This influence is revealed most conspicuously by the result that in such contexts the CSL speakers always show a higher preference for zero anaphor in the judgment task than in the cloze task.

6.3 Discussion of the results in the cloze and judgment tasks

Both the cloze and judgment tasks investigate anaphor use on the semantic and syntactic levels, the results of these two tasks show that the CSL and CNL groups behaved similarly in the following ways:

- (1) The CSL speakers seem to have learnt that optionality is an important notion in Chinese anaphor use; consequently, they are usually able to distinguish correctly optional from obligatory contexts and produce a different anaphoric pattern for each context type;
- (2) In optional contexts, they show the same preference pattern as the CNL speakers in most cases, namely the preference for zero anaphor;
- (3) In obligatory contexts, they are sensitive to contexts where different anaphoric forms are required.

These results indicate that the CSL speakers in general behave like the CNL group. They also suggest that these second language speakers have acquired the fundamental rules in Chinese anaphor use, that is, optionality has two levels, optional and obligatory, and in

optional cases zero anaphor is the preferred anaphoric form.

However, the results of detailed analyses show that the two groups differ in the following aspects, which apply only to optional contexts.

(1) The two groups differ in the degree of optionality and preference shown in the two tasks:

(a) for the CSL group, a higher degree of optionality and a lower degree of preference for zero is observed in the cloze task than in the judgment task; while for the CNL group, the result is the opposite²⁷;

(b) in most cases, the CSL speakers exhibit a higher degree of optionality but a lower degree of preference for zero than the CNL group in the cloze task, however, in the judgment task, the result is the opposite.

(2) In the judgment task, fewer EE combinations are observed in the CSL group.

These results indicate that the CSL speakers have not acquired the subtle aspects of Chinese anaphor use, even though they do have some metalinguistic knowledge about it. What might have caused such differences in the L1 and L2 anaphor behaviors? A possible reason for this may be the nature of task or/and the nature of knowledge possessed by the CNL and CSL speakers. The differing nature of the tasks may be the cause for the difference in the within-subject differences. The subject groups' differing knowledge may be the cause for the between-subject differences.

As noted before, the cloze task is an integrative language task requiring anaphor **production** in a situation with rich discourse context information. The judgment task is a recognition task requiring **choice-making** in a situation with minimum discourse context information. As L1 speakers, the CNL participants' knowledge about Chinese anaphor is complete and well-developed, while as L2 speakers at an intermediate level, the CSL participants' knowledge is incomplete and underdeveloped. This different knowledge may cause different task effects on the CNL and CSL speakers' anaphor production and selection.

Specifically, in the judgment task, the CNL speakers' metalinguistic knowledge about Chinese anaphor is very likely to include more aspects than the CSL speakers' knowledge. As a result of this, the choice provided by the judgment task might trigger

²⁷ Animate context is not tabulated here due to interference from a stimulus effect.

different behavior for the two subject groups: to the CNL speakers, the choices posed a challenge, forcing them to think carefully and make their decisions based on all of their knowledge; to the CSL speakers, the choices actually provided them with a clue (seeing both lexical and zero forms) and they did not have to seek further in order to make a decision about anaphor selection, but perhaps adverted to a general rule about the statistical preference for zero in Chinese.

The situation in the cloze task was just opposite. In the cloze task, where no choices were given, anaphor production was an automatic process for the CNL speakers, who could simply access the anaphoric form that was highly activated in the rich discourse context. However, having no choices presented substantial difficulties for the CSL speakers. To do this task, they had to resort to all of their knowledge repertoires about anaphor use, which may include both their underdeveloped interlanguage grammar in Chinese or/and their developed L1 grammar, with its preference for lexical anaphor.

6.4 Results of the story-writing task

As noted in Chapter Four, the story-writing task examined anaphor distribution in two discourse contexts: high conjoinability (HC) and low conjoinability (LC). Besides the CNL and CSL groups, a group of native English speakers (ENL) also carried out this task. Their results are presented and compared with those of the CNL and CSL groups. The reason for the ENL participants' inclusion is that, like Chinese, English anaphor use is also constrained by discourse variables, and in neither language are the discourse rules prescriptive. Since L1 was assumed to be one of the most important factors influencing the CSL speakers' anaphor selection in this research, a clear set of base-line performance data in their L1 was needed, against which to compare the CSL group. With this base-line data, we hoped to be able to see factors that influenced the performance of the CSL participants. The results obtained in the two discourse contexts are reported respectively in the following two sections.

6.4.1 Results in the high conjoinability context

As Chinese and English differ in anaphor use due to the typological family that each belongs to, we expected that in the HC context, the CNL and ENL groups would

behave differently, with more zero anaphors produced in the CNL group than in the ENL group. Furthermore, we expected that the CNL and CSL participants would also perform differently in their anaphor choice as a result of an L1 transfer effect. Table 6.12 presents as an overview the percentage of anaphor types used by the ENL, CSL, and CNL groups respectively in the high conjoinability context in the story-writing task.

Table 6.12. Percentages of anaphor types in the high conjoinability context in the story-writing task (ENL, CSL, and CNL groups)

	ENL	CSL	CNL
ZA	47	43	77
LA	47	38	17
FNP	6	19	6

Table 6.12 shows that the CNL group use significantly more zero anaphors than lexical anaphors in their production and the percentage of zero anaphor is much higher than that of either the CSL or the ENL group. The dominant use of zero anaphor indicates a very low degree of optionality in the CNL group. This finding supports the claim that in Chinese discourse, zero anaphor is the preferred form in coding highly conjoined events. The ENL group use equal amounts of zero and lexical anaphor, suggesting a high degree of optionality with no preference for either one of the anaphoric forms.

In the case of the CSL group, the results reveal a similar pattern to the ENL group, namely, a high optionality of anaphor use. This result, in my view, indicates a clear L1 transfer effect in the HC discourse context. Finally, the results show that considerably more noun phrases are found in the CSL group than in the other two groups, suggesting again the use of an avoidance strategy in their anaphor choice. Table 6.12, however, does not show how the anaphor types distributed across the six stories.

Table 6.13. Percentages of anaphor types in the high conjoinability context of each story in the story-writing task (ENL, CSL, and CNL groups)

Story	Group	Anaphor type		
		ZA	LA	FNP
Story 1 (5)	ENL	56	40	4
	CSL	44	38	18
	CNL	78	21	1
Story 2 (5)	ENL	25	69	5
	CSL	37	29	34
	CNL	76	5	19
Story 3 (3)	ENL	70	30	0
	CSL	46	41	13
	CNL	72	25	4
Story 4 (3)	ENL	70	30	0
	CSL	56	33	11
	CNL	75	19	5
Story 5 (7)	ENL	39	52	9
	CSL	39	50	10
	CNL	89	11	1
Story 6 (5)	ENL	42	49	9
	CSL	44	35	21
	CNL	67	27	5

Table 6.13 displays the percentage of anaphor types produced by the three subject groups in the six stories. The number in brackets refers to the total number of conjoinable events in each story. Overall results show that the anaphors produced by each group are not evenly distributed across the six stories, suggesting some story effect. Table 6.13 also demonstrates the following results:

- (1) the CNL and ENL groups behave similarly in stories 3 and 4;

(2) the CNL group behave rather differently from the ENL and CSL groups in the use of zero anaphor in stories 1, 2, 5, 6, with stories 2 and 5 showing the most evident differences;

(3) the CSL group use more full noun phrases than the other two groups.

Table 6.12 and 6.13 however, do not indicate whether the differences among the three subject groups are significant or not. Therefore, two-way ANOVA tests were carried out to see (a) whether these differences among the three groups are statistically significant, (b) whether there is any story effect on the anaphor choice by the three groups, and (c) whether there is any interaction effect between the two main factors: group and story. Data transformation (square root) was conducted before the ANOVA tests were performed. The two ANOVA tests were done in terms of the use of zero anaphor and full noun phrase. It was assumed that the results of these two tests could also provide information on the use of lexical anaphor, as the three responses, zero anaphor, lexical anaphor, and full noun phrase, are interrelated.

6.4.1.1 Zero anaphors

The results of the two-way ANOVA show that there is a significant main effect for group [$F(2, 342)=86.7, p<.0001$], story [$F(5, 342)=19.59, p<.0001$], and the interaction between group and story [$F(10, 342)=6.14, p<.0001$] in the use of zero anaphors among the three groups. Post-hoc tests (Scheffe's test) for the group effect indicate that the CNL group differs significantly from the CSL and ENL groups. However, no significant difference was found between the CSL and ENL groups. This result suggests two things: firstly, the two native speaker groups (ENL and CNL) differ in their use of zero anaphor in their L1s, with native Chinese speakers using significantly more zero anaphor in Chinese than native English speakers do in English; secondly, the CSL speakers' L1 apparently does play a significant role in their Chinese anaphor use at the discourse level.

A post-hoc test for story effect indicates that story 5 is significantly different from all other stories. The results also show that stories 1, 2, and 6 are significantly different from stories 3 and 4; however, no significant differences are found among these three stories. In addition, stories 3 and 4 show no significant difference from each other. Figure 6.9 illustrates a detailed comparison among the means of group by story

interaction. With this comparison, we can obtain a better picture of group differences by story.

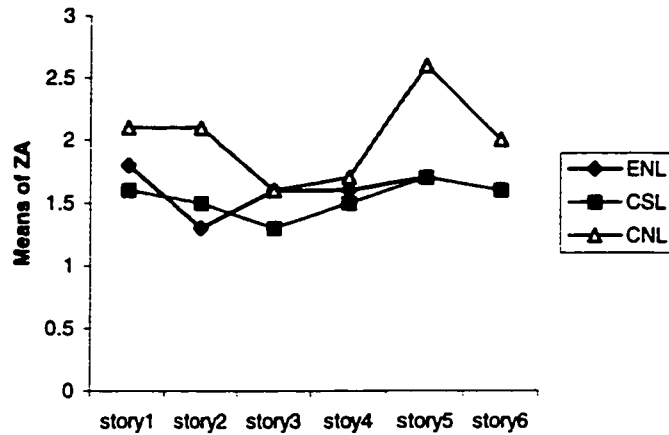


Figure 6.9. Means of group and story interaction for zero anaphor in the story-writing task

In Figure 6.9, we can see that the CNL and ENL groups behave almost identically in stories 3 and 4, suggesting a similar anaphor use English and Chinese in these two stories. In addition, it is also these two stories that the CSL and CNL groups differ the least. This result indicates that similar anaphor use in the CSL speakers' L1 and L2 can induce positive transfer in their acquisition of Chinese anaphor.

Another clear pattern is also shown in Figure 6.9. The CSL and ENL groups differ substantially from the CNL group in story 5, though CSL and ENL behave almost identically. This result clearly indicates a negative transfer effect. The same pattern is also seen, although to a lesser extent, in story 2, where the difference between the CSL and CNL groups is the next biggest. The results in stories 1 and 6 also add further support for the claim of a negative transfer.

What might have caused the similar behavior among the three groups in stories 3 and 4 and the different behavior in stories, 1, 2, 5 and 6, especially in 2 and 5? A detailed look at the stimuli suggests that the maximum number of conjoinable events²⁸ seems to be responsible for the similar and different behaviors of these groups (see Table 4.4 in

²⁸ Note that the maximum number of conjoinable events is not necessarily the total number of conjoinable events in a story.

Chapter Four for detailed stimulus information). In stories 3 and 4, the maximum number of conjoinable event is only 2. This rather small number could be the cause for an almost identical behavior in the CNL and ENL groups, which could in turn lead to the much better performance of the CSL group in stories 3 and 4. However, in stories 1, 2, and 6, the maximum number is 5; in story 5, the number is 3. These higher numbers of conjoinable event could be responsible for the large differences between the CNL and ENL groups, which might in turn cause the much poorer performance in the CSL group in these stories.

Here is an example taken from a section of story 3, where only one conjoinable event was involved. The English translation is taken from the data of one of the native English speakers.

- (6.1) Bingxiang li kongkong de,
 ‘refrigerator in empty’
 zhi you yi kuai mianbao
 ‘only have one piece bread’
 Ø ba mianbao na chu lai (LC)
 ‘Ø coverb bread take out’
 Ø chi le qilai. (HC)
 ‘Ø eat Asp’

The refrigerator was almost empty, with only one piece of bread in it. She took out the bread and started to eat.

In this example, the zero anaphor of interest is the one in the last sentence, which is only one clause away from its antecedent. The results show that this is the place where all three subject groups behave the most similarly.

These results suggest that although both Chinese and English follow the UDM rule and use zero anaphors to maintain reference in a high conjoinability context, they seem to differ the upper limit on the number of clauses that can be conjoined, causing different degrees of tolerating the use of zero anaphor. Consequently, the higher the number of conjoinable events in a discourse, the less English and Chinese share their anaphor use.

As a result of this, the effect of L1 transfer on CSL anaphor acquisition can also be different.

As shown above, stories 5 and 2 demonstrate the biggest differences not only between the CNL and ENL groups but also between the CSL and CNL groups. What could be the cause for the larger differences in stories 5 and 2 than in stories 1 and 6? Looking at the stimuli, we find that these two stories also involve other factors that are different in Chinese and English. Unlike any other story, story 5 involves some temporal connectives like *xian* ('first'), *ranhou* ('then'), and *houlai* ('later on'). In English, there are syntactic constraints that require a lexical anaphor after such items. However, in Chinese, there are no such constraints. Here is an example from one section of story 5²⁹:

- (6.2.) *zai xuexiao li, (Ø) hen mang,* (LC)
 ' in the school, (Ø) was very busy'
 (Ø) xian shang yingwen ke, (HC)
 ' (Ø) first take English class'
 ranhou (Ø) qu jian laoshi, (HC)
 ' then (Ø) go see professor'
 houlai (Ø) you qu shang jisuanji ke (HC)
 ' later on (Ø) again go take computer class'

At school, he was very busy. He first had his English class. Then he went to see his computer professor. Later on, he went to his computer class.

The results show that this is the section where the CNL group differs most markedly from the CSL and ENL groups. Specifically, many more zero anaphors are observed in the CNL group than in the ENL and CSL groups.

As for story 2, unlike other stories in which the referents are animate, the referent, *zhei fu hua* ('the painting') in this story is inanimate. As the semantic feature of animacy plays a far more important role in Chinese than in English, using lexical anaphors to keep track of an inanimate referent can make a sentence sound unacceptable in Chinese but not in English. This difference in anaphor use results in significantly different behavior

²⁹ The English translation was taken from the story written by one of the native English participants.

between the CNL and ENL groups and a very poor performance in Chinese by the CSL group in this story.

6.4.1.2 Full noun phrases

Compared to the results for zero anaphors, the ANOVA picture of full NPs is simpler. The results show a significant main effect for group [$F(2, 342)=17.18, p<.0001$] and story [$F(5, 342)=6.95, p<.0001$] but a non-significant effect for interaction [$F(10, 324)=1.63, p=0.1$]. A post-hoc test for the group effect indicates that the CSL group differed significantly from the CNL and ENL groups. They use significantly more full noun phrases than the two native language groups. As noted elsewhere, the high use of full NPs by the CSL group probably indicates an avoidance strategy adopted by the second language speakers. The results of the post-hoc test for the story effect shows that NPs were used significantly more in Story 2 than in any other story. Although the interaction effect is not significant, it is useful to compare the means of the group by story in order to obtain a better picture of the anaphoric behavior of the three groups. The comparison is shown in Figure 6.10.

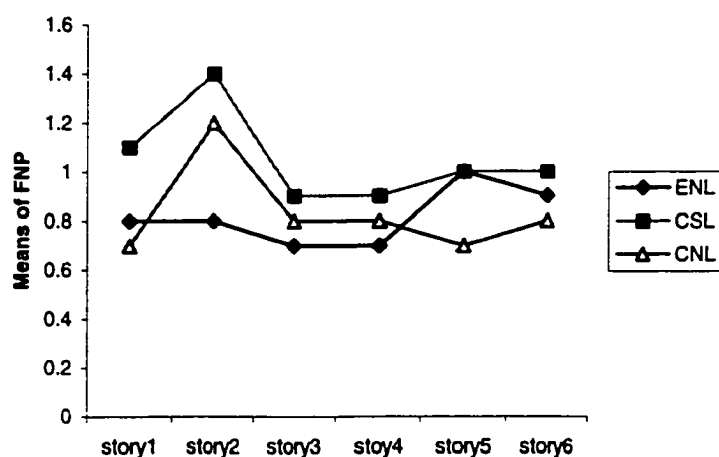


Figure 6.10. Means of group and story interaction for FNP in the story-writing task

Figure 6.10 illustrates that the CSL participants use more full noun phrases than the other two groups in almost all the stories. Figure 6.10 also shows that both the CNL and CSL groups produce the highest number of full NPs in story 2, although this is not the

case for the ENL group. This high use in story 2 of full NPs by the CNL group indicates the crucial importance of animacy in Chinese anaphor use. In this case, story 2 has an inanimate referent and only zero and full noun phrases can be employed to track it in discourse. The relatively high number of full NPs produced in this story by the CSL group suggests that these nonnative speakers have to some degree, acquired the notion of the important role of animacy in their Chinese anaphoric selection.

Overall, the results in the high conjoinability context indicate a low optionality of anaphor use for the CNL speakers but a high one for the ENL and CSL groups, where anaphoric choices are more varied. For the CNL group, their use of zero anaphors is significantly greater than their use of lexical and full NPs, suggesting that zero anaphor is the discourse norm in Chinese. For the ENL group, a true optional use is found, suggesting that English has no preference for either one of the anaphoric forms to maintain reference in high-conjoinability contexts in discourse. Like their native language group, the CSL group also shows an optional use of zero and lexical anaphors, suggesting a clear L1 transfer effect. Furthermore, the results indicate that similar anaphor use in learners' L1 and L2 supports a positive transfer while different use can cause negative transfer. Finally, the results show that the CSL group use significantly more full noun phrases than both native speaker groups, indicating the employment of an avoidance strategy when unsure of an L2 anaphor use.

6.4.2 Results in the low conjoinability context

Besides examining a high conjoinability context, the story-writing task also looked at a low conjoinability context, where five conditions of discontinuity were tested: (1) change of local topic such as from a description of actions to that of a state of mind, (2) change of time, (3) change of place, (4) change of referent, (5) change of descriptive mood, such as from story to narrator's comment. Each condition was tested twice, giving 10 test cases. We refer to these conditions as discontinuity conditions. It was predicted that when any of these discontinuity conditions occurred, lexical anaphors or noun phrases would be adopted by all subject groups.

Table 6.14. Percentages of anaphor types in the low conjoinability context in the story-writing task (ENL, CSL, and CNL groups)

	ENL	CSL	CNL
ZA	5	7	7
LA	72	46	59
FNP	23	47	34

Table 6.14 demonstrates that the majority of the anaphors produced by the three subject groups are either lexical or full noun phrases. This result supports the prediction that when topic discontinuity occurs, more coding is required to maintain or reinstate a referent. It also shows that all three groups appear to be sensitive to the tested discontinuity conditions where continuity among events was broken down and the topic referent was briefly removed from centrality.

Table 6.14 also shows that the ENL speakers use more lexical anaphors than either of the other groups does. A close look at the data indicates that this difference mainly comes from story 2, where the Chinese speakers use full noun phrases instead of lexical anaphors to maintain an inanimate referent. Finally, Table 6.14 demonstrates that the CSL subjects use more full noun phrases overall than the two native speaker groups, indicating again the use of the avoidance strategy noted above. A more detailed look at their response data reveal that story 2 is responsible for much of the CSL speakers' use of full NPs. The result suggests again that the CSL speakers are sensitive to the importance of semantic feature of animacy in their Chinese anaphor use.

6.4.3 Summary of the results on the discourse level

Table 6.15 summarizes the anaphor behaviors of all the three subject groups in the high and low conjoinability contexts.

Table 6.15. Percentages of anaphor types in the HC and LC contexts in the story-writing task (ENL, CSL, and CNL groups)

		ENL	CSL	CNL
HC	ZA	47	43	77
	LA	47	38	17
	FNP	6	19	6
LC	ZA	5	7	7
	LA	72	46	59
	FNP	23	47	34

Note. ZA: zero anaphor LA: lexical anaphor FNP: full noun phrase
 HC: high conjoinability LC: low conjoinability

The following results can be seen from Table 6.15:

(1) *All the three subject groups are sensitive to changes in discourse context.*

All groups use differing forms of anaphor to maintain referents that are in a high conjoinability context as opposed to those in a low conjoinability context. Specifically, all three groups use significantly more zero anaphor in the HC context than in the LC context, and many more lexical and full noun phrases in the LC context than in the HC context. This result further strengthens the claim that there is a universal discourse management rule that constrains anaphor use. The effect of this rule is so strong that even this group of CSL speakers at an intermediate proficiency level observes this rule in their Chinese anaphor production.

(2) *The CSL speakers' anaphor use approximates more closely that of the CNL group in the LC context than it does in the HC context.*

One possible reason for this is that English and Chinese share more anaphor use in the LC context than in the HC context. In the HC context, although both English and Chinese follow the same universal rule of discourse management, their anaphoric choices are not exactly the same. That is, in English, the use of zero anaphor is more constrained by syntactic structures and the number of conjoinable events involved. The semantic constraint of animacy is another factor leading to such a difference. This result suggests

that similar anaphor patterning in a learner's L1 and L2 are likely to induce positive L1 transfer and facilitate L2 anaphor acquisition. On the other hand, different use tends to induce negative transfer and hinders L2 anaphor acquisition.

(3) *The CSL participants use more full noun phrases than the ENL and CNL groups in both discourse contexts.*

This high use of full NPs suggests in general the adoption of an avoidance strategy by the CSL participants. However, the significantly higher use of full NPs in story 2 than in other stories also suggests their sensitivity to the semantic feature of animacy in Chinese anaphor use.

In a word, the results show that although the CSL speakers are able to distinguish high from low conjoinability contexts, their ability to use Chinese anaphors in such discourse contexts is still far from matching the pattern exhibited by the native Chinese speakers, whose use of zero anaphor is not as constrained as that found in English.

6.5 Summary

This chapter has reported the experimental results on all tasks by the CSL participants, and compared them with those of the CNL group, and, in the case of the story-writing task, with an ENL group performing in English. From a broad point of view, the overall behavior of the CSL speakers shows that their pattern of anaphor use is similar to that of the CNL group, as evidenced by the following observations:

- (1) The CSL participants can and do distinguish the anaphor use appropriate to specific obligatory contexts from that of optional contexts. This seems to suggest that they have learned the importance of optionality in Chinese anaphor use;
- (2) The CSL participants used more full NPs and zero anaphors for inanimate referents than for animate referents, suggesting that they have learned that the semantic feature animacy is an important factor in determining Chinese anaphor use;
- (3) The CSL participants show sensitivity to the difference between a high and a low conjoinability context, i.e., to the difference in coding material required for

maintaining reference and for reinstating it. This indicates that they are guided by universal discourse constraints in the same way that English and Chinese speakers using their L1 are.

However, the CNL and CSL groups behave quite differently from some specific points of view.

- (1) In optional contexts, the CSL participants differ from the CNL group in the amount of optionality and preference for zero anaphor.

This difference is quite apparent in the HC context on the discourse level. In this context, high optionality with a small preference for zero anaphor is found in the CSL group while low optionality with high preference for zero anaphors is observed in the CNL group. In most optional contexts at the semantic and syntactic levels, the CSL speakers also exhibit different degrees of optionality and preference, though to a lesser extent than on the discourse level. More specifically, in most cases, the CSL speakers show a lower degree of optionality but a higher degree of preference for zero than the CNL group in the judgment task, while in the cloze task, the result is opposite. The more consistent behavior in the judgment task and the higher preference for zero anaphors in this task suggests that the CSL speakers have metalinguistic knowledge about the Chinese anaphor use. However, the less consistent result in the cloze task suggests that they have problems in applying this knowledge to an integrative task that involves production.

- (2) The CSL participants use more full noun phrases than the CNL group in all tasks, suggesting the use of an avoidance strategy.

In summary, this chapter has established a detailed distribution pattern of anaphor use by CSL speakers on the discourse, syntactic, and semantic levels of Chinese language. However, this chapter has not explored in detail the factors that determine such a pattern, although some suggestions have been made. In order to further explore the causes that could determine the similar and different behaviors in the CNL and CSL groups, Chapter Seven will revisit the hypotheses formed in Chapter Four.

CHAPTER SEVEN

General Conclusion and Implication

7.1 Introduction and overview

This thesis has investigated the acquisition of Chinese anaphor by native English speakers learning Chinese as second language. Three experimental tasks were employed to carry out this investigation. The cloze and judgment tasks examined the anaphor use in nine linguistic contexts at the semantic and syntactic levels. The story-writing task looked at such use in two contexts at the discourse level. Chapter Six characterized these speakers' anaphor use in the eleven contexts and compared this use with that of native Chinese speakers doing the same tasks (see Chapter Five). In this chapter, I suggest an account for the observed similarities and differences in anaphor patterns. Implications and suggestions for future studies are also discussed.

7.2 Factors contributing to the different and similar anaphor patterns in the CSL and CNL groups

In order to account for the magnitude and type of similarities and differences in the CSL and CNL groups, I revisit the two general hypotheses established in Chapter Four. The hypotheses are based on the assumption that optionality of anaphor form and dissimilarity of patterning between L1 and L2 have substantial impact on the acquisition of Chinese anaphor by native English speakers (Charters, 1997; Gundel & Tarone, 1992; Jin, 1994; etc.). They are:

- (1) When obligatory use of an anaphoric form is required, the behavior of the CSL participants more closely approximates that of the CNL participants; when optional choice of form is allowed, we expect less correspondence between the two groups.
- (2) The CSL speakers' anaphor choice approximates more closely that of the CNL speakers in contexts where anaphor use is similar than in contexts it is dissimilar in English and Chinese.

Hypotheses (1) and (2) are addressed in sections 7.2.1 and 7.2.2 respectively. Table 7.1 presents an overview of the eleven contexts in the four conditions investigated, namely, obligatory, optional, similar, and dissimilar.

Table 7.1. Contexts tested in the optionality and language similarity conditions

	Obligatory	Optional
Similar	(1) Serial Pivotal Oblique	(2) LC
Dissimilar	(3) Inanimate ³⁰ <i>Before</i> clause <i>More</i> clause	(4) Animate <i>Because</i> clause Embedded clause HC

Note. LC: low conjoinability HC: high conjoinability

LC and HC were tested in the story-writing task, the others were examined in the judgment and cloze tasks.

7.2.1 Do CSL speakers acquire obligatory anaphor use better than optional use?

In order to give an overview of the results from Chapter Six, I provide below a rough comparison of the result of obligatory contexts with that of optional contexts in the cloze and judgment tasks respectively³¹. The comparison was made based on the results obtained from a descriptive distance measurement. As shown in Table 7.1, there are six obligatory and three optional contexts. However, for the sake of avoiding confounding results, the three obligatory contexts, namely, pivotal, oblique, and serial verb constructions, were not included in the comparison due to their incomparability in

³⁰ Inanimate context was observed to be optional in the judgment task in the CNL results; therefore, it was assigned to the optional subcategory in our measurement in the judgment task.

³¹ No obligatory context was involved in the story-writing task, so no analysis was made here.

similarity status. Thus the contexts in cells (3) and (4) were compared in the following discussion.

To construct the overview picture, I first added up the frequency numbers of each anaphor type produced in each context by the CSL and CNL groups; then I converted the totaled numbers into percentages to normalize the data. Following that, I measured the distance between the percentages obtained from the two groups. Therefore, in the comparison, the smaller the number is, the more closely the CSL anaphor use approximates that of the CNL speakers.

The results of both cloze and judgment tasks show the same tendency with the size of the comparison numbers in the same direction as predicted by Hypothesis (1). Specifically, smaller numbers are associated with obligatory contexts (*16 for the cloze, 25 for the judgment*) and larger numbers are with optional contexts (*34 for the cloze, 31 for the judgment*). This result suggests that the optionality status of anaphor use does have a significant effect on the CSL speakers' acquisition of Chinese anaphor. Obligatory use provides advantages while optional poses challenges. Possible reasons are (1) it is easier for grammarians and instructors to form tangible concrete rules for obligatory than for optional use; as a result, more instructional input is provided to L2 learners, and (2) it is easier for L2 learners to form generalizations for obligatory use because of the invariant modeling they have been exposed to.

7.2.2 Do CSL speakers acquire Chinese anaphor use better in similar contexts than dissimilar contexts?

This question was addressed in exactly the same manner as the previous one. In the story-writing task, comparison was made between one similar context and one dissimilar context (cell (2) and HC in cell (4) in Table 7.1.). In the cloze and judgment tasks, comparisons were made only between three similar and three dissimilar contexts, cells (1) and (3) in Table 7.1, as the inclusion of the other three dissimilar contexts (*animate, because clause, and embedded clause*) might cause confounding results due to their incomparability in optionality status.

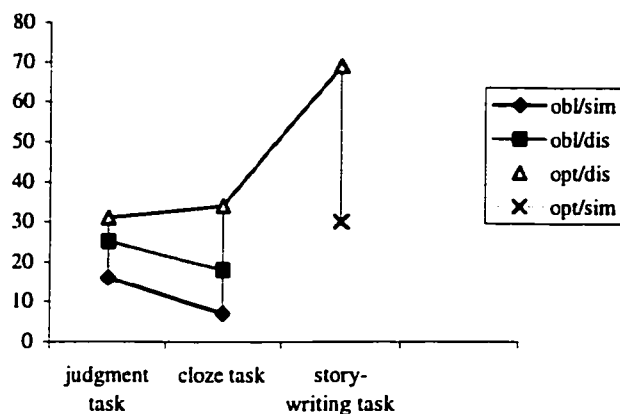
The results of all three experimental tasks show that similar contexts are associated with smaller differences (*30 in the story-writing, 7 in the cloze and 16 in the judgment*) and dissimilar contexts are with bigger differences (*69 in the story-writing, 16 in the*

cloze, and 25 in the judgment). This finding is consistent with Hypothesis (2), i.e., the anaphor use of the CSL speakers approximates more closely that of the CNL group in similar contexts than in dissimilar contexts, indicating a strong L1 transfer effect on the CSL learners' anaphor use. This transfer effect suggests that similar anaphor use in a learner's L1 and L2 can facilitate second language anaphor acquisition while dissimilarity can hinder such acquisition.

7.2.3 Do contexts involving both similarity and optionality have an additive effect on CSL anaphor acquisition?

Besides examining the two main factors individually, we also looked at whether contexts involving both similarity and optionality had any additive effect on the CSL learners' anaphor use. There are four possible combinations derived from the combination of the two main factors: obligatory similar (cell (1)), obligatory dissimilar (cell (3)), optional similar (cell (2)), and optional dissimilar (cell (4)). As shown in Table 7.1, these combinations are not evenly distributed in the three tasks. The cloze and judgment tasks have only three combinations with no optional similar contexts. The story-writing task has only two combinations, optional similar and optional dissimilar.

To compare the effects of the four combinations, we adopted the same procedure as we did in addressing the optionality and similarity issues. The results are shown in Figure 7.1.



Note. obl/sim=obligatory similar obl/dis=obligatory dissimilar
 opt/dis=optional dissimilar opt/sim=optional similar

Figure 7.1. Results of the relation between optionality and similarity

Figure 7.1 shows that the cloze and judgment tasks start their lowest numbers in obligatory similar contexts and reach the highest in optional dissimilar contexts. The latter is also true for the story-writing task. This result corresponds to our hypothesis that the CSL learners' anaphor use best approximates the L1 standard in obligatory similar contexts, but worst in optional dissimilar contexts. It suggests that similar obligatory contexts can offer a positive additive effect while dissimilar optional contexts can provide a debilitating effect on the CSL learners' anaphor performance.

7.3 Conclusion

In another snapshot of the results in this study, Figure 7.2 visualizes the summary numbers discussed in sections 7.2.1 and 7.2.2 above. In Figure 7.2, the slope of the lines represents the difference between second language speakers' approximation to native speaker behavior under obligatory, optional, similar, and dissimilar conditions.

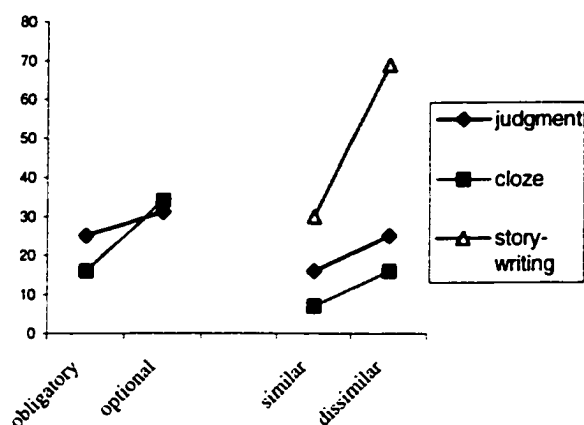


Figure 7.2. Results of CSL anaphor behavior in optionality and language similarity conditions

As can be seen in Figure 7.2, all the lines are sloped as predicted in the direction that is consistent with the hypotheses we formed. That is, in all experimental tasks, obligatory and similar conditions are at the lower end of the lines whereas optional and dissimilar contexts are at the higher end of the lines. Obligatory anaphor use produced better L2 performance than optional use did; similar use generated better results than dissimilar did. This general result leads us to the conclusion that the observed better and poorer performances by the CSL speakers can be attributed to this magnitude of differences between obligatory and optional, similar and dissimilar uses. Optionality and language similarity are two important factors that can constrain the Chinese anaphoric patterns produced by CSL speakers. Furthermore, as shown in Figure 7.1, the effect of these two factors is revealed most clearly when an anaphor use is obligatory similar, or optional dissimilar.

In addition to the primary conclusion reached above, the results of the study also suggest the following:

(1) Similarity has different effects in different experimental tasks.

A close look at Figure 7.2 shows that in the case of similarity, the story-writing task demonstrates a steeper slope than the cloze and judgment tasks do. This line tendency suggests that similarity plays a bigger role in the story-writing task than it does in the cloze and judgment tasks. In addition, the dissimilar contexts in the story-writing task produced a much higher number of differences than did those in the other two tasks,

suggesting a stronger negative L1 transfer effect in this task. There are two possible reasons for these results: one is that the story-writing task mainly involves anaphor use that is optional at the discourse level. Optional use, regardless of being similar or dissimilar to the L1, is more challenging for the CSL participants than obligatory use. In addition, discourse constraints are not usually taught in class. The other reason may be the different requirements of each language task. The judgment task requires making decisions between two matched sentences while the cloze task is an integrative task requiring some production in a natural discourse. The story-writing task sets the highest requirement, writing coherent and natural sounding stories. The more complex demands of the story-writing task pose more difficulties to the CSL participants, resulting in participants' greater reliance on their L1 and a poorer performance in the already-difficult optional contexts.

The above results suggest that L1 transfer is influenced by the nature of task and optionality of anaphor use. The relation between optionality and L1 transfer can also be seen in Figure 7.1, where negative L1 transfer is shown more conspicuously in optional dissimilar contexts than in obligatory dissimilar contexts.

(2) In experimental studies on language, "rules of grammar" need to be checked against native subject behavior in real language tasks.

The evidence behind this assertion is that this study shows that native Chinese speakers do not always behave the way that Chinese grammar prescribes. As shown in Chapter Five, the anaphor use of the CNL speakers was not only sensitive to semantic, syntactic, and discourse aspects of the stimulus material, it was also sensitive to the lexical item preceding that anaphor. The lexical effect on Chinese anaphor use is shown in the following two results:

- (a) Some participants did not "follow the rule" for an obligatory non-use of zero anaphor after a preposition, *gei* ('for').
- (b) The lexical item preceding an anaphor could determine the degree of optionality and even the preference pattern.

In addition, we found that the anaphor use of the CNL speakers was also task sensitive. For instance, inanimate context was considered optional in the judgment task but obligatory in the cloze task. These variations are not found in grammatical descriptions.

(3) L2 speakers' performance is best interpreted in comparison to native speakers' performance on the same tasks.

As indicated in (2) above, native Chinese speakers do not always follow what grammar says, and Chinese anaphor use is lexical sensitive. The variation found in the native speaker data reinforces the importance when using complex stimulus material of having native speaker data against which make comparisons. Had I only looked at second language speakers and compared their results with grammatical rules, we would not be able to obtain an accurate picture of the CSL anaphoric pattern.

7.4 Implications for second language anaphor acquisition

The finding that similarity and optionality have great influence on CSL speakers' anaphor use has implications for second language anaphor acquisition in the areas of L1 transfer and instructional input.

7.4.1 L1 transfer

This study is the first that directly looked at L1 transfer effect on second language anaphor acquisition with three experimental tasks. The results of the study show that L1 plays a significant role in L2 anaphor choice. Specifically, similar anaphor use in L1 and L2 tends to induce positive transfer and makes L2 acquisition easier. Different use, on the other hand, is likely to generate negative transfer and impedes L2 acquisition. Furthermore, the positive and negative L1 transfer effects are not only limited to the syntactic aspect of anaphor use (as shown in UG studies, see Chapter Three), they are also shown at the semantic and discourse levels as well.

In addition, the results indicate that an L1 transfer effect can also be influenced by the nature of the language tasks engaged in and L2 performance may vary with task. In this study, the impact of negative L1 transfer was more evident in tasks involving production than recognition. This result supports the claim that there might be a connection between an L1 transfer effect and a task effect (Ellis, 1985, 1994; Tarone, 1983).

Overall, the results of the study have provided further experimental evidence for the L1 transfer effect on second language anaphor acquisition.

7.4.2 Instructional input

The optionality status of an anaphor use was found to be a very important factor in determining the CSL anaphor behaviors in Chinese; that is, obligatory anaphor use is easier to acquire than optional use. The reason for the better acquisition is that obligatory use allows grammarians to form concrete tangible rules, which in turn provides a better basis for the instructors to follow. As a result of this, second language learners have more opportunities to be exposed to these rules in class. In other words, they receive more instructional input. In contrast, overt rules about optional anaphor use are not easily formed. Optional use is strongly discourse-oriented, and in no case is there truly 100% optional use as we saw in Chapter Five. In addition, second language instruction is always more focused on the teaching of syntactic structures than on discourse rules. Therefore, L2 learners have fewer opportunities to receive formal instructional input about the meaning and management of optionality. The effect of instructional input is also shown in the different effects of optionality and similarity on the three tasks. For instance, the story-writing task yields the biggest difference between the L1 and L2 groups. One possible reason is that this task involves all optional anaphor use governed by discourse factors.

These results suggest that instructional input plays an important role in the acquisition of Chinese anaphor by second language speakers, and that teachers and curriculum developers need to understand, and be prepared to present to students, the true complexities of Chinese anaphor.

7.5 Pedagogical implications

The results of the study show that the CSL speakers behave more like the CNL speakers in obligatory than in optional contexts. As discussed above, the better performance in obligatory contexts can be attributed to more input that the L2 learners have received in class. This result suggests that instructional input can facilitate second

language anaphor acquisition. But how can we teach Chinese anaphor use, especially optional use in an L2 class?

First of all, I think learners might well benefit from being explicitly told some general rules about Chinese anaphor use. For instance, Chinese is a topic-prominent language, which widely permits the use of zero anaphor in many syntactic positions, and the semantic feature ‘animacy’ is an important notion in Chinese. In this way, learners can develop a sense of Chinese anaphor use in general. Secondly, it is also useful to label obligatory and optional use, as labeling can allow them to better distinguish obligatory from optional use. Thirdly, obligatory and optional use requires different teaching methodology.

For obligatory use, learners can well benefit from explicit instructions on grammatical rules, and reinforced through drilling with individual sentences, as there are concrete rules for learners to follow and there is a clear boundary between grammatical and ungrammatical sentences. However, the situation for teaching optional use is more complicated.

For optional use, I suggest the employment of both overt and covert teachings. Overt teaching may include offering one or two lessons on the discourse rules governing Chinese anaphor use. The rules can be on the distinction between low and high conjoinability and the factors that constitute them. These rules should be reinforced through practice and explicit explanations on occasions when optional use occurs. Since optional use is discourse-oriented and only arises in extended discourse, Charters suggests (1997) that “students should be encouraged to compose short paragraphs rather than isolated sentences and to experiment with the deletion of continuing subjects” (p.79). Tsao (1990) and Xie (1992) also suggest that a paragraph, rather than a sentence, should be regarded as the appropriate working unit when teaching discourse phenomena in Chinese. In addition to overt teaching of rules, students may also benefit from covert teaching opportunities such as natural continuous speeches and material involving longer stretches of discourse.

The importance of similarity and difference also has implications for second language classrooms. Firstly, instructors are encouraged to be clear as to where similar and different uses lie. Secondly, for use different from L1, it is helpful to give direct

instructions on *how* an L2 use differs from their L1 and if possible why. Finally, translation exercises are strongly recommended to practice rules of different use.

I believe that with appropriate instructional methods that start from a beginner level, CSL learners would eventually lose one of the most conspicuous “foreign accents” which betrays them and reach the goal for a near native-sound proficiency level.

7.6 Suggestions for future studies

This study examined how second language learners with the same L1 background English, a subject prominent language, acquire anaphors in Chinese, a topic-prominent language. The results of the study show that L1 plays an important role in the CSL anaphor use. This finding is strengthened by the inclusion of the native speaker data. Without these native speaker data, it would be impossible to obtain a clear picture of an L1 transfer effect, as optional use in topic chains is discourse-oriented, thus is quite variable in both Chinese and English.

Although this study has supported our claim for an L1 transfer effect, improvements are also needed in order to strengthen this claim in future studies. Improvements could be achieved by including another group of participants whose L1 is topic-prominent, such as Japanese, as the result of “an inter-L1-group heterogeneity” could “rule out developmental and universal factors as the cause of the observed interlanguage behavior” (Jarvis, 2000, p. 224). Nevertheless, I believe that the inclusion of this group would not shake our claim for an L1 transfer effect, as previous studies have directly and indirectly suggested that overusing *zero* rather than lexical anaphor is a universal developmental stage in second language acquisition (Gundel, Stenson & Tarone, 1984; Hilles, 1986; Rutherford, 1983; White, 1985; etc.). Another way to improve this study is to look at anaphor acquisition from the other direction, that is, how speakers with a topic-prominent L1 acquire L2 anaphors in a subject-prominent language, for example, native Chinese speakers learning English.

The final suggestion for future study is to investigate anaphor acquisition with L2 participants from different language proficiency level. In this way, we would be able to

understand second language anaphor behaviors at different stages and provide more accurate suggestions for L2 instructions.

7.7 Summary

This thesis is one of the few studies which looks at how second language learners whose L1 is a subject prominent acquire anaphors in a topic prominent language. It is also one of the few that employs different experimental tasks to investigate Chinese anaphor use at three linguistic levels. With the employment of three tasks (the cloze, judgment, and story-writing tasks), we have not only characterized the anaphor use by English speakers learning Chinese, we have also provided experimental evidence to show that optionality and similarity are two important factors which determine CSL anaphor use. This finding has important implications for second language anaphor instruction, which will ultimately help L2 anaphor acquisition. Finally, with the same three experimental tasks, we have contributed to knowledge about Chinese grammar by providing further experimental knowledge on what optionality really means to native speakers of Chinese and by finding that Chinese anaphor choice is also lexically and task sensitive.

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Appendix A: Language Background Questionnaire

Subject No _____

I would like to know some information on your language background for confidential statistical purposes only.

Age 18-25 26-30 31-35 35-above

Sex Male Female

What is your place of birth? (country) _____

What is your native language? _____

What is the mother tongue of your parents?

Mother _____ Father _____

When and where did you start learning Mandarin? _____

How long have you studied there? _____

Did you learn the language through school/college instruction? If not, how?

Have you learnt Mandarin in China, or any Mandarin speaking countries/places?

Yes No

If yes, how long have you studied there? _____

Did you learn the language through school/college instruction there? If not, how?

What other languages do you speak _____

read _____

write _____

How many years of post-secondary education have you received?

Appendix B: General Instructions

Thank you very much for participating this study. The study looks at the acquisition of Mandarin Chinese as a foreign language. The result of this study will contribute to our understanding of the acquisition process and improve teaching syllabi.

This study includes three sections. The first section requires writing up small stories based on the events provided, the second is a cloze task, and the third is a judgment task. The instruction for each section is clearly laid out in the following pages. Before you start, please read the instructions carefully. This study can be done in either Pinyin or characters.

These three sections are going to be conducted at two separate times due to the length of the stimuli. The first time, you will be required to do the story-writing task and the cloze task; the second time, the grammaticality judgment task. At the second time, we would like you to fill out a questionnaire for research purposes.

As a participant of this study, your name will remain anonymous and your answers will only be used for research purposes. If you are interested in knowing the result of the study, I'll be very happy to provide it to you. Thanks again for your help!

Appendix C: Experimental Stimuli³²

(1) The Cloze Task

This task is composed of two items. In each item, there are some gaps. If you think there should be a word or phrase there, please write it there; if not, just put a Q. Note: after finishing each item, please go back and read it in order to see whether the story or conversation is coherent and connected.

(a)

Xiao Li qu Zhongguo yiqian (before), ta nü pengyou jiao ____ gei ____ mai yi shuang xie (shoe). Dao Beijing hou, ____ mashang jiu qu guang shangdian (go shopping). Keshi, qu le henduo ____ shangdian (shop), ye mei kan dao yi shuang ta xihuan de xie. Zuihou (in the end), Xiao Li jiu zhihao (have to) ____ nü pengyou mai le yi shuang hen piaoliang ____ wazi (sock).

Shang xingqi yi, Xiao Li ____ Zhongguo hui lai le. ____yinwei hen xiang (miss) nü pengyou, ____huidao jia, jiu mashang qu ____ kan ta. Gen____liao (chat) le yi huir hou, Xiao Li jiu ba wazi na chu____ gei ta. ____ kan le ____ yihou, ____ jiu wen Xiao Li hua (spend) le duoshao ____ . Ranhou (later), you wen zai nar mai de ____ . Xiao Li shuo ____shi zai yi jia xiao shangdian li mai de. Ta nü pengyou yi ting, ____ jiu hen bu gaoxing, zhan qi lai, jiu zou le. ____ zou yiqian, ____hai gasu ____ zai ye bu yao lai ____jian ta le. Ting le zhe hua, Xiao Li yue xiang ____ yue shengqi.

____ er tian, Xiao Li de nü pengyou ____ dianhua dao ta jia shuo dui bu qi, hai shuo ____ mashang lai kan ta. Xiao Li zhenshi gaoxing ____le.

Before Xiao Li went to China, his girlfriend asked (him) to buy a pair of shoes for (her). After (he) arrived in Beijing, (Xiao Li) went shopping right away. However, having been to many stores, he didn't see one pair of shoes that he liked. In the end, Xiao Li only bought a pretty pair of socks for his girlfriend.

Last Monday, Xiao Li came back from China. As he missed his girlfriend a lot, he went to see her right after he arrived home. Having chatted with her for a while, Xiao Li took out the socks and gave them to her. After she saw the socks, she asked Xiao Li how much they cost, and then she asked him where he bought them. Xiao Li said that he bought them in a small store. His

³² Difficult lexical items are glossed for the CSL participants. English translations are provided (in italics) for the convenience of readers of this dissertation.

girlfriend became very upset as soon as she heard this. She stood up and left. Before leaving the room, she told him never to come to see her again. Having heard this, Xiao Li felt even sadder.

The next day, Xiao Li's girlfriend phoned him and apologized to him. She also said that she would come to see him right away. Xiao Li felt really happy now.

(b)

A: Ni juede Zhang San _____ kaoshang (pass the exam) daxue ma?

B: Keneng keyi. Suiran_____ bu tai congming, danshi _____ hen yonggong (study hard), wo xiang ta yinggai (should)_____ wenti.

A: Na Lisi _____?

B: Hen nan shuo. Yinwei _____juede ziji hen congming, suoyi _____ bu yonggong, wo xiang ta keneng bu xing.

A: Shunbian wen yi xia (by the way), zuijin (recently) jian dao Xiao Li _____ ma?

B: Jian dao _____le.

A: Zai nar jian dao de?

B: _____ xuexiao.

A: Ou (oh), ta _____ ni shuo qi ta de gou le ma?

B: Shuo le. Ta de gou hen _____ yisi, zhi chi niurou (beef).
Xiao Li bu _____ xihuan _____, xiang mai (sell) le_____.

A: *Do you think that Zhang San can pass the entrance examination to the university?*

B: *Probably. Although he's not very smart, he studies very hard, so I think he will be ok.*

A: *What about Li Si?*

B: *It's difficult to say. Li Si thinks he's very smart, so he doesn't study hard. I think he will have some problems.*

A: *By the way, have you seen Xiao Li recently?*

B: *Yes, I did.*

A: *Where did you see him?*

B: *At school.*

A: *Oh, did he talk about his dog with you?*

B: *Yes, he did. His dog is very interesting. It eats only beef. Xiao Li doesn't like it and is thinking of selling it.*

(2) The Acceptability Judgment Task³³

There are 44 pairs in this task. In each pair, please circle the one that you think is a more acceptable Chinese sentence. If you feel both sentences are equally acceptable, please write an E. Thanks!

- 1A** **Baba lai ta kan women le.**
1B **Baba lai kan women le.**
Dad is coming to see us now.
- 2A** **Qing bang wo yixia, xing ma?**
2B **Qing bang mang wo yixia, xing ma?**
Could you give me a hand?
- 3A** **Ni juede jintian de kaoshi nan bu nan?**
3A **Ni juede jintian de kaoshi nan ma?**
Do you think today's exam is difficult or not?
- 4A** **Zhe che tai gui le, wo bu xiang mai ta.**
4B **Zhe che tai gui le, wo bu xiang mai.**
This car is too expensive, I don't want to buy it.
- 5A** **Lao Wang yao qu Zhongguo mingtian.**
5B **Lao Wang mingtian yao qu Zhongguo.**
Lao Wang is going to China tomorrow.
- 6A** **Zhongwen gen yingwen yi yang nan.**
6A **Zhongwen he yingwen yi yang nan.**
Chinese and English are equally difficult.
- 7A** **Zhe xiao hair yi kanjian mama jiu xiao (smile) le.**
7B **Zhe xiao hair yi kanjian mama ta jiu xiao le.**
The child started to smile as soon as he saw his mother.
- 8A** **Xiao Ming hen jiu dou mei hui jia le.**
8A **Xiao Ming meiyou hui jia hen jiu le.**
Xiao Ming has not been home for a long time.
- 9A** **Mama deng ni zai menkou.**
9B **Mama zai menkou deng ni.**
Mother is waiting for you at the entrance.
- 10A** **Yinwei ta bing le, suoyi bu neng lai shangke.**
10B **Yinwei ta bing le, suoyi ta bu neng lai shangke.**
Because he is sick, he cannot come to class.

³³ Test items, as opposed to distractors, are bolded for the convenience of readers of this dissertation.

- 11A Qing ba shu fang zai zhuozi shang.
 11B Qing fang shu zai zhuozi shang.
Please put the book on the desk.
- 12A Xiao Ding baba zai daxue gongzuo.
 12B Xiao Ding de baba zai daxue gongzuo.
Xiao Ding's dad works at the university.
- 13A **Lin Jing hen hao, wo xiang qing ta chifan.**
 13A **Lin Jing hen hao, wo xiang qing chifan.**
Lin Jing is very nice, I want to treat her to a meal.
- 14A Ni shang guo daxue ma? Bu shangguo.
 14B Ni shang guo daxue ma? Mei shangguo.
Have you ever gone to college? No, I haven't.
- 15A Yinwei wo hen mang, wo bu neng lai shang ke.
 15B Yinwei wo hen mang, suoyi bu neng lai shang ke.
As I'm pretty busy, I can't come to class.
- 16A **Zhe jisuanji (computer) hen hao, wo jueding (buy) mai le.**
 16B **Zhe jisuanji hen hao, wo jueding bu mai ta le.**
This computer is very good, I've decided to buy it.
- 17A Zhuozi shang you yiben shu.
 17B You yi ben shu zai zhuozi shang.
There is a book on the table.
- 18A Ni mama dao nar qu le?
 18B Ni mama dao nar qu le?
Where did your mother go?
- 19A **Li laoshi yue shuo ta yue gaoxing.**
 19B **Li laoshi yue shuo yue gaoxing.**
The more teacher Li talked, the more excited he became.
- 20A Zhongguo you henduo ren.
 20B You henduo ren zai Zhongguo.
There are many people in China.
- 21A **Xiao Wang qu kan dianying (movie) le.**
 21A **Xiao Wang qu ta kan dianying le.**
Xiao Wang has gone to see a movie.
- 22A Zhongguo hao haishi Meiguo hao?
 22B Zhongguo hao huozhe Meiguo hao?
Which country is better, China or America?
- 23A **Wo zuotian kanjian Lao Wang le, ta shuo mingtian yao qu Yingguo.**
 23B **Wo zuotian kanjian Lao Wang le, ta shuo ta mingtian yao qu Yingguo.**
I saw Lao Wang yesterday, he said he would go to China tomorrow.

- 24A Ta de mingzi jiao Li Qing.
24B Ta ming jiao Li Qing.
Her name is Li Qing.
- 25A Wo de Zhongguo zi xie de yue lai yue hao.
25A Wo de Zhongguo zi yi tian bi yi tian xie de hao.
My Chinese characters are getting better day by day.
- 26A Ta dao Jianada (Canada) yihou, ta yizhi zai daxue nianshu.**
26B Ta dao Jianada yihou, yizhi zai daxue nianshu.
Ever since he came to Canada, he's been studying at the university.
- 27A Zhei ben shu bei ta kan huai le.
27B Ta ba zhei ben shu kan huai le.
This book was damaged by him.
- 28A Lao Wang de qizi (wife) dui yizhi dou bu cuo.**
28A Lao Wang de qizi dui ta yizhi dou bu cuo.
Lao Wang's wife has always been very nice to him.
- 29A Wo zhihui shuo you yi dianr Zhongwen.
29B Wo Zhi hui shuo yi dianr Zhongwen.
I can only speak a little bit Chinese.
- 30A Huang San zai jiaoshi li changge, laoshi jiao ta mashang chuqu.**
30B Huang San zai jiaoshi li changge, laoshi jiao mashang chuqu.
Huang San was singing in the classroom, so the teacher asked him to leave at once.
- 31A Wu yue yi hao shi ta de shengri (birthday).
31B Wu yue yi ri shi ta de shengri.
May 1st is his birthday.
- 32A Zhe mao (cat) tai gui le, wo bu xiang mai ta le.**
32A Zhe mao tai gui le, wo bu xiang mai le.
The cat is too expensive, I don't want to buy it any more.
- 33A Laoshi wei shenme hai meiyou lai?
33B Laoshi zeme hai meiyou lai?
Why hasn't the teacher come yet?
- 34A Lao Zhang de gou meiyou bi wo de gou haokan.
34B Lao Zhang de gou meiyou wo de gou haokan.
Lao Zhang's dog is not as cute as my dog.
- 35A Zhe gou tai tiaopi (naughty) le, wo bu xiang yao le.**
35B Zhe gou tai tiaopi le, wo bu xiang yao ta le.
The dog is too naughty, I don't want it any more.
- 36A Ni quguo Zhongguo meiyou?
36B Ni you meiyou qu guo Zhongguo?
Have you ever been to China?

- 37A **Ta juede ta cong lai mei xiang xianzai zhe yang e guo.**
 37A **Ta juede cong lai mei xiang xianzai zhe yang e guo.**
He felt that he had never been so hungry before.
- 38A Zhei ben shu, wo yijin du wan hen jiu le.
 38B Wo yijin du wan zhei ben shu hen jiu le.
I have finished reading the book for a long time.
- 39A **Xiao Qing hen hao, wo xiang gen chuqu wanr.**
 39B **Xiao Qing hen hao, wo xiang gen ta chuqu wanr.**
Xiao Qing is very nice, I want to go out playing with him.
- 40A Zhei zhang yizi hen ying.
 40B Zhei ba yizi hen ying.
This chair is very hard.
- 41A **Ta lai Meiguo yiqian, ta zai Zhongguo xue le liang nian Yingwen.**
 41A **Ta lai Meiguo yiqian, zai Zhongguo xue le liang nian Yingwen.**
Before he came to America, he had studied English for two years in China.
- 42A Zhei fu hua shi yi wei qingnian (young) huajia (painter) hua de.
 42B Zhei fu hua shi bei yi wei qingnian huajia hua de.
This painting was painted by a young artist.
- 43A **Suiran ta bushi Zhongguo ren, danshi hui shuo Zhongguo hua.**
 43B **Suiran ta bushi Zhongguo ren, danshi ta hui shuo Zhongguo hua.**
Although he's not a Chinese, he can speak Chinese.
- 44A Mingtian xuexiao hui you henduo xuesheng.
 44B Xuexiao mingtian hui you henduo xuesheng.
There will be many students at school tomorrow.

(3) The Story-writing task

This task requires the completion of six items. Each item contains a list of events happening to certain person, animal or thing. Please put the events in each item into a small coherent and connected Chinese story. Note: (1) please follow the order of the events and do not add, delete, or change the events; you can insert some words if necessary, but please do not change the content; (2) please do not use the symbols when writing up your stories; (3) after finishing each item, please go back to read it in order to see whether the story you just wrote is truly coherent and connected, (4) please write your answers beside each item.

- 1 Here's what happened to Li Ming. Please tell his story. ☺ refers to Li Ming.

Li Ming zhongyu (finally)dao jia le

☺ tui (push) kai men

☺ da kai deng (light)

☺ zou jin ziji de fangjian

☺ tuo xia (take off) dayi (coat)

☺ tang (lie) zai chuang shang

zhe shihou, ☺ juede zhenshi shufu ji le.

Li Ming finally arrived at home. He opened the door and turned on the light. Then he walked into his room, took off his coat, and lay down on his bed. Right then, he felt really comfortable.

2. Here's what happened to a painting. Please tell its story. 🎨 refers to zhei fu hua (this painting).

Zhe shi yi fu hen meili (beautiful) de shanshui (scenery) hua

🎨 shi yi wei qingnian (young) huajia (painter) hua de

🎨 zai Shanghai bei ping wei (evaluate) yiban (ordinary)

🎨 houlai song (send) dao Beijing qu zhanlan (exhibition)

🎨 bian (become) de hen youming

🎨 mai le yibaiwan (one million)

hen duo nian hou, 🎨 you zai Shanghai chuxian (appear) le.

This is a beautiful landscape painting. It was painted by a young artist. Although it was evaluated as ordinary, it was later sent to Beijing for an exhibition and became quite famous. It sold for half a million dollars. Many years later, it appeared in Shanghai again.

3. Here's what happened to Wang Xiaopeng. Please tell his story. ☺ refers to Wang Xiaopeng.

Wang Xiaopeng jue de hen e

☺ pao jin chufang (kitchen)

☺ da kai bingxiang (refrigerator)

bingxiang li kongkong (empty)de,

zhi you yi kuai mianbao (bread)

☺ ba mianbao na chulai.

☺ chi le qilai

zhe shihou, ☺ jue de mianbao shi shijie (world) shang zui hao chi de dongxi le.

Wang Xiaopeng felt very hungry. He ran into the kitchen and opened the refrigerator. The refrigerator was empty, with only one piece of bread in it. Wang Xiaopeng took out the bread and started to eat. At that moment, he felt that bread is the most delicious food in the whole world.

4. Here's what happened to a boy. Please tell his story. † stands for xiao nanhai (boy).

Yi ge xiao nanhai (little boy) kanjian yi ge lao taitai (old lady) ti (carry) zhe liang ge bao

† ting xia lai (stop)

† wen ta xu bu xuyao (need) bangmang

laotaitai shuo: "ni zhen hao, xiexie ni"

jiu gei le ta yi ge bao

† tiqi bao

† jiu gen (follow) zai lao taitai houmian

wo jue de † zhen shi yi ge hao haizi (child).

A little boy saw an elderly lady carrying two bags. He stopped and asked whether she needed any help. The old lady said, "How nice you are, thank you". She gave him one bag. He carried the bag and followed her. I think he was really a nice kid.

5. Here's what happened to Xiao Li. Please tell his story. ☺ refers to Xiao Li.

Ding Yixin jintian zaoshang qidian qichuang

☺ chi le zaofan

☺ mashang qu xuexiao
 zai xuexiao li, † hen mang
 ☺ xian shang yingwen ke
 ranhou ☺ you qu jian (meet) laoshi
 houlai ☺you shang jisuanji (computer)ke
 shi er dian de shihou, ☺ juede e de bu de liao
 ☺ jiu dao xuexiao canting (cafeteria)
 ☺ mai le xie dongxi lai chi
 zai canting li, ☺ kan jian le yi wei lao pengyou.

Xiao Li got up at seven this morning. He ate his breakfast and went to school right away. At school, he was very busy. He first had his English class, then he went to see his professor. Later on, he went to his computer class. At noon, he felt very hungry. He went to the school cafeteria and bought something to eat. In the cafeteria, he met an old friend.

6. Here's what happened to a dog. Please tell its story. 𠂆 stands for gou (dog).

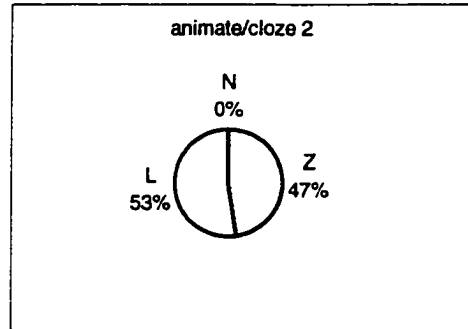
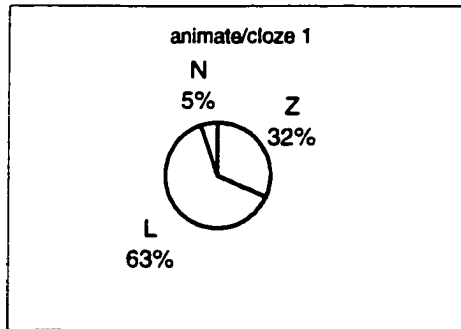
Yi tian wanshang, you zhi gou gan dao (feel) e le
 𠂆 paojin chufang (kitchen)
 𠂆 dakai guizi (cupboard)
 𠂆 kan le you kan
 𠂆 shenme ye mei kan dao
 𠂆 da jiao (scream) le qilai
 𠂆 kan qilai haoxiang (look as if) e huai le shi de.

One evening, this dog was hungry. It ran into the kitchen and opened the cupboard. It searched and searched but saw nothing. It started to howl, sounding as if it were starving to death.

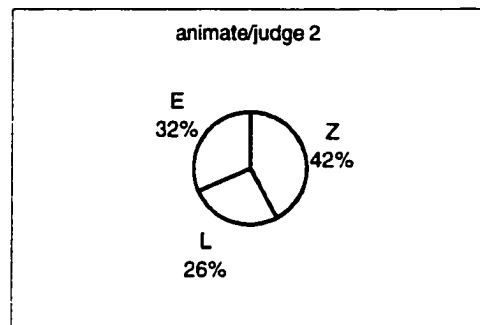
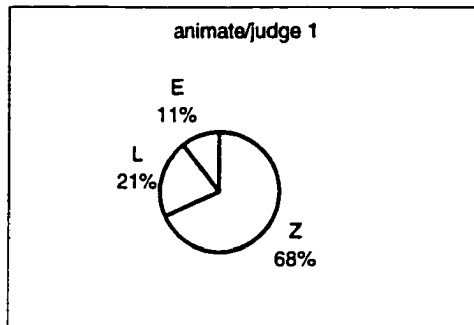
Appendix D: Item Analyses of the CNL Group

Anaphor distribution in the semantic (a – d)) and syntactic (e – j)) contexts in the cloze and judgment tasks

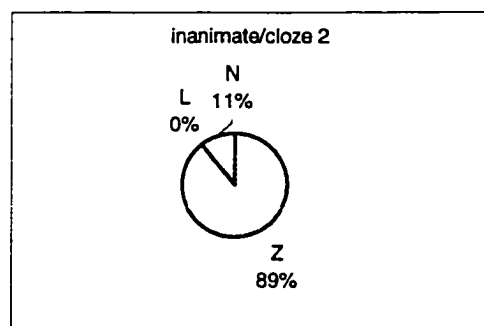
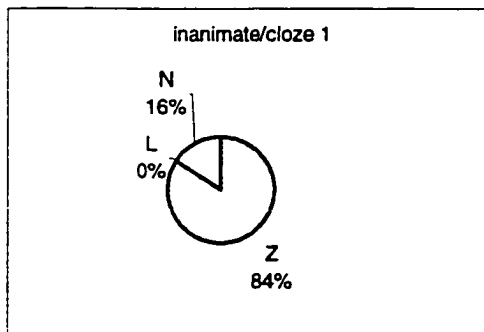
a)



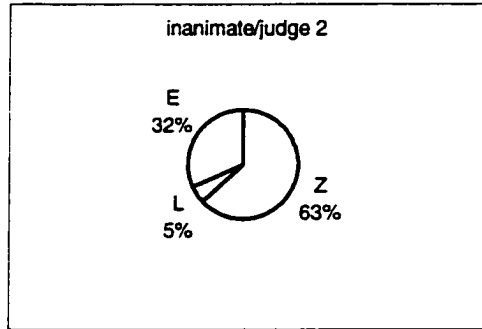
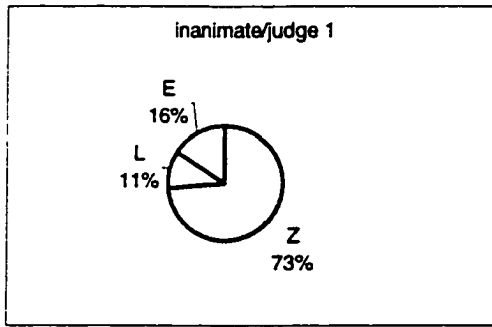
b)



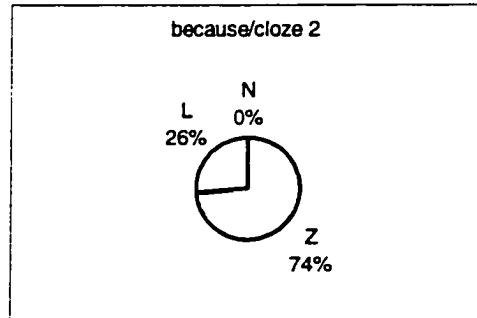
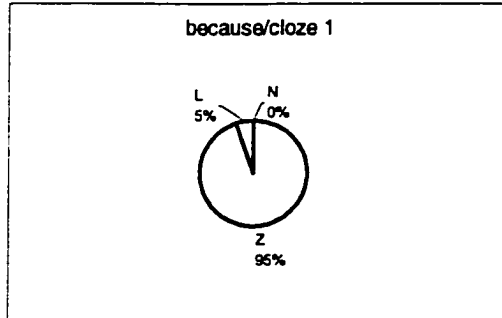
c)



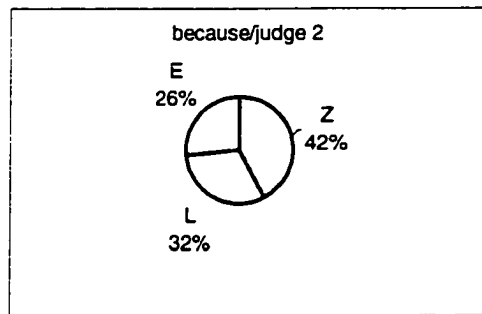
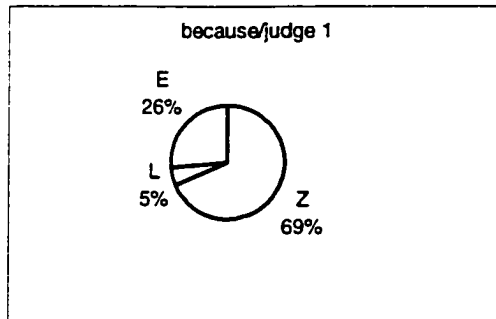
d)



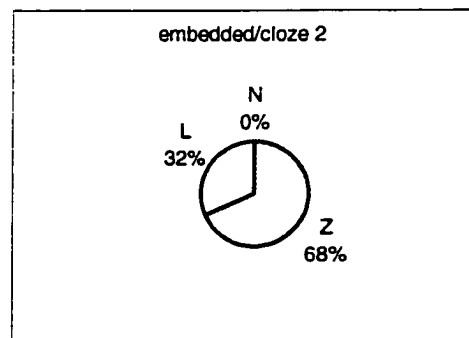
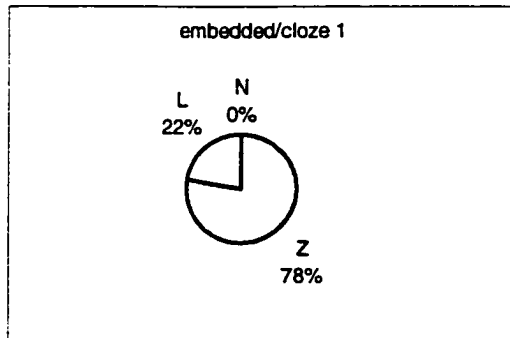
e)



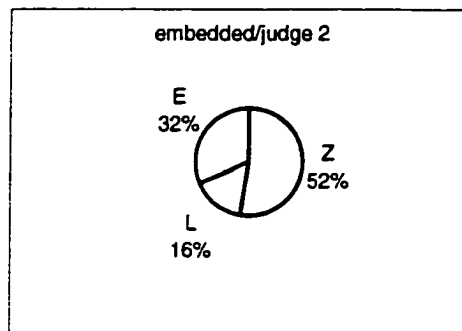
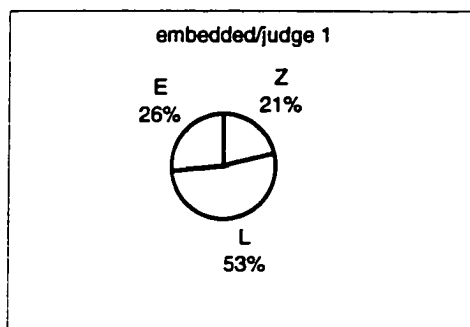
f)



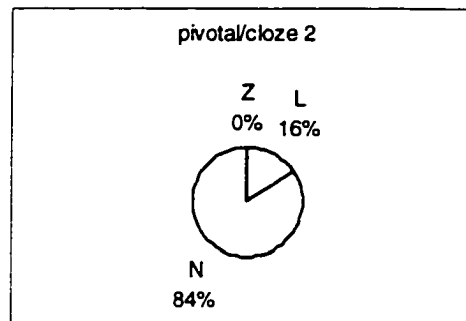
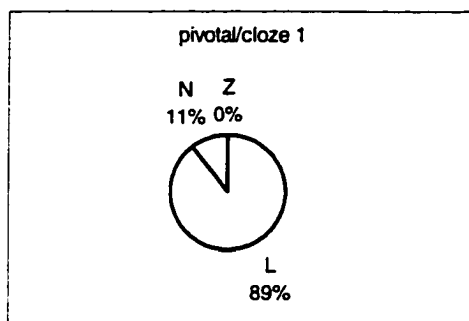
g)



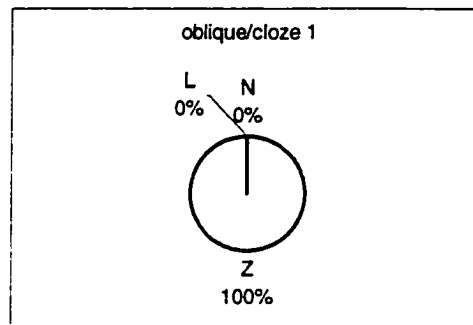
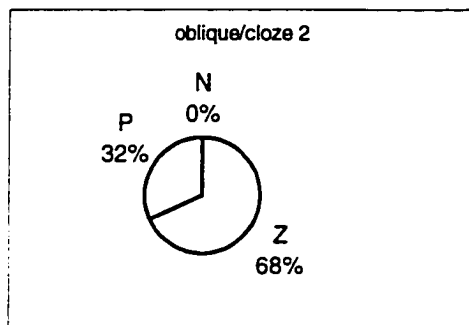
h)



i)



j)



Note. Cloze 1 and cloze 2 refer to test items 1 and 2 in the cloze task, judge 1 and judge 2 refer to test items 1 and 2 in the judgment task.