

What English-speaking Learners of Chinese Don't Know about Dou: A Study on the Acquisition of ‘都’

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2012

This is the author's accepted manuscript, post peer-review. The original published version can be found at the link below.

Li, Yan. (2012b). What English-speaking Learners of Chinese Don't Know about Dou: A Study on the Acquisition of ‘都’, *Journal of the Chinese Language Teachers Association*, 3, pp. 115-149.

Published version: <http://dx.doi.org/10.1111/j.1935-4940.2010.01061.x>

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JOURNAL

of the

CHINESE LANGUAGE TEACHERS ASSOCIATION

Volume 47 : 3

October 2012

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Journal of the Chinese Language Teachers Association

Volume 47:3, October 2012

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What English-speaking Learners of Chinese Don't Know about Dou: A Study on the Acquisition of ‘都’¹

Yan Li
University of Kansas

Abstract This study investigates how English-speaking learners of Chinese perceive sentences correctly using 都, incorrectly using 都, correctly omitting 都, and erroneously omitting 都 through a grammaticality judgment task. The test results show that English-speaking learners of Chinese have difficulties in accepting grammatical sentences using 都 where the NP associated with 都 is the object of the sentence. Chinese learners failed to reject ungrammatical sentences in which an obligatory 都 was missing. Most of the Chinese learners were not fully aware of the syntactic constraints of 都 and thus could not reject ill-formed sentences that violate the syntactic constraints of 都 in a native-like manner. It is suggested that more emphasis be placed on clarification of the syntactic constraints associated with the use of 都 and the obligatory use of 都. Exercises targeting sentences in which 都 quantifies the object of the sentence as well as sentences in which the use of 都 is obligatory-- both of which are largely ignored in some widely used textbooks in the U.S. --, should be designed and included in CFL teaching.

Keywords: CFL acquisition, scope adverbial, 都, influence of English

提要 本文通过一项语法判断任务考查了母语是英语的汉语学习者对正确使用“都”的句子、错误使用“都”的句子、正确省略“都”的句子和错误省略“都”的句子的接受度。实验结果表明,母语是英语的汉语学习者在接受用“都”总括宾语的合语法的句子上存在着困难,他们也不能摒弃因为缺失了必须使用的“都”而不合语法的句子。大多数的学习者还没有完全掌握使用“都”的句法限制,因此不能像母语者一样完全摒弃违反“都”的句法限制的不合语法的句子。因此,汉语教学中应该重点讲授使用“都”的句法限制,以及“都”不可省略的情况。设计重点操练用“都”总括宾语的练习以及必须使用“都”的情况。这些本应包括在对外汉语教材中的信息却在北美一些广泛使用的课本中被忽略了。

关键词: 汉语作为外语的习得, 范围副词, 都, 英语的影响

¹ I want to thank Keith McMahon and Maggie Childs for reading the proposal and drafts of this paper at its various developmental stages. I owe thanks to the two anonymous reviewers of JCLTA and Dr. Zheng-sheng Zhang for constructive comments. Thanks to those who participated in the test. Special thanks goes to Keith McMahon, Deborah Peterson, Yue Pan, and Jessie Jiang for helping recruit subjects. I am deeply indebted to Randi Hacker for her insightful comments and for proofreading the manuscript. Needless to say, all errors are mine.

1. Introduction

Due to the lack of inflectional morphemes in Chinese, function words play an important role in marking syntactic relations and fulfilling syntactic functions. Though not an easy task, mastery of the correct use of these function words is critical if learners of Chinese wish to achieve native-like proficiency. The most ubiquitous and slipperiest among these function words is 都 ‘all/both’. Studies show that difficulty achieving true competence in the use of 都 persists even among advanced learners of Chinese (Hu 2003; Xie 2005, Zhou and Wang 2007, Liu 2009 among others).

However, the existing studies list only the main errors that Chinese learners often make, without pinpointing their cause(s). (D. Li 1995, Liu 2009, Xie 2005, Zhou and Wang 2007). Are the errors reported in the existing studies a reflection of Chinese learners’ flawed grammatical representation of Chinese in their inter-language? What factors influence learners’ judgment of sentences using 都? What role, if any, does English play in the acquisition of 都 among English-speaking learners of Chinese?

By investigating the status of 都 in the inter-language system of English-speaking learners of Chinese this study hopes to reveal what might stand in the way of a thorough comprehension of the use 都. If the underlying mechanism that governs the acquisition of 都 is discovered, Chinese language instructors can use this knowledge to increase the overall proficiency of Chinese language learners at all competency levels.

According to Lü (1980), there are three usages for 都: (a) as a scope adverbial to express the meaning of ‘all/both’, as shown in example (1); (b) to emphasize an extreme case with the meaning of ‘even’(2); and (c) to express the meaning of ‘already’ when placed before quantity phrases (3) (Lü 1980).

(1) 大伙都同意。

everyone all agree

‘Everyone agreed.’

(2) 我都不知道你会来。

I even not know you will come

‘Even I do not know that you’re coming.’

(3) 都十二点了, 还不睡。

already twelve o’clock still not sleep

‘It’s already twelve o’clock. Why aren’t you asleep?’

This study focuses on the acquisition of 都 in its use as a scope adverbial and is organized as follows: Section 2 discusses the semantic and syntactic constraints that govern the use of 都; Section 3 presents the main findings in the existing studies on 都 in second language acquisition; Section 4 discusses the empirical research on the acquisition of 都 by English-speaking learners of Chinese within this study. The results are presented and discussed in Section 5 and the conclusion and implications for teaching are presented in Section 6. Section 7 addresses the limit of the current study and suggests a possible direction of future studies.

2. Analyses of 都

2.1. The function of 都

Chinese linguists generally agree that 都 forces a distributive reading of the sentence that contains it (Cheng 1995; J. Li 1995; X. Li 1995; Xu 1997; Fang and Fan 2003; Huang 1996; Wu, 1999, among others). This can be seen in the contrast in meanings in sentences (4)a and (4)b.

- (4) a. 张三和李四买了一本书。 (collectively)
 Zhangsan and Lisi buy PFV one-CL book
 ‘Zhangsan and Lisi bought a book.’
- b. 张三和李四都买了一本书。 (distributively)
 Zhangsan and Lisi DOU buy PFV one-CL book
 ‘Zhangsan and Lisi each bought a book.’

In sentence (4)a, *Zhangsan and Lisi* bought a book together. However, with the addition of 都 in (4)b, the interpretation of the sentence changes to mean that *Zhangsan and Lisi* each bought a book.

Since 都 distributes the property of a predicate over the NP it quantifies, a well-formed condition for the use of 都 in a sentence is that the event or quality denoted by the predicate must be semantically distributable over the NP that 都 quantifies (Zhang 1997). Though there is some debate on whether the noun associated with 都 should denote plural entities (Wang 1983, 1988; Jiang, 2003), it follows that there must be a plurality of events (Huang 1996). And, in fact, the well-formed situation for 都 is not solely contingent upon the property of the noun, but also on the relation between the noun quantified by 都 and the predicate of the sentence. For example:

- (5) a. 这本书我都看完了。
 this classifier-book I DOU read-finish CRS
 'I've read this whole book.'
 b.*这本书我都买完了。
 this classifier-book I DOU buy-finish CRS
 'I've bought this whole book.'

In sentence (5)a, the noun quantified by 都 is *a book* which is a single object that can be divided into smaller readable parts. In this sense, the action of *reading* is distributed to parts of the object. The relation between the action of reading and the book makes sentence (5)a well-formed. In contrast, in (5)b the action denoted by the predicate is *buying*, with its object being one book. In the real world, a book cannot be bought piece by piece, thus the idea connoted by the predicate is not distributable over the NP, making (5)b an incorrectly formed sentence.

An NP that is quantified by 都 may take various syntactic roles. It can be the subject of the sentence (6), the object of the sentence (7), the object of a preposition (8), a time adverbial (9), or a place adverbial (10).

- (6) 小张、小王和小李都是学生。
 little Zhang little Wang and little Li DOU be student
 'Little Zhang, Little Wang and Little Li are all students.'
- (7) 这本书我都看完了。
 this Cl. book I DOU read-over CRS
 'I've finished reading this book.'
- (8) 老师对那几个学生都很好。
 teacher to that a few CL student DOU very good
 'The teacher is very nice to all of those students.'
- (9) 小张这几天都在家。
 little Zhang these day DOU at home
 'Little Zhang has been at home all these days.'
- (10) 中国到处都有很多人。
 China everywhere DOU have very many person
 'There are many people everywhere in China.'

When 都 is used to quantify the subject (6), the object of the sentence (7), or the object of a preposition (8), it emphasizes that the action or the property denoted by the predicate applies to every part or every entity denoted by the NP. When 都

is used to quantify a time adverbial (9) or a place adverbial (10), it indicates that the action or the property denoted by the predicate applies to every part of the time or the places denoted by the time adverbial or the place adverbial. This is why some linguists believe that 都 triggers universal quantification of the denotation of an expression to its left (J. Li, 1995).

2.2. Syntactic constraints on the use of 都

There are certain syntactic constraints that define a well-formed sentence using 都.

First, 都 can appear only in a preverbal position.

- (11) a. 我们都喜欢中国电影。
 we DOU like Chinese movie
 b. *我们喜欢都中国电影。
 we like DOU Chinese movie
 c. *我们喜欢中国电影都。
 we like Chinese movie DOU
 ‘We all like Chinese movies.’

The only feasible position for 都 is the one immediately before the verb 喜欢 ‘like’ in sentence (11)a (Li, 2000). The appearance of 都 in a post-verbal position results in ungrammatical sentences ((11)b and (11)c).

Second, the noun phrase quantified by 都 must be placed before 都 in a non-interrogative sentence (Ma, 1983; Dong, 2003). As discussed in section 2.1, the noun phrase quantified by 都 can assume different syntactic roles. Regardless of what syntactic role a noun phrase plays in a declarative sentence, it must be placed to the left of 都 to be quantified by 都. The most obvious illustration of this rule is when the object of a sentence is quantified by 都. When the object of a sentence is quantified by 都, the object has to be shifted from its canonical post-verbal position to a preverbal position to the left of 都, as shown in (12).

- (12) a. 我喜欢中国电影和美国电影
 I like Chinese movie and American movie
 ‘I like Chinese movies and American movies.’
 b. *我都喜欢中国电影和美国电影。
 I DOU like Chinese movie and American movie
 Intended meaning: ‘I like both Chinese movies and American movies.’

- c. 中国电影和美国电影我都喜欢。
 Chinese movie and American movie I DOU like
 'I like both Chinese movies and American movies.'
- d. 我中国电影和美国电影都喜欢。
 I Chinese movie and American movie DOU like
 'I like both Chinese movies and American movies.'

In sentence (12)a, the NP 中国电影和美国电影 'Chinese movies and American movies' falls in the canonical post-verbal position as the object of the sentence. To quantify the NP 中国电影和美国电影 'Chinese movies and American movies' with 都 requires that the NP be switched to a pre-verbal position as it is in (12)c and (12)d. One of the explanations to this change in word order offered in the literature is by Wu (1999), according to which, 都 heads a Distributional Phrase, a functional projection that sits between the VP and the AgrsP. This projection is quantificationally strong and its Q-feature must be checked by a strong Q-element moved or merged into its spec-position via spec-head agreement in overt syntax, resulting in the quantified NP's placement to the left of 都².

2.3. Obligatory and optional 都

Depending on whether the omission of 都 results in ungrammatical sentences, the uses of 都 can be broadly classified into two types: the grammatically obligatory 都 and the grammatically optional 都: omission of 都 in the former cases would result in ungrammatical sentences while omission in the latter would only cause differences in meaning and the underlying different syntactic representations of the sentences that are not reflected on the surface of the sentences.

One of the typical contexts that demand the use of 都 consists of sentences in which a universal quantifier appears in a preverbal position. Preverbal elements include subjects (13), topics (14), time adverbials (15), place adverbials (16), or nominal phrases contained in a prepositional phrase (17). The universal quantifiers in Chinese include but are not limited to 每 'every', 所有的 'all', 全部 'whole', 任何 'any' etc. (Wang, 1999; Zhou and Wang, 2007). For example:

- (13) 每个孩子都长得很结实。(Subject)
 every-classifier kid all grow DE very strong
 'Every kid is strong'

² Please refer to Wu (1999) for a detailed discussion.

- (14) 所有的苹果我都削了皮。 (Topic)
 all apple I DOU peel PFV skin
 'I have peeled all of the apples.'
- (15) 我每天都看电视。 (Time adverbial)
 I everyday DOU watch television
 'I watch TV every day.'
- (16) 房子里到处都很乱。 (Place adverbial)
 house inside everywhere DOU very messy
 'It is very messy everywhere inside the house.'
- (17) 我跟每个人都谈过话。 (Object of a preposition)
 I with every person DOU talk EXP word
 'I have talked with everyone.'

In Chinese, interrogative words can also be used as universal quantifiers with the support of 都. In such contexts, the appearance of 都 is obligatory (Cheng 1995; Y.-H. Li 1992; J. Li 1995; Xu 1997). For example:

- (18) 谁都喜欢中国菜。
 who DOU like Chinese food
 'Everyone likes Chinese food.'
- (19) 我什么都不吃。
 I what DOU not eat
 'I do not eat anything.'

Another typical context in which the use of 都 is required is in sentences where a conjunction word such as 无论 'no matter', 不论 'in spite of' or 不管 'regardless', is used. For example:

- (20) 无论天气多么糟糕，他都会去跑步。
 no matter weather how bad he DOU will go jogging
 'No matter how bad the weather is, he jogs.'

In the aforementioned cases, the use of 都 is obligatory. In other cases, such as those illustrated in sentences 0 and (22), the use of 都 is optional. Omission of 都 in these sentences does not affect the grammaticality of the sentence.

(21) 小张、小李和小王 (都) 是中国人。

Little Zhang Little Li and Little Wang (all) are Chinese
 ‘Little Zhang, little Li and little Wang are (all) Chinese.’

(22) 张三和李四 (都) 很聪明。

Zhangsan and Lisi DOU very smart
 ‘Zhangsan and Lisi are (both) very smart.’

2.4. Comparisons between the English ‘all/both’ and the Chinese 都

Although the scope adverbial 都 is generally glossed as ‘all/both’ in English, 都 is by no means the equivalent of ‘all/both’ (cf. Wang 1983, 1988; Li 2012). In fact, there is only a very small overlap.

English ‘all/both’ can be directly translated into 都 in Chinese when ‘all/both’ is used as an emphasizing pronoun modifying the subject of the sentence as shown in (23) and (24). In examples (25) and (26), even though ‘all/both’ is used in this way, neither usage can be translated directly into 都 because they modify the object.

(23)a. English: They both work at home.

b. Chinese: 他们都在家工作。

(24)a. English: Milk, oily fish and egg all contain vitamin D.

b. Chinese: 牛奶、含油多的鱼和蛋都含有维生素 D。

(25)a. English: I’ll leave you both.

b. Chinese: *我要离开你们都。

(26)a. English: I like them all.

b. Chinese: *我喜欢他们都。

In addition to being used as an emphasizing pronoun, ‘all/both’ can be used as a determiner, a quantifier, and a pronoun as shown in (27) and (28). None of these uses of ‘all/both’ can be realized by 都 in Chinese.

(27)a. He was passionate about all literature. (Determiner)

b. He was talking to all of us. (Quantifier)

c. I’d spent all I had, every last penny. (Pronoun)

(28)a. I want both books. (Determiner)

b. Both of them are good. (Quantifier)

c. Miss Brown and her friend, both from Stoke, were arrested on the 8th of June. (Pronoun)

If ‘all/both’ in the sentences above were translated into Chinese using 都, the results would be ungrammatical.

The use of 都 cannot be fully represented by ‘all/both’ in English either. In the syntactic obligatory cases where omission of 都 results in ungrammatical sentences as discussed in section 2.3, ‘all/both’ cannot actually be used in their English counterparts, as shown in the sentences in (29) through (31).

(29)a. Chinese: 大伙* (都) 同意。

everyone all agree
‘Everyone agreed.’

b. English: Everyone (*all) agreed.

(30)a. Chinese: 谁* (都) 喜欢中国菜。

who DOU like Chinese food
‘Everyone likes Chinese food.’

b. English: Everyone (*all) likes Chinese food.’

(31) a. Chinese: 无论天气多么糟糕, 他* (都) 会去跑步。

no matter weather how bad he DOU will go jogging
‘No matter how bad the weather is, he jogs.’

b. English: No matter how bad the weather is, he (*all) jogs.

When 都 is optional in a Chinese sentence, the syntactic role of the noun phrase remains an influential element in deciding whether the English translation requires ‘all/both’. If the noun phrase quantified by 都 is the subject of the sentence, ‘all/both’ can be used before the predicate in its English counterpart, as shown in (32).

(32) a. Chinese: 小张、小王和小李 (都) 喜欢中国菜。(Subject)

little Zhang little Wang and little Li (DOU) like Chinese food
‘Little Zhang, Little Wang and Little Li (all) like Chinese food.’

b. English: Little Zhang, Little Wang and Little Li (all) like Chinese food.

If the noun phrase quantified by 都 assumes a syntactic role other than subject, ‘all/both’ is usually not used before the predicate, however it might be used to modify the nominal phrase in their English counterparts as shown in ((33)-(35)).

- (33) a. Chinese: 这本书我(都)看完了。(Object)
 this CL. book I (DOU) read-over CRS
 ‘I’ve finished reading this entire book.’
 b. English: I’ve finished reading this entire book.
- (34) a. Chinese: 老师对那几个学生(都)很好。(Object of a preposition)
 teacher to that a few CL student (DOU) very good
 ‘The teacher is very nice to (all of) those students.’
 b. English: The teacher is very nice to (all of) those students.
- (35) a. Chinese: 小张这几天(都)在家。(Time adverbial)
 little Zhang these day (DOU) at home
 ‘Little Zhang has been at home (all) these days.’
 b. English: Little Zhang has been at home (all of) these days.

3. Studies on the acquisition of 都 by learners of Chinese

Studies on the acquisition of 都 by learners of Chinese have mainly been done in Chinese using error analysis. These studies report that even advanced L2 learners of Chinese have difficulty using 都 correctly, with student errors occurring mainly when 都 is used as a scope adverbial. (Xie 2005; Zhou and Wang 2007; D. Li 1995; Liu 2009).

In his research, D. Li (1995) analyzed erroneous sentences produced by advanced learners of Chinese and proposed that the main reason behind student 都 errors was the grammatical explanation given by Chinese instructors. Following Wang (1983, 1988), D. Li argues that it should be explained that 都 refers to each entity in the set denoted by the noun phrase, but not the set as a whole.

Zhou and Wang (2007) postulates that the difficulties in mastering the correct use of 都 are directly proportional to the obligatoriness of 都 in the sentence; the obligatory use of 都 is easier for learners to acquire than is the optional use. Zhou and Wang also propose that the clarity of the distributive meaning of the noun quantified by 都 influences learners’ ability: The more salient the distributive meaning, the less difficult it is to master. They suggest that in CFL teaching, Chinese instructors should emphasize the distributive meaning of 都. They also briefly mention the influence of the Japanese and Korean languages on the use of 都.

Liu (2009) investigated the acquisition of 都 by Japanese-speaking learners of Chinese. Unlike Zhou and Wang (2007), and D. Li (1995), all of whom used

error analysis in their studies, Liu (2009) used a translation task to examine the issue. The subjects of Liu's study were beginners and intermediate Japanese-speaking learners of Chinese who were asked to translate nineteen Japanese sentences into Chinese. The study found that when there are overt words indicating the meaning of 'all' or 'more than one' in the Japanese sentences, Japanese-speaking students of Chinese use 都 in the Chinese translations; Otherwise, they don't use it at all.

These studies help greatly in understanding L2 learners' errors in using 都. However, since most of them use error analysis, their results are limited to explaining errors but fail to provide an overall picture of the acquisition of 都. In addition, these studies lack supporting empirical data thus what Chinese learners know or do not know about 都 remains vague. Moreover, these studies suggest that the difficulties have something to do with L2 learners' native languages, but do not explore the matter in depth. Nobody, either specifically or systematically, has discussed the influence of English on the particular difficulties a native speaker of English learning Chinese might have in the successful acquisition of 都. A study solely devoted to the influence of English on the acquisition of 都 is thus needed. Furthermore, though Liu (2009) shows very interesting results, no statistical analysis is provided so inferences of the study are limited.

The current study aims to address this limitation by looking into learners' perception of sentences crucial to understanding the acquisition of 都³.

4. Current study

4.1. Research questions

This study aims to answer the following research questions:

- (1) Can English-speaking learners of Chinese identify sentences correctly using 都 and reject sentences violating the syntactic constraints of 都 in the same way native Chinese speakers do?
- (2) What is the influence of English on Chinese learners' ability to identify acceptable sentences using 都? How does the overt realization or absence of 都 in English sentence affect Chinese learners' ability to identify correct sentences with 都?
- (3) What language-internal factors influence learners' ability to correctly identify acceptable sentences using 都? Such language-internal factors under investigation include the obligatoriness of the use of 都 and the syntactic role that

³Because of the length limitation imposed by this article, the research on the production of 都 is carried out in a separate study.

the noun associated with 都 takes.

4.2. Hypotheses and predictions

If we hypothesize that English-speaking learners of Chinese transfer their English settings into their L2 Chinese (Schwartz and Sprouse 1994, 1996), we can make the following predictions about the performance of English-speaking learners of Chinese in the use of 都:

- (36)a. English-speaking learners of Chinese will perform best where 都 is used optionally to quantify the subject of the sentence because of the corresponding relationship between English ‘all/both’ and Chinese 都;
- b. English-speaking learners of Chinese will allow 都 to be used before an NP in the initial state because of the influence of English ‘all/both’;
- c. English-speaking learners of Chinese will perform poorly on sentences in which 都 is used to quantify the object of the sentence as well as on sentences in which 都 is obligatory because of a lack of overt realization of 都 in English in these cases.

The above predictions differ from the predictions of Zhou and Want (2007) mentioned above regarding obligatoriness and ease of acquisition.

4.3 Experimental design

In order to answer the research questions proposed in 4.1, and test the predictions made in 4.2, an acceptability judgment task was designed. In this test, subjects were asked to assess whether a sentence was *perfect*, *okay*, *awkward* or *horrible*. They were also able to choose a *not sure* option if they had no clear feeling. Subjects were asked to provide corrections to sentences that they judged awkward or horrible. The test results were then converted into scores using a 5-point likert scale according to the following scoring scheme:

- (37) Scoring scheme: Horrible=0; awkward= 1; not sure= 2; okay= 3; perfect= 4

The test included twelve types of test sentences with four tokens each. Examples of the twelve sentence types are given in (38).

(38) Type 1: Optional 都; the NP quantified by 都 is the subject of the sentence (OS):

我们都喜欢中国菜。

We DOU like Chinese-dish

‘We all like Chinese food.’⁴

Type 2: Optional 都; the NP quantified by 都 is the object of the sentence (OO):

这三个菜我都喜欢。

this three-MW-dish I DOU like

‘I like all these three dishes.’

Type 3: Obligatory 都; the NP quantified by 都 is the subject of the sentence (MS):

每个人都喜欢中国菜。

every-MW-person DOU like Chinese-dish

‘Everyone likes Chinese food.’

Type 4: Obligatory 都; the NP quantified by 都 is the object of the sentence (MO):

每个菜我都喜欢。

every-MW-dish I DOU like

‘I like every dish.’

Type 5: Optional 都 erroneously placed after the VP (A3):

*我们喜欢都中国菜。

We like DOU Chinese-dish

‘Intended reading: we all like Chinese food.’

Type 6: Optional 都 erroneously placed before the NP it quantifies (B3):

*都他们说中文。

DOU they speak Chinese

‘Intended reading: they all speak Chinese.’

Type 7: Obligatory 都 erroneously placed after the VP (C3):

*每个人喜欢都中国菜。

every-MW-person like DOU Chinese food

‘Intended reading: everyone likes Chinese food.’

Type 8: Obligatory 都 erroneously placed before the NP it quantifies (D3):

*都每个人说中文。

DOU every-MW-person speak Chinese

‘Intended reading: everyone speaks Chinese.’

Type 9: SVO sentences derived by omitting the optional 都 used in sentences quantifying the subject of the sentence (OSO):

⁴The English gloss and translation is provided here for the readers of this article, but was not included in the actual test.

我们喜欢中国菜。

We like Chinese-dish

‘We like Chinese food.’

Type 10: OSV sentences derived by omitting the optional 都 used in sentences quantifying the object of the sentence (OOO):

这三个菜我喜欢。

this three-MW-dish I DOU like

‘I like these three dishes.’

Type 11: Ungrammatical SVO sentences derived by omitting the obligatory 都 used in sentences quantifying the subject of the sentence (MSO):

*每个人喜欢中国菜。

every-MW-person like Chinese-dish

‘Intended reading: everyone likes Chinese food.’

Type 12: Ungrammatical OSV sentences derived by omitting the obligatory 都 used in sentences quantifying the object of the sentence (MOO):

*每个菜我喜欢。

every-MW-dish I like

‘Intended reading: I like every dish.’

Type 1-4 are well-formed sentences geared to measure whether Chinese learners perform differently on sentences using optional 都 and obligatory 都, and whether the syntactic role of the NP that 都 quantifies has any influence on subjects’ judgment of these sentences. Type 5-8 are ill-formed sentences designed to test whether L2 learners can reject sentences that violate the syntactic constraints of 都, namely, that it cannot be placed after the VP or before the NP it quantifies. Type 9 and 10 are well-formed sentences derived by omitting the optional 都 used to quantify the subject of the sentence or the object of the sentence. Type 9 sentences form minimal pairs with sentences in Type 1, as do the sentences in Type 10 with those in Type 2. The comparison reveals the influence of the presence of 都 in L2 learners’ judgment of those sentences. Type 11 and 12 are ill-formed sentences derived by dropping the obligatory 都 from sentences. This part will show us whether L2 learners are aware that this omission results in ungrammatical sentences.

There were forty-eight test sentences in total, half correct and half incorrect. Sixteen fillers, eight correct and eight incorrect, were also included in the test. All test sentences and fillers were randomized and were presented in traditional or simplified Chinese characters per subjects’ request. Easy vocabulary was used to make sure even beginners could read and understand the test sentences.

5. Results

5.1. Subjects

Chinese students enrolled in first year, second year, third year and fourth year Chinese at the University of Kansas took the test at the end of the fall semester 2010 in a classroom setting.

Subjects were divided into three groups according to the length of time they had been studying Chinese. Beginners included those who had studied Chinese in college for one semester. Intermediate learners included those who had studied Chinese for three semesters in college. Advanced learners included those who had studied Chinese for at least five semesters in college. In order to make sure the sample represented typical adult second language learners, subjects who started learning Chinese before the age of 16 were excluded from the analysis. Since this study was interested in looking at the possible influence of English on the acquisition of 都, subjects whose native language was not English were also excluded from the analysis. As a result, there were 32 subjects in the beginners group, 22 in the intermediate group and 15 in the advanced group.

To serve as a control group, 14 native speakers of Chinese also participated in the test using the same test stimuli. Most of these speakers are currently residing in the United States, and they know English very well.

5.2. Test Results

5.2.1. Well-formed sentences with 都

This section discusses the results of well-formed sentences using 都 (types 1-4). The mean ratings that different groups of subjects gave to each sentence type are shown in Table 1 in the Appendix. The performance of the native control group was as expected: they correctly rated all the sentences using 都 where the syntactic constraints of 都 conform as perfect. While L2 groups rated sentences with 都 quantifying the subject as good sentences (the means of ratings were over 3), they gave sentences with 都 quantifying the object a lower rating. Sentences with optional 都 received a higher rating than sentences with obligatory 都.

In order to see whether these differences were statistically significant, a mixed repeated-measures ANOVA was carried out in the Statistical Program for Social Sciences (hereafter abbreviated as SPSS). There were two within-subjects factors: the syntactic role of the NP that 都 quantifies and the obligatoriness of the use of 都. The syntactic role of the NP quantified by 都 had two levels: subject and object. The obligatoriness of the use of 都 also had two levels: optional and obligatory. Results showed that there was a significant main effect of

the syntactic role of the NP quantified by 都, $F(1, 79) = 60.69, p < .05$, and a significant main effect of group, $F(3, 79) = 15.13, p < .05$. There was also a significant interaction between the two factors, $F(3, 79) = 7.15, p < .05$. Figure 1 and Figure 2 reveal that no matter whether 都 was optional or obligatory, all subjects gave sentences where the NP quantified by 都 was the subject of the sentence a higher rating. While native controls accepted sentences with 都 quantifying the subject or the object equally, L2 learners disliked sentences with 都 quantifying the object of the sentence, which were rated by beginners and intermediate learners as not good sentences (less than three).

Figure 1: Subjects' performances on sentences where 都 is optional (1: NP= Subject; 2: NP = Object)

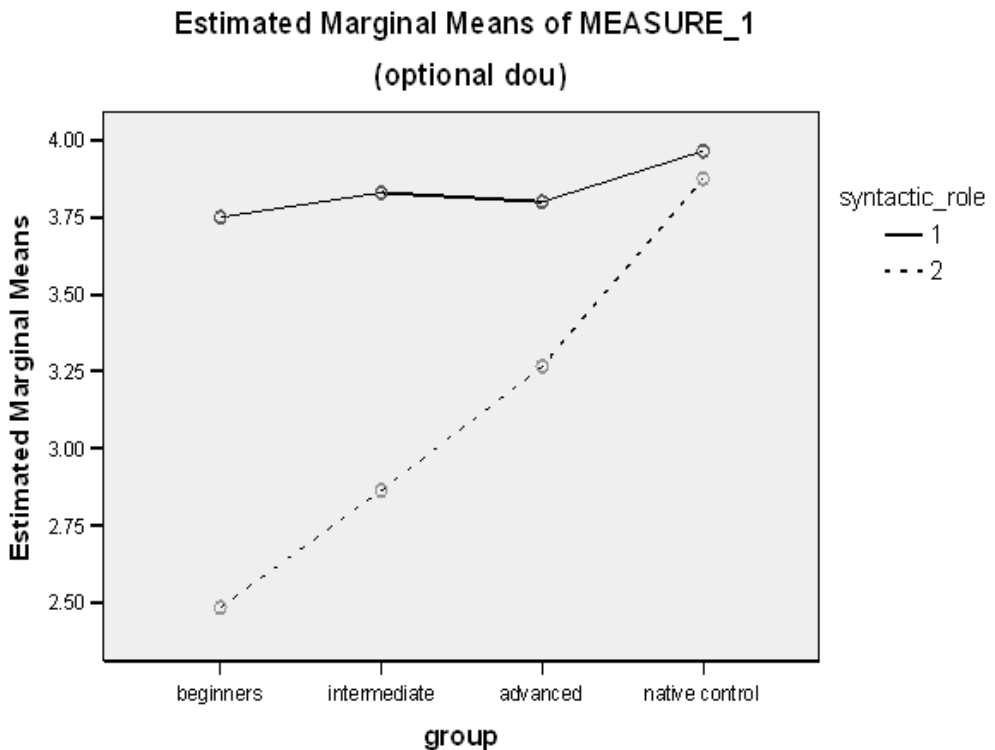
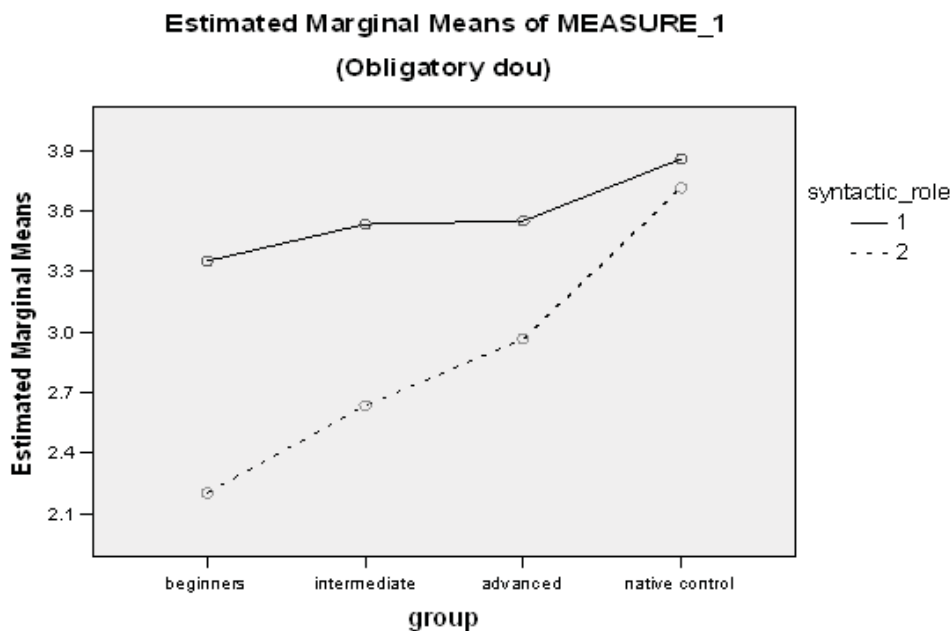


Figure 2: Subjects' performances on sentences where 都 is obligatory (1: NP= Subject; 2: NP = Object)



The results of the mixed repeat-measures ANOVA also show that there was a significant main effect of the obligatoriness of the use of 都, $F(1, 79) = 28.95, p < .05$, and a significant main effect of group, $F(3, 79) = 15.13, p < .05$. However, there was no significant interaction between these two factors, $F(3, 79) = .847, p > .05$. All L2 learners rated sentences using optional 都 significantly higher than sentences using obligatory 都. The difference in ratings between cases using optional 都 and cases using obligatory 都 was much higher for L2 learners than native speakers. There was no significant main effect of the interaction between the obligatoriness of the use of 都 and the syntactic role the NP quantified by 都: $F(1, 79) = .044, p > .05$, nor of the interaction between the obligatoriness of the use of 都, syntactic role and group: $F(3, 79) = .209, p > .05$.

Because there was a significant main effect of group, a post hoc comparison was carried out. The results show that different groups did not perform in a significantly different way from one another on sentences where 都 was optional and the NP quantified by 都 was the subject of the sentence (OS), $p > .05$. However, all L2 groups performed significantly differently from the native control group on sentences in which 都 was optional and the NP quantified by 都 was

the object of the sentence. The performance of L2 learners on sentences in which 都 was obligatory and the NP quantified by 都 was the subject of the sentence (MS) was similar to their performance on corresponding sentences in which 都 is optional. Among the three L2 groups, only the beginners' performance differed significantly from that of the native controls ($p < .05$). L2 groups did not perform significantly differently from one another ($p > .05$). Interestingly, the performance of L2 learners on sentences in which 都 was obligatory and the NP quantified by 都 was the object of the sentence (MO) paralleled their performance on sentences in which 都 is optional and the NP 都 quantified is the object of the sentence. All L2 learners groups performed significantly differently from the group of native controls ($p < .05$).

Results of this session show that in well-formed sentences, the syntactic role of the NP quantified by 都 showed a stronger effect in influencing L2 learners' ratings than did the obligatoriness of the use of 都 although all subjects tended to rate sentences using optional 都 higher than those using obligatory 都.

5.2.2. Ill-formed sentences with 都

This section discusses the results of ill-formed sentences wherein the use of 都 violates one of the syntactic constraints (types 5-8⁵ listed in section 4.3.)

The data show that native controls strongly rejected these four types of sentences. However, beginners only rated these sentences as awkward. In addition to beginners, intermediate learners rated sentences in which 都 was placed before the NP it quantifies (Type 6 and Type 8) as awkward, too. Advanced learners generally did not like these sentences, but their mean ratings were still higher than those of the native controls.

A mixed repeated-measures ANOVA was carried out with two within-subject factors: syntactic constraints that the sentence violates and the obligatoriness of the use of 都 with two levels for each factor. The two levels of syntactic constraints that these sentences violated were: 都 should be placed before the VP, and the NP that 都 quantifies should appear to the left of 都. The two levels of the obligatoriness were: optional 都, and obligatory 都. The between subjects factor was the subjects' proficiency levels (group).

Results show that there was a significant main effect of the constraints that the sentence violated, $F(1, 79) = 19.87, p < .05$, and a significant main effect of group, $F(3, 79) = 19.94, p < .05$. There was also a significant interaction between the two factors, $F(3, 79) = 3.76, p < .05$. Figure 3 and Figure 4 reveal that no mat-

⁵Detailed data can be found in Table 1 in the Appendix.

ter 都 was optional or mandatory in the sentence, all subjects gave sentences violating the rule that 都 should be used before the VP a lower rating than sentences violating the rule that the NP that 都 quantifies should be placed to the left of 都. L2 subjects' rejection of the wrong sentences grew stronger along with their proficiency level.

The results of the mixed ANOVA also show that there was no significant main effect of obligatoriness of the use of 都, $F(1, 79) = 1.87, p > .05$, but there was a significant main effect of group, $F(3, 79) = 15.13, p < .05$. However, there was no significant interaction between these two factors, $F(3, 79) = 1.73, p > .05$. Although different groups performed differently, the ratings received from the same group for optional 都 and obligatory 都 on items violating the same rule almost overlap.

Figure 3: Subjects' performances on sentences using optional 都 with violation of one of the syntactic constraints (1: 都 is placed before VP; 2: 都 is placed after the NP)

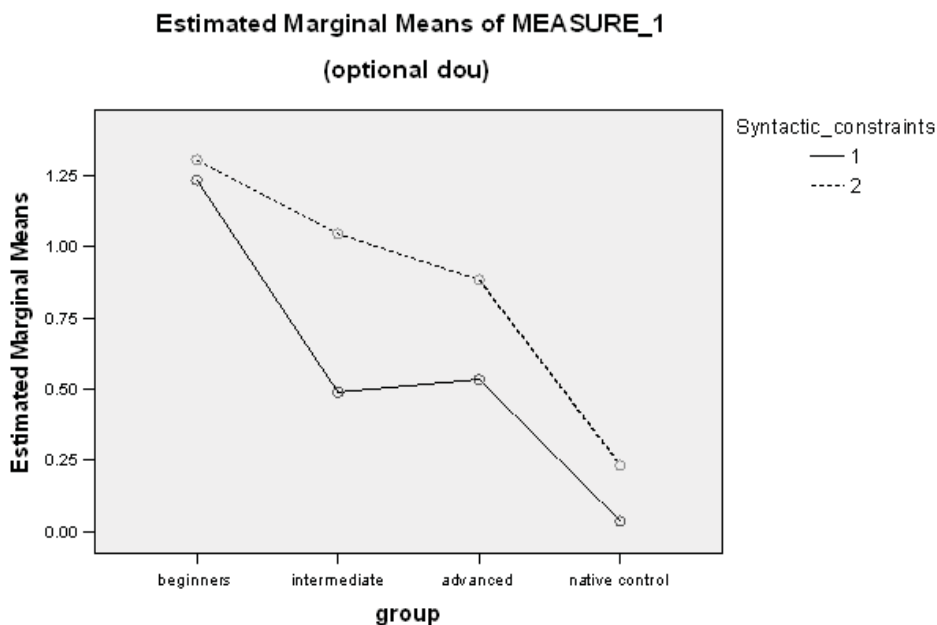
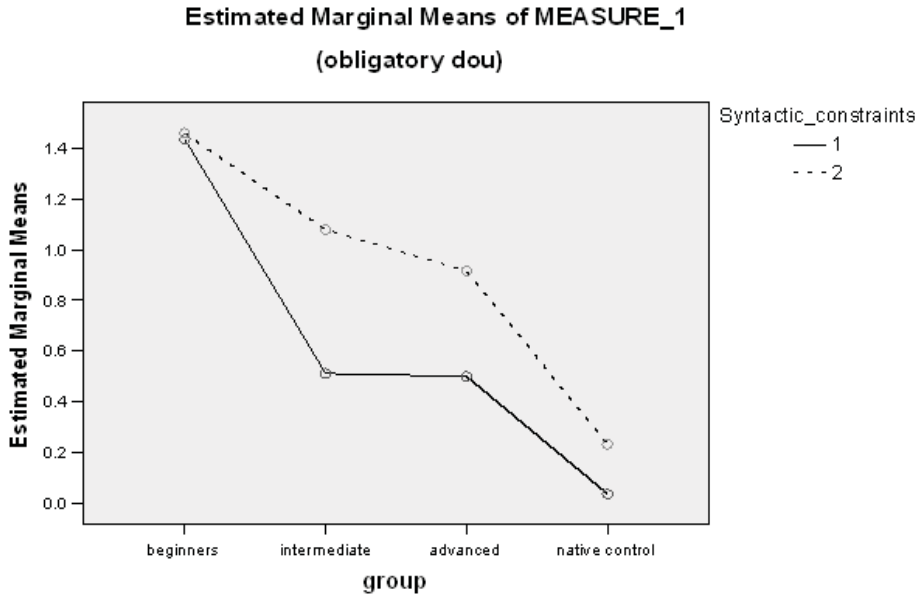


Figure 4: Subjects' performances on sentences using mandatory 都 with violation of one of the syntactic constraints (1: 都 is placed before VP; 2: 都 is placed

after the NP)



Post hoc comparison results show that all groups of L2 learners performed significantly differently from the group of native controls on all of these four types of sentences ($p < .05$). On sentences where 都 was erroneously placed after the VP (A3 and C3), beginners performed significantly differently from intermediate learners and advanced learners ($p < .05$), but intermediate learners and advanced learners did not perform significantly differently from each other ($p > .05$). Sentences in which the NP quantified by 都 was erroneously placed to the right of 都 (B3 and D3), resulted in L2 learner group performances that were not significantly differently from each other.

Overall, subjects' performance on the four types of sentences showed that, although L2 subjects did not rate these bad sentences as good sentences, the ratings they gave to the sentences were significantly higher than those of the native controls. Not a single group of L2 learners, including the advanced learners, performed like native controls. The results also showed that L2 subjects tolerated sentences in which 都 was erroneously placed before the NP it quantified more than they tolerated sentences in which 都 was mistakenly placed after the VP. The obligatoriness of 都 played little role in subjects' performance on these four types of sentences.

5.2.3. Well-formed sentences without 都

This section discusses the performance of students on sentences derived through the omission of the optional 都 used in Type 1 and Type 2 sentences (types 9 and 10). Omission of the optional 都 that quantifies the subject of the sentence results in a well-formed sentence with an SVO word order. Omission of the optional 都 that quantifies the object of the sentence results in a good sentence with an OSV word order, commonly known as topic-comment sentences in Chinese. The purpose of including Types 9 and 10 in the test was to investigate whether subjects are aware that the omission of optional 都 is fine.

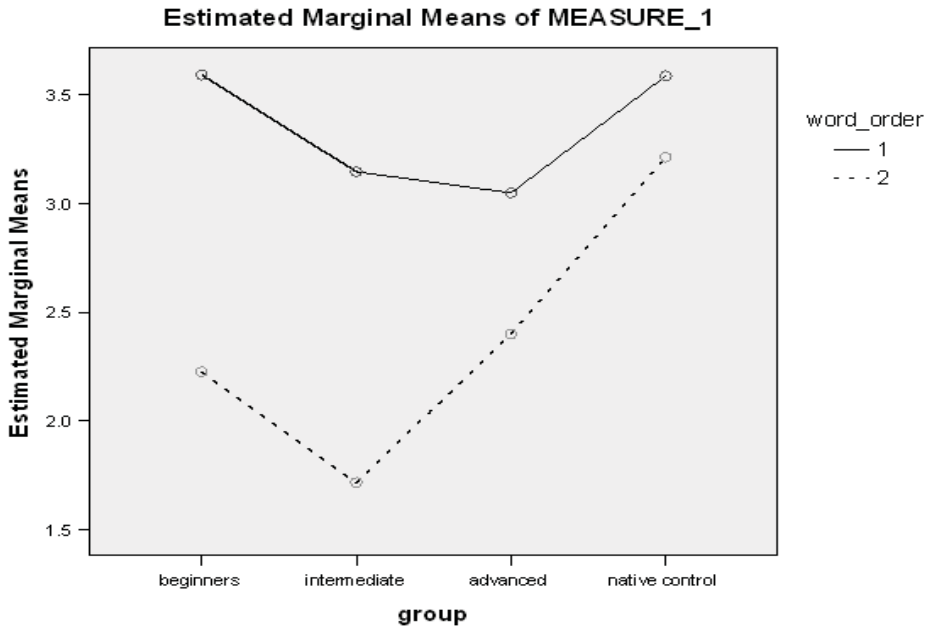
The results show that all groups of subjects rated sentences with the canonical SVO word order (Type 9) as good or perfect sentences, with the ratings being over 3. On the contrary, the ratings given to sentences with an OSV order (Type 10) varied: L2 learners' ratings hovered around 2 while native controls rated them higher than 3. In order to see whether the differences on the mean ratings given by different groups were statistically significant, a mixed repeated-measures ANOVA was carried out with word order as the within-subjects variable and group as the between-subjects variable.

Results show that there was a significant main effect of word order, $F(1, 79) = 62.56, p < .05$, and a significant main effect of group, $F(3, 79) = 8.10, p < .05$. There was a significant interaction between the two factors, $F(3, 79) = 4.62, p < .05$. The interaction graph (Figure 5) reveals that, while both types of sentences are well-formed sentences in Chinese, subjects rated sentences with an OSV word order significantly lower than sentences with an SVO word order. The contrast in the ratings given these two sentence types changed according to proficiency level: the higher the proficiency level, the less contrast between the two.

Post-hoc test results show that on Type 9 (SVO) sentences, none of the groups performed significantly differently from any other⁶. In fact, even beginners performed like native controls in this instance ($p > .05$). On Type 10 sentences, only beginners and intermediate learners performed in a significantly different way from native controls ($p < .05$). But beginners did not perform significantly differently from intermediate learners or advanced learners ($p > .05$), neither did intermediate learners' performance differ significantly from that of advanced learners ($p < .05$).

⁶It is true that in terms of mean ratings, beginners have higher ratings than intermediate learners and advanced learners, but the ratings are all between three (good) to four (perfect), and, what's important, these differences are not statistically significant.

Figure 5: Subjects' performances on Type 9 and Type 10 (1: Type 9; 2: Type 10)



Test results in this section showed that L2 learners showed preference for sentences with SVO word order even though both types of sentences are well-formed and grammatically correct. Beginners and intermediate learners rejected sentences with OSV word order, but advanced learners of Chinese, like the native controls, recognized both types of sentences as correct.

5.2.4. III-formed sentences without 都

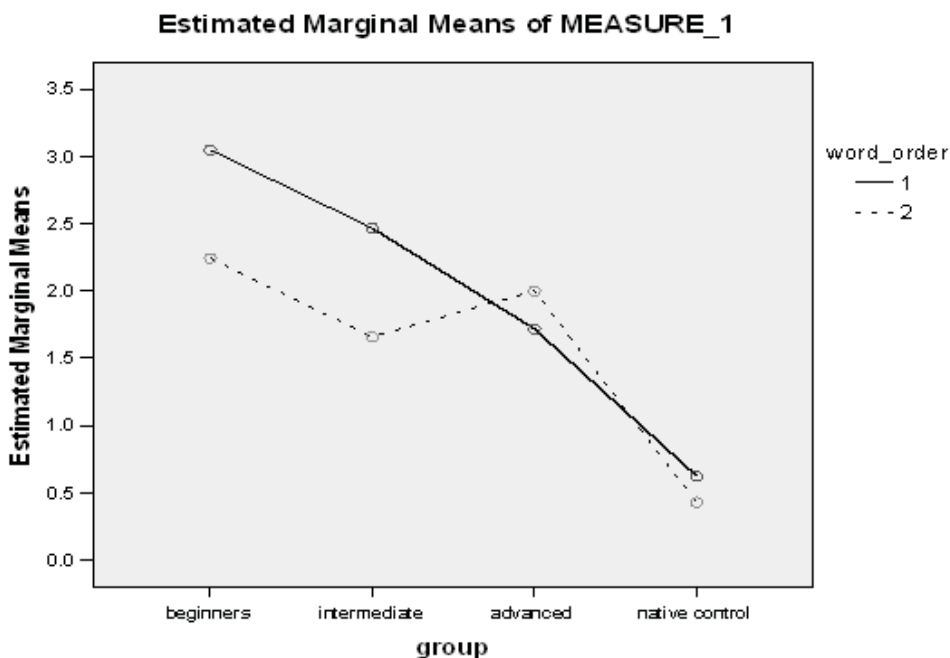
This section discusses the results of test sentences derived by omitting the obligatory 都 (Type 11 and 12). The goal in using these types of sentences was to discover whether L2 subjects are aware that the obligatory 都 cannot be omitted.

As expected, native controls rejected both types of sentences. L2 learners performed differently on rating sentences in Type 11 and Type 12. Beginners rated Type 11 sentences as good sentences ($M=3.05$). Intermediate and advanced learners demonstrated a limited ability to recognize the incorrectness of Type 11 sentences, but did not fully reject them as native controls did. For Type 12 sentences, L2 learners' rating was around 2, indicating their uncertainty regarding the grammaticality of those sentences. A mixed repeated-measures ANOVA was

carried out with word order as the within-subjects variable and subjects' proficiency level as the between-subjects factor. Results show that there was a significant main effect of word order, $F(1, 79) = 18.50, p < .05$, and a significant main effect of subjects' proficiency level, $F(3, 79) = 30.74, p < .05$. Moreover, there was a significant interaction between the two factors, $F(3, 79) = 8.85, p < .05$. The interaction graphs of these effects (Figure 6) reveal that L2 subjects rated the ungrammatical sentences with an SVO word order significantly higher than ungrammatical sentences with an OSV word order.

Post-hoc comparisons revealed a significant difference in the performance of all groups of L2 learners on both types of sentences from that of native control groups, $p < .05$. This shows quite clearly that L2 learners were not yet discerning enough to reject these two types of sentences in the way that native Chinese speakers were: they simply did not have the knowledge that would equip them to recognize that these two types of sentences are ungrammatical. Among L2 groups, a significant difference appeared between beginners and advanced learners on sentence Type 11 while on Type 12, different L2 groups did not perform significantly differently from one another, $p > .05$.

Figure 6: Subjects' performance on Type 11 and Type 12 (1: Type 11; 2: Type 12)



L2 learners' performances on the ungrammatical Type 11 and Type 12 sentences showed a similar pattern to their performances on grammatical Type 9 and Type 10 sentences: that is, they gave sentences with SVO word order a higher rating and those with OSV word order a lower rating. Is it possible that L2 learners rated Type 11 and Type 12 sentences simply according to word order without paying attention to the grammaticality of the sentences?

In order to answer this question, a repeated-measures ANOVA was carried out to compare subjects' performance on well-formed sentences without 都 (Type 9, Type 10) and ill-formed sentences without 都 (Type 11, Type 12). There were two within-subjects factors with two levels each: grammaticality (grammatical; ungrammatical), and word order (SVO, OSV). Subjects' proficiency level was the between-subjects factor.

The results of this targeted test showed that there was a main effect of the grammaticality on the ratings, $F(1, 79) = 251.13, p < .05$; and a main effect of group, $F(3, 79) = 8.13, p < .05$. There was a significant interaction between grammaticality and group, $F(3, 79) = 68.92, p < .05$. There was a main effect of the word order on the ratings, $F(1, 79) = 65.52, p < .05$; and the interaction between groups and word order, $F(3, 79) = 9.07, p < .05$. There was a main effect of the interaction between grammaticality and word order, $F(1, 79) = 19.70, p < .05$, but not a main effect of the interaction among grammaticality, word order and groups, $F(3, 79) = 1.16, p > .05$. A look at the interaction graphs (Figure 7 and Figure 8) reveals that subjects performed significantly differently on grammatical sentences and ungrammatical sentences especially on sentences with an SVO word order. In Figure 7, all sentences have an SVO word order; the differences in ratings increase with subjects' proficiency level. Beginners rated sentences with an SVO order as acceptable even though these sentences were, in fact, ungrammatical. Intermediate learners showed a nascent ability to recognize ungrammatical sentences.

Figure 7: Subjects' performance on grammatical and ungrammatical sentences with SVO word order (1: grammatical sentences; 2: ungrammatical sentences)

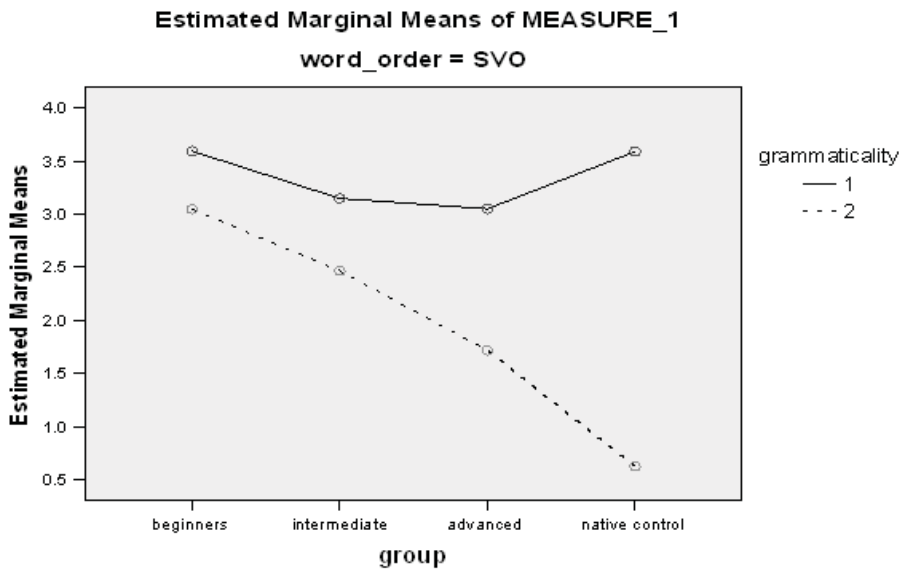
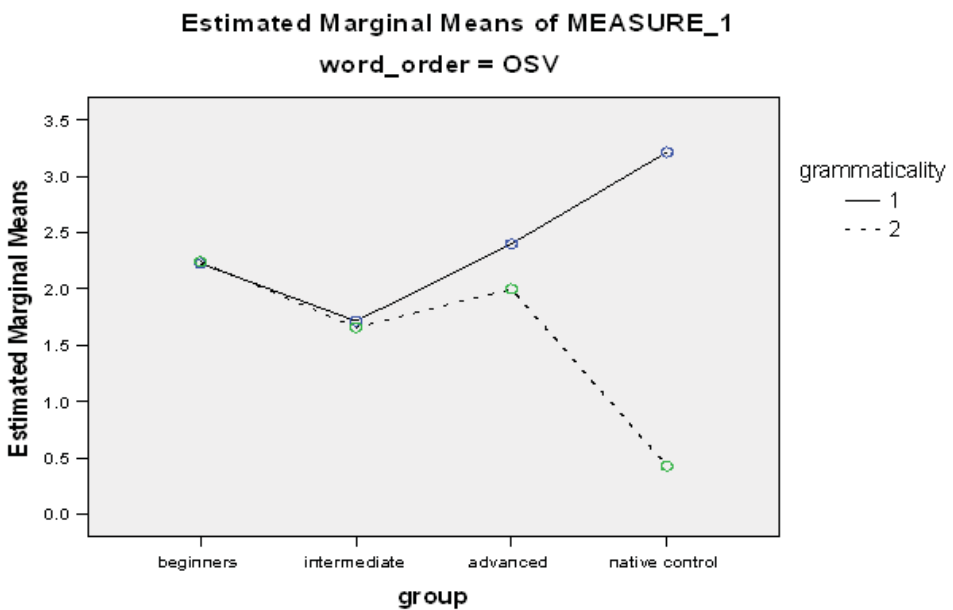


Figure 8: Subjects' performance on grammatical and ungrammatical sentences with OSV word order (1: grammatical sentences; 2: ungrammatical sentences)



In Figure 8, all the sentences have an OSV word order. Beginners and intermediate learners did not rate ungrammatical sentences with an OSV word order differently from grammatical sentences with an OSV word order. Advanced learners showed some ability to rate grammatical sentences higher than ungrammatical sentences, but their performance was still significantly different from the native controls.

The results in this section reveal that, although L2 learners were not able to reject sentences with a missing obligatory 都 as accurately or consistently as native speakers could, they did have some knowledge that 都 was necessary in those contexts. Word order had an influence on subjects' performance on sentences with or without 都, but, interestingly, ratings were not solely based on word order.

5.3. Discussion

The test results seem to confirm the predictions made according to the transfer theory (Schwartz and Sprouse 1994, 1996), but contradict the prediction made by Zhou and Wang (2007).

The transfer theory predicts that English-speaking learners of Chinese perform best on sentences in which 都 is used optionally to quantify the subject of the sentence because of the corresponding relationship between English 'all/both' and Chinese 都. This was borne out by our test results, which indicated that English-speaking learners of Chinese performed best on sentences where the optional 都 quantifies the subject of the sentence (Type 1). Even beginners performed as well as native controls on this type of sentence. Because 都 in this type of sentence mirrors the 'all/both' in English in terms of meaning, function and position, it is the easiest type of 都 sentence for English-speaking learners of Chinese to master.

The second prediction made by the transfer theory is that English-speaking learners of Chinese will allow 都 to be used before an NP in the initial state because of the influence of English. This was also confirmed by our test results. Subjects in the beginners' group rated ill-formed sentences in which 都 was erroneously placed before the NP it quantifies (Type 6, Type 8) only as awkward rather than incorrect. Moreover, none of the L2 groups performed like native controls in rejecting this type of ungrammatical sentence. This shows that, even at the advanced level, some English-speaking learners of Chinese still do not perceive sentences using 都 before the NP as totally incorrect and therefore fail to reject those sentences as native speakers do.

The third prediction made by the transfer theory is that English-speaking

learners of Chinese will perform badly on sentences using 都 to quantify the object of the sentence and on sentences in which 都 is obligatory. This prediction was also confirmed by our test. English-speaking learners of Chinese performed significantly worse on sentences where the NP quantified by 都 was the object of the sentence (Type 2, Type 4) than they did on sentences where the NP quantified by 都 was the subject of the sentence (Type 1, Type 3). Beginners and intermediate learners readily accepted sentences in which 都 quantified the subject of the sentence while they showed uncertainty in cases in which 都 quantified the object of the sentence. Excepting beginners, all other L2 groups performed like native speakers on sentences in which 都 quantified the subject of the sentence (Type 1, Type 3). However, even advanced learners did not perform in a native-like way when it came to sentences that used 都 to quantify the object of the sentence (Type 2, Type 4). English-speaking learners of Chinese did not perform as well in identifying sentences using the obligatory 都 as they did in accepting sentences using the optional 都. L2 learners consistently rated sentences with the optional 都 significantly higher than sentences using the obligatory 都. Unlike the native controls, L2 learners were unable to reject ungrammatical sentences created by the omission of the obligatory 都 (Type 11, Type 12), a result that indicates that L2 learners did not have the knowledge to recognize that 都 must appear in those types of sentence.

The test results did not confirm the predictions made by Zhou and Wang (2007). Zhou and Wang (2007) hypothesized that the more obligatory the 都 is, the easier it is for L2 learners to master. According to this prediction, L2 learners should perform better on sentences using obligatory 都 than on sentences using optional 都. However, the results of the test indicate the opposite. L2 learners consistently rated sentences with optional 都 significantly higher than sentences with obligatory 都, implying that they were more familiar with the optional 都, and therefore readier to accept these sentences as correct. By contrast, L2 learners tended to erroneously reject obligatory 都 sentences. Although some L2 learners in the advanced learner group demonstrated an awareness that the omission of an obligatory 都 will result in an ungrammatical sentence, as a group, L2 learners were not as able as Chinese native speakers to consistently mark as wrong sentences in which an obligatory 都 was omitted. Results from section 5.2.4 show that none of the L2 groups performed like native speakers in rejecting sentences where the obligatory 都 was omitted (Type 11, Type 12). This indicates that L2 learners did not master the use of the obligatory 都 any better than

they mastered the use of the optional 都. This finding also explains why L2 learners commit so many production errors linked to the omission of the obligatory 都 (cf. Xie 2005; Zhou and Wang 2007; D. Li 1995). If L2 learners do not perceive sentences using obligatory 都 as good sentences or sentences with the obligatory 都 missing as bad sentences, they will certainly have difficulties producing these types of sentences correctly, since it is widely believed that production is more difficult than perception. Overall, the performance of English-speaking learners of Chinese in the acceptance of grammatical sentences using 都 can be ranked as follows, starting with best performance and proceeding to worst:

(39) Type 1(OS)>Type 3 (MS)>Type 2 (OO)>Type 4 (MO)

According to (39), English-speaking learners of Chinese performed best on sentences using optional 都 to quantify the subject of the sentences, with next best performance on sentences with mandatory 都 quantifying the subject of the sentence, followed by sentences with optional 都 quantifying the object, and concluding with mandatory 都 quantifying the object.

Subjects' performances can be readily explained by the degree to which English and Chinese differ in terms of whether there is an overt realization of 都 in English and whether the sentence using 都 uses an SVO word order. The Type 1 sentences (optional 都, NP quantified by 都 is the subject) have an overt realization for 都 in English (+), and they use an SVO word order (+). The Type 3 sentences (obligatory 都, NP quantified by 都 is the subject) do not have an overt representation for 都 in English (-), but they use an SVO word order (+). The Type 2 sentences have some sort of representation for 都 in English in the sense that, although 都 does not have an exact equivalent used before the verbal phrase, 'all/both' might be used to modify the object (see the discussion in session 2.4.). The Type 2 sentences do not use an SVO word order (-). The Type 4 sentences do not have an overt representation for 都 (-), nor do they use an SVO word order (-). This can be summarized in Table 2, with "+" indicating having the property and "-" representing a lack of the property.

Table 2: Differences between Chinese sentences using 都 and their English counterparts

Properties	Chinese sentence types	Type 1 (OS)	Type 3 (MS)	Type 2 (OO)	Type 4 (MO)
There is an overt realization of 都 in English		+	-	(+)* ⁷	-
The sentence has a SVO word order		+	+	-	-

From Table 2, we can see that, in terms of the similarity between Chinese sentences and their English counterparts, the Type 1 Chinese sentences are most closely represented in English followed by Type 2 sentences where, despite the lack of an overt realization of 都 in English, the word order still resembles the canonical word order of English. 都 used in Type 3 sentences has some sort of representation sometimes, and the word order of the sentences is totally different from the canonical word order of English. Type 4 sentences are the least likely to be represented in English: there is no overt realization in English and the word order of the sentences is different from canonical English sentences.

6. Conclusions and implications for teaching

Overall, when it comes to sentences using 都, test results show that L2 learners' performance decreases along with the decline of the degree to which the Chinese sentences are represented in English, difficulties in acquiring 都 pertain to various factors such as the obligatoriness of 都, the diverse syntactic roles of the NP related to 都, and the syntactic constraints of 都. Even advanced English-speaking learners of Chinese have difficulties in fully acquiring the correct use of 都.

In order to facilitate the acquisition of 都 by English-speaking learners of Chinese, Chinese instructors should emphasize the characteristics and the syntactic constraints of 都, and try to explain 都 in such a way as to preclude or reduce the negative influence of English and the drawing of incorrect parallels with the use of 'all/both'. This will require some creative thinking on the instructors' parts, because a brief review of the textbooks designed for English-speaking learners of Chinese shows the explanation of 都 to be inadequate. Either the definition of its use is simplistic, drawing false parallels between it and

⁷The parenthesis here indicates that when 都 is used to quantify the object of the sentence in Chinese, it does not have an EXACT representation in English, namely, all/both is used before the verbal phrase; instead, all/both can be used as a pronoun or a quantifier to modify the object. Please refer to the discussion in section 2.4 for details.

'all/both' or the examples do not introduce its usage quantifying an object NP until well after the misunderstanding by students may have begun to fossilize. These omissions put the onus of deducing the extended rules of 都 on the L2 Chinese learners themselves which seems both unfair and ineffectual.

Language instructors are therefore charged with the task of creating exercises that are holistically designed for all different levels of learners. The author offers some guidelines: When first introducing 都 to students, begin with examples in which 都 quantifies the subjects since this is the easiest usage to grasp. Point out early and often that 都 is not the equivalent of 'all/both' in English. Emphasize 1) that 都 should always be used before a verbal phrase and 2) when 都 is used to quantify an NP no matter what the syntactic role the NP assumes, the NP should be placed to the left of 都. Instructors should develop adequate exercises for the students to practice these usage rules.

More of 都's idiosyncrasies should be revealed when students are learning phrases containing 每 such as 每天, 每年, and 每个人. Exercises to reinforce this usage should be broken down into sub-categories according to the syntactic role that the NP quantified by 都 takes. The obligatory appearance of 都 and the word order changes triggered by 都 when it quantifies the object should be emphasized.

7. Limitation of this study and future studies

This article focused on study the influence of English on the acquisition of 都. Consequently, the results only apply to Chinese learners whose first language is English. In order to see if the results apply to all Chinese language learners, and to provide a better understanding of the acquisition of 都 and the transfer effects from other languages, Chinese learners from different native language backgrounds should be similarly tested in the future.

Moreover, this study tested only the perception of the form of the sentences relevant to 都, but did not test subjects' interpretation or production. As one of the reviewers correctly pointed out, it would be revealing to the understanding of the acquisition of 都 should both production data and perception data be cross-checked simultaneously, which has, in fact, been undertaken by the author in another study.

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Appendix: list of test sentences⁸

Instruction:

Speakers of a language develop a “feel” for what is a possible sentence, even in the many cases where they have never been taught any particular rule. For example, in English you may feel that the first sentence below sounds like it is a possible English sentence, while the second one does not.

1. John is likely to win the race. 2. John is probably to win the race.

On the following pages is a list of Chinese sentences. We want you to tell us for each one whether you think it sounds horrible, awkward, okay or perfect for you. A sentence should be judged as ‘perfect’ if you think the sentence sounds perfectly fine; a sentence should be judged as ‘okay’ if you think the sentence is not completely perfect, but is still fairly good; a sentence should be judged as ‘awkward’ if the sentence sounds strange and you doubt you would ever say it; and a sentence should be judged as ‘horrible’ if you think the sentence sounds terrible and you would never say it under any circumstance. If in some cases, you have no clear feeling for whether a sentence is possible or not, please mark *not sure*. Please provide corrections if you judge a sentence as Horrible or Awkward. Please read each sentence carefully before you mark your answer. Make sure you have answered all the questions.

Test items:

Type 1: Optional 都; the NP quantified by 都 is the subject of the sentence (OS):

- (1)我们都喜欢中国菜。 (2)他们都是学生。
(3)他们都说中文。 (4)他们都喝咖啡。

Type 2: Optional 都; the NP quantified by 都 is the object of the sentence (OO):

- (1)这三个菜我都喜欢。 (2)这三个人我都认识。
(3)那两盘菜我都吃了。 (4)那两杯咖啡我都喝了。

Type 3: Obligatory 都; the NP quantified by 都 is the subject of the sentence (MS):

- (1)每个人都喜欢中国菜。 (2)每个人都是学生。
(3)每个人都喝咖啡。 (4)每个人都说中文。

⁸The test items and distracters are randomized in the actual questionnaire.

Type 4: Obligatory 都; the NP quantified by 都 is the object of the sentence (MO):

- (1) 每个菜我都喜欢。 (2) 每个人我都认识。
 (3) 所有的咖啡我都喝了。 (4) 所有的菜我都吃了。

Type 5: Optional 都; 都 is erroneously placed after the VP (A3):

- (1) *我们喜欢都中国菜。 (2) *他们是都学生
 (3) *这三个菜我喜欢都。 (4) *这三个人我认识都。

Type 6: Optional 都; 都 is erroneously placed before the NP it quantifies (B3):

- (1) *都他们说中文。 (2) *都他们喝咖啡。
 (3) *我都喝了那两杯咖啡。 (4) *我都吃了那两盘菜。

Type 7: Obligatory 都; 都 is erroneously placed after the VP (C3):

- (1) *每个人喜欢都中国菜。 (2) *每个人是都学生。
 (3) *每个菜我喜欢都。 (4) *每个人我认识都。

Type 8: Obligatory 都; 都 is erroneously placed before the NP it quantifies (D3):

- (1) *都每个人说中文。 (2) *都每个人喝咖啡。
 (3) *我都喝了所有的咖啡。 (4) *我都吃了所有的菜。

Type 9: SVO sentences derived by omitting the optional 都 used in sentences quantifying the subject of the sentence (OSO):

- (1) 我们喜欢中国菜。 (2) 他们是学生。
 (3) 他们说中文。 (4) 他们喝咖啡。

Type 10: OSV sentences derived by omitting the optional 都 used in sentences quantifying the object of the sentence (OOO):

- (1) 这三个菜我喜欢。 (2) 这三个人我认识。
 (3) 那两杯咖啡我喝了。 (4) 那两盘菜我吃了。

Type 11: Ungrammatical SVO sentences derived by omitting the obligatory 都 used in sentences quantifying the subject of the sentence (MSO):

- (1) *每个人喜欢中国菜。 (2) *每个人是学生。
 (3) *每个人说中文。 (4) *每个人喝咖啡。

Type 12: Ungrammatical OSV sentences derived by omitting the obligatory 都

used in sentences quantifying the object of the sentence (MOO):

- (1) *每个菜我喜欢。 (2) *每个人我认识。
 (3) *所有的菜我吃了。 (4) *所有的咖啡我喝了。

Distracters (16)

- (1)他十点才起床。(2)他六点才回家。(3)他八点才做功课。
 (4)他十二点才睡觉。(5)* 他才十点起床。(6)* 他才六点回家。
 (7)* 他才八点做功课。(8)* 他才十二点睡觉。(9) 他四点就起床了。
 (10) 他三点就回家了。(11) 他五点就做功课了。(12) 他九点就睡觉了。
 (13) *他就四点起床了。(14)* 他就三点回家了。(15)* 他就五点做功课了。
 (16)* 他就九点睡觉了。

Table 1: Descriptive data of Subjects' performance on the twelve sentence types

		Report											
group		OS	OO	MS	MO	A3	B3	C3	D3	OSO	OOO	MSO	MOO
beginners	Mean	3.7500	2.4844	3.3516	2.2031	1.2344	1.3047	1.4375	1.4609	3.5938	2.2266	3.0469	2.2422
	N	32	32	32	32	32	32	32	32	32	32	32	32
	Std. Deviation	.50000	.84705	.69520	.97641	.86121	.68608	.88900	.64166	.43418	.78637	.78657	.79180
intermediate	Mean	3.8295	2.8636	3.5341	2.6364	4.886	1.0455	.5114	1.0795	3.1477	1.7159	2.4659	1.6591
	N	22	22	22	22	22	22	22	22	22	22	22	22
	Std. Deviation	.32170	.82638	.54715	.89219	.52598	.75450	.52029	.78067	.85447	.86360	.84970	.85755
advanced	Mean	3.8000	3.2667	3.5500	2.9667	.5333	.8833	.5000	.9167	3.0500	2.4000	1.7167	2.0000
	N	15	15	15	15	15	15	15	15	15	15	15	15
	Std. Deviation	.27058	.54663	.48366	.64688	.38807	.48058	.40089	.60257	1.22183	.96270	.89576	.87117
native control	Mean	3.9643	3.8750	3.8571	3.7143	.0357	.2321	.0357	.2321	3.5893	3.2143	.6250	.4286
	N	14	14	14	14	14	14	14	14	14	14	14	14
	Std. Deviation	.09078	.33613	.33561	.37796	.13363	.31720	.13363	.30167	.42298	.65675	.49759	.57536
Total	Mean	3.8163	2.9608	3.5211	2.7108	.7078	.9789	.7861	1.0542	3.3765	2.2892	2.2440	1.7380
	N	83	83	83	83	83	83	83	83	83	83	83	83
	Std. Deviation	.37466	.87520	.58981	.97177	.76391	.72014	.83386	.75612	.77536	.94311	1.16542	1.00676