Markedness in Acquisition Sequencing of Dative Wh-question Alternation by Chinese-speaking English Learners

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Abstract—The markedness theory presupposed that the markedness status of PS/PPP necessitates the acquiring preference for the unmarked PPP in relation to its marked counterpart PS (i.e., PPP < PS). The experiment conducted is to identify the acquisitional sequence of PS/PPP in dative wh-question alternation by Chinese-speaking English learners. The 262 subjects chosen by stratified sampling in terms of their natural groups (i.e., universities, majors or grades) have been given the elicitation task composed of a dative wh-question formation. Acquisition data collected reveal categorically that the marked PS predicted to be easier to acquire occurs before its unmarked counterpart PPP. The experimental result, a clear violation of the prediction made by markedness hypothesis (the marked will be easier to acquire before its unmarked counterpart, i.e., [marked] < [+marked]), is thoroughly consistent with the syntactically termed economy principle adopted in this study to account for an otherwise unexplained phenomenon from a markedness perspective. Of prime interest is that during learners attempt either preposition stranding or pied piping, they employ No-Prep. strategy (omitting the preposition at all). Accordingly, the acquisitional sequence in real time is: PS < No-Prep. < PPP. Chi-square test reveals that the difference between the acquisitional sequence and English proficiency level of subjects is significant, so is the difference between the acquisitional sequence and the structure of the stimulus sentences.

Index Terms—markedness theory, preposition stranding, dative Wh-question alternation, economy principle

I. INTRODUCTION

The concept of markedness is concerned with the distinction between what is neutral, natural, or expected (unmarked) and what departs from the neutral (marked) along some specified parameter. Linguistic notions of 'markedness' are usually defined in terms of complexity, relative infrequency of use or departure from something that is more basic, typical or canonical in a language. According to Greenberg (1966), unmarked elements exhibit many of the following characteristics: they are expressed by simpler means, they occur more frequently in the words of the languages, they are easier to learn in first language acquisition, and are less often the 'target' or 'goal' of processes such as language change. More

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technical definitions of 'markedness' can be found in different linguistic traditions.

There has been much interest recently in the relevance of markedness for explaining certain aspects of second language acquisition. The explanatory power of markedness in language acquisition is beginning to be demonstrated in more and more researches. There are currently a number of different definitions of markedness, some intuitive, some formal, some linguistic, and some psychological. However, underlying all of the definitions is the general notion that in the asymmetry relation, some linguistic features are specific, thus marked, in relation to others, which are more basic, correspondingly, unmarked.

Matthews (2000a) defines the term 'marked' as follows:

- 1. Having a feature, or the positive value of a feature, as opposed to lacking it or having the negative value.
- 2. Having a feature or a value of a feature which is not that predicted or expected, by some general principle, e.g., from other features.
- 3. Thence, in general, of any unit, construction, etc. which is in any way a special case, or which is simply rarer

To elaborate, in terms of presence of phonological features, markedness of a phoneme could distinguish it from an otherwise similar phoneme lacking that feature, as English nasal consonants /m/, /n/ and /ŋ/ could be differentiated from oral consonants /b/, /p/, /t/, /d/, /k/ and /g/ by the presence of nasalization.

In terms of grammaticality, a marker indicates the grammatical function of a construction, as English past participle (in contrast to the present) is typically highlighted by the presence of the inflectional ending *-ed*.

In terms of semantic implications, the marked items complement an additional element of meaning. For instance, *bitch* specifies "female" comparing with its semantic equivalent *dog*, identified as a semantically general item with the freedom of occurrence, which does not necessarily specify sex.

In terms of occurrence frequency, the non-natural marked items occur less typically than the basic default alternatives with higher text frequency. As the word order in *Up he rose from the table*. in contrast to the more usual order of *He rose up from the table*.

Having been extended and reshaped over the past century, markedness has been identified as a global

semiotic principle in the analysis of binary oppositions. By evaluating the linguistic structures, it is adopted experimentally to study defaults and preferences in language acquisition.

However, markedness is a somewhat fuzzy notion with respect to its identification, implications and diagnostics. There are few strict criteria to determine which forms are considered (more) marked. Markedness relationships. therefore, sometimes indicate as marked/unmarked. sometimes as more marked/less marked. The two sets are not necessarily interchangeable. The first applies essentially in contexts of neutralization, where a binary distinction neutralizes in favor of one member, termed the unmarked. The second applies among nonbinary distinctions displaying degrees of markedness, where in a given set any two members will bear the relationship to each other of more marked ~ less marked. For instance, markedness criteria establish relative degree of markedness for the three conditional types. On the basis of the verb forms involved, real conditions are unmarked relative to the two unreal types. Of the two marked types, the basic unreal conditions are less marked than the past unreal conditions. Markedness sketched above producing a valid and feasible basis for the present study.

II. MARKEDNESS STATUS OF PREPOSITION STRANDING AND PREPOSITION PIED PIPING

Dative questions in English may take either of the alternative forms as follows:

- (1) (a) For whom did Diane bake a cake?
 - (b) Who/m did Diane bake a cake for?

The structure shown in (1a), in which the preposition is fronted along with the moved wh-pronoun (i.e., the whole PP is moved), is referred to as pied piping in the literature (e.g., Bardovi-Harlig 1987; Mazurkewich 1984a, 1984b, 1985; van Riensdijk 1978), a metaphor familiar from nursery stories: What! You've forgotten how the piedpiper lured all the rats out of the village of Hamelin by playing his pipe? (Radford 2000) The structure shown in (1b), on the other hand, demonstrates the familiar case of preposition stranding in English (i.e., to extract an NP out of a PP, leaving the preposition behind).

Various theoretical accounts could be offered to explain the markednesss of PS/PPP. Four different views of markedness, namely the learnability definition, the implicational definition, the syntactic-termed redundancy of rule, and the more informal definition based on frequency, all converge in identifying preposition stranding as marked in relation to pied piping.

A. The Interpretation of Markedness in Terms of Language Acquisition

French (1985) points out that there are, in fact, at least two ways in which markedness, as defined within Government Binding Theory, can be interpreted in terms of language acquisition. The strong position which French terms the developmental hypothesis, assumes that unmarked structures are acquired before marked structures; in other words, a principle of UG has a direct influence on developmental sequence.

This assumption of a preference for the unmarked on the part of the L2 learner reflects the fact that these researchers add a psychological dimension to the definition of markedness, interpreting marked to mean difficult or unusual, and assuming that a sense of this is in some way build in so that L2 learners will tend to avoid marked forms (White 1987). As noted above, this does not follow directly from a formal definition of markedness. If markedness is defined implicationally, the characterization of what is marked is arrived at by considered the languages of the world; L2 learners cannot automatically be assumed to have such knowledge available to them. If markedness is defined on grounds of learnability, the characterization of what is marked is indeed known to individuals, but this is true of the initial learning situation, not necessarily of subsequent learning.

A weaker position, which French calls the learnability hypothesis, assumes that only in the absence of evidence to the contrary are unmarked options selected. As French (1985: 132) says "Unlike the developmental hypothesis, the learnability view does not necessarily make any assumptions concerning real-time acquisition since it says nothing about when marked forms will be noticed by the child". The importance of this alternative view of markedness is that it may have nothing at all to say about the developmental processed involved in the acquisition of language.

However, when investigating aspects of second language acquisition in terms of markedness, it is well worth being reminded from the outset that to describe some linguistic phenomenon as marked or unmarked is not in itself as explanation of that phenomenon. Such terms, without an independent definition of what they mean, are mere labels for a particular distribution of the data (Hawkins 1987).

B. Distinctive Features of Chinese Wh-question Formation

The subjects sampled in both Bardovi-Harlig's (1987) and White's (1987) studies include Chinese speakers, and Chinese has been identified as the language allowing only the unmarked pied piping.

The fact, nevertheless, is that in Chinese, wh-question is formed without the mechanism of wh-movement. The wh-pronoun stays in situ in its deep structure position, rather than moving to the front of the sentence as it would in English. Thus, in transformation from declarative (2a) to wh-question (3a), what should be done is just to replace wh-pronoun for the constituent being questioned in declarative. Therefore the identification of Chinese in foreign literature is really equivocal.

- (2) (a) Diane给Nicole烤了一个蛋糕。
 - (b) Diane gei Nicole kao le yige dangao.
 - (c) Diane for Nicole bake LE a cake
 - (d) 'Diane baked a cake for Nicole.'
 - (e) 'Diane baked Nicole a cake."
- (3) (a) Diane给谁烤了一个蛋糕?
 - (b)Diane gei shei kao le yige dangao.

- (c) Diane for who/m bake LE a cake
- (d) 'For whom did Diane bake a cake?'
- (e) 'Who/m did Diane bake a cake for?'

Secondly, given the distinction between second language and foreign language acquisition, Chinese learners obviously learn English in a foreign language learning setting. Such being the case, in the acquisition of pied piping/preposition stranding, what is the case would be investigated in this thesis.

III. EXPERIMENT ON ACQUIRING SEQUENCING OF DATIVE WH-QUESTION ALTERNATION

A. The Experimental Subjects

The stratified sampling has been adopted to ensure the data elicited is representative of a substantial proportion of the target learners, thus, appropriate to the experimental task: to investigate the extent to which Chinese-speaking English learners with different proficiency are similar to or distinct from each other. The 262 subjects were chosen according to their natural groups, that is, their universities, majors and grades have been used as the index to identify their English proficiency. Accordingly, the subjects were divided into four experimental groups: the primary (level 1) includes 78 students in Grade 2, No.42 Senior High School, key middle school of Hexi distract, Tianjin. The lowintermediate (level 2) is composed of 59 non-English major sophomores (28 from Department of Civil Engineering and 31 from Department of Chemistry, Tianjin University, Renai College). The intermediate (level 3) consists of 72 English-major students (27 freshmen, 24 sophomores and 21 juniors from Foreign Languages College, Tianjin Normal University. And the advanced (level 4) is made up of 53 English-major graduate students in School of Foreign Languages and Literature, Tianjin University. Besides, the responses elicited of 11 English professors and 7 foreign teachers in School of Foreign Languages and Literature, Tianjin University have been served as the norm.

B. The Experimental Materails

The elicitation task used for this study replicates Mazurkewich's (1984a) study of the acquisition of dative wh-questions. As for the style of PS and PPP, several English-speaking foreign teachers in Tianjin University have been consulted. All of them reveal that the former is more conversational widely used in spoken English while the latter frequently appears in written English. In daily conversation, PPP structure is somewhat priggish or patronizing.

In the first part, an operational test was used to investigate the acquisition of dative questions by eliciting the data in a written form. The subjects were provided with a series of declarative sentences and were asked to change them by questioning the underlined word. In order to avoid the influence and mechanic imitation of the sample sentence, the sample provided contains a direct

object whose questioning does not involve the use of the preposition.

- (4) (a) John saw Mary last night.
 - (b) Who/m did John see last night?

The operational task contains 20 items of which the distribution can be sketched as follows (NP' represents the dative NP in a prepositional phrase):

Type 1: NP' + NP (the dative NP' appears as the first NP of a double-NP complement)

- (5) (a) Diane baked Nicole a cake.
 - (b) Lucy gave Kevin a book.

Type 2: NP + PP [P + NP'] (the alternate form of [NP + NP] in which dative verb optionally permits the dative alternation)

- (6) (a) Diane baked a cake for Nicole.
 - (b) Lucy gave a book to Kevin.

Type 3: NP ++ PP [P + NP'] (++ indicates that preposition phrase complements are obligatorily required by some kind of dative verbs)

- (7) (a) David suggested the trip to John.
 - (b) * David suggested John the trip.
- (8) (a) Paul designed a house for Susan.
 - (b) * Paul designed Susan a house.

Type 4: NP (NP appears in distractor sentences not containing dative structures)

- (9) (a) Peter annoyed Lily yesterday.
 - (b) Sam walked Joan home from school.

Type 1 and type 2 contain five each of to- (give, read, throw, lend, send) and for- dative verbs (bake, choose, buy, make, save), which allow the dative alternation in structures without a preposition and with one. Type 3 includes two to- (suggest, report) and three for- dative verbs (design, capture, create) which allow only the structure [NP + PP]. Five distractors presented in Type 4 list the following verbs: annoy, rescue, take, chase and walk. In sentences Types 1 to Type 3, the subjects and indirect objects are [+animate] whereas the direct objects [-animate] and they are both full noun phrases rather than pronominal ones. The verbs which permit the alternation are typically monosyllabic, while the verbs which do not permit the alternation are typically polysyllabic.

C. Classification of Responses

The responses obtained in this testing were classified into four categories required to best characterize them for analysis. The categories are defined as follows:

Preposition pied piping (PPP) refers to the responses in which the preposition was pied piped along with the whword, as in (10):

- (10) (a) For whom did Diane bake a cake?
 - (b) To whom did Lucy give a book?
 - (c) To whom did David suggested the trip?
 - (d) For whom did Paul designed a house?

Preposition stranding (PS) refers to the responses in which the preposition was stranded at the end, as in (11):

- (11) (a) Whom did Diane bake a cake for?
 - (b) Whom did Lucy give a book to?
 - (c) Whom did David suggested the trip to?

- (d) Whom did Paul designed a house for? No-preposition (No-Prep.) refers to the responses in which the preposition was omitted, as in (12):
 - (12) (a) Whom did Diane bake a cake?
 - (b) Whom did Lucy give a book?
 - (c) Whom did David suggested the trip?
 - (d) Whom did Paul designed a house?

Nonclassifiable refers to the responses which did not fall into any of the above categories. The most common examples of this category (12) occurred in part II are responses in which it is usually the subject that was relativized, as in (13):

(13) (a) Sam walked Joan home from school.

(b) *With whom did Sam walked home from school?

D. Statistical Analysis of Results

A series of x2 analyses have been conducted to interpret the results in terms of the p level. The statistics shows the distribution of responses to dative forms was significantly dissimilar across different levels since the probability associated with the computed chi-square fell below a liberally chosen level, p<.10 illustrated in Table I and Table II respectively. The obvious conclusion to draw is that the subjects prefer to employing the marked PS in relation to its unmarked counterpart, PPP.

TABLE I. RESPONSES DISTRIBUTION IN PERCENTAGES IN TERMS OF PROFICIENCY LEVEL

		Responses Distribution						
		Nonclass if lable	No-Prep.	PS	PPP	Distractor	Total	
Level1	Count	281	1218	1660	54	1077	4290	
	Expected Count	106.3	964.9	1658.5	425.1	1135.2	4290.0	
	% within Language Proficiency Level	6.6%	28.4%	38.7%	1.3%	25.1%	100.0%	
	% within Responses Distribution	78.7%	37.6%	29.8%	3.8%	28.2%	29.8%	
Level2	Count	65	750	1436	125	869	3245	
	Expected Count	80.4	729.8	1254.5	321.6	858.7	3245.0	
	% within Language Proficiency Level	2.0%	23.1%	44.3%	3.9%	26.8%	100.0%	
	% within Responses Distribution	18.2%	23.1%	25.8%	8.8%	22.8%	22.5%	
Level3	Count	5	757	1711	410	1077	3960	
	Expected Count	98.1	890.7	1531.0	392.4	1047.8	3960.0	
	% within Language Proficiency Level	.1%	19.1%	43.2%	10.4%	27.2%	100.0%	
	% within Responses Distribution	1.4%	23.4%	30.7%	28.7%	28.2%	27.5%	
Level4	Count	6	516	764	839	790	2915	
	Expected Count	72.2	655.6	1127.0	288.9	771.3	2915.0	
	% within Language Proficiency Level	.2%	17.7%	26.2%	28.8%	27.1%	100.0%	
	% within Responses Distribution	1.7%	15.9%	13.7%	58.8%	20.7%	20.2%	
	Count	357	3241	5571	1428	3813	14410	
	Expected Count	357.0	3241.0	5571.0	1428.0	3813.0	14410.0	
	% within Language Proficiency Level	2.5%	22.5%	38.7%	9.9%	26.5%	100.0%	
	% within Responses Distribution	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

0 cells (.0%) have expected count less than 5. The minimum expected count is 72.22.

X2 (12, 14410) = 2217.295, p < 0.05

TABLE II. RESPONSES DISTRIBUTION IN PERCENTAGES IN TERMS OF TYPE OF STIMULUS QUESTIONS

		1					
		L					
		Nonclass ifiable	No-Prep.	PS	PPP	Distractor	Total
Type1	Count	77	2916	694	243	0	3930
	Expected Count	97.4	883.9	1519.4	389.5	1039.9	3930.0
	% within Type	2.0%	74.2%	17.7%	6.2%	.0%	100.0%
	% within Responses Distribution	21.6%	90.0%	12.5%	17.0%	.0%	27.3%
Type2	Count	46	199	2970	715	0	3930
	Expected Count	97.4	883.9	1519.4	389.5	1039.9	3930.0
	% within Type	1.2%	5.1%	75.6%	18.2%	.0%	100.0%
	% within Responses Distribution	12.9%	6.1%	53.3%	50.1%	.0%	27.3%
Type3	Count	121	122	1907	470	0	2620
	Expected Count	64.9	589.3	1012.9	259.6	693.3	2620.0
	% within Type	4.6%	4.7%	72.8%	17.9%	.0%	100.0%
	% within Responses Distribution	33.9%	3.8%	34.2%	32.9%	.0%	18.2%
Type4	Count	113	4	0	0	3813	3930
	Expected Count	97.4	883.9	1519.4	389.5	1039.9	3930.0
	% within Type	2.9%	.1%	.0%	.0%	97.0%	100.0%
	% within Responses Distribution	31.7%	.1%	.0%	.0%	100.0%	27.3%
	Count	357	3241	5571	1428	3813	14410
	Expected Count	357.0	3241.0	5571.0	1428.0	3813.0	14410.0
	% within Type	2.5%	22.5%	38.7%	9.9%	26.5%	100.0%
	% within Responses Distribution	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

0 cells (.0%) have expected count less than 5. The minimum expected count is 64.91.

X2(12, 14410) = 21728.295, p < 0.05

Besides, dative wh-questions occur frequently in the form of No-prep. (the responses in which the preposition was omitted), which reveals that the grammatical function of the indirect object pronoun is not differentiated from that of the direct object. No-prep., an intermediate stage in the learning process of dative wh-questions, is more salient in comparison with the production of double prepositions, as in (14):

(14) *For whom did Diane bake a cake for?

This stage is inspired by and consistent with the teachability hypothesis implied by learnability hypothesis, since structures cannot be taught successfully if the learner has not learned to produce structures belonging to the previous stage (Richards 2005).

What deserves to be mentioned the most is that three main rules were acquired following the sequence of: PS < No-prep. < PPP.

Furthermore, the type of dative alternation is another predominant factor in determining a higher percentage of No-prep. in Type 1 (NP + NP). However, the data elicited also implies that this would have been the case only with the subjects labeled as Level 1 (primary) and Level 2 (low-intermediate), which could be substantiated by the fact that -ed copy (i.e., *Who/m did Diane baked a cake?) only appears in the responses of such two Levels.

IV. HYPOTHESIZED PROCESSING MECHANISM IN DATIVE WH-QUESTION ALTERNATION ACQUISITION

In explanation to the result described above, the hypothesized processing mechanism which necessitates two prerequisites would be presented in (15) and (16), where the stimulus sentences labeled Type 1 and Type 2 are analyzed discretely.

Of two prerequisites, the first is that declaratives are acquired before Yea-No questions, which in turn, before wh-questions, since in declaratives, the word order is SVO which is universal, and thus easy to acquire. Whereas Yea-No question concerns auxiliary inversion and auxiliary movement (preposing) and wh-question involves wh-movement.

The second is concerned with the markedness of who and whom. The property that wh-pronouns who and whom are identified unmarked and marked respectively could be substantiated by the fact that in a sentence, who can function not only as subject but also as object whereas whom only as object, thus, which is less versatile and productive. Besides, as far as Case is concerned, who is nominative while whom accusative. Then, it could be inferred that unmarked who would be acquired before its marked counterpart whom. This acquisitional sequence, who < whom, is also reflected in the syllabus of the textbook for junior high school students (i.e., after the successful command of who, whom is inputted

recognized as the correct object form).

The psycholinguistic processing might run as follows, in which devices acquired at one stage are a necessary building block for the following stage

- (15) (a) Diane baked Nicole a cake. (Declarative: Type
- (b) Did Diane bake Nicole a cake? (Yes-No question transformation)
- (c) Did Diane bake who a cake? (Paratagmatic Operating)
 - (d) Who did Diane bake a cake? (Wh-movement)
- (e) Did Diane bake whom a cake? (Positive Evidence Addition)
- (f) Whom did Diane bake a cake? (Inferential Deductive)
 - (g) Who/m did Diane bake a cake? (Generalization)
- (h) Whom did Diane bake a cake for? (Positive Evidence Addition)
- (i) For whom did Diane bake a cake for? (Double Prepositions)
- (j) For whom did Diane bake a cake? (Preposition Pied Piping)
- (16) (a) Diane baked a cake for Nicole. (Declarative: Type 2)
- (b) Did Diane bake a cake for Nicole? (Yes-No question)
- (c) Did Diane bake a cake for who? (Paradigmatic Operating)
- (d) Who did Diane bake a cake for? (Economy Principle)
- (e) Did Diane bake a cake for whom? (Positive Evidence Addition)
- (f) Whom did Diane bake a cake for?12 (Inferential Deductive)
- (g) For whom did Diane bake a cake for? (Double Prepositions)
- (h) For whom did Diane bake a cake? (Preposition Pied Piping)

The acquisition of the dative alternation runs as being illustrated in Fig. 1:

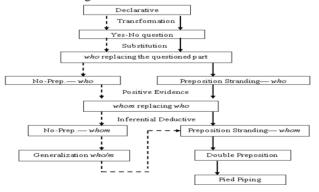


Figure 1. Processing acquiring mechanism hypothesis in dative Whquestion

According to Andersen (1984), L2 learning in its initial stages is guided by an operating principle familiar from the psycholinguistic literature on L1 acquisition and

having recently been raised again in connection with L2 acquisition. It is the 1:1 (One-to-One) Principle: one form - one meaning. Language learners assume, until there is positive evidence to the contrary, that each surface correspond single underlying structures to a representation. Of course, the dative alternation, where two distinct surface structures correspond to a single underlying representation, violates this principle. Learners, however, initially assume that the surface difference does indeed correspond to some underlying difference (17) and (18), which explains why the type of item plays a role in data elicitation.

- (17) Type1:
 - (a) Diane baked Nicole a cake. (Surface Structure)
- (b) Diane baked who a cake. (Underlying Structure)
 - (18) Type2:
- (a) Diane baked a cake for Nicole. (Surface Structure)
- (b) Diane baked a cake for whom. (Underlying Structure)

So far the account is quite plausible in terms of what is known about the L2 acquisition of dative wh-questions.

V. CONCLUSION

It seems that there has been a shift towards the acceptance of a processing perspective within the field of second language leaning, and that if such a perspective gathers pace, it will have a beneficial influence on the way research concerns and pedagogic practice come together more closely (Skehan 1998).

In Chinese traditional classroom, general teaching steps are as follows on the belief that practice makes perfect:

First, some aspects of grammar or sentence formation are analyzed systematically and deductively, which used to be considered a basic teaching skill and essential for the successful functioning of classroom.

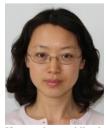
Secondly, based on guided repetition or practice, the learners create utterances consisting of stretches of speech by drilling patterns which are varied to a greater or less extent through lexical substitutions. The typical instruction is "Substitute another construction for the part of the sentence that is italicized (underlined)". However, drills are less commonly used in communicative methodologies since it is argued that they practice pseudo-communication and do not involve meaningful interaction (Richards 2005).

Chinese-speaking English learners tend to adopt redundant No-prep. strategy initially before experiencing dichotomy decision between PS and PPP. It is suggested that the language items had better been inputted in the form of routines, which inspires researchers with great interest in finding pedagogic approaches to facilitate or accelerate the learning processing in the mechanic operation of transformation of the dative alternation structure.

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