The Use of Preferred Argument Structure by Chinese and American Monolinguals in Oral Narratives

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ABSTRACT

This article presents the use of preferred argument structure by 12 Chinese and 12 American monolinguals in the oral narrative task. Obvious unique linguistic features employed by each group have been figured out. For example, Chinese subjects used more transitive clauses; Chinese would put more lexical/ new referents on the object position. The distinct performance of these two groups indicates there would be potential native language transfer effect in their production of preferred argument structure in the second language.

Keywords: *preferred arguemnt structure, Chinese monolinguals, English monolinguals*

I. INTRODUCTION

This study contributes to the improvement of the Preferred Argument Structure (PAS) theory [1], [2], [3] by providing a concrete distribution of referents and information in both Chinese and English narrative data.

The frog story narratives (told by 12 Chinese monolinguals, and 12 English monolinguals) were analyzed comprehensively according to the constraints of PAS. The dynamics of information flow in discourse by the Chinese and English group may explain why Chinese students would not achieve native-like proficiency despite of their painstaking effort.

II. PREFERRED ARGUMENT STRUCTURE

A. Preferred argument structure: the form-function interface

The organization of discourse can be described as the interaction between form and function, or rather between grammar and discourse. This interaction was further generalized as "Preferred Argument Structure" (PAS) by Du Bois [1], [2], which has been found in narratives in Sacapultec Maya [1], [2], Spanish and French [4], Japanese [5], Mandarin [6] and many other languages.

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Under this theory, each clause is a unit of analysis. Three arguments refer to the agent argument of an intransitive clause (S), the most agent-like nominal of a transitive clause (A), and the object of a transitive clause (O), though it is not necessary for the A role to be agentive and the O role to be patientive. The actual presentation of these three arguments is confined by 4 limits (grammar and discourse) as shown in "Table I".

The first grammatical limit is that each clause contains no more than one full NP (the 'One Lexical Argument Constraint'). The second claims that the lexical argument avoids to appear in the A role but at the roles of S and O (the 'Non-lexical A Constraint'). The corresponding pragmatic tendency is that each clause carries no more than one piece of new information (the 'One New Argument Constraint'). The final pragmatic requirement is that new information is introduced into discourse through the non-A role (the 'Given A Constraint').

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TABLE I. PAS CONSTRAINTS [3:34]

	Grammar	***Pragmatics***
Quantity	One Lexical Argument Constraint: Avoid more than one lexical core argument	One New Argument Constraint: Avoid more than one new core argument
Role	Non-lexical A Constraint: Avoid lexical A's	Given A Constraint: Avoid new A's

B. PAS in crosslinguistic study

In a picture-based spoken narrative study, Hickmann & Hendriks [7] investigated subjects from four ages (preschoolers, seven-year-olds, ten-year-olds, and adults) speaking four languages: English, German, French and Mandarin. They found that Chinese used null elements most frequently, followed by German, English and French; pronominal were significantly more frequent than nominals in French and Chinese; in French, English and Chinese, the preverbal position was more often occupied by pronominal than lexical NPs and the reverse was true in the postverbal position, which conformed to the PAS constraints. Kumpf [8] found out non-native English speakers also abided by the PAS constraints but they produced more full nouns than native speakers did.

The above findings highlight the fact that the mapping between form and function is the product of universal principles and language-specific properties. Therefore, bilinguals and L2 learners may exhibit idiosyncratic PAS configurations under the impact of two linguistic systems. Through comparison and contrast between Chinese and English native speakers' performance on PAS, this study aims to figure out whether their performance conform to each other; if not, we will discuss what language transfer effect would be exerted on English learners in China, especially in narrative tasks.

III. METHODS

A. Participants

Two groups of speakers involved in this study, namely 12 Chinese and 12 American monolinguals. As to the Chinese participants, they were undergraduates from a university in Beijing, China, and their ages ranged from 18 to 22 years when the data were collected. These subjects were born and raised up in China. They began to learn English after puberty and had no contact with English speakers. The American counterparts were 12 native English speakers who were studying in a university in Georgia state, and their mean age was 20.7 when their data were collected.

B. Language elicitation and transcription

Each participant was shown the picture book Frog, where are you? page by page from the beginning to the end. Once all the pictures were shown, the researcher returned to the first page and asked each participant to tell a story. In an attempt to minimize interviewer control over participant narrations, only minimal instructions, such as "this is a story about a boy and a dog," or verbal prompting, such as "what's next" or "what about the boy?" were given. Each oral narrative was audio-recorded, then transcribed and coded according to the conventions of the Child Language Data Exchange System (CHILDES). The recorded narrative texts were transcribed verbatim in clauses. A native speaker of English or Chinese first transcribed the recording, then a Chinese-English bilingual speaker reviewed all the audiotaped samples for correspondence to the transcript. Word-by-word agreement was determined to be 100%.

C. Coding scheme

The basic analysis unit for PAS is clause. Thus the frog story was first separated into clauses, with each clause containing one overt verb. The core arguments of the verb was further coded for grammatical roles (A, O, and S), referential forms (lexical forms, and non-lexical form including null and pronominal forms), information status (given, accessible and new information). The specific guideline for grammatical roles and information status is listed below.

- Grammatical Roles. The single arguments of intransitive verbs were coded as the S role, including the NPs in the preverbal position in existential. The most agent-like arguments of transitive verbs were denoted as A, and objects as O. The NPs after the linking verbs in the three constructions were classified as members of the O category, "because there itself is not a discourse referent: it cannot be considered as an identifiable character or object" [9:680]. Oblique NPs are introduced by prepositions, and they typically are Non-Tracking NPs, and will tend to be Non-Identifiable and non-Given [10:70]. In the present study, we only recorded two pieces of information about oblique: lexical form and information status.
- Information status. A new referent refers to the one that has never been brought up in the prior context, thus it does not presuppose mutual knowledge and can be expressed as English indefinite nominal (a dog). A given referent is

the entity previously mentioned, which can be expressed as English definite nominals (the dog), pronominal (it), and null elements (e.g. He climbed over the log and φ took a look).

- Accessible information is intermediate between new and given information and it comes from the expectations associated with a schema or results from deactivation from an earlier state. It was classified as accessible (a) "if it was part of a previously evoked, entity-based frame although previously unmentioned; or (b) if it had been mentioned previously, but more than 20 intonation units previously" [2:816]. Taking (a) for example, even though the head or leg of the little dog has not been mentioned before, they were still accessible because they were the body parts of the owner and the previous introduction of the owner had evoked a frame which included the body parts as easily associable elements [9].

IV. RESULTS

A. *The one lexical argument constraint*

According to the first constraint, we would expect that each clause contains no more than one lexical argument. The distribution of clauses with zero, one and two lexical arguments by two monolingual groups is shown in "Table II" and "Fig. 1". As seen in the table and figure, clauses with zero or one lexical argument were the most common structures in both groups. In contrast, clauses with two lexical arguments displayed as a distinct minority.

TABLE II. FREQUENCY OF CLAUSES WITH ZERO, ONE AND TWO LEXICAL ARGUMENTS

Lexical Argument	Chinese		English	
	n	%	n	%
0	273	33.66	311	40.08
1	444	54.75	402	51.80
2	94	11.59	63	8.12
Total	811	100	776	100

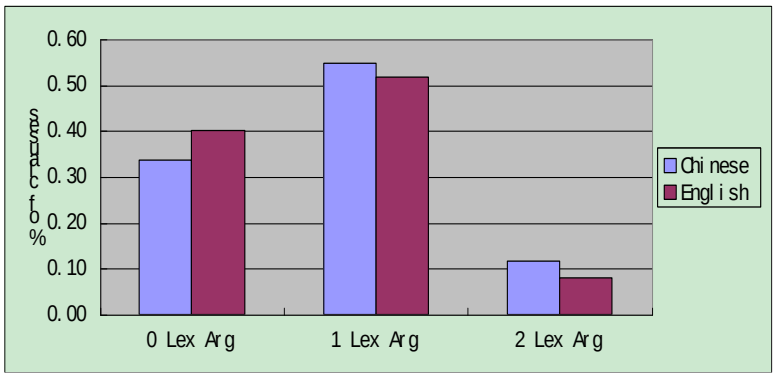

Fig. 1. Distribution of clauses with zero, one, and two lexical arguments.

A chi-square test has been conducted to determine whether there was a correlation between group of subjects and the lexical argument configuration. The obtained chi-square was 9.91, with df = 2, P < .05, which indicates the correlation existed. As the figure indicates, Chinese dispreferred clauses with zero lexical argument (negative residual of -1.47), whereas they preferred clauses containing two lexical argument (positive residual of 1.54) and one lexical argument (positive residual of .56).

Even though the results appeared to confirm the One Lexical Argument Constraint, we have to verify whether the low frequency of two arguments was caused by the rarity of transitive clauses, since only transitive clauses can contain two lexical arguments at the same time. Consequently, we separated transitive clauses from intransitive ones and dug into more details on the distribution of lexical arguments across transitivity. "Table III" lists the cross-distribution of transitivity and frequency of lexical arguments by two monolingual groups.

TABLE III. TRANSITIVITY AND FREQUENCY OF LEXICAL ARGUMENTS

	Chinese				English			
	Transitive		Intransitive		Transitive		Intransitive	
Lexical Argument	n	%	n	%	n	%	n	%
0	104	26.26	169	40.72	61	24.30	250	47.62
1	198	50.0	246	59.28	127	50.60	275	52.38
2	94	23.74	0	0	63	25.10	0	0
Total	**396**	100	**415**	100	251	100	525	100

As seen in "Table III", comparatively speaking, Chinese monolinguals produced a much higher rate of transitive clauses (around 49%). Therefore, they showed a stronger preference for clauses with two arguments than the English monolingual peers did. The table also indicates when only transitive clauses were considered, clauses with two lexical arguments no longer constituted a salient minority (23.74% and 25.10% respectively). Nonetheless, the overall pattern still conformed to the constraint. As to the intransitive clauses, the ratio between clauses with zero and one lexical argument for Chinese monolinguals was much lower than 1 (40.72% to 59.28%) compared with that of our English monolinguals (47.62% to 52.38%) and Du Bois' data (51.9% to 48.1%), which actually was the loci of different zero-argument preference.

Therefore, we can draw a conclusion here about the one lexical argument constraint that it works out for both monolingual groups when we combined transitive and intransitive clauses together into our analysis.

B. The one new argument constraint

This constraint proposes that there is no more than one argument presenting new information in each clause. "Table IV" shows the distribution of clauses with zero, one, and two new arguments by two monolingual groups. No chi-square test has been conducted here, because less than 80% of the expected frequencies were larger than 5. However, certain differences could still be discovered based on "Fig. 2".

Firstly, there is no doubt that the majority of clauses contained zero and one new argument regardless of group, with the former type predominating. Secondly, we can see the distribution of new argument assignment was identical to that of lexical argument. For instance, compared with English monolinguals, Chinese monolinguals produced less clauses with zero new argument but more clauses with one new argument.

TABLE IV. FREQUENCY OF NEW ARGUMENTS ACROSS CLAUSES

New Argument	Chinese		English	
	n	%	n	%
0	647	79.78	688	88.66
1	162	19.98	85	10.95
2	2	.25	3	.39
Total	811	100	776	100

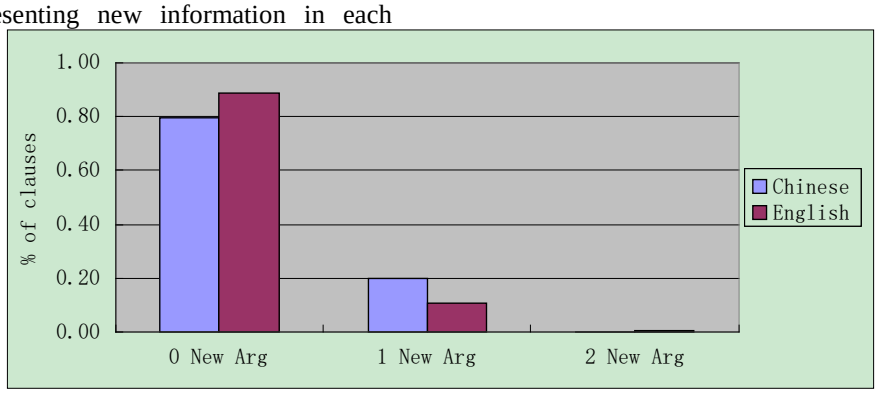

Fig. 2. Distribution of clauses with zero, one, and two new arguments.

Similarly, the distribution of new arguments across the grammatical roles was given according to transitivity shown in "Table V". As we can see from the table, the two groups' performance in transitive clauses was comparable. In contrast, in intransitive clauses, Chinese produced three times of one-new-argument as English monolinguals did, which is predictable since Chinese produced higher proportions of clauses with one lexical argument.

TABLE V. THE PERCENTAGES OF NEW ARGUMENTS IN TRANSITIVE AND INTRANSITIVE CLAUSES

	Chinese				English			
	Vt		Vi		Vt		Vi	
	n	%	n	%	n	%	n	%
0 N	319	77.6	328	81.6	195	77.7	493	93.9
1 N	88	21.4	74	**18.4**	53	21.1	32	**6.1**
2 N	4	1	0	0	3	1.2	0	0
Total	411	100	402	100	251	100	525	100

The distribution of new arguments across transitive and intransitive clauses from two monolingual groups was in line with what Du Bois found in Sacapultec. That is, no matter in transitive or intransitive clauses, clauses with zero new arguments were predominant. Nonetheless, our finding for Chinese transitive clauses contradicted with that of Lin [11], in which there were higher portion of clauses with one new argument. In sum, unlike the one lexical argument constraint, our data confirmed the one new argument constraint regardless of transitivity.

Overall, the two quantity constraints, namely the one lexical argument constraint and the one new argument constraint, were supported by the data from two monolingual groups except for certain subtle between-group distinctions. Moreover, the similar patterns shown in the two constraints by two groups indicate the correlation between lexical and new mentions.

C. The non-lexical A constraint

The non-lexical A constraint claims that lexical arguments avoid to occur at the A position. "Table VI" shows the distribution of lexical referents across the grammatical roles.

TABLE VI. DISTRIBUTION OF LEXICAL ARGUMENTS ACROSS GRAMMATICAL ROLES

Grammatical Role	Chinese		English	
	n	%	n	%
A	134	21.20	86	16.29
S	193	30.54	259	49.05
O	305	48.26	183	34.66
Total	632	100	528	100

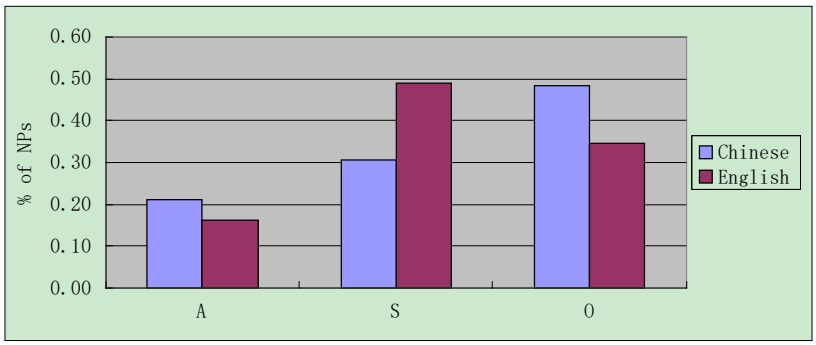

Fig. 3. Distribution of lexical arguments across grammatical roles.

As seen in the "Fig. 3", across the two monolingual groups, lexical referents occurred most frequently in the S and O roles, with small proportion of them appearing in the A role, which has supported the 'Non-lexical A Constraint'. However, the two groups performed fairly differently from each other. Thus, a chi-square test was conducted to examine the correlation between the referential forms in the A, S, and O roles and two monolingual groups. The obtained chi-square was 41.62, with df = 2, P < .01, which indicates two groups applied diverse methods to organize lexical arguments across core grammatical roles. To be more specific, Chinese have shown stronger preference for lexical arguments to occur at the A (positive residual of 1.29) and O (positive residual of 2.40) roles but not for the S role (negative residual of -3.39).

Three types of referential forms, namely zero argument, pronominal, and lexical argument, were further analyzed to demonstrate their distribution within each grammatical role as in "Table VII".

TABLE VII. THE DISTRIBUTION OF REFERENTIAL FORMS WITHIN EACH GRAMMATICAL ROLE

	Zero Argument				Pronominal				Lexical Argument			
	Chinese		English		Chinese		English		Chinese		English	
	n	%	n	%	n	%	n	%	n	%	n	%
A	173	43.7	79	31.4	89	**22.5**	86	34.3	134	33.8	86	34.3
S	103	28.8	117	23.0	62	**17.3**	133	26.1	193	53.9	259	50.9
O	14	4.1	1	.5	25	**7.3**	33	15.2	305	88.6	183	84.3
Total	290	26.4	197	18.3	176	16.0	252	25.2	632	57.6	528	56.5

The above "Table VII" indicates that across the three grammatical roles, compared to English monolinguals, Chinese peers used comparatively more zero argument but fewer pronouns. That is to say, Chinese subjects subconsciously avoided using pronouns regardless of grammatical roles.

To sum up, the non-lexical A constraint is held by our monolingual data. The more interesting findings in this part were that first, Chinese tended to use far fewer pronouns; second, Chinese distributed lexical referents differently from English monolinguals did, especially with the O and Oblique roles. In other words, the O position plays an important role in introducing new information in Chinese, while the counterpart for English is the oblique, which can be verified in the following section.

D. The given A constraint

The given A constraint states that new information avoids to occur at the A position. "Table VIII" displays the distribution of new information across the grammatical roles by two monolingual groups. Apparently, much higher proportion of new information occurred at the O position; a much smaller proportion of new information took up the S position; and only a few new mentions could be found at the A role. Moreover, no correlation was found.

TABLE VIII. DISTRIBUTION OF NEW INFORMATION ACROSS GRAMMATICAL ROLES

Grammatical	Chinese		English	
Role	n	%	n	%
A	8	4.82	4	4.40
S	33	19.88	18	19.78
O	125	75.30	69	75.82
Total	166	100	91	100

As aforementioned, the information status contains three categories: new, given and accessible. Therefore, further analysis was given to demonstrate the distribution of three information status within each grammatical role. A series of data in "Table VIII" were used to show the proportions of different information status in each grammatical role by two groups. The distributional similarity between A and S roles suggests the A/S alignment under this constraint. More importantly, new arguments favored the O role in Chinese more saliently.

In short, the two role constraints work well for our monolingual data as well. The noteworthy points were that, first, Chinese placed more lexical referents at the A and O roles, and put more new information on the O role. In contrast, English monolinguals tended to accommodate lexical referents on the S and Oblique roles, and let the Oblique host more new information; second, the approximately identical hierarchies for the frequency of lexical and new arguments further indicated the strong correlation between them.

V. DISCUSSION

Our data from two groups have supported Du Bois' four constraints. Nonetheless, distinct configurations have represented within each constraint, which further indicated the existence of potential native language effect on second language learners. In this section, we will summarize the performance of these two groups together within each constraint, analyze similarities and differences, and provide tentative explanations.

As to the one lexical argument constraint, Chinese monolinguals have shown the disfavor of clauses with zero lexical argument construction, which is actually the co-produce of the story, properties of Chinese pronouns and genre. First, in the frog story, there are only two main characters involved throughout the story, namely, a little boy and a dog; and their activities are interacted from time to time. Second, in Chinese, their third personal pronouns, 他 (he and him) and 它 (it) have the same pronunciation. Third, the identical pronunciation would not be a problem in written discourse since they are represented by different characters. However, it would be problematic in spoken discourse because the listener has to figure out the object the speaker is referring to. Correspondingly, the Chinese subjects would be reluctant to use pronouns but

resort to full NPs with the aim of avoiding confusion, especially in intransitive clauses without any context information. Thus, they showed a much higher ratio (1.5:1) between clauses with one and zero argument in intransitives compared to that of English monolinguals (1:1). Our finding is in line with that of Tao and Thompson [6] in Chinese. They also found around 60% intransitives were coded with one lexical argument.

Moreover, compared with English monolingual peers, Chinese also showed a stronger preference for clauses with two lexical arguments, which is the output of Chinese peculiar sentence structures. Chinese distinct serial verb construction has changed English Obliques into Chinese Objects, leading to more production of transitive clauses in Chinese data. Correspondingly, Chinese produced more clauses with two lexical arguments. However, the above lexical argument distribution pattern displayed by our Chinese monolinguals is not only similar to that of previous study in Chinese narratives due to different coding schemes probably [11].

In terms of the arrangement of new argument, clauses with zero new argument are predominant. Among them, English data contained 88.66 percent of clauses with zero new argument, while Chinese only 79.78 percent. The percent of clauses with one new argument has exhibited the opposite direction. As a matter of fact, the difference is not obvious. In sum, the overall distribution of lexical arguments across grammatical roles has shown that the two monolingual groups performed quite differently. To be more specific, Chinese produced more lexical argument at the A and O role while much less lexical mentions at the S role.

The comparatively more production of lexical forms by Chinese monolinguals at the A role may be caused by two facts. First of all, Chinese applied a much higher rate of transitive clauses compared to that of English leading to more human referents being produced at the A rather than S role. Second, as described earlier, to avoid confusion, human referents were more likely to be represented as full NPs rather than pronouns.

Regarding to the potential language effect, across the four constraints and the human-ness feature, Chinese subjects were different from English subjects in the following ways. Firstly, Chinese applied a much higher rate of transitive clauses with the result of more human referents occurring at the A role rather than at the S role. Secondly, Chinese were intended to put non-human referents at the O role, therefore, more lexical/new referents occurred at that position. Whereas the corresponding position for English was the Oblique role.

In sum, this study provides us with ample evidence for the existence of potential language transfer effect. The language transfer effect from Chinese has represented as that Chinese English learners applied more transitive clauses and hosted more human referents at the A role. Meanwhile, they may accommodate more non-human referents at the O role than at the S role. The influence from English is that learners would not avoid using pronouns.

VI. CONCLUSION

This study has shown that both Chinese and English monolinguals conformed to the PAS constraints in the oral narrative task. Actually, their performance has exhibited apparent linguistic differences, which may result in language transfer effect in their production of English or Chinese. Further more sophisticated statistical analysis is needed in order to verify the loci where between-group differences exist. Similar research is also needed to examine the generalizability of the findings in the present study. We are hoping this study could shed some light on our understanding about ultimate attainment on the form-function interface.

References

[1] Du Bois, J. W. (1985). Competing motivations. *Iconicity in syntax*, 343-365.

[2] Du Bois, J. W. (1987). The discourse basis of ergativity. *Language*, 805-855.

[3] Du Bois, J. W., Kumpf, L. E., & Ashby, W. J. (2003). *Preferred argument structure: grammar as architecture for function* (Vol. 14): John Benjamins Publishing.

[4] Ashby, W. J., & Bentivoglio, P. (1993). Preferred argument structure in spoken French and Spanish. *Language variation and change, 5*(01), 61-76.

[5] Iwasaki, S. (1985). *The'Given A Constraint'and the Japanese particle ga.* Paper presented at the Proceedings of the First Annual Pacific Linguistics Conference, ed. by Scott DeLancey and Russell S. Tomlin.

[6] Tao, H. (1991). Functional units and organizing principles of Mandarin oral discourse. *ms, UCSB*.

[7] Hickmann, M., & Hendriks, H. (1999). Cohesion and anaphora in children's narratives: A comparison of English, French, German, and Mandarin Chinese. *Journal of child language, 26*(02), 419-452.

[8] Kumpf, L. E. (1992). Preferred argument in second language discourse: A preliminary study. *Studies in language, 16*(2), 369-403.

[9] Kumagai, Y. (2006). Information management in intransitive subjects: Some implications for the Preferred Argument Structure theory. *Journal of Pragmatics, 38*(5), 670-694.

[10] Thompson, S. A. (1997). Discourse motivations for the core-oblique distinction as a language universal. *Directions in functional linguistics*, 59-82.

[11] Lin, W.-h. (2009). Preferred argument structure in Chinese: A comparison among conversations, narratives and written texts. *Volume 2/edited by Yun Xiao. Published by: Bryant University Smithfield, Rhode Island USA, 2*, 341.