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TOPIC CONTINUITY IN WRITTEN MANDARIN DISCOURSE

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1. INTRODUCTION

Givón in his article "Typology and Functional Domain" argues that: "functional domains in syntax are most commonly clines, upon which a number of more or less distinct points may be plotted along a functional continuum" (1981:164). One functional domain which fits this description is that topic continuity/discontinuity. Topic continuity/discontinuity concerns primarily how a speaker, in an on-going discourse, produces connected and coherent language which is relevant to the subject under concern, and what kinds of anaphoric construction the speaker uses in order to help his listener in identifying the topic/referent in the discourse.

The topic continuity model proposed by Givón (1981, 1983) considers primarily two factors: a) the grammatical devices of reference used by the speakers to code various topics in the discourse, and b) the exact position of those topics in the discourse, in terms of the amount of time elapsed between two successive mentions of the same topic/referent, and the potentiality of interference from other referents on the discourse immediately preceding the referent under consideration.

The fundamental assumption of this model is: the more continuous a topic is, the less coding material the hearer requires to identify the topic, and consequently the less elaboration the speaker needs to make. According to Givón, topic continuity in discourse can be measured by the following three parameters (Givón, 1983:13):

a. Referential Distance (RD): The distance between the present appearance of a referent and its last appearance in the preceding discourse -- marked by whatever grammatical means, including ∅ anaphora. This measurement is expressed in terms of number of clauses.

b. Persistence (PS): This is a reflection of the topic's importance in the discourse and thus a measure of the speaker's topical intent. That is, more important discourse topics appear more frequently in the register. They have a higher probability of persisting longer in the register after a relevant measuring point. This measurement is also expressed in terms of number of clauses.

c. Potential Interference (PI): This is an ambiguity measure. The number of other referents in the directly preceding discourse environment -- most

commonly 3 clauses to the left -- that are semantically compatible with the predicate of the referent under consideration. This is expressed in terms of number of nominal referents found.

Many cross-linguistic, text-based quantified studies have demonstrated that various topic-marking grammatical devices are extremely sensitive to these three measures. They provide a hierarchy of grammatical devices along a scale of topic continuity that according to Givón, is highly replicable cross-linguistically. A typical ranking is (Givón, 1983:331):

Most continuous/accessible (least surprising)
↓ zero anaphora
↓ unstressed/clitic pronouns
↓ stressed/independent pronouns
↓ unmodified definite NP's
↓ restrictively modified definite NP's
↓ referential indefinite NP's
least continuous/accessible (most surprising)

The iconicity interpretation underlying this scale is that more continuous, predictable, non-disruptive topics/referents will be marked by less marking material; while less continuous, unpredictable/ surprising, or disruptive topics/referents will be marked by more marking material (Givón, 1983:18).

Presumably, the speaker would use the structures at the top of the list when the continuity and identification gaps would be small and easy for the hearer to cross. For example, zero anaphora (least marking material) are used to mark the most continuous, non-disruptive topics, and therefore they generally have the minimal RD value of 1. On the other hand, definite NP's (more marking material) are much less often preferred to reinstate referents than are zero anaphora in the minimal distance (1 or 2 clauses).

The present study was undertaken to determine if the continuity hierarchy proposed by Givón is verifiable in Mandarin Chinese discourse and if the cline of points along a continuum of "continuity" would be substantiated cross-linguistically.

2. DATA AND METHODOLOGY

The Mandarin Chinese discourse studied here was taken from a short story in a popular Chinese literature magazine. It was chosen because of its common language and narrative style, which closely resemble spoken Mandarin. Eleven pages containing a total of 1037 main and subordinate clauses were analyzed.

Three of the standard measurements provided by Givón and described above were investigated: Referential Distance (RD), Persistence (PS), and Potential Interference (PI). They are measured in terms of clauses as Givón (1983) proposes. RD assessed the distance from the last mention of a referent to its current mention. The minimal value assigned is 1, in which case the referent last occurs in the immediately preceding clause, and the highest value is arbitrarily set at 20. PS measures the number of successive clauses in which a token is referred to. The minimal value here is ∅, indicating a construction that does not persist. There is no maximum value assigned for PS, but one point is given for each successive clause. In measuring PI, we scan the preceding 3 clauses before the referent under concern, "looking for referents that are semantically just as compatible with the predicate of the clause under consideration (i.e. in terms of animacy, humanity, concreteness, agentivity, etc.)" (Givón, 1983:333). A 1 is assigned to those tokens appearing in the relevant distance in which there was only one logically possible referent for the token. A 2 is assigned if there are two or more logically possible referents for the token. A 3 is assigned if there are no likely referents in the relevant distance (e.g. indefinite NP's). Presumably, structures at the top of Givón's hierarchy should have smaller RD and PI values, and larger PS values than structures at the bottom of the hierarchy.

These three measures were taken for every token of each of eight topic-marking structures studied in the Mandarin text and each average measure was calculated. In addition, some other factors such as humanness and case roles, that interact with the topic continuity, have also been taken into consideration. Finally, the Standard Deviations were calculated for RD scores of each of the eight categories in order to permit a precise interpretation of scores within a category.

3. TOPIC-MARKING CONSTRUCTIONS IN MANDARIN CHINESE

The syntactic devices studied include some of those given in Givón's hierarchy which are most relevant to the topic-marking constructions in Mandarin Chinese, i.e. zero anaphora and independent pronouns. Demonstrative pronouns were added to the list. In addition, the domain of full NP's was expanded into five sub-categories: demonstrative+NP's, Names, definite NP's, possessive pronoun+NP's, and indefinite NP's. The structures studied can be illustrated as follows:

1 Zero Anaphora (Ø ANA):

Shūanzi tīng le, Ø zhǔan shēn jiù zǒu.
(Name) hear (asp) turn body then leave
As soon as Shuanzi heard it, he left.

2 Independent Pronouns (I.P.):

Tā bù xiǎng jiàyù shúi.
she not want control who
She does not want to control anyone.

3 Demonstrative Pronouns (D.P.):

Tā yào dāndú qù běifāng. Zhè shǐ dàjiā hěn bùān.
he want alone go north this make all very upset
He wanted to go the North alone. This made everyone upset.

4 Demonstrative+NP's (D+N):

Zhège nǔrén bù xúncháng.
this woman not usual
This woman is unusual.

5 Names (NAME):

Yángqīng zhàn le qǐlái.
(Name) stand (asp) up
Yangqing stood up.

6 Definite NP's (DEF):

Lǎoshī ná yìbǎ hēi sǎn.
teacher take a black umbrella
The teacher took a black umbrella.

7 Possessive Pronoun+NP's (POS+N):

hòulái tā zhàngfū húi le cūn.
later her husband return (asp) village
Later, her husband returned to the village.

8 Indefinite NP's (INDEF):

Yángqīng zài gē mài.
(Name) (prog) cut wheat
Yangqing was reaping wheat.

Note that Mandarin Chinese does not have articles to code definite or indefinite NP's. In the present study,

the definiteness is distinguished from indefiniteness according to the following criteria: 1) Unique entities such as "the sun," "the Yangtze River," etc.; 2) Givenness, i.e. NP's derive their definiteness from immediate context; 3) Frame evocation, e.g. "Rooms have doors, walls, corners, and roofs. People have arms, legs, hands, and feet." The mentions of "door/s," "hand/s," "arm/s" etc. presuppose definiteness. NP's that are not definite are considered to be indefinite. Sometimes, however, Mandarin uses word order to code definite or indefinite objects, with or without the object marker (OM). For example,

9a) Tā dǎsùi le huāpíng. (SVO)
he break (asp) vase
He broke a vase.

b) tā bǎ huāpíng dǎsùi le. (SOV)
he (OM) vase break (asp)
He broke the vase.

Definite NP's are not further divided according to the word order and/or the object marker(OM) since OV order is highly infrequent in Mandarin (Sun and Givón, 1985) and the count of the definite NP's with the OM bǎ is too meagre to be reliable.

4. RESULTS AND DISCUSSION

TABLE 1
MEASURES OF TOPIC CONTINUITY BY GRAMMATICAL CODINGS

	Ø ANA	I.P.	D.P.	D+N	NAME	DEF	POS+N	INDEF	T/AV
#TOK	429	67	16	27	275	349	35	416	1614
+HUM	353	67	0	10	243	52	13	29	767
-HUM	76	0	16	17	32	297	22	387	847
AV RD	1.07	1.93	1.44	5.37	7.23	9.38	17.34	19.94	9.24
+HUM	1.06	1.93	---	4.30	5.74	3.81	15.08	19.76	3.82
-HUM	1.11	---	1.44	6.00	18.53	10.35	18.64	19.95	14.15
AV PS	1.66	1.45	0.38	0.70	1.36	0.34	0.29	0.18	0.87
+HUM	1.83	1.45	---	1.10	1.52	1.31	0.38	0.75	1.59
-HUM	1.06	---	0.38	0.47	0.19	0.17	0.23	0.14	0.23
AV PI	1.07	1.13	1.50	1.70	1.56	1.60	1.97	3.00	1.80
+HUM	1.06	1.13	---	1.10	1.42	1.46	1.87	3.00	1.29
-HUM	1.11	---	1.50	2.06	2.56	1.63	2.03	3.00	2.26

Table 1 gives the overall average counts and measures for all the structures. The structures are listed from

left to right according to increased average RD total. Table 1 also indicates human and non-human tokens counted separately for each structure. Their values for each of the three measures are listed for further analysis. Table 2 compares Givón's hierarchy with the 3 measures for each of the structures.

TABLE 2
COMPARISON OF CLINES BASED ON AVERAGE MEASURES

GIVÓN(1983)	AVE RD		AVE PS		AVE PI	
Ø Ana	Ø ANA	1.07	Ø ANA	1.66	Ø ANA	1.07
I.P.	D.P.	1.44	I.P.	1.45	I.P.	1.13
...	I.P.	1.93	NAME	1.36	D.P.	1.50
DEF	D+N	5.37	D+N	0.70	NAME	1.56
...	NAME	7.23	D.P.	0.38	DEF	1.60
...	DEF	9.38	DEF	0.34	D+N	1.70
...	POS+N	17.34	POS+N	0.29	POS+N	1.97
INDEF	INDEF	19.94	INDEF	0.18	INDEF	3.00

From Table 2, we see that the averages of structures measured for Mandarin discourse generally fit Givón's topic continuity cline. The zero anaphor construction is the most continuous topic-marking structure of every measure. Of all the tokens counted, 93% have a minimal value of 1. The zero anaphor construction is a very common and frequently used device of reference in Mandarin Chinese. It is strongly preferred in situations where the identity of deleted items can be readily recovered from immediate contexts.

Independent pronouns and demonstrative pronouns are also highly continuous in terms of RD and PI. All tokens counted for I.P. refer to humans, which helps fill up a relatively larger referential distance than can Ø ANA construction since only human pronouns have gender difference, thus a human pronoun can refer back to its referent from a relatively larger distance. The D.P. structure, on the other hand, also has a low RD value since it usually refers to something in the clause immediately preceding or following the construction. The difference between I.P. and D.P. is that the former construction persists much more than the latter because D.P. is used very often in a concluding statement and it thus does not persist.

The construction of D+N is preferred by Mandarin speakers to draw attention of the listener to the very item that was mentioned before. It can be used to mark a disruptive topic/referent and therefore its RD value is fairly large. D+NP's also have a relatively large PI score(1.70) because the demonstratives clearly have a function of disambiguating referents.

Names seem less continuous than the above mentioned structures in terms of RD, since they can refer far back to the referent previously mentioned and make the referent clear. In this particular text, names are very frequently mentioned since their referents are protagonists of the story and therefore they have a high PS score.

Both DEF and POS+N are quite low on the continuity cline. They are close to each other in terms of PS and PI, but they differ greatly in terms of RD. This is because the possessives themselves are known items and the subjects being talked about at hand. In the POS+N construction, possessives in fact bring those otherwise indefinite NP's closer to the topic under concern. Hence they have a much larger RD score(17.34) than DEF(9.38).

Finally, the INDEF is the most discontinuous structure of every measure. This is expected since it is most often used to make the first mention of a referent and thus has larger RD and PI values. INDEF's do not persist since many of them are quickly dropped after the first mention in the discourse.

To sum up, if we divide the above eight syntactic devices into two types of anaphoric forms: pronominals (Ø ANA, I.P. and D.P.) and nominals (D+N, NAME, DEF, POS+N, and INDEF), we can see their obvious differences in all the three measures, with pronominals close to the continuous end, and nominals near the discontinuous end. We can roughly postulate a hierarchy based on the average scores presented in Table 1:

Ø ANA > PRONOUNS > DEF NP's > INDEF NP's

where Pronouns include I.P. and D.P., DEF NP's include D+N, NAME, DEF and POS+N. The structures on the left of the hierarchy code more continuous/accessible topics than the structures on the right. This conforms, to some extent, to Givón's psychological principle: "Expend only as much energy on a task as is required for its performance" (Givón, 1983:18).

Nevertheless, there are some other factors strongly affecting topic continuity, which are shown in Tables 3 and 4.

TABLE 3
HUMANNESS AND CONTINUITY

	HUMAN	-HUMAN	TOTAL AVE
AVE RD	3.01	14.89	9.24
AVE PS	1.63	0.18	0.87
AVE PI	1.17	2.37	1.80
# TOK	767	847	1614

TABLE 4
CASE ROLES AND CONTINUITY

	SUBJ	OBJ	OTHER	TOTAL AVE
AVE RD	5.75	12.02	16.41	9.24
AVE PS	1.47	0.36	0.31	0.87
AVE PI	1.40	2.43	2.06	1.80
# TOK	895	463	256	1614
+HUM	629	114	34	767
-HUM	266	349	222	847

Table 3 shows a huge difference between human and non-human tokens in terms of the three measures. Humans are much more continuous than non-humans since they tend to be the focus/topic of narratives, while nonhumans are, in most cases, just temporary focus or background information and therefore dropped fairly quickly. Humanness as a more continuous factor can also be seen from the use of coding devices. Pronominals are much more frequently used to code human referents: 82% of Ø ANA and 100% of I.P refer to humans; and nominals have a much lower overall frequency (cf. TABLE 1). This indicates the general continuous nature of humanness, i.e. less coding material is assigned to the more continuous topics/references. On the other hand, Table 4 shows that humanness also interacts with case roles. Subjects are the most continuous of all the case roles: 71% of SUBJ refer to humans, and only 25% of OBJ and 15% of other categories are humans. It is not surprising that SUBJ is more continuous than other categories because the topic tends to occupy the subject position and to persist. Subjects appear able to avoid ambiguity as compared to other categories.

5. SOME PROBLEMS WITH GIVÓN'S CONTINUITY MODEL

The present study shows that while Givón's topic continuity model can be substantiated to some extent, there are nevertheless some problems associated with his measurements of topic continuity/discontinuity.

First, from the comparison of clines based on three average measures presented in Table 2, we see that among the eight syntactic devices measured for Mandarin discourse, only the first (Ø ANA) and the last two (POS+N and INDEF) rank exactly the same in all three measures. The other five vary in their rank orders in each of the three measures. This discrepancy suggests that we are actually dealing with three clines rather than one. Take D.P. and NAME for example. Names can bridge a relatively larger gap than D.P. because they are often used when a previously mentioned person

has been out of the discussion for a while. But for PS, Names(1.36) rank higher than D.P.(0.38), and the PI values of the two are very close to each other. Therefore, while both structures distinctively differ from each other in the functions of RD and PS, they do not differ very much from each other in avoiding ambiguity. What is more, their positions reverse for the functions of RD and PS on the basis of continuity. In other words, Names and D.P. are two very distinct points, though in a reverse position, plotted on functional continua of RD and PS; whereas they are two less distinct points plotted on the continuum of PI.

Secondly, the three measures proposed by Givón cannot always differentiate between the use of distinct syntactic devices in certain situations. For example,

11a) John heard from his friend Peter today. Peter had been working very hard for the company.

b) John heard from his friend Mary today. She had been working very hard for the company.

In 11a) the second Peter was triggered by potential referential interference, the NP(NAME) is used to avoid ambiguity. In 11b) which is exactly the same as 11a) except that Peter has been changed to Mary in the first clause, a pronominal form she is readily used because gender can disambiguate the situation. However, such a difference between the use of syntactic devices cannot be distinguished by any one of Givón's measurements. Both Peter and she in the second clause would be assigned the same values of RD and PI (1 and 2 respectively) since both bridge the same size of gaps and both have a potentially interfering referents within the relevant distance. Why, then, should these two distinct structures have the same values while they are supposed to be far apart in the continuity hierarchy? The model cannot distinguish the two.

One may argue that the above case is not really a counter-example to Givón's model. It is obviously an ambiguity resolution case which can simply be filtered out. But same problems occur in the following sentences where there is no room for ambiguity.

12a) Zhener was born a singer. She liked to sing.

b) Zhener was embarrassed in public. Zhener was spoiled by the miners.

Both 12a) and b) consist of two consecutive clauses and the name Zhener is the only referent in these two clauses. Therefore we expect that the items in the second clauses referring to Zhener would be in pronominal form, which is on the top of the continuity hierarchy. However we still get quite distinct constructions, a pronoun in 12a) and a NAME in b). The question then arises: what has caused the author to use

more marking material (NAME) to fill up the apparent minimal gap between two consecutive referents? The model fails to address such an issue.

Furthermore, let us examine in detail the full range of RD for each of the eight constructions analyzed in the present study. Table 5 shows the distribution of RD within structures as well as their means and standard deviations(SD). While the mean score indicates the pooled average of RD's within each structure, the SD score reflects dispersion of scores so that the variability of different distributions can be compared in terms of the SD's. The closer the individual score of each structure is to its average, the smaller the variation among individual scores, and consequently the smaller the SD, and vice versa. For example, if every individual score in a distribution is equal to its mean, the SD is zero. In other words, the mean score only offers a crude interpretation of pooled scores, the SD permits a precise interpretation of scores within a distribution. This is demonstrated in Table 5.

TABLE 5
DISTRIBUTION OF RD WITHIN STRUCTURES

No. of Clauses	ø Ana N	I.P. N	D.P. N	D+N N	NAME N	DEF N	POS+N N	INDEF N
1	400	50	11	5	77	63	2	
2	29	6	3	4	34	66		
3		5	2	2	24	8		
4		3		5	18	10		
5		2		4	13	15	2	
6		1			9	16	1	
7				1	7	12		
8					8	7	1	
9				1				
10						9		
11				2	6	1		
12				1	3	14		
13					3			
14					5			
15					2	17		2
16				1	6	5		
17								4
18						11		2
19								
20				1	53	95	29	407
AVE	1.07	1.93	1.44	5.37	7.23	9.38	17.34	19.94
SD	0.25	1.16	0.73	4.85	7.32	7.87	6.09	1.09

We see from Table 5 that pronominal forms behave much more consistently than nominal forms in terms of the range of RD's. Ninety-three percent(93%) of total tokens of Ø ANA, 75% of I.P. and 69% of D.P. have the RD value of 1, which means most of pronominals are used in minimal distance. Their SD's are relatively small (0.25, 1.16, and 0.73 respectively), indicating that scores are distributed fairly closely about the average. The nominal forms, on the other hand, have very different distributions within structures except INDEF whose SD score is 1.09. The other four structures, i.e. D+N, NAME, DEF, and POS+N have their individual scores scattered all along the scale of RD. Their values of SD are extremely large, indicating that their average score distorts the general characteristic of the structures under consideration. In addition, their SD's show that the RD scores of the four structures overlap to a large extent, suggesting that these four distinct anaphoric structures could hardly differ solely in their positions in the discourse, i.e. referential distance. The question again arises: what has caused the differential use of those distinct syntactic devices of reference if referential distance is not really a trigger?

In conclusion, the present study seems to conform to Givón's model since the topic-marking construction in Mandarin discourse, based on the average scores of the measurements, generally fits his topic continuity/accessibility cline. However, a close examination of the data reveals serious problems with Givón's model. Clearly, what is needed is a model which accounts not only the general tendencies of the differential use of the grammatical devices of reference, but also accounts for individual and specific cases. One such model can be found in Tomlin(1986), who argues that syntax of reference is tied directly to psychological processes of attention as reflected in the episode organization of natural discourse data (p.458). The data drawn from a pilot study on Mandarin oral discourse production have demonstrated that the attention model is superior to Givon's model, since the former can not only account for the general trend of differential use of pronominals and nominals, irrespective of referential distance, but also account for those individual cases which were the residue of the latter model. Further investigation on the relations between the use of syntax of reference and attention-shifts is in process.

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