ABSTRACT

The present study attempts to give a cognitive account of the use of anaphoric lexical reiteration (i.e., same NP repetition, alternative NPs, pronouns, and zero anaphora) in staging the different participants in Chinese texts. It is postulated that the alternation among NP reiteration forms in referent tracking is largely triggered by two major mechanisms: The Accessibility Condition (AC) and The Variability Condition (VC). The AC defines the ease with which a given entity can be retrieved from the mental representation of the discourse for interpreting the referring expressions. Same NP repetition and alternative NPs are found to be low Accessibility Markers, whereas pronouns are intermediate Accessibility Markers, and zero anaphora is high Accessibility Marker. The parameters as subsumed under the AC are identified as: availability vs. unavailability of competing entities, low vs. high in discourse continuity, low vs. high in semantic prominence, and low vs. high in NP Accessibility Hierarchy. The VC supplements the AC in explaining the alternation between same NP repetition and alternative NPs. Variability refers to the relative ease with which an alternative referential expression can be retrieved from the mental representation for coding a given entity. Same NP repetition is taken as low Variability Marker, while alternative NPs are high Variability Markers. The parameters bearing on the VC have been identified as: simple proper NP vs. other types of NP, introduction of an entity with general terms vs. with specific terms, non-frequent versus frequent mention of an entity in discourse, and unavailability vs. availability of standardized labels.

1. INTRODUCTION

Most studies on nominal reference and on the factors influencing referential choice in Chinese
(e.g., Chen 1984 & 1986, Huang 1994, Li 1985, Li & Thompson 1979, Xu 1995) have concentrated on the choice between a full noun, a pronoun, and zero—which are confined to what Halliday and Hasan (1976) called "grammatical cohesive devices". The use of "lexical cohesive devices" (e.g., same or partial repetition, synonym or near synonym, subordinate or superordinate, and general word) in staging the different participants in the discourse has been largely ignored.

The present study thus advances a preliminary exploration of the largely neglected field mentioned above, incorporating anaphoric lexical reiteration in the study of participant anaphora in Chinese texts. The forms of NP reiteration to be examined include: same NP repetition, alternative NPs, pronouns, and zero. Alternative NPs refer to any forms of anaphoric lexical reiteration apart from same NP repetition, which include structures of partial repetition, demonstrative plus noun, synonym or near synonym, subordinate or superordinate, and general word.

2. BASIC ASSUMPTIONS AND METHODOLOGY

As pointed out by Chu (1998), previous studies in Chinese have approached the problem of nominal anaphora from various perspectives—anaphora as a structural device (e.g., Li 1985), as an encoding mechanism (e.g., Chen 1986), and as a decoding mechanism (e.g., Xu 1995). The present study postulates that these perspectives are in fact intimately related in the sense that the whole process of anaphora resolution and production is a multi-fold task which cannot be fulfilled without a consideration of the structure in which it takes place, and of how it can be decoded by the reader/hearer and encoded by the writer/speaker. The aim of this paper is, by integrating these different perspectives, to specify the possible mechanisms that trigger the process.

The present study also postulates that alternation among different NP reiteration forms in referent tracking is largely governed by universal cognitive constraints. Based on an examination of the distributional characteristics and the referential patterns of the different types of referring expressions used in Chinese texts, we find that the choice among NP reiteration forms is largely triggered by two major mechanisms/cognitive constraints: The Accessibility Condition (AC) and The Variability Condition (VC). On the one hand, choice of NP reiteration is dependent upon an evaluation of the relative ease or difficulty with which a given entity can be retrieved from the mental representation of the discourse for interpreting the referring expressions (i.e., The Accessibility Condition). On the other hand, it is also governed by an evaluation of the relative ease or difficulty with which an alternative expression can be retrieved from the mental representation for coding a given entity (i.e., the Variability Condition).

It is also postulated that the evaluation process of anaphora draws upon information from syntactic, lexico-semantic as well as discourse levels and that the final choice of an NP reiteration form is dependent upon the combined value of an entity assigned respectively by each of the constituent parameters. Previous studies on anaphora tend to over-emphasize the role of one
factor/level, regarding the other factors/levels as derivative of or peripheral to this one major factor. But in the present study, the parameters that constitute both the AC and the VC involve consideration of syntactic, lexico-semantic, and discourse factors. Each of the parameters is independently motivated in the sense that they can be checked separately in the discourse. Further discussion of the conditions and their constituent parameters is presented in the section 3.

3. MECHANISMS TRIGGERING NP REITERATION

3.1 The Accessibility Condition (AC)

Accessibility refers to the ease with which a given entity can be retrieved from the mental representation of the discourse for the interpretation of the referring expressions. As Chafe (1976:32) has indicated, our memory-span is limited, and "as new ideas come into it, old ones leave." Therefore, an entity which has just been mentioned in the discourse is likely to be easily accessible in our mental representation of the discourse, whereas an entity which was mentioned long-time ago is less accessible. Adopting the cognitive account by Ariel (1990) who views referring expressions as Accessibility Markers coding the degree of Accessibility of the mental representation of the entity referred to in the structure of memory, the present study treats the NP reiteration forms in the Chinese texts also as the Accessibility Markers. The Hierarchy of Accessibility Markers (HAM) is as follows: same NP repetition & alternative NPs < pronouns < zero anaphora. In other words, zero anaphora is high Accessibility Marker, pronouns are intermediate Accessibility Markers, and same NP repetition or alternative NPs are low Accessibility Markers.

The parameters subsumed under the AC are identified as: availability vs. unavailability of competing entities, low vs. high in discourse continuity, low vs. high in semantic prominence, and low vs. high in NP Accessibility Hierarchy. The following sections will explain each of these parameters in detail.

3.1.1 Availability vs. Unavailability of Competing Entities

When there are more than one entity with similar semantic content in the discourse context, confusion may result (Chen 1984 & 1986). In this case, the degree of Accessibility for each of the entities is decreased, markers along the lower end of HAM such as same NP reiteration or alternative NPs are likely to be used than markers along the higher end of HAM such as pronouns or zero anaphora. For example, in illustration (1.g)-(1.l), there are two competing entities, *Qianlong* 'Qianlong' and *yi wei hucong* 'one attendant', both sharing the semantic features of "HUMAN" and
"AGENT", therefore the entities have to take the form of alternative NPs--huangdi and nei wei suixing 'that attendant'--in the following clauses.

(1.a) Jide nali biji you yi duan,

remember there notebook have one segment

b) shuo Qianlong you Jiangnan,

say Qianlong tour Jiangnan

c) you yi tian deng gao guang hai,

have one day ascend height watch sea

d) kangjian hai shang ji bai tiao chuanbo,

see sea on several hundred CL boat

e) zhang fan wang lai, huo wang bei, huo wang nan,

stretch sail go come either go north or go south

f) po xing renao

very appear busy

g) Qianlong wen zuoyou:

Qianlong ask suite

h) "Na ji bai tiao chuan dao na qu?"

those several hundred CL boat reach where go

i) You yi wei hucong suikou dadao:

have one CL entourage casually answer

j) "Wo kangjian zhi you liang tiao chuan."

I see only have two CL boat

k) "zhenyang shuo?" Huangdi wen.

how say emperor ask

l) Nei wei suixing de shuo:.....

That CL attendant DE say

'I remember that there is a stretch in the notebook which talks about Qianlong touring Qiangnan. One day, as he ascended a height to view the sea, he saw (on the sea) several hundred boats. They were coming and going with their sails fully stretched. Some were heading north while others were heading south, bustling with noise and excitement. Qianlong asked his suite: "Where are those several hundred boats going?" One person in the entourage replied casually: "I can see only two boats." "Why?" the emperor asked. That attendant said:.....' (extracted from Lunqu by Yutang Lin, 1980)

Nevertheless, when there are more than one entity in the discourse segment but the entities are not
in competition, i.e., do not share similar semantic content, e.g., *Qianlong 'Qianlong' (HUMAN, AGENT) versus hai 'sea' (NON-HUMAN, PATIENT) in (1.c), Qianlong 'Qianlong' still maintains high accessibility and can be linguistically represented by high accessibility marker--zero anaphora.

3.1.2 Low vs. High in Discourse Continuity

Another parameter relevant to the AC is discourse continuity, which involves continuity both in time and space. An entity which was just mentioned in the preceding clause demonstrates high continuity in time and thus has a higher degree of Accessibility than an entity which was introduced in the discourse earlier with elapse of a few clauses. For example, in clause (1.c) which immediately follows clause (1.b) where *Qianlong 'Qianlong' was mentioned, high accessibility marker--zero anaphora--is used. But in clause (1.g) where a few clauses elapse without mention of the entity, low accessibility marker--same NP repetition--*Qianlong 'Qianlong'--is used.

In addition to continuity in time, discourse continuity in space also constitutes another major component of Accessibility. The notion of discourse continuity in space includes the notions of "topic chain", "episode boundary", "paragraph boundary", "theme development", and "semantic continuity" which have been proposed and dealt with in details by Chen (1984 & 1986), Chu (1998), Li (1985), Xu (1995), etc. An entity demonstrates high discourse continuity in space when it is presented within the same event structure without change to another event or information structure. For example, *Qianlong 'Qianlong' in (1.c)-(1.d) is presented within the same event structure (i.e., ascended a height, viewing the sea) and is realized with zero anaphora--the high accessibility marker. But in (1.g), *Qianlong 'Qianlong' is presented in a slightly changed event structure (i.e., his becoming curious about the hundreds of boats in the sea), is thus low in Accessibility, and has to be linguistically represented by same NP repetition.

3.1.3 Low vs. High in Semantic Prominence

An entity is semantically prominent if it is animate rather than inanimate. It is my postulation that an entity which is high in semantic prominence increases its degree of Accessibility, while an entity low in semantic prominence decreases its Accessibility. For example, in illustration (1.e), *ji bai tiao chuanbo 'several hundred boats' is animate, and even though it involves a change from being a non-topic to a topic entity, it manages to maintain high in Accessibility and is realized with high accessibility marker--zero anaphora. In contrast, *huiyi 'forum' in illustration (2.d) is inanimate--low in semantic prominence, and therefore has to take low accessibility marker--alternative NP *zheci huiyi 'this forum' in the subsequent mention in (2.e).
3.1.4 Low vs. High in NP Accessibility Hierarchy

The different position in which an entity occupies in the sentence also contributes to its degree of Accessibility. Chen (1984 & 1986), based on Keenan and Comrie (1977)’s Accessibility Hierarchy, suggests the following hierarchy for determining the use of zero anaphora in Chinese: Topic/Subject > Direct Object > Indirect Object > Pivotal Object > Oblique Object. To rephrase this principle in the present postulation, an entity with topic and/or subject status is higher in Accessibility than one with non-topic and/or non-subject status, and therefore is more likely to take high accessibility markers; and vice versa. For example, in illustration (1.c) and (1.d), Qianlong ‘Qianlong’ occupies the topic and subject positions in the clause, therefore is high in Accessibility and can take zero-anaphora, whereas hai ‘sea’ is located in non-topic and non-subject positions, and therefore is low in Accessibility and has to take same NP repetition.

In addition to what Chen has put down in his Accessibility Hierarchy, we find that the positioning of an entity as head versus as modifier of an NP also contributes to its degree of Accessibility. An entity occupying the head position of an NP is higher in Accessibility than an
entity located in the non-head position. For example, *yijian ben* 'suggestion book' in (3.b) is in non-head position and thus is low in Accessibility and has to be reiterated with same NP repetition.

(3.a) **bu  shao shangdian dou you  yijian   ben**
not few shop all have comment book
b) **yijian  ben  de zuoyong tongchang shi tongguo guangda guke**
   comment book DE function usually be through numerous customers
c) **de yanguang he  pingyu jiandu yingye yuan de fuwu taidu,**
   DE eyesight and comment monitor sales clerk DE service attitude,
d) **genghao di  wei guke   fuwu**
   better DE for customers service
e) **ciwai, hai ying kandao,**
   besides, also should see,
f) **yijian  ben  ye   shi lianxi guke   de qiaoliang**
   comment book also be connect customers DE bridge

'Many shops provide suggestion books. The function of suggestion books is to monitor employees' performance through customers' perspective and comments so that they can provide better service for the customers. Besides, (we) should also recognize that suggestion books serve as a bridge in connecting the customers.' (extracted from the data pool by Liao, 1992)

In summary, the AC of the anaphora indicates how easily an entity can be accessed from the mental representation of the discourse, which significantly affects the choice of NP reiteration forms. Same NP repetition and alternative NPs are found to be low Accessibility Markers, pronouns are intermediate Accessibility Markers, and zero anaphora is high Accessibility Marker.

The extent of Accessibility of an entity can be evaluated by examining its distribution and function in the discourse involved in terms of the four parameters: availability vs. unavailability of competing entities, low vs. high in discourse continuity, low vs. high in semantic prominence, and low vs. high in NP Accessibility Hierarchy. It should be noted that among all the entities in illustration (1), the entity *Qianlong* 'Qianlong' in (1.c)-(1.d) demonstrates the highest value of Accessibility, as it meets all the criteria of the AC, i.e., it does not meet any competing entity in the discourse segment, it is high in discourse continuity, it is semantically prominent, and it is high in NP Accessibility Hierarchy. Therefore, it can take zero anaphora without creating any confusion about its identity. In comparison, other entities in illustration (1) have lower degree of Accessibility, e.g., the entity *Qianlong* 'Qianlong' in (1.i)-(1.l) meets a competing entity *yi wei hucong* 'one attendant'; *ji bai tiao chuanbo* 'several hundred boats' in (1.d) and *hai* `sea' in (1.c) and (1.d) are both low in NP Accessibility Hierarchy. Nevertheless, in contrast to *hai* `sea', *ji bai tiao chuanbo*
`several hundred boats' in (1.d) is semantically prominent and changes into a topic entity in (1.e) and therefore is able to take high Accessibility marker--zero anaphora--in (1.e). All this suggests that the final choice of NP reiteration forms is determined by the combined effect of the parameters rather than by the effect of only one parameter.

3.2 The Variability Condition (VC)

From section 3.1, we can observe that same NP repetition and alternative NPs share the same degree of Accessibility Marking, and alternation between the two in referent tracking cannot be fully explained by the AC alone. The Variability Condition (VC) is thus established to supplement the AC explanation. Variability refers to the relative ease with which an alternative referential expression can be retrieved from the mental representation for coding a given entity. I propose that in addition to being Accessibility Markers, NP reiteration forms are Variability Markers--marking the degree of variability of an entity in our mental representation. Same NP repetition is low Variability Marker, while alternative NPs are high Variability Markers.

The parameters bearing on the VC are identified as: simple proper NP vs. other types of NP, introduction of an entity with general terms vs. with specific terms, non-frequent versus frequent mention of an entity in discourse, and unavailability vs. availability of standardized labels. The following sections will further explain each of these parameters.

3.2.1 Simple Proper NP vs. Other Types of NP

The criteria for simple NPs are: 1) they are short, and 2) they contain no more than one informational unit, e.g., guke 'customer' in illustration (3.d). It is postulated that while it is unlikely for simple proper NPs to be coded with a variety of expressions, other types of NPs (e.g., simple but not proper NPs and complex NPs) can enjoy different alternative expressions. In other words, simple proper NPs are low in Variability and are likely to take same NP repetition in successive mentions, while other NPs are high in Variability and are likely to take alternative NPs. For example, Guo 'Guo' in illustration (4) is simple and proper NP and always has to be reiterated with the same NP. But zitiao 'note' and dizhu 'landlord' in illustration (5) are simple but not proper NPs and can therefore switch to alternative NPs in subsequent clauses respectively as tiaozì 'note' in (5.d) and zhe ge dizhu 'this landlord' in (5.c). In illustration (6), Zhongguo Guojia Nanzi Lanqiu Dui 'China National Men Basketball Team' is complex NP; and even though it is proper NP, it can be reiterated with alternative NPs--Zhongguo Nan Lan 'China Men Basketball' in clause (6.e) and Zhongguo Dui 'China Team' in clause (6.h).
Wang Jixing, Eying Director, who is good at producing movies for heated discussion, brought his new character Guo into Beijing. Guo lives in Laoniangtu. Different from the perfect character Qiaoyulu created three year ago, Guo in Laoniangtu is full of contradiction. Therefore, when Laoniangtu was previewed in Beijing, it aroused more dispute than the stir by the Qiao drama. In the first part of the film, every audience may possibly identify themselves as one of the kind-hearted villagers in Daolao.
Village, witnessing Guo's birth in the Guandi Temple, and his orphan but not lonely childhood...Guo grows up together with the Republic...... Therefore, many people who have watched the film will think......'
(extracted from Beijing Wanbao, 31 August, 1992)

(5.a) congqian, you ge qiongren xie le yi zhang zitiao
   once-upon-a-time, have CL poor-man write LE one CL note
b) xiang dizhu zhu yi tiao niu yong,
   to landlord rent one CL ox use
c) zhe ge dizhu yi zi bu shi,
   this CL landlord one word not know
d) tiaozsi song qu de shihou, ta zheng zai pei ke.
   note send to DE time he right ZAI entertain guest.

'Once, a poor man wrote a note to a landlord requesting an ox to be used.
But the landlord was not literate at all. When the note was sent to him, he was entertaining guests.' (extracted from 'Minjian Xiaohua Daguang')

(6.a) Zhongguo Guojia Nanzi Lanqiu Dui
   China Nation Man basketball team
b) yi jiu ba si nian si yue ershi ba ri wan
   (one nine eight four year four month twenty eight day night
c) zai faguo kangbulei yi jiushi yi bi bashi si
   in France Cambrai with ninety one against eighty four
d) zaici zhansheng nansilafu lubueryana dui,......
   again win Yugoslavia Lubueryana team,......
e) Zhongguo Nan Lan shi zai canjiale
   China Man Basketball be at participate
f) faguo guoji lanqiu yaoqing-sai zhihou,
   France international basketball invitational-tournament afterwards,
g) yingyao dao faguo qita chengshi fangwen de.
   accept-invitation to France other city visit DE
h) Zhongguo Dui jiang yu wu yue yi ri qianwang bolan
   China team will at five month one day go-to Poland
i) canjia lingyici guoji lanjiu yaoqing-sai
   participate another international basketball invitational-tournament
China Men Basketball Team once again defeated Yugoslavia Team in France. It was after attending the International Invitational Tournament in France that China Men Basketball was invited to visit other cities in France. The team will attend another international invitational tournament in Poland on first of May. (extracted from the data pool by Liao, 1992)

3.2.2 Introduction of an Entity with General Terms vs. with Specific Terms

In addition to the parameter of simple proper NP vs. other types of NP, I find that an entity which is introduced into the discourse with general terms is low in Variability and is likely to take same NP repetition. But an entity introduced with specific or subordinate-level term is high in Variability and alternative NPs are usually used in successive references. Work by Rosch et al. (1976) in psycholinguistics lends support to the claim here. Rosch et al. (1976) propose that "of the many levels of abstraction at which any given thing can be classified, there is one basic level of abstraction at which the organism can obtain the most information with the least cognitive effort". For example, chair, which is the basic level category in a hierarchy of abstraction, is used more frequently than its superordinate furniture or its subordinates kitchen chair, armchair, high chair, etc.

Applying Rosch's findings to the present postulation, I propose that general or basic-level lexemes are higher in Variability than its superordinates or subordinates and therefore are more likely to be retrieved in the form of alternative NPs in successive references. For example, after the entities are introduced with more specific terms zitiao 'paper note' in (5.a) and luyin di 'camp site' in (7.a), they are reiterated with more general terms respectively as tiaozhi 'note' in (5.d), and suying di 'lodging site' in (7.c).

(7.a) [Huangshi] gongyuan nei huading hentuo luying di,
    Huangshi park inside designate many camp site,
   b) bian hao ru zuo.
      assign number enter seat
   c) suying di xu zai song shan mi lin zhong,
      lodge site although in high mountain thick forest inside,
   d) danshi yecan zuo deng, luzi, weisheng shebei, zilaishui
      but picnic table bench, stove, sanitation facility, tap water
   e) yiying juquan.
      all equip
'Inside Yellowstone Park, there are a lot of campsites which are marked with numbers. Although the lodging sites are located in thick forest, picnic tables and benches, stoves, running water and sanitation facilities are provided there.' (extracted from the data pool by Liao, 1992)

3.2.3 Non-frequent vs. Frequent Mention of an Entity in Discourse

It is also my observation that to avoid monotony as well as to provide continuity in discourse, the writer is likely to code a frequently mentioned entity with alternative NPs rather than with a non-frequently mentioned entity. Therefore, an entity frequently mentioned in the discourse is high in Variability and can often take alternative NPs, while an entity which is not frequently referred to in the discourse is low in Variability and is often settled with same NP repetition. For example, in illustration (4), the frequently mentioned entity Laoniangtu 'Laoniangtu' is reiterated in different forms--yingpian 'film' in (4.j) and ci pian 'this film' in (4.p). In illustration (5), the frequently mentioned entity Zhongguo Guojia Nanzi Lanqiu Dui 'China National Man Basketball Team' takes different forms in successive references--Zhongguo Nan Lan 'China Men Basketball' in clause (6.e), and Zhongguo Dui 'China Team' in clause (6.h).

3.2.4 Unavailability vs. Availability of Standardized Labels

The last parameter I postulate as subsumed under the VC depends on the number of standardized labels and their "well-knownness". An entity is high in Variability if it embraces a number of lexical options to be used in the discourse context and the options are familiar to the encoder; and it is low in Variability if the number of lexical alternatives is limited and/or they are not familiar to the encoder. For example, in illustration (1), Qianlong 'Qianlong' and hucong 'entourage' are high in terms of the availability of standardized labels, and are reiterated with alternative NPs respectively as huangdi 'emperor' in (1.k) and suixing 'attendant' in (1.l). But in illustration (3), yijian ben 'suggestion book' and guke 'customer' are low in Variability and have to be repeated simply in the subsequent mentioning as in clause (3.b), (3.d), and (3.f).

4. CONCLUSION

The present study advances a preliminary exploration of how anaphoric lexical reiteration is used in staging the different participants in Chinese texts. The forms of NP reiteration examined include: same NP repetition, alternative NPs, pronouns, and zero anaphora. It is postulated that the
alternation among NP reiteration forms in referent tracking is largely triggered by two major mechanisms/cognitive constraints: The Accessibility Condition (AC) and The Variability Condition (VC).

Accessibility refers to the ease with which a given entity can be retrieved from the mental representation of the discourse for interpreting the referring expressions. Adopting the approach by Ariel (1990), the study takes the NP reiteration forms as Accessibility Markers which code the degree of accessibility of the mental representation of the entity referred to in the discourse. Same NP repetition and alternative NPs are found to be low Accessibility Markers, whereas pronouns are intermediate Accessibility Markers, and zero anaphora is high Accessibility Marker. The parameters as subsumed under the Accessibility Condition (AC) are identified as: availability vs. unavailability of competing entities, low vs. high in discourse continuity, low vs. high in semantic prominence, and low vs. high in NP Accessibility Hierarchy.

The Variability Condition (VC) is established to supplement the AC in explaining the alternation between same NP repetition and alternative NPs, as they share the same degree of Accessibility. Variability refers to the relative ease with which an alternative referential expression can be retrieved for coding a given entity. I propose that in addition to being Accessibility Markers, the NP reiteration forms are Variability Markers--marking the degree of variability of an entity in our mental representation. Same NP repetition is low Variability Marker, while alternative NPs are high Variability Markers. The parameters bearing on the VC have been identified as: simple proper NP vs. other types of NP, introduction of an entity with general terms vs. with specific terms, non-frequent vs. frequent mention of an entity in discourse, and unavailability vs. availability of standardized labels.

It is my conjecture that the final choice of an NP reiteration form is dependent upon the combined value of an entity assigned respectively by each of the parameters constituting the two conditions. Nevertheless, due to the limitation of time and resource for the present study, the conjecture has not been further verified and supported by quantitative evidence based on a much larger and more representative samples of data. Apparently, further work is needed in our understanding of the anaphoric lexical reiteration in Chinese texts.

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NOTES
The following abbreviations are used in this article: CL (classifier), LE (perfective marker), DE (possessive/modifier/complementizer marker), ZAI (progressive marker), ZHE (imperfective non-progressive marker), GUO (the experiential marker).

The genres dealt with in the present study are confined to the written genres in Chinese such as prose, newspaper articles, formal business documents or notes, and the discussion and findings can only be applicable to these types of texts. As pointed out by many researchers such as Fox (1986), different discourse types can have local anaphoric patterns that do not necessarily agree in detail with those in other discourse genres.

Please also read Liao (1992:53) for some similar observation.

REFERENCES


