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Mandarin learners' (L2) comprehension of zero anaphora in Mandarin phone conversations

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Abstract: This article analyzes patterns of comprehension of zero anaphor by native-English-speaker learners of Mandarin in recordings and transcriptions of four naturally occurring Mandarin telephone conversations. Because many anaphoric pronouns have no overt expression in Mandarin, comprehension of even basic clause constituents of Mandarin texts can require discourse-level inferencing that English does not require. Despite these differences between English and Mandarin, intermediate to advanced level Mandarin learners in this study were able to successfully interpret and translate zero anaphor in these telephone conversation texts about 72% of the time. The greatest difficulties with zero anaphor were related to a) instances in which the initial, explicitly expressed antecedent was misinterpreted, and b) shifts in footing, or verbal activity, in which speakers moved, for example, from narrative description to direct address of interlocutor or personal evaluation of a situation just described. These patterns suggest that greater awareness of discourse level structures in naturally occurring verbal interaction – which could be taught through explicit instruction – might help intermediate and advanced Mandarin learners to correctly interpret a broader range of zero anaphora.

Keywords: Zero anaphora, anaphor, discourse comprehension, Mandarin, telephone conversation

1 Introduction

This article explores successes and difficulties encountered by native-English-speaker language learners in determining the referents of zero anaphor in four naturally occurring Mandarin telephone conversations. Anaphora is the phenomenon in which a form, often a pronoun in English, is co-referential with an antecedent, a previous, typically more explicit noun, pronoun, or noun phrase in an utterance or discourse. In the utterance, “John loves Mary. He gives her

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flowers every day,” the antecedent is “John” and the anaphor that refers back to “John” is “He.” In isolation, the utterance “He gives her flowers every day” is relatively ambiguous, as there are an enormous number of potential male givers of flowers. Arriving at a specific interpretation of “He” depends on understanding the word’s relationship to its antecedent “John.” Thus, in the context of ongoing discourse, the “he” is interpreted as referring to the same individual as is referred to by “John”. Anaphora plays a central role in the tracking of reference and understanding intended meanings of speech.

While English generally requires an overt pronoun as an anaphor, Mandarin does not require an overt form in the many cases where native speakers can infer the referent from context, often from an explicit antecedent in recent, prior discourse. In many cases, zero anaphor is the unmarked form in spoken Mandarin, and in the following example, from Li and Thompson (1989: 669), both the subject and object in Speaker B’s turn are zero forms. (A guide to interlinear gloss abbreviations appears in the Appendix.)

1) Speaker A: *ta kanjian ni meiyou?*

3sg see you not

“Did he see you?”

Speaker B: *kanjian le*

see ASPECT

“(He) saw (me).”

A listener must infer the subject and object of the verb in Speaker B’s turn.

Mandarin differs from many other languages that allow zero forms in that it lacks grammatical clues to the referent of a zero form. In Spanish and Italian, for example, subject pronouns may be dropped, but person and number markings on the verb either specify a specific pronoun subject or limit the range of possible subjects. Thus the subject of the verb in the Spanish, *Dónde estás* (lit. “Where are?”), can only be “you”, based on the conjugation of the verb *estar*, with final ‘s.’ Mandarin, in contrast, has no such markings on the verb, and taken out of context, Mandarin utterances can be ambiguous in terms of what the subject of the verb is. Because the grammatical subject of a clause may have no overt expression in Mandarin, comprehension of even basic propositional content of Mandarin texts can require types of discourse-level inferencing that English does not require for sentence parsing.

In a series of experiments and papers, Tao and Healey (1996, 1998, 2005) have highlighted the potential difficulty of native English speakers acquiring Mandarin zero anaphora patterns. They have shown that individuals a) have language-specific strategies for processing zero anaphora in their own language,

and b) transfer at least some of these unconscious, language-specific strategies to processing foreign languages (regardless of whether those strategies are particularly fitting and useful for the structures of the second language). They have shown, for example, that native Mandarin speakers understand experimentally-modified English passages better than native English speakers, when those English passages omit explicit anaphoric pronouns, resulting in texts with Mandarin-like zero anaphoric patterns. If native English speakers bring unconscious, English-specific language processing strategies to their encounters with Mandarin discourse, those English-specific strategies will not be useful for recognizing and interpreting Mandarin-specific patterns of zero anaphora.

Despite differences between English and Mandarin, intermediate to advanced level Mandarin learners in the data that I present were able to successfully interpret and translate zero anaphor in these telephone conversation texts about 72% of the times that they were encountered (257 of 352 instances were correctly translated). A number of factors appear to influence the ease or difficulty of comprehending and translating zero forms. Zero anaphoric forms translatable as impersonal forms, e.g., “one” or impersonal “they,” for example, caused few comprehension or translation problems compared to anaphors that referred to specific persons. In one of the texts, in which there were only impersonal zero anaphors, over 90% of the zero anaphors were interpreted and translated correctly. Zero anaphoric forms that followed explicit antecedents and had no intervening nouns between antecedent and anaphor also caused relatively fewer problems.

The most common source of difficulties in interpreting and translating instances of zero anaphora involved shifts in verbal activity, in which speakers moved from narrative description to direct address of interlocutor or personal evaluation of a situation just described. Examples of this will be presented and analyzed in the main analysis section, below. A second significant source of difficulties with zero anaphor was related to instances in which the initial, explicitly expressed antecedent was misinterpreted. When this initial, explicit noun phrase was misinterpreted, the misunderstanding tended to be carried forward through zero anaphoric forms. Because Mandarin verbs are not marked for person or number, there are no grammatical clues to help resolve zero anaphora. One must rely on semantic and pragmatic knowledge, so resolving a misinterpreted antecedent can be very difficult as the initial misunderstanding skews the semantic and pragmatic context necessary to resolve the zero anaphora.

At the same time that the surface level expression of anaphora in Mandarin and English are different (Tao & Healey 1996, 2005), Pu (1995) shows that speakers of English and Mandarin follow the same general rules for reference tracking. These underlying rules may help to explain the relative success of intermediate and advanced level Mandarin students in resolving zero anaphora. The deeper

organization of reference management has been described in overlapping terms of “information flow” (Chafe 1987) and “topic continuity” (Givón 1983). According to Chafe, the information status of a referent can be “new”, “accessible”, or “given.” Referents that are new are identified relatively explicitly in order to achieve inter-subjective understanding. When a referent has been introduced in discourse, but it is not the immediate focus of discourse, it is considered “accessible,” in that the hearer can interpret the referent through forms that are less explicit and complete. Finally, referents that are “given” have been mentioned in the current or immediately preceding discourse, so the hearer is able to access the identity through relatively brief and ambiguous forms, e.g. pronouns in English, or in the case of Mandarin, zero anaphora. Givón (1983) makes a similar argument in terms of topic continuity. When a referent is the topic of local discourse, its identity is relatively clear to speakers and hearers, and reduced, relatively ambiguous forms can be used to refer to, and track, the referent. When the topic of an utterance is relatively discontinuous with prior discourse, relatively full and explicit noun phrases are necessary for speakers and hearers to establish a common intersubjective understanding of the referent.

Studies suggest that speakers and hearers expect and rely on this underlying pattern of relatively explicit naming of referents that are relatively new/inaccessible and attenuated forms of reference for referents that are relatively given/accessible. While using explicit noun phrases for each mention of a referent might seem a way to avoid potential ambiguities, studies in English have shown that use of full noun phrases – rather than reduced anaphoric forms – for referents with high accessibility and givenness actually slow language processing and comprehension (Gordon and Chan 1995). Thus, “John loves Mary. John gives her flowers every day,” is a marked form in English that slows comprehension compared to the unmarked, “John loves Mary. He gives her flowers every day.”

The notion of “givenness” or “accessibility” as the basis of an underlying system for reference tracking can help explain why shifts in footing (Goffman 1979), such as switches from narrative description to personal evaluation of a situation could cause difficulties for participants in this study. In conversation, “you,” “I”, and the on-going topic of conversation (“it”) are always relatively “given” (in Chafe’s terms) and “accessible” (in Givon’s terms). Thus, these three referents can compete with explicitly mentioned nouns in the prior discourse as candidate antecedents of zero anaphoric forms.

In this article I first summarize related research on zero anaphora and then discuss methods and data. I then work through a series of data examples illustrating successively more challenging instances of zero anaphora resolution for these English-native Mandarin language learners, illustrating ways in which difficulties in recognizing discourse-level structures can result in difficulties in resolving instances of zero anaphora.

2 Research on use and comprehension of zero anaphora by Mandarin learners

There is no known prior research on Mandarin learner's resolution of zero anaphora in naturally occurring, authentic texts. Because Mandarin zero anaphora is different from English anaphora, there have been studies on whether explicit instruction in zero anaphora for Mandarin has improved Mandarin learners comprehension of the form. Jing-Schmidt (2011) (cited in Liu Li 2014: 75–76) found that Mandarin learners who received five 20–25 minute lessons in zero anaphora did not comprehend Chinese personal anaphora better than a control group. Li (2014), in contrast, found that 4th semester Chinese learners who received such explicit instruction – whether through classroom instruction or computer-based instruction and exercises – did exhibit improved comprehension of reading passages on a test that included some authentic texts but not longer, naturally occurring conversations.

Other related, research (Jin 1994, Polio 1995) has studied the *production* (rather than comprehension) of zero anaphora by students learning Mandarin as a foreign language. Both of these studies found overuse of explicit pronouns, i.e., using explicit anaphoric pronouns where native Mandarin speakers use zero anaphora, although more advanced learners used zero anaphora more similarly to native speakers than did beginners (Jin 1994).

The resolution of zero anaphor has also been addressed by scholars working with computer parsing and translation. The recognition of, and translation of, an element that is not explicit poses different challenges for computers than other types of parsing and translation (Yeh and Chen 2007; Susan Converse 2006; Zhao and Ng 2007), but this is distinct from the challenges and processes for zero anaphora resolution by humans.

The research with which the current paper most overlaps in method is Huang (1994: 236–256), which provides the most complete available description of the pragmatics of anaphor resolution by native speakers in Mandarin. Huang analyzes transcripts from naturally occurring conversations (rather than from written texts or contrived, experimental texts) among speakers of Mandarin to illustrate the pragmatic cues and processes on which native speakers rely to recognize and interpret instances of zero anaphor. While linguists' studies of anaphora typically approach it as a syntactic phenomenon, Huang shows that interpretation of zero anaphora relies on a range of factors from verb semantics to what he calls “the dynamic of conversation” (p. 251), which includes discourse level structures such as conversational turn-taking (Sacks et al. 1974.). While Huang uses the transcribed discourse of native

speakers to uncover their logic of zero anaphora resolution, this paper examines the practical outcomes of *non-native* learners' attempts to understand and translate zero anaphora.

3 Data and methods

The data on translation of anaphora presented in this paper were taken from a larger experiment conducted by the Center for the Advanced Study of Language at the University of Maryland on translation and summarization of information in Mandarin texts. The four Mandarin telephone conversations that were the sources of the experiment texts come from the Linguistic Data Consortium (LDC) at the University of Pennsylvania, specifically from the CALLHOME Mandarin Chinese Transcripts data set. The conversations were recorded in the 1990's as part of a separate set of studies (all speakers knew that they were being recorded and consented to join the study). All calls originated in North America and were between native speakers of Mandarin. Two of the calls used in this translation task were between sisters, one was between a child and father, and the fourth was between two friends. The segments (ranging from 2.5 to 3.4 minutes in length) of the four conversations used in the experiment were chosen because they included some complexity in terms of linguistic or content features, and because they maintained internal coherence in excerpts that were a manageable length for the experimental contexts.

In one condition, subjects were given an audio recording of the relevant telephone conversation, and in another condition they worked from a Mandarin transcript, in characters, of the conversation. They were asked to produce full translations of the telephone conversation into English. Participants were not provided with any contextual information such as the nature of the relationship between the speakers, which speaker had initiated the call, or what had transpired earlier in the conversation. Test subjects came from US Department of Defense-sponsored language training programs and agencies. Test subjects had all achieved an Interagency Language Roundtable rating of '2' ("limited working proficiency" – see <http://www.govtillr.org/Skills/ILRscale1.htm> for descriptors) or higher, which corresponds to high intermediate and advanced learners on the American Council of Teachers of Foreign Languages scale (Swender et al. 2012).

Professional translators, one a native speaker of Mandarin and one a native speaker of English, collaborated to produce model English translations of the segments, which were compared to translations produced by experiment

participants. An English-Mandarin bilingual linguist marked all instances of zero anaphor in the Mandarin and created morpheme-by-morpheme glosses of the texts in English.

The larger experiment generated 10 to 11 translations (between 3 and 5 in an audio source condition and between 5 and 7 in a written source condition) for each of four telephone calls resulting in 41 translations. Translations produced by experiment participants were compared to the model translations produced by professional translators to evaluate a) whether the participant had understood the basic propositional content of the conversation, and b) whether the participant had successfully resolved and translated instances of zero anaphor. For this paper, I only consider 30 of the original 41 translations. In these 30 translations, participants consistently put the correct subjects with verbs and successfully translated propositional content of the utterance. The fact that these participants were able to identify and pair subjects and verbs correctly indicates that difficulties with zero anaphora, when they occurred, could be seen as distinct from more general linguistic difficulties recognizing and understanding basic clause constituents in these authentic, naturally occurring conversations. Many sections of the 11 discarded translations, in contrast to the 30 included ones, were incomplete: test subjects could not understand entire turns or sequences in the conversation and simply left them blank. The discarded translations also included many sections that did not pair a subject with a verb or correctly represent the propositional content of the turn but merely provided a literal translation of a few of the words from a given turn at talk. This suggests that these test subjects did not understand the meaning of the Mandarin in these 11 texts.

Twenty-one of the 30 translations that are analyzed here were produced in the condition in which test subjects received a written transcript, while only nine come from the condition in which they listened to an audio recording. This is a function of a) the higher number of translations from a written source (24) than an audio source (17) in the original experiment, and b) the relative weakness of many of the translations produced from an audio source. Naturally occurring telephone conversations between native speakers present a number of comprehension challenges to language learners who hear them rather than read them. Speech can be fast, there is conversational overlap between speakers, and speakers sometimes use regional and non-standard forms. This may explain why only 53% (9 of 17) of the translations from audio sources showed consistent comprehension of basic clause constituents, while 87.5% (21 of 24) translations done from written transcripts showed consistent comprehension of such constituents. Table 1 summarizes detailed information about the data.

Table 1: Texts, experimental conditions, number of translations in each condition (audio or written) for each test segment, the number of zero anaphora occurring in each test segment, and the percentage correctly understood and translated in each modality for each test segment.

CALLHOME Text Number	Number of translations analyzed	Audio condition	Written condition	Number of Zero Anaphora in Segment	Percent correct in audio condition	Percent correct in written condition	Percentage of Zero Anaphora Correctly Translated across both Audio and Written conditions
Text 817 Two friends: explaining computer voice recognition	10	5	5	5	88% (22/25)	96% (24/25)	92% (of 50 instances)
Text 760 Father explaining Chinese economic changes to daughter	6	0	6	7	N/A	67% (28/42)	67% (of 42 instances)
Text 761 Two sisters: Getting a visa and working off-the-books in the US	5	1	4	7	86% (6 of 7)	71% (20/28)	74% (of 35 instances)
Text 667 Two sisters: new job in China, helping old couple in US	9	3	6	25	60% (45/75)	72% (108/150)	68% (of 225 instances)
Total	30	9	21	44	68% (73/107)	73% (180/245)	72% (of 352)

Even though the four texts all come from informal telephone conversations, they vary widely in the number of instances of zero anaphora and in the degree of difficulty posed by their types of zero anaphora. Text 667, a discussion between two sisters who are describing and evaluating their living and working situations in the United States and Beijing, respectively for example, had more than three times as many instances of zero anaphor as Text 817, a discussion between friends about computer speech recognition. Text 667 also presented translators with the more difficulties with zero anaphor. The conversation between the two sisters involved a relatively high number of zero anaphoric references to specific third-person individuals, and a relatively high number of first-person zero anaphoric references. Confusion among these possible referents – resulting in assigning actions to the wrong actors – resulted in misunderstandings and translation errors as test subjects failed to track switches between narrative description about third parties and first-person evaluation of situations just described.

Text 817, in contrast, involved a person giving a lay description of issues in computer speech recognition to a friend. There were no mentions of specific people in this text, and no occurrences of first- or second-person pronouns or zero anaphors representing specific individual people. The text was organized as an explanation of the technology and research with occasional understanding checks and questions from the call recipient. All ten participants were able to give meaningful, relatively accurate translations of this text. The five instances of zero anaphor in this text refer to an impersonal “you,” “one”, or “they,” the anonymous researchers who were providing free telephone calls in order to collect data to study computer voice recognition. Such impersonal anaphoric references are not uncommon. Eckert and Strube (1999), for example, analyzed naturally occurring telephone conversations in English and found that fewer than half (45.1%) of the anaphoric pronouns in their corpus referred back to an explicit noun phrase. The majority of anaphors in their corpus referred back to verb phrases and sentences (22.6%), were existential, generic, or corporate third-person pronouns (“In Japan, **they** drive on the left”) (19.1%), or referred back to the general topic of conversation (13.2%).

This range of anaphoric types helps explain the range of ways that Mandarin zero anaphor can be translated into English. Lee (1993: 49) suggests five different ways, depending in part on the nature and function of the Mandarin zero anaphora. In addition to the use of pronouns in English, illustrated with examples above, individual instances of zero anaphora can best be translated with passive voice, existential subjects (“**There** are ...”), use of coordinating or subordinating conjunctions, or possessive pronouns, among others.

4 Patterns in the comprehension of instances of zero anaphora

4.1 Zero anaphora with a clearly “given” or “accessible” referent

Many instances of zero anaphor in these texts posed little difficulty for these Mandarin learners. These tended to be instances in which a pronoun or full noun phrase with a referent that was a clear focus of the talk was relatively close, salient, and accessible in the interaction, typically preceding the zero form. In many such examples there is no intervening noun phrase between the anaphor and its antecedent (see Huang 1994: 239).

In the following example all nine of the translators (6 written, 3 audio) were able to correctly supply the pronoun “I” for the zero form in line 16. Speaker A has just explained to her sister that Speaker A has an informal job helping an older couple while she lives in America with her husband who is studying there:

2) (CALLHOME 667)

- 15 A: 我 每 周 去 一 次,
 1P every week go one-time
 I go once a week.
- 16 Ø_{SUBJ} 帮 他 用 吸 尘 器 吸 一 下 地.
 help 3P use vacuum.cleaner vacuum a.bit floor
 I help them vacuum the floor.

In line 15, the explicit first-person pronoun 我 ‘I’ is the subject of the verb “go”. In the next clause, there is no explicit pronoun, and the audience must infer that the subject of the verb “help” is “I”. Several factors may contribute to the relative accuracy of comprehension and translation of this zero anaphora. First of all, the anaphor has an explicit antecedent, “I”, in the preceding clause. Semantically and pragmatically, the audience is also guided to understanding “I” as the subject of the verb “help vacuum.” This turn occurs in the course of Speaker A giving an account of an informal job she has in America, in which she goes to the home of a couple whom she had characterized as “old” and “very old.” Because it is a job she does and the couple is very old, it makes sense that the speaker “I” is the person who helps them vacuum the floor. The only other noun between the explicit antecedent “I” and the zero anaphor is “week”, which is inanimate and cannot serve as the subject of “help vacuum.” Finally, this

form is very similar to a zero anaphor-like construction in English compound verb sentences, e.g., “I go once a week and $\emptyset_{\text{SUBJ}}$ help them vacuum the floor.”

Test subjects were also able to comprehend and translate zero anaphora in somewhat more complicated constructions, in which there are multiple referents mentioned in immediate prior discourse. In the following segment, an adult Chinese female in the United States is advising her sister in China on how to get a passport and visa for coming to the United States. After explaining to her sister a detail of the application process – that asking for the expedited process is not necessary – her China-based sister replies:

3) (CALLHOME 761)

13a B: 我 知道,

13b 1P know

13c I know.

14a 这个- 我 刚好 有 个 同学,

14b FILLER.that 1P happen.to have MEAS.ge classmate

14c I happen to have a classmate,

15a 那 天 $\emptyset_{\text{SUBJ}}$ 碰 了,

15b that day meet PERF.le

15c who I ran into the other day,

16a $\emptyset_{\text{CONJ}}$ $\emptyset_{\text{SUBJ}}$ 告 我 怎 么 办 了,

16b tell 1P how do CRS.le

16c [and] she told me how to do it [i.e., get a passport].

All five of the translators (1 audio, 4 written) successfully interpreted the zero forms. Both “I” and the “classmate” were readily available in discourse, having both occurred in line 14. The translator must determine which person (“I” or “classmate”) goes with which verb. There are no grammatical markings to help determine this, so the translator must rely on a pragmatic approach to meaning. In this case, the point of introducing the classmate into the conversation is to explain how the speaker already knows, before being told by the US-based sister, how the passport and visa process works. Pragmatically and semantically then, it makes sense for the classmate to be the subject of the verb “tell” in line 16. In line 16, the explicit 1P pronoun (‘me’), as the recipient of the telling, also makes the speaker an unlikely person to be doing the telling (*“I told me”), and therefore an unlikely subject of the verb.

4.2 Privileging an explicit referent, rather than a zero form

In a few cases, test subjects failed to recognize zero subjects when there was a nearby, explicit noun in the utterance. In these mistranslations, test subjects used whatever noun phrase was explicit in the text as a grammatical subject, even if the resulting clause does not make sense semantically or pragmatically. In line 17 of the segment, below, for example, two of seven test subjects failed to recognize the null subject “the situation” or “it”, and made “Guangdong” the subject of their English translation.

In this interaction, a Guangdong-based father is explaining the reach and effects of 1990’s Chinese economic market reforms on salaries, both in Guangdong and the rest of China, to his US-based daughter. The father has just explained that the reforms are national, not just in Guangdong, and his daughter has asked if things are better in Guangdong than in other, inland provinces.

4) (CALLHOME 760)

- 15 Dad: 现在 内地的 情况 Ø_{SUBJ} 还 不 知道,
 now interior-MOD situation not.yet NEG know
 We are not sure about the situation in the inland provinces,
- 16 反正 听 外婆 来
 in.any.case according.to maternal.grandmother to.here
 信 呢,
 letter CFP.REX.ne
 but from what your grandmother said in her letter,
- 17 Ø_{SUBJ} 就 没有 广东 好.
 EMPH.jiu NEG Guangdong as.good
 it is not as good as in Guangdong.

While five out of six translators (all written) successfully accounted for the meaning of line 17, one made Guangdong the subject of the comparison (“Guangdong is not good”), thereby reversing the meaning of the utterance. This comparison structure did not occur elsewhere in the data, so it is impossible to know whether this particular test subject could recognize and interpret this structure even if it did not contain a zero anaphor. At the same time, however, this translator correctly paired grammatical subjects and verbs in the turns before and after this one, and the error is commensurate with an orientation of native English speakers to seek and privilege explicit noun phrases as candidates for the grammatical subjects of verbs.

4.3 Mistaking “I” and “You” as referents of zero forms

In the errors in the previous segment, test subjects mistakenly used an explicit noun phrase (“Guangdong”), rather than a zero anaphora form, as the subject of their English translation. The personal pronouns “you” and “I”, however, do not have to be explicitly stated in discourse to be relatively given and accessible because human interaction is fundamentally an encounter between at least a “you” and an “I”. In the following segment, between a sister in China and one in the US, the China-based sister has been explaining how she got her new job, and her US-based sister has just congratulated her on her success there. The China-based sister describes achievements of the head of the institute at the new job, then continues with a description of the deputy institute chief:

5) (CALLHOME667)

- 9 再 有 个 副 所 长 呢,
also there.is MEAS.ge deputy institute-chief PAUS.ne
There's also a deputy institute chief,
- 10 Ø_{SUBJ} 搞 课题 的.
do problem PRT.de
who's responsible for research projects.
- 11 Ø_{SUBJ} 就 从 美国 留学 三 年 来 之后,
PRT.jiu from America study.abroad three year time after
After he came back from studying in the US for three years
- 12 Ø_{SUBJ} 搞 基 础 研 究 的 吧.
do basic research PRT.de CFP.SA.ba
he did basic research.

All nine test subjects (six written, 3 audio) successfully recognized, in line 10, that the deputy institute chief was the person responsible for research projects. This can be explained by two characteristics of the sentence. First, the zero anaphor in line 10 refers to the only prior noun phrase in a sentence that is relatively short and simple. Second, the overall structure of the sentence closely resembles the structure of a parallel English sentence, in which a reduced or zero form is used to refer to the prior, explicit subject: “There's also a deputy institute chief [who is] responsible for research projects.”

Two (both in written condition) of nine subjects, however, misunderstood the zero anaphor in lines 11 and 12. In both cases, test subjects made the speaker, rather than the deputy institute chief, the person who would go to America and do basic research: a) ‘After three years of study abroad in America, I will be doing fundamental research’ and b) ‘And after they send you as a

transfer student to the U.S. for three years, and get a foundation of research.’ At the discourse level, this error is not surprising, as the sisters’ overall discussion has focused on the China-based sister’s career trajectory. Although “I” is always “given” or “accessible” in interaction, native speakers of Mandarin use an explicit pronoun “I” to avoid such ambiguity when they shift reference from a recent, salient antecedent and its zero anaphora to a different person or thing (Huang 1994).

4.4 Misunderstanding an explicit noun phrase antecedent

A highly salient problem with interpreting and translating zero anaphora in this study occurred in a segment in which there was widespread misunderstanding of an explicit noun phrase that was the antecedent of a series of zero forms. The initial, explicit referent was a vocative (term-of-address) form, “older sister” (姐姐, *jiejie*) (Yuen Ren Chao 1956), followed by a second-person pronoun (“you”).

- 6) 那个 姐姐 你 现在 每天 都 在 家?
 FILLER.that older.sister 2P now every.day QUANT.dou at home
 Uh, older sister, do you stay home every day?

Six of nine test subjects understood “older sister” as a reference to a third person, an older sister not present in the conversation, rather than as a vocative term of address from the speaker to her older sister. Four of the seven were working with a written transcript, while three were listening to an audio recording. Of the three who correctly interpreted “older sister” as a vocative term of address, two were working in the written condition and one in the audio condition. Interpreting “older sister” (姐姐, *jiejie*) as a form of third-person reference may have been encouraged by the occurrence of 那个 (*na ge*) immediately before the word “older sister.” *Na ge* has a dictionary meaning of “that” (third-person demonstrative), but in spoken language, it is commonly used as a floor holding device akin to “uhm” in English. Several participants treated this verbal floor holding device precisely as a third-person demonstrative, resulting in translations of the turn such as, “That older sister of yours stays home every day?” In theory, encountering this conversation as a written text could contribute to misunderstanding: language learners may not be used to written representations of oral phenomena such as *na ge* as a floor holding device, and written forms lack the prosodic information that might indicate that a form such as “older sister” is a term of address. This was not born out in the results, however, as two of four test subjects in the written condition understood it as a form of address while only one of three in the audio condition understood it that way.

The explicit referent “older sister, you” was followed by six instances of zero anaphor in the older sister’s turn that were co-referential with “older sister”/“you” and should have been translated as “I.” Only those tests subject who correctly interpreted the initial referent were able to do this correctly. Participants who misinterpreted this initial reference carried this mistaken referent through the six subsequent instances of zero anaphora, in which the speaker describes her activities: staying at home, reading, taking care of the baby, going out and walking around, finding informal work, and going to an older couple’s house for informal work. Participants who understood the initial person reference as referring to a non-present sister of the addressee gave translations in which a third-person “she” was staying home, reading, taking care of the baby, etc.

7) (CALLHOME 667)

- 12b. B: 那个 姐姐 你 现在 每天
 FILLER.that older.sister 2P now every.day
都 在 家?
 QUANT.dou at home
 Uh, Older Sister, do you stay home every day?
- 13a. A: Ø_{SUBJ} 在 家,
 at home
 Yeah, I’m at home
- 13b. Ø_{SUBJ} 看看 书,
 read.REDUP book
 I read,
- 13c. Ø_{SUBJ} 带带 贝贝
 take.care.of.REDUP baby
 take care of the baby;
- 13d. 有时候 嗯 Ø_{SUBJ} 出去 走走,
 sometimes mm go.out walk.REDUP
 sometimes I go out and walk around,
- 13e. 另外 那个 Ø_{SUBJ} 找了 两份,
 also FILLER.that found-PERF two-MEAS.fen
 就是说 呃 工作 吧,
 that.is.to.say uh job CFP.SA.ba
 and besides that – I also found two, I mean, uh, jobs.

Whereas English pronoun anaphors provide clues to the identity of a referent through marking person, gender, and/or number – and other languages with zero anaphoric forms provide clues through verb conjugations – Mandarin zero anaphoric forms provide no grammatical clues as to the identity of the referent.

This means that misunderstandings of initial antecedents must be recognized pragmatically in subsequent discourse. This is very difficult when the pragmatic frame of the discourse is distorted by misunderstanding of an explicit referent, such as “older sister”.

4.5 Shifts in footing, or discourse activity, as a source of difficulty in resolving zero anaphora

Thus far I have argued that non-native speakers are able to interpret many instances of zero anaphor without difficulties. When they do make errors of interpretation and translation, some errors reflect a tendency to mistake a fully expressed noun or pronoun as the subject in utterances where a zero anaphora is the subject. I have also shown that in spoken interaction, the presence of the speaker (“I”) and addressee (“you”), means that those two pronouns can be readily available as possible referents of zero anaphor, even if they have not been explicitly expressed with a pronoun prior to the zero anaphor. In the last section, I illustrated how difficulties interpreting an initial, explicit referent affect resolution of subsequent zero references to that referent. This is not a difficulty in interpreting zero anaphora *per se* but a way in which a characteristic of zero anaphora in Mandarin – that it gives no syntactic clue to characteristics of its referent – can prevent comprehension problems from being recognized and resolved.

A final source of difficulty in correctly resolving zero anaphora relates to recognizing and interpreting changes in discourse activity, or footing (Goffman 1979). As described by Goffman, we regularly shift in and out of roles and frames in our talk. For example, at one moment, we may be narrating a sequence of actions by various actors, and in the next moment we may step back and give a personal evaluation of the actors or situation that we just described. Understanding discourse involves not only understanding the words spoken, but understanding the communicative frame that a speaker is invoking through talk. While explicit anaphoric pronouns in English can help one interpret the communicative frame, in some cases in Mandarin, one must first understand the communicative frame, e.g., narrating or evaluating, in order to understand the basic propositional content of zero anaphoric forms.

In the following segment (a continuation of segment #8, above), a sister has been describing an informal job she has in the United States helping an older couple clean. She has explained that she goes there once a week and that the older couple are over 70 and can’t bend over, so she vacuums for them. At line 15, she summarizes, “I just help them a bit”. She then switches activity (lines 16),

from a narrative description and summary of the tasks and people involved in the job, to a personal evaluation of it.

8) (CALLHOME 667)

15. 我 就 帮 他 干 一 下.

1P PRT.jiu.just help 3P do a.bit

I just help them a bit.

16. Ø_{SUBJ} 也 不 累,

and NEG tiring

And it's not tiring.

Only 4 of 9 participants were able to interpret the zero anaphora in line 16 as referring to the entire situation of helping the older couple and correctly translate the utterance “And it's not tiring.” Two of the three test subjects in the audio condition translated this correctly, while two of five in the written condition did so. The previous clause (line 15) had both explicit “I” and explicit third-person (“he/she/they”), so many of the errors in interpreting this zero anaphor made a first or third person subject “not tired” in line 16. Rather than “it's not tiring” they wrote, e.g.: “When I'm not tired,” (written condition) “if they are not too tired,” (written) “he is too tired,” (written) and “she's not too tired” (audio). The older sister in the United States continues to evaluate the overall value of the job in her next utterances (lines 17–18). She has accompanied her husband to the US for his work, and, as related above, is at home everyday with her baby. This informal cleaning job, in contrast to staying home with her baby, represents an opportunity to “get out and walk around and talk to people.”

9) (CALLHOME 667)

17. 反正 Ø_{SUBJ} 出去 走走 吧.

in.any.case go.out walk.REDUP CFP.SA.ba

Anyway, it's a chance to get out and walk around

18. 嗯, 对, Ø_{SUBJ} 也 能 跟 人家 说说话 什么的.

mm right also can with people talk.REDUP and.so.on

and talk to people and things like that.

Again, a number of the participants failed to recognize that the speaker was evaluating the overall situation and instead treated her utterances as an ongoing description of the activities in which she engages when she goes to clean for the older couple. Thus 4 of the 9 participants failed to recognize, in lines 17 and 18, that it was the speaker who got to go out, walk around, and talk to people, and instead involved the older couple in the walking around, e.g.:

“She’s not too tired to go for a stroll, though. And, yes, she can still chat with her family.”
 (written condition)
 “when he’s not tired I take him out for a walk” (written condition)

The failure to recognize that the speaker had begun a new activity in line 16 – of reflecting on the positive aspects of her job rather than enumerating tasks – made it difficult for participants to supply correct referents for the zero anaphoric forms. Seemingly paradoxically, the one must use pragmatic or discursive knowledge to supply the referent for the zero anaphoric form, but at the same time knowing the referent of the zero form would be helpful for understanding the pragmatics of the utterance.

As suggested by the previous example, tracking referents of zero anaphora requires a person to follow the interactional sequences being constituted by interlocutors. In the following segment, a female in China who plans to visit America asks her sister in America a question, which the sister repeatedly, across turns, fails to answer. The China-based sister asks if it is *easy to find work* in the United States. The American-based sister first determines that her China-based sister means informal work, rather than a regular job, and then says that it is possible. The China-based sister then asks again whether it is easy to find such work. The American-based sister then discusses the fact that such work would be illegal and asks her sister if she can leave her job in China for a year or two. The American-based sister has still not responded to the initial query of whether informal work is *easy to find* in the United State. The China-based sister then poses the question for the third time (line 74).

10) (CALLHOME 761)

72. B: 一 年, 两 年, 我 估计 还是
 one year two year 1P estimate still
 没 啥事儿. {laugh}
 NEG big.deal

It doesn’t really matter if I take a leave of absence for one or two years.

73. A: 那 ((你)) 对 啊, 现在 –
 so 2P right CFP.RF.a now
 Well, you ... now.
 457.21 460.63

74a B: Ø_{SUBJ} 也 不 知 怎么,
 just NEG know how
 Just that I am not sure,

- 74b 挣, 挣钱 容不容易 啊?
 earn earn-money easy-NEG-easy CFP.RF.a
 is it easy to make money?
 (Just that I am not sure if it is easy to make money there.)
- 74 ((为和)) 这 事儿 吗?
 in.what.way this matter CFP.QU.ma
 What about that?

The China-based sister's turn at line 74, is in some ways a repair initiator (Schegloff et al. 1977). Her American-based sister has never satisfactorily answered the question as to whether it was easy to make money working informally, without documents, in the United States. This initiation of repair represents a change in footing, or activity, from the previous turns, which had addressed whether it was possible to leave a job in China for 1–2 years and come to the United States.

Only two of five participants (4 written condition, 1 audio) were able to give the correct referent ("I") for this zero anaphor, "I just don't know," which functions here as a way to reintroduce the question, "Is it easy to make money?" Three (2 written condition, 1 audio) of the five participants gave sentences with a verb, but no subject, similar to a word-for-word translation of the Mandarin, e.g., "Thinking if it is easy to make money or not" (audio condition). On the one hand, the first-person pronoun ("I") was relatively proximate in prior discourse – the China-based sister had just used it (line 72), in the last full clause spoken by either speaker, and more-or-less in the same turn. The last use of the explicit first-person, however, had been in reference to whether it was a problem to leave her job in China for one to two years in order to spend time in the United States. This was a different activity – responding to this sister's specific question – from asking if it was easy to make money in informal work in the United States. In terms of time and number of words spoken, it was very proximate to the antecedent, but in terms of discursive activity and function, relatively distant.

In terms of sequential, conversational organization, however, this zero form is readily interpretable. The China-based sister's question as to the ease of making money through informal work had not yet been answered. The two times that it had been posed, it had resulted in insertion sequences (Levinson 1983: 304) – as to what kind of work was meant, the legality of such work, and whether the China-based sister could leave her work unit in China – but had not resulted in an answer. In conversation analytic terms, the first pair part ("Is it easy to find work there?") had not yet received an appropriate second pair part, an answer such as "Yes, it is" or "No, it is not." The utterance of the question

makes relevant an answer, and both interlocutors orient to this, e.g., by giving relevant answers or by engaging in conversational activities to explain or excuse the absence of a relevant answer. At the level of interactional activity, then, the interest of the China-based sister in whether it is easy to find such work remains salient. Interpreting zero anaphor in naturally occurring interaction is not just a matter of understanding the syntax and semantics of immediately prior sentences and utterances, but of understanding larger interactional sequences that make up such conversations.

5 Conclusions

While English generally requires an overt pronoun as an anaphor, Mandarin does not require an overt form in the many cases where native speakers can infer the referent from context, often from an explicit antecedent in recent, prior discourse. When these zero forms occur as subjects of verbs, interpretation of the zero form relies entirely on semantics and pragmatics of discourse because Mandarin does not have person or number markings on verbs. Tao and Healy (1996, 1998, 2005) have shown that individuals a) have language-specific strategies for processing zero anaphora in their own language, and b) transfer at least some of these unconscious, strategies to processing foreign languages, regardless of whether those strategies are particularly fitting and useful for the structures of the second language. This would predict particular difficulty for native speakers of English to correctly resolve zero anaphora in Mandarin.

Despite these challenges, intermediate to advanced level Mandarin learners who were able to translate propositional content and match explicit subjects with verbs in naturally occurring telephone conversation texts in this study were able to successfully interpret and translate zero anaphor about 72% of the time. While the surface expression of anaphora is different in Mandarin and English, the overall pattern in both languages fits with Givón's hierarchy of forms and his quantity universal, according to which:

“more continuous, predictable, non-disruptive topics will be marked by *less marking material*; while less continuous, unpredictable/surprising, or disruptive topic will be marked by *more marking material*” (Givón 1984: 126, italics in the original).

For anaphora, both English and Mandarin use reduced forms – pronouns in English and zero forms in Mandarin – when the referent is relatively continuous, accessible, given and predictable. This underlying pattern may guide language learners in interpreting Mandarin zero forms that are very different from English on the surface.

The greatest difficulties with zero anaphor were related to instances in which the initial, explicitly expressed antecedent was misinterpreted, and to discourse level shifts in activity, e.g., in which speakers moved from narrative description of an event to direct address of an interlocutor or to personal evaluation of a situation just described. Native speakers of Mandarin rely on semantics and discourse pragmatics to resolve zero anaphora and identify fundamental clause constituents such as subjects of verbs. The nature of Mandarin zero anaphora and the results of this study suggest that greater awareness of discourse level structures in naturally occurring verbal interaction – which could be taught through explicit instruction – might help intermediate and advanced Mandarin learners to interpret a wider range of Mandarin zero anaphoras successfully.

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Appendix: Guide to interlinear gloss abbreviations

Ø_{CONJ} – a place in the syntax where a clausal relation understood from context has no phonological form.

Ø_{SUBJ} – a place in the syntax where a subject understood from context has no phonological form.

1P – first person

2P – second person

3P – third person (general)

CFP – clause-final particle. Conventions from Li and Thompson (1989).

CFP.RF.a – clause-final particle 啊, Pinyin pronunciation *a*, which reduces the forcefulness of the utterance.

CFP.RF.ya – clause-final particle 呀, Pinyin pronunciation *ya*. Phonological variant of CFP.RF.a.

CFP.SA.ba – clause-final particle 吧, Pinyin pronunciation *ba*, which solicits agreement from the addressee.

CRS.le – Marking a state of affairs as a “currently relevant state” (CRS).

FILLER – akin to English ‘um’, ‘uh’, 那个 *na4ge* ‘that’ glossed as ‘FILLER.that’.

MEAS – measure word

MOD – modifier particle 的, Pinyin pronunciation *de*. Marks the phrase it follows as semantically modifying the following nominal.

NEG – negative

PAUS.ne – pause particle 呢, Pinyin pronunciation *ne*.

PLUR – plural

PRT – particle with grammatical function

QU – question particle

QUANT.dou – quantifier particle 都, Pinyin pronunciation *dou1*. Has scope over the preceding noun, which can either be translated as ‘all’ or (when it optionally co-occurs with a preceding *lian2*) ‘even’:

[a] Haizi dou shuijiao le.

child QUANT.dou sleep CRS.le

All the children have gone to sleep.

[b] Zhe zhong tangzi (lian) wo dou bu xihuan.

this sort sweet include 1P QUANT.dou NEG like

Even I don’t like this sort of sweet.

REDUP – reduplicated word. Reduplication has various meanings, with one common function the conveying of a mitigation of the force/intensity of an action.

Bionote

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