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A Preliminary Investigation into the Effect of Grammatical Cohesive Devices —their Absence and their Misuse — on Native Speaker Comprehension of Non-native Speaker Speech and Writing

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This paper investigates NS perceptions of the coherence and comprehensibility of NNS writing and talk which lacks or misuses grammatical cohesive devices. NS readers of NNS texts with missing cohesive devices assumed coherence and actually imposed coherence on the text by adding grammatical cohesive devices which were missing in the original, making implicit semantic relationships explicit. Knowledge of narrative structure and of the world assisted the readers to recover these implicit semantic relationships. NSs also assumed coherence and worked to find relationships in the text even where there was potential miscommunication caused by using the wrong cohesive device or by failure to establish a referent. Communication was not usually impaired when the underlying semantic relationship was clear from the discourse context or from background knowledge, although NSs had to work hard to understand some texts. Miscomprehension resulted when underlying semantic relationships were not retrievable from other sources.

THEORETICAL BACKGROUND

Halliday and Hasan use the term "texture" for what is often referred to as coherence, asserting that texture is related to the listener's perception of coherence (1989, p. 72). It is texture that distinguishes a text from a disconnected sequence of sentences, from something that is not a text. This "texture is provided by the cohesive RELATION" (1976, p. 2). "Cohesion occurs where the INTERPRETATION of some element in the discourse is dependent on that of another. The one PRESUPPOSES the other, in the sense that it cannot be effectively decoded except by recourse to it" (1976, p. 4). They give the following example (1976, p. 2):

Example 1
Wash and core six cooking apples. Put them into a fireproof dish.

According to Halliday and Hasan, "them" in the second sentence refers to the "six cooking apples" in the first sentence, providing a cohesive relationship between the two sentences, enabling the reader or hearer to interpret the passage as a text rather than two disconnected sentences. Examples of cohesive relationships, according to Halliday (1985), are reference (including third person pro-

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nouns as discussed above, demonstratives, and comparatives), ellipsis, substitution, conjunction, and lexical cohesion.

Halliday and Hasan attribute a strong role to cohesive devices in creating coherence. In an earlier work they allow that a reader will go to great lengths to interpret a text as complete and intelligible, an aspect of the human tendency to assume in the other person an intention to communicate (1976, p. 54). In discussing conjuctive relationships, they also say that

> it is the underlying semantic relation . . . that actually has the cohesive power. This explains how it is that we are often prepared to recognize the presence of a relation of this kind even when it is not expressed overtly at all. (1976, p. 229)

Yet even here Halliday and Hasan insist that "textness" cannot be realized without the presence of the cohesive marker. In a later work (1989) they make it very clear that they believe coherence is created by the cohesive devices. They not only see cohesive devices as necessary to the coherence of a text, they insist that both lexical and grammatical cohesion are necessary for a group of sentences to form a coherent text. They give the following example to show that the presence of lexical cohesion, without grammatical cohesion, is insufficient for coherence (1989, p. 83):

Example 2
A cat is sitting on a fence. A fence is often made of wood. Carpenters work with wood. Wood planks can be bought from a lumber store.[1]

Halliday and Hasan (1989) do not claim that cohesive relationships alone create coherence; they also acknowledge the importance of generic structure in enabling a reader to interpret a text; however, they do not view generic structure as sufficient in itself for establishing coherence, without both grammatical and lexical cohesion.

Even though Halliday and Hasan's work has provided valuable groundbreaking insights into the relationship between cohesion and coherence, many researchers have felt that they place too much emphasis on the role of cohesive devices in creating coherence. There have been two main types of criticism: (1) It is not the cohesive devices themselves, but inherent semantic or pragmatic relationships between sentences that create coherence; the cohesive devices are merely explicit representations of these inherent relationships (Brown and Yule 1983; Mann and Thompson 1983; Fahnestock 1983); and (2) Coherence is not created primarily by the cohesive devices but by the discourse structure and the knowledge that the reader or listener brings to the discourse (Witte and Faigley 1980; Tierney and Mosenthal 1980; Morgan and Sellner 1980; Lindsay 1984; Carrrell 1982; Fahnestock 1983; Van Dijk 1977,1980; Bamberg 1983; Stoddard 1991; Levinson 1983; Schegloff 1990). It is in the interaction between the reader

and text, or between participants in a conversation, that meaning is created. Both types of criticism stress that readers and listeners expect discourse to be coherent and will work to achieve this sense of coherence.

Underlying Semantic Relationships

A major portion of Brown and Yule's (1983) critique of Halliday and Hasan (1976) focuses on inherent semantic relationships between sentences. According to Brown and Yule, although Halliday and Hasan recognize that cohesion is provided by the underlying semantic relationship, not the explicit cohesive marker, Halliday and Hasan insist that "textness" cannot be realized without the presence of the cohesive marker. Brown and Yule maintain that formal markers are not in a one-to-one relationship with a particular cohesive relationship, and that cohesive relationships exist in the absence of formal markers. The explicit realization of these cohesive relationships, or underlying semantic relationships, is not necessary to identify a text as a text. In fact, Brown and Yule show that formal cohesive devices are neither necessary nor sufficient to the identification of a text. Readers will naturally assume that a sequence of sentences constitutes a text and will assume semantic relationships between the sentences.

Further support for Brown and Yule's position is provided by Mann and Thompson's (1983) "relational propositions," implicit propositions which arise between parts of a text, allowing readers to perceive the parts as related. Readers, they say, begin with the assumption that a passage is a text, a coherent whole. This assumption is related to the cognitive ability described by Gestalt psychology as "closure, the ability to impose connectivity on disconnected parts of a visual image" (1983, p. 1). Readers also assume that a writer intentionally wrote the text. This allows readers to assume that parts of a text go together, and to discover the implicit connections such as "cause," "justification," "sequence," "background." If we try to read a text without its relational propositions, it is not coherent. For example, the following sentences (1983, p. 17) have the relationship of justification: the first justifies the second. If we read the sentences without this relationship, they cannot be interpreted as a unit:

Example 3:
I'm Officer Krupke. You're under arrest.

These relationships collectively connect the entire text, yet are often implicit. "Relational propositions arise in a text independently of any specific <u>signals</u> of their existence. . . there need be no structural feature in the text whose function includes expressing these relationships" (1983, p. 9,12).

Fahnestock (1983) also discusses underlying semantic relationships between sentences, pointing out their role in composition pedagogy. According to Fahnestock, the fact that semantic relationships between clauses can be articulated, even though they are unmarked, is a necessary assumption behind advice

given to students about putting in transitions. "Explicit semantic markers cannot be added unless the connections they represent are inherently present between two clauses" (1983, p. 402). A correlate to Fahnestock's insight is that transition errors could not be perceived if the transition words created the semantic relationship rather than expressing an already underlying relationship.

Interactive Models and Schema Theory

A second group of researchers attributes a greater role to discourse structures and to elements outside the text in creating a sense of coherence. Many of these critiques are based on psycholinguistic models of language processing that take into account the interaction between writer, text and reader. The research is often based on readers' perceptions of coherence in student writing.

Witte and Faigley (1980), in an analysis of freshmen compositions, show that Halliday and Hasan's framework, focusing only on mechanisms within a text, does not capture conditions such as context, purpose, and audience which "allow a text to be understood in a real-world setting" (1980, p. 199). Similarly, Tierney and Mosenthal (1980) feel that researchers should use an interactive framework, including the interactions of the reader, writer, text and context. They found no relationship between the number of cohesive ties within a text and coherence ranking in compositions.

For Morgan and Sellner (1980), cohesion is a surface manifestation of coherence. Using Halliday and Hasan's example of cooking apples (Example 1 above), they say "it is because we <u>assume</u> the text is coherent that we infer that <u>them</u> is intended to refer to the apples . . . It is not knowledge of language that supplies this conclusion" (1980, p. 180). Carrell (1982) also sees cohesion as a natural outcome of coherence. In her estimation, coherence is not located in the text. Coherence cannot be simply defined as a configuration of textual features. When schema-theoretical views of text processing are taken into account, coherence can be seen as a result of an interactive process between the text and the reader.

Fahnestock (1983) points out that, aside from cohesive devices which tie individual sentences together, there are "successive integrations of successively larger groups of sentences . . . [with] relationships not only between contiguous sentences but also between groups of sentences and even paragraphs" (1983, p. 401). Similarly, Van Dijk (1980) states that cohesive ties create only "local" coherence, not discourse-level or "global" coherence. For global coherence to be created, texts must have an overall form or structure (van Dijk 1977, p. 149). Bamberg (1983, p. 419) sees the predictability of this overall form, or schema, e.g. the structure of a story or a scientific report, as having the function of helping "readers anticipate upcoming textual information, thereby enabling them to reduce and organize the text into an understandable and coherent whole".

Coherence in Conversation

Researchers who study conversational interaction have reached similar conclusions about the role of discourse structure and the role of interaction in creating

a sense of coherence. Researchers in the tradition of Conversation Analysis (e.g. Sacks, Schegloff and Jefferson 1974) have discovered that ordinary conversation is highly structured. A basic unit of this complex sequential organization is the adjacency pair (e.g. question-answer, offer-acceptance [Schegloff 1990]). To this basic form can be added pre-sequences, post-sequences, or insertion-sequences. For example, the following request-denial sequence (Levinson 1983, p. 304) has an inserted sequence between the request and denial which functions to provide information about whether or not the request can be granted:

Example 4

request		A: May I have a bottle of Mich?
	insertion	B: Are you twenty-one?
	sequence	A: No
denial		B: No

Conversation analysts speak of the notion of conditional relevance: given a first pair part of an adjacency pair, a second pair part is relevant and expectable. Utterances following the first pair part are interpreted in light of that first pair part: (1) either as a second part of the pair, (2) as related to clarifying the first pair part, or, (3) as in the above example, as establishing the conditions (e.g. collecting necessary information) for a decision between alternative second pair parts (Schegloff 1990). This setting up and fulfillment of expectations makes a conversation coherent. The sequential structure makes a conversation coherent. It provides the basis for coherent links between what are, on the surface, unrelated and noncohering utterances (Schegloff 1990). The sequential structure of conversation answers the question "Why that now," first for parties to the conversation in progress, and second, to the researcher of conversation (Schegloff 1990, p. 55). In example 4 above, although there are no formal markers of cohesion between the first two utterances, they were perfectly coherent to the parties because of the expectations set up by the sequential structure of conversation.[2]

RESEARCH PROJECT

The above researchers agree that, although Halliday and Hasan's insights about the role of cohesive devices are valuable, they have placed too much emphasis on the role of cohesive devices in creating, rather than simply conveying, coherence. In this project I test the role of grammatical cohesive devices in creating coherence by answering the following two research questions: (1) How does the lack of grammatical cohesive devices in NNS language affect coherence and comprehensibility? (2) How does the misuse of grammatical cohesive devices in NNS language affect coherence and comprehensiblity? Coherence in this study is broadly defined as that which distinguishes a text from a disconnected sequence of sentences. Because these are very broad questions, this project is merely a preliminary investigation into possible effects which need additional research to verify.

Research Question 1

The first research question — How does the lack of grammatical cohesive devices in NNS language affect coherence and comprehensibility? — necessitated using data which had few or no cohesive devices. The data chosen were Language Experience stories collaboratively composed in beginning ESL classes for Cambodian and Mien (hilltribe Laotian) refugees. Following Language Experience Approach methodology, students dictated a story to the teacher who wrote it down just as the students told it without correcting the language, but using correct spelling and punctuation. The data are thus written versions of oral stories. For the purposes of this research, native speakers would be able judge these stories for comprehensibility without interference from pronunciation or orthography.

Nine native speakers with little or no background in formal linguistics were given four short student stories of the Language Experience Approach type. They were asked to rate how difficult the stories were to understand, and then to rewrite them in correct English. Five of the native speakers were graduate students, three were undergraduates, and one was a special education teacher in an elementary school. All had limited or no experience with low-level non-native speakers of English. The NS rewrites were then analyzed for changes made to the original stories, especially the addition of grammatical cohesive devices showing inferred coherence. In the following section I will discuss each of the stories in turn. I will show how NSs rated the story for comprehensibility and how they displayed in the rewrites their understanding of underlying semantic relationships in the story.

Story 1

[1]Sometimes in Laos fire house. [2]Everybody go outside. [3]Sit down and cry.
[4]Small fire take water. [5]Throw water on the house. [6]Everybody help.

Of the nine NSs, one said she "didn't fully understand the story": it took her a while to understand "fire house." Five said they "had to work a little" to understand it; one of these had trouble with the connection between the fourth and fifth sentences: he felt he was "making up [rather than inferring] what the passage meant;" for three NSs the text was "no problem" to understand. In the rewrites, except for some variation in the subject of sentences four and five and variation in verb tense, both of which were unexpressed in the original story, there was consensus on the meaning. Some examples of NS rewrites follow:

Example 5
Sometimes in Laos a house would catch on fire. Everyone in the house would go outside and sit down and cry. If it was a small fire, we would take water and throw it on the house. Everybody would help.

Example 6
Sometimes in Laos a house catches on fire. Then everybody goes outside. They sit down

and cry. A small fire can be fought with water. People throw water on the house. Everybody helps.

Example 7
Sometimes in Laos a house catches on fire. Everybody goes outside. They sit down and cry. If it's a small fire it can be put out with water. We throw water on the house and everybody helps.

As these examples show, all of the NSs assumed the original text was coherent even though it contains only one example of grammatical cohesion, the definite article "the," and no examples of pronoun cohesion which would maintain subject reference for topic continuity in sentences 3 to 5. The only other examples of cohesion are lexical, with the repetition of "fire," "house," and "water." The one example of grammatical cohesion, the definite article "the" in sentence 5: "Throw water on the house," does not establish co-referentiality with the previous "house" in sentence 1: "Sometimes in Laos fire house." Aside from this one example which does not signal a straightforward cohesive relationship, there is nothing in the grammar of the text to show that the sentences go together. Yet there is strong evidence for the type of "relational propositions" discussed by Mann and Thompson (1983). The first sentence, "Sometimes in Laos fire house," provides the background, or setting for the rest. It gives the aspect lexically: "sometimes," and the location. Sentences 2 and 3: "Everybody go outside. Sit down and cry," are seen as results of the fire in sentence 1. Without any grammatical marking to make this relationship explicit, the NSs saw sentences 4-6, "Small fire take water. Throw water on the house. Everybody help," as a subset of the general situation expressed in the first three sentences, many expressing this relationship with a conditional "if - then" clause. Each saw the "fire" of sentences 1 and 4 as not co-referential, and the "water" of sentences 4 and 5 as co-referential. Each of the NSs saw the expressed subject of sentence 2, "everybody," as co-referential with the unexpressed subject of sentence 3. None of the NSs saw these as unrelated sentences lacking coherence. Each of the NSs perceived the sentences as a story, and each perceived basically the same story, although most had to work somewhat to understand the story.

Story 2:
[1]Go to Thailand from Cambodia. [2]Walk 5 days. [3]Sleep in the day.
[4]Walk at night. [5]Soldiers kill many people.

This story has no grammatical cohesion at all, only lexical cohesion: "walk" and its hyponym "go," and the antonyms "day" and "night." There is nothing explicit in the grammar to show that the sentences are related to each other. NSs were given this text without being given any background about the authors. Yet in this case, of the nine NSs who read the text, only one said she "had to work a little" to understand it; eight said it posed "no problem" in understanding. Following are

several examples of NS revisions:

Example 8
To get to Thailand from Cambodia, you have to walk for 5 days. You have to sleep in the day and walk at night because soldiers kill many people.

Example 9
We went to Thailand from Cambodia. We walked 5 days. We slept in the day. And we walked at night. The soldiers killed many people.

Example 10
I went from Cambodia to Thailand. I walked and it took 5 days. I had to walk at night and sleep during the day since soldiers were killing people.

Each of the NSs saw the passage as a coherent whole. Each of them saw the first four sentences as having the same subject, providing topic continuity, though the subject varied in the rewrites, as it was unexpressed in the original version. Six of the NSs gave it a first person subject, a common subject for narratives; one NS used "we," and two used a generic "you." Four of the nine made the unexpressed cause-effect relationship explicit (e.g. "You **have to** sleep in the day and walk at night **because** soldiers kill many people)." Others who did not make this relationship explicit in their rewrites mentioned the relationship orally. Because of the lack of subject and aspect marking, it was impossible to determine whether this was a story about a specific event or a generic pattern, but NS readers did not seem to be aware of this ambiguity, as eight out of nine said they had "no problem" understanding the text. There was such a strong impulse to see this as a text and such confidence that they had understood the story that NSs did not notice what could possibly be ambiguous.

Story 3:
[1]In Cambodia and Laos no telephone. [2]I want to talk to my friend, I go my friend house. [3]Go on horse. [4]Maybe 1 hour. [5]Maybe 2 days. [6]Maybe 5 days. [7]In America I have telephone. [8]Call telephone. [9]Talk uncle.

This example has no grammatical cohesion other than the possessive adjective, "my," referring back to the subject "I" and connecting the two clauses of sentence 2. The repetition of "I" additionally provides some topic continuity. There are examples of lexical cohesion: "telephone," "friend," "talk," "go," and "days," and examples of parallel structure: "In Cambodia," and "In America." In this case, as in the previous two stories, NSs saw this text as a coherent whole, although they had a little more difficulty than with story 2. One "didn't understand it totally;" he had problems with the connection between sentence 3 and the following sentences: "Go on horse. Maybe 1 hour. Maybe 2 days. Maybe 5 days." In the end he assumed, along with the others, that the author was conveying the time it took to go to the friend's house. Two others "had to work a little," one of

these with the same confusion about the three times cited. The remaining six NSs, however, said they had "no problem" understanding the text. Following are some of the rewrites:

Example 11
In Cambodia and Laos there is no telephone. When I want to talk to my friend, I go to my friend's house. I go on a horse. It takes maybe 1 hour, or maybe 2 days, or maybe 5 days. In America I have a telephone. I can call on the telephone and talk to my uncle.

Example 12
In Cambodia and Laos there are no telephones. If I want to talk to my friend I go to the friend's house on horseback. It could take an hour, two days, or five days. In America I have a telephone. I call on the telephone and speak to my uncle.

Example 13
There are no phones in Cambodia and Laos; so, when I want to talk to one of my friends, I must go to his or her house in person. I go there on horseback. Sometimes it takes an hour, sometimes 2 days, sometimes 5 days — depending on where my friend lives. But in America, I can pick up my telephone and call my uncle.

Again, each of the NSs sees basically the same story. The story is seen as a contrast between one aspect of life in Southeast Asia and in America. The sentences beginning "In Cambodia and Laos," and "In America" give the setting for the two contrasting situations. A conditional relationship is seen in sentence 2 : "I want to talk to my friend, I go my friend house." The story is seen consistently as a generic situation, not a specific incident. The final three sentences about life in America are all assumed to have the same subject.

Story 4:
[1]Someone come my house. [2]Says give me money. [3]Husband take gun shoot.
[4]Go outside die. [5]Call police. [6]Emergency 911. [7]Policeman come.
[8]Take black man go hospital die.

This story has no grammatical cohesive devices and only four instances of lexical cohesion: "someone"/ "black man," which are co-referential, "police"/ "policeman," which contribute to topic continuity, and repetitions of "take" and "die," which do not add to the coherence of the passage. In fact the repetition of "die" should cause major confusion, as the man seems to die twice: "Go outside die" and "Take black man go hospital die." Two NSs said they "had to work a lot" to understand the story. This text has syntactic problems which may contribute to the confusion. However, in spite of the confusion, five NSs said they only "had to work a little" and two even said they had "no problem" understanding the story. Several NSs were asked "When did the man die?" Most said they assumed he was in the process of dying, or was badly injured outside the house and died at the hospital. One said she assumed the police would not take a dead man to the hospi-

tal. However, another assumed the man died outside the house and was dead on arrival at the hospital. Following are examples of NS versions of the story:

Example 14
Someone came to my house and said, "Give me money." My husband took a gun and shot him. He went outside and died. We called the police — Emergency 911. A policeman came and took the Black man to the hospital, and he died.

Example 15
Someone came to my house and demanded that I give my money. My husband took his gun and shot the person. The person went outside. I called the police. The emergency number is 911. A policeman came (in response to the call). He took the intruder, a black man, to the hospital, where he died.

Example 16
A black man came to our house and tried to rob us. My husband shot him and the man went outside and died. We called the police and 911. They came and took the black man to the hospital. He died.

It is striking that, in spite of almost total lack of cohesive devices and a major unresolvable confusion about when the man died, the story is still seen as a coherent whole, and, except for when the man died, NS versions are very similar. The one exception was a NS who had written: "Someone came to my house. He said **he'd give me money**." When I asked her why the husband shot the man, she realized that she had misunderstood the story. My question enabled her to make the connection between the second and third sentences which she had missed on the first reading: "Says give me money." and "Husband take gun shoot." All the other NSs immediately realized that this was a story about a robbery and that the "husband" was the husband of the story teller.[3] Everyone used grammatical cohesive devices, either the definite article or third person pronoun, to show co-referentiality between the "someone" in the first sentence, the unexpressed subject of the second sentence, the unexpressed object of the third sentence, the unexpressed subject of the fourth sentence, and the "black man" in the last sentence. Thus topic continuity was inferred. None of the NSs made the thief the subject of the fifth sentence, "Call police," although there is no grammatical or structural reason why they should not do so. It is their knowledge of the world, specifically what happens in robberies, that allows them to correctly understand who is doing what. Aside from this knowledge of the world, a universal knowledge of story scripts also makes this story interpretable. The succession of actions is seen, according to the rules of narrative, as following each other in time, and the story is seen as a specific incident which happened to the writer in the past.

Summary

It is clear from NS responses to the above stories that a lack of grammatical cohesive devices does not necessarily lead to lack of coherence and lack of com-

prehension, provided implicit relationships between sentences are clear from the discourse context or knowledge of the world. Readers approached texts with an assumption of coherence and worked to create it, even when this was made difficult by the NNSs' insufficient control of the language, e.g. when the thief seemed to die twice. There was a surprising amount of similarity between NS versions of the stories, showing the existence of inherent semantic relationships between the sentences. These relationships were understood because of knowledge that readers bring with them to a text. It is possible that, had the stories been longer and more complicated, or the writing more abstract, explicit cohesive devices would have been needed to make the text coherent. This remains to be investigated. Yet it is nonetheless surprising that NSs claimed so much understanding and demonstrated this understanding in such similar ways as evidenced in the rewrites, considering that the NS were given no background about the writers, and the two groups had come from such different cultures: one, preliterate and nonliterate, from isolated rural villages in Southeast Asia, and the other, educated urban Americans.

Research Question 2

We have seen above that a lack of grammatical cohesive devices does not necessarily cause readers to see a text as incoherent or create serious problems in comprehensibility. But is this also true for misused cohesive devices? If the cohesive devices themselves play a large role in creating coherence, we might expect that when these devices are misused, misunderstanding will result. The question, "How does the misuse of grammatical cohesive devices in NNS language affect coherence and comprehensiblity," was investigated using a variety of spoken and written data with errors in grammatical cohesion, either use of the wrong form, or use of a form with an unclear referent.

Spoken data included telephone conversations between adult NS-NNS friends and an interview between an adult NS and a 13-year-old NNS. Comprehensibility was determined by investigating the utterances following the target NNS utterance to see whether there was a sequentially appropriate response by the NS and whether that NS response was accepted as appropriate by the NNS.[4] Written data consisted of excerpts from intermediate level NNS compositions. Comprehensibility was tested as follows: Four native speakers were asked to read the selections, correct errors in underlined portions, and relate how difficult the passages were to understand. For some passages, NSs were asked specific questions to determine if they had understood targeted portions of the passage with errors in grammatical cohesion. Three of the native speakers were undergraduates with little experience with NNSs. One was a graduate student in his first year of ESL teaching.

The grammatical cohesive devices focused on in this portion of the study were determined by the data. They included substitutes, determiners, third person pronouns, and plural inflections on nouns. All but the last are included in Halliday

and Hasan's typology. The relationship most often signaled by these devices is topic continuity: the establishment and maintenance of a referent in a text or conversation.

I will first discuss data segments where misuse of cohesive devices did not cause serious problems in comprehension of spoken or written data. I will then turn to those data segments where problems in comprehension occurred.

When Comprehension is not Seriously Impaired

The first example is from a NS-NNS telephone conversation[5]. It includes misuse of the substitute, "one." The phone call is coming to a close:

Example 17

Jim: Oh:: thanks for calling
Tang: You're welcome (0.2) andda if you have any you know (h) thing needs help jus ta give me a call .h OH:: you don't have my number yet right?
Jim: Um:: no (I guess) I don't
→ Tang: Do you want **one**?
Jim: Uh huh
Tang: .h Okay it's 534 (0.4) 987 (0.8) mm:: jus' a minute

In this conversation, there is no sense of miscomprehension even though this use of "one" is incorrect and could potentially cause the listener confusion in finding the referent. In this case the conversational structure, as previously discussed, provides such strong predictability even before the wrong form is used, that there is no problem understanding the referent. Tang gives a standing offer of help to Jim; all Jim has to do is call. After making this offer, Tang displays a sudden realization ("OH::") (Heritage 1984) that Jim may not have his phone number, and, after confirming this with Jim, asks "Do you want . . ." In this sequential context, what Tang is asking for is projectable even before the "one" is heard. The conversational structure provides sufficient information to outweigh any potential confusion from using a wrong form.

In the following example of pronoun error, from a NS-NNS phone conversation[5], Huang is telling her friend Jane what she named her new baby. The baby has both a Chinese name and an American name, Steven. They will call him Steven:

Example 18

Huang: (h) i (h) *h Yeah but uh we- we- we al- always cohl him (0.2) Steveen hh
Jane: Steven?
Huang: Uh huh
→ Huang: **He's** okay?
Jane: Yeah::: (Yeaahss:::)
Huang: Think so?

	(0.2)
Jane:	Yeeaas::
Huang:	Thank you (h) i (h) - (h) i (h)
Jane:	(h) i (h) - (h) i (h) That's cute:::
Huang:	Mm hmm
Jane:	So how did you get Steven out of all the names?

In this example, Huang uses "he" to refer to the name "Steven." Even though this is the incorrect form ("he" is not used to refer to names in English), the NS's immediate response: "Yeah," and her subsequent response: "that's cute," show that she has no problem understanding the referent for "he." Both the structure of the conversation and the background knowledge combine to disambiguate the referent. Huang had just told Jane that she and her husband had chosen the name "Jamie" for their baby, but Americans had told them this is a diminutive and would not be proper when the boy is an adult. This previous mistake with an American name, plus the current topic of the conversation, the substituted name Steven, sets the stage for the question about the adequacy of the second name.

In the next example there is an even more complicated confusion of pronouns. Pajarito, a thirteen-year-old boy from El Salvador, is being interviewed by a NS of English. As will become obvious, Pajarito does not yet have control over the past tense or the gender of third person pronouns in English. He has been asked to tell about the friends he had in El Salvador:

Example 19 (Lu 1990, pp. 71,72 simplified)

P: i got one friend his name is uh like uh adam adan
in spanish he - he - he going with me and another
his name is guillermo he - we are going to him to in the
restaurant and because he live - uh like two blocks
of my house and i going to bike to - for talk with **her** mom
who let him going with me to the - to play basketball or
soccer and then him and then we take him going to
guillermo and talk with **her** mom because **her** mom is
so hard to talk to **her**.

S: why is that.

P: because **he** let - **he** not let him going outside.
because he doesn't got good grades.

S: oh she is strict then.
and what are some of the ways that you used to convince
her to let him come out.

In this example Pajarito confuses possessive adjective gender: "her mom" for "his mom," and pronoun gender in both objective and nominative case: "her" for "him" and "he" for "she." Yet in spite of sometimes massive gender confusion, in the talk transcribed above, the NS appears to have understood immediately what Pajarito meant. There were no pauses or hesitations and the responses were se-

quentially appropriate, e.g.: "why is that" and "oh she is strict then . . . what are some of the ways that you used to convince her to let him come out." Both the interview and narrative contexts and the clear establishing of referents helped to disambiguate the text. Pajarito was asked about his friends in El Salvador and answered with a narrative telling what he used to do with them, introducing them by name. Knowledge that the NS brings into the situation about how a young boy may have trouble convincing a friend's mother to let him go out, may also have helped the NS to find the correct referent more easily. The NS may also have noticed that Pajarito does not control the gender system in English. If he had had more control, and the NS was not expecting pronoun errors, the errors may have been more misleading. This example shows that even massive confusion of pronoun gender does not *necessarily* lead to lack of comprehension.[6]

The above spoken data samples show how conversational, narrative, and interview structures, combined with background knowledge, can help to clarify meaning when cohesive devices are misused. We will now turn to examples from written text.

The example below contains an error in the use of "one." It is taken from a study of ESL composition number/person errors by Zalewski (1993, p. 693):

Example 21
When I saw the news about democratization in Russia first time, I thought it was great thing. Because I always felt sorry about the people in Russia. But, I didn't see any good news about Russia after the first one.

Of the four NSs who read this passage, one said she had "no problem" understanding it, two said it was "not that difficult," and one said it was "very difficult." Three of the NSs said that "one" refers to "good news," or "news report," and one said it refers to the "time that person saw news on Russia." For three out of four NSs, this passage seemed fairly clear. There was no ambiguity, no possible other referents for "one," and the context made the referent fairly clear: "the first" helps to establish a logical referent for "one." However, one NS, even though he eventually found the intended referent, perceived the passage as difficult to understand. This difficulty may also have been caused by the accumulation of other types of errors in the passage.

The next example, with determiner errors, is from the same data set (Zalewski 1993, p. 694):

Example 22
In Japan there are two way which young women and men find their partners for their marriages. I want to explain what the arranged marriage is and what advantages or bad points it has.

There is a go-between who take care of between a boy and a girl. Before they meet, they can get personal histories of each other. then, a go-between gives them a meeting. In a

meeting, a go-between introduces a boy and a girl to each other. In almost case, meetings are dinner parties. Their parents often go with them to a meeting. If they are interested in each other, they go out together for a while. And then they decide if they get married or not.

In this selection, the writer uses indefinite articles throughout the passage, including places where the definite article should be used to show co-referentiality and topic continuity. In this case, three of the four NSs said they "had to work a little" to understand this passage; only one said it was "no problem." When asked to correct any possible errors in the underlined portions of the passage, all of the NSs replaced the indefinite article with either "the," "this," or "these" in appropriate places to show co-referentiality and topic continuity, relationships which they had perceived in spite of the original writer's use of forms which indexed non-referentiality. The NSs also all agreed that the writer was discussing a general pattern, not a specific situation. Following is an example of a typical NS correction:

Example 23
Then, **the** go-between gives them a meeting. In **the** meeting, **the** go-between introduces **the** boy and **the** girl to each other. In almost cases, **these** meetings are dinner parties. Their parents often go with them to **the** meeting.

In this case, although the original writer used inappropriate forms which could potentially have destroyed cohesion, the narrative format of the text provided a strong framework for topic continuity so that, in spite of the inappropriate forms, the text was comprehensible, although most of the NSs had to work harder to understand the text. The additional work involved in this case may also be the result of a significantly higher portion of errors.

A third example from Zalewski (1993, p. 695), contains determiner and plural morphology errors:

Example 24
Most gestures of Americans are more exaggerated than ones of Japanese in general. For example, Americans shrug the shoulders and lifts both hands to mean "I don't know." On the other hand, Japanese shakes the head from side to side.

Zalewski sees this as an example of lost morphological information which is unrecoverable for the reader: "in the absence of possessive pronouns (or possibly determiners altogether), the problem with number/person inflections becomes unsolvable for the reader" (1993, p. 695). However, all four NSs presented with this example felt they had no problem understanding. They all understood the author to be discussing Americans and Japanese in general, and, in their corrections, they all used plural morphology for the verbs and corrected the definite article "the" to "their." The context of the passage, including the lexical items "in general" and

"for example," clearly established that the author was contrasting American and Japanese gestures in general, and the lack of plural morphology and wrong determiner were in no way barriers to comprehension.

The data segments discussed above show that the misuse of cohesive devices does not necessarily cause serious problems in comprehending spoken or written data. Conversational, narrative, and interview structures, combined with background knowledge, can help to clarify meaning in conversation. The discourse context (e.g. a narrative structure which provides topic continuity) can disambiguate a written text. We will now turn to those data segments where problems in comprehension occurred.

Comprehensibility is Impaired

The following data segments show problems in comprehension by the NS interlocutor or the NS reader. Earlier we saw a data sample (Example 19) from an interview of Pajarito, a thirteen-year-old boy from El Salvador. Even though Pajarito showed massive confusion of pronoun gender, his talk was still understood by the NS interviewer. In the next example from the same interview (Lu 1990, p. 65 simplified), the pronoun referent is not so clear to the NS:

Example 25

P: um the first uh time i come here
i going to some place with my family
→ **my family** like here and **she** say - he need - **she** need work
for uh win the - for win money to buy food
and something like that
→ +and then h- **she** - **she** got residence right here.
S: **oh your mom**?
P: **no. my mom is in el salvador**. i stay with my aunt and my
uncle because -
S: oh i see.

In lines 3 and 6 — highlighted with arrows — the pronoun "she" most likely refers to "my family," a translation from Spanish, where "family" is feminine and requires a feminine pronoun. The NS interlocutor, however, is confused by the feminine pronoun in English and suggests what turns out to be an incorrect referent for confirmation in a repair: "oh your mom?" Pajarito subsequently corrects this misunderstanding: "no, my mom is in el salvador. I stay with my aunt and my uncle because-" . Since the interlocutor is not a Spanish speaker and Pajarito does not usually confuse pronoun number as he does pronoun gender, the use of "she" rather than "they" to refer to "my family" was not understood.

Earlier we also saw two data samples (Examples 22 and 23) from Zalewski (1993) with determiner errors which were disambiguated by the narrative framework or the surrounding context. The following example (Zalewski 1993, p. 696-697) with misuse of determiners is more complicated:

Example 26

This article is about a thrift store in the United States that has become a way of life for many college students. This remind me about this kind of store in my country. In Bangkok, the capital of Thailand, we have a used clothing store that sell clothes, shoes, and sometimes a musical instrument for a very cheap price.

However, a thrift store in Bangkok is different from a thrift store in this article in the aim of establishment. In Bangkok, a thrift store is owned by the Council of Bangkok and managed by a governor. The aim of establishment is for charity. All benefits they have were contributed to many poor school in many long distance provinces. Therefore, goods in this store were donated by many group of people . . .

Moreover, Bangkok thrift store is different from American thrift store in the idea that in the article, many students said thrift store allowed them to express their individuality. But in Bangkok, people wanted to go to the thrift store because they wanted to dress up in the clothes that once were used by their favorite person.

In this selection, it is difficult to understand whether the writer is talking about a particular thrift store in Bangkok or thrift stores in general in Bangkok. The first paragraph suggests a particular thrift store: "In Bangkok we have . . . a used clothing store," but the second paragraph, instead of using the definite article, which would have referred to the particular clothing store introduced in the first paragraph, seems to suggest thrift stores in general, except for "this store" at the end of the paragraph. To an experienced ESL teacher, a careful reading suggests that the writer is describing a particular thrift store in Bangkok, but does not have the control over article usage to establish co-referentiality. However, all four of the NSs who were asked to read this passage felt that the author was describing Bangkok thrift stores in general in the second and third paragraphs. Unlike the earlier narrative with determiner errors (Example 23), there was not enough information from the structure of the passage to counter the misleading cohesive forms used by the author. Perhaps because of the ambiguity, three of the four NSs felt this passage was difficult to understand. One wrote: "I understand the words but not the meaning. . ."[7]

The next example, also from Zalewski (1993, p. 694), shows a somewhat different case where error causes loss of information which is not retrievable from either the discourse context or background information:

Example 27

Recently, I really like to read essay. Especially I like essay written by Mori. She's always fighting her realities of life and also creating something. Her essay always gives me some hints to live my life.

Because there is neither plural morphology nor determiners, it is impossible to know whether the author is referring to a particular essay by Mori, or to essays by Mori in general. The last sentence indexes a particular essay, but the sentences before that are ambiguous. In this case all four NSs said that the author was dis-

cussing essays by Mori in general. The first sentence may have suggested to the readers that the author would be discussing essays in general, and there is nothing to deliberately contradict this pattern until the last sentence. Two of the four NSs found this passage difficult to understand. The other two said it was not difficult, perhaps not even perceiving the ambiguity. This lack of perception of ambiguity demonstrates how strong a reader's expectation is of finding coherence in a passage, so strong, in fact, that readers may create coherence where it is absent. A similar reaction occurred in the previously discussed LEA story #4 where the thief's dying twice was not perceived as a problem for some readers.

The third example (author's data) also shows how the use of a misleading grammatical form without a sufficiently strong schema to assist comprehension can lead to miscommunication:

Example 28
In this essay, I will tell how much a group is important thing human being belongs to as a social interaction and how a group formed in our society through a group of friends I belong to.
A group of friends consist of five people as a primary group. They emotionally formed with cohesive relationship like other primary groups. During almost five years, their relationships have continued . . .

As the reader begins the second paragraph, it first seems as though the author is beginning a definition of "a group of friends" in general. However, as the passage progresses, it becomes clear that this is a specific group of friends. Yet even though the last part of the paragraph should clarify the misconception caused by use of the indefinite article, three out of four NSs asked to correct this passage saw "a group of friends" as referring to a group in general, not a specific group. Because the format of the composition does not predict a clear alternative — either friends in general, or a specific group of friends could be discussed at this point — the meaning initially indexed by the indefinite article overwhelmed the intended meaning revealed later.

CONCLUSION

Coherence in this study was broadly defined as that which distinguishes a text from a disconnected sequence of sentences. There was no attempt made in this study to distinguish between levels of coherence or quality of speech or writing. The focus was on comprehensibility of implicit semantic relationships which were not explicitly expressed or which were inaccurately expressed. Because this was a pilot study dealing with a broad range of issues and using limited data, the following conclusions are tentative and need to be tested by studies carried out on a larger scale.

The first research question was investigated by asking NSs to rewrite stories composed by beginning students of English. These stories had very few or no

grammatical cohesive devices and few other types of cohesive devices. NSs did not perceive any of the texts to be incoherent, lacking textuality. NSs assumed coherence and actually imposed coherence on the text by adding not only those grammatical cohesive devices which were missing in the original in obligatory contexts, but also cohesive devices which were not required grammatically. Adding these cohesive devices made implicit semantic relationships explicit. Because this discourse was in the form of simple narratives of everyday life, the NS readers were able to use their knowledge of narrative structure and of the world to recover the implicit semantic relationships between the sentences. There was reasonable consensus on what these implicit relationships were, as evidenced by the cohesive devices added by NSs. Although these devices were not always identical, they usually expressed the same type of implicit relationship (e.g. co-referentiality). Even when information was not retrievable because of insufficient control of language, NSs assumed coherence and the existence of an unexpressed semantic relationship and chose to express this relationship, ignoring contradictions in the text.

The second research question looked at the misuse of grammatical cohesive devices in NNS speech and writing and its effect on coherence and comprehensibility. Again, NSs assumed coherence and worked to find relationships in the text even where there was potential miscommunication caused by the misuse of grammatical cohesive devices, e.g. when the NNSs used the wrong form or failed to establish a referent. Communication was not usually impaired when the underlying semantic relationship was clear from the discourse context, e.g. from lexical items, especially those used as lexical cohesive devices, from the narrative schema in writing and the sequential organization in conversation, or from background knowledge about the immediate topic, or knowledge of the world in general. In several cases the underlying semantic relationships intended were not retrievable from either the discourse context or from knowledge of the world, and the misuse of a grammatical cohesive device resulted in lack of comprehension. Syntactic errors may also have contributed to incomprehensibility. Although errors involving cohesive devices did not necessarily result in lack of comprehension, native speakers expressed at times a need to work hard to understand the text. The data set was too small to make conclusions about the effect on comprehensibility of the misuse of particular types cohesive devices.

Earlier I discussed two main criticisms of Halliday and Hasan's emphasis on the role of cohesive devices in creating coherence: (1) It is not the cohesive devices themselves, but inherent semantic or pragmatic relationships between sentences that create coherence; the cohesive devices are merely explicit representations of these inherent relationships; and (2) Coherence is not created primarily by the cohesive devices but by the discourse structure and the knowledge that the reader or listener brings to the discourse. Both of these claims were supported by this study. Readers and listeners come to a text or conversation assuming the existence of underlying semantic relationships between sentences which make the discourse coherent. These relationships are communicated by several interacting

factors:

1) The discourse context:
    a) In conversation, a sequential relationship with previous discourse;
    b) In text, the frame provided by genre expectations, e.g.
        for narrative: setting, topic continuity, sequentiality in time;
        for expository writing: expected rhetorical structure;
2) The reader's or listener's background knowledge or knowledge of the world;
3) The lexicon and grammar (i.e. explicit cohesive devices).

Communication in both speech and writing is interactional, the result of co-operation between the participants. One aspect of this cooperation is that interlocutors or readers will often work to create coherence in speech or writing which lacks coherence because explicit cohesive devices are missing or misused. So strong is this expectation of coherence that NS interlocutors or readers may have a false sense of confidence with NNS speech or writing. They may not perceive ambiguity where it exists and, in their attempt to create coherence too quickly where it is lacking, may not perceive the potential for miscommunication.

Another aspect of the cooperative nature of discourse is the availability of the organization of repair (Schegloff, Jefferson and Sacks 1977). In conversation, even if underlying relationships are not made explicit or are confused by incorrect cohesive devices, participants have the organization of repair as a further tool for comprehension. With written text, readers have the option of re-reading and re-organizing the discourse or the syntax, and sometimes even initiating oral repair. In both cases, however, comprehension may involve more work than the listener or reader is prepared to do.

Even though explicit cohesive devices do not seem to be necessary for comprehension of NNS speech and writing in certain genres, these explicit devices can aid NSs in processing the information in these genres. It seems that the more sources of information the listener or reader has, the less work has to be done for comprehension. Explicit cohesive devices may be seen as "effort-saving devices" (Zalewski 1993, p. 693), enabling "quick and easy" processing and more "expressive" communication, two of the basic ground rules for human language according to Slobin (1977, p.186).

Expository writing may need to rely more strongly on explicit cohesive devices than narrative or conversation because not as much information is provided by other means. Readers can approach narratives, especially simple stories of everyday life such as those about robberies or fires, with not only an enormous amount of shared knowledge of how the world works, but also with a shared story schema that seems to cross cultural boundaries, e.g. an expectation of sequentiality in time. Participants in a conversation can rely on the sequential structure and the organization of repair to provide more resources to disambiguate discourse. The abstract nature of ideas in genres such as expository writing or academic lectures does not always allow the reader or listener to make full use of a universally known

schema or general knowledge of the world. Explicit grammatical and lexical cohesive devices may therefore play a greater role in establishing coherence in such genres. Insights resulting from genre-specific studies of cohesion and coherence are therefore not necessarily generalizable to other genres.

The potentially greater role of explicit cohesive devices in certain genres also has implications for second language pedagogy: Non-academic ESL classes may need to place more weight on the acquisition of a wide range of vocabulary than on grammatical accuracy, at least in the early stages of language learning. Adults who need English to communicate basic survival needs may not need the same extensive knowledge of grammatical cohesive devices to be comprehensible, especially as they and their NS friends or co-workers develop a shared body of knowledge and a greater ability to communicate competently with each other through practice. However, ESL students who aspire to higher education will eventually need to learn when and how to use more explicit cohesive devices to communicate effectively in academic genres such as expository writing.

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NOTES

[1] Halliday and Hasan seem to have deliberately constructed their example to prevent readers from making a cohesive connection between sentences by destroying any sense of topic continuity. For example, the indefinite article for the second mention of "fence," and the adverb "often," could prevent the reader from seeing the two instances of "fence" as co-referential. If the text is reconstructed to remove all barriers to topic continuity even without adding any grammatical cohesive markers, the reader is able to see this as a coherent whole: Cat is sitting on fence. Fence is made of wood. Carpenters made fence. Bought wood planks from lumber store.

[2] In this example it can be argued that knowledge of a particular culture is also necessary for participant A to correctly interpret this sequence (i.e. that 21 is the legal age to drink). However, even without this knowledge, participant A will understand that being 21 is a necessary condition for the fulfillment of the request in the first line, because of what seems to be a universal in conversational structure: that utterances following the first pair part are interpreted in light of that first pair part, either clarifying it or, as in this case, establishing the conditions necessary for deciding among alternate second pair parts.

[3] I have independent knowledge that this was, in fact, the case.

[4] Of course, participants in conversation do not always initiate repair when they perceive that an interlocutor has misunderstood a previous utterance, so this method for judging comprehensibility is not infallible.

[5] I thank Jean Wong for this data excerpt which formed part of the corpus for her PhD dissertation (Wong 1994).

[6] Marianne Celce-Murcia (personal communication) has pointed out that some NSs have no patience with errors of this type. For them, pronoun gender errors may make comprehension problematic.

[7] Christine Holten, in a personal communication, suggests that lack of coherence in this example may also be caused by the writer's assumption that the reader knows the content of the thrift store

article mentioned in the first sentence. The contrast set up by the writer is implicit and depends on knowledge the reader may not have.

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