kansas working papers in linguistics

volume 10
number 1
1985

edited by

Richard W. Lungstrum
Antonia Y. Folarin

Kansas Working Papers in Linguistics

Volume 10, number 1, 1985

Articles

FOREWORD

With this volume the *Kansas Working Papers in Linguistics* marks its first decade of publication. The editors are bringing out Volume 10 in two numbers, the first of which is devoted to theoretical issues, general linguistics, and old-world-language topics. Volume 10, number 2 is the fourth in the *Studies in Native American Languages* series.

Volume 10, number 1 is comprised of papers on topics as diverse as the theory of the sign, the comparison of language-specific entailment systems, and motherese in modern Greek. Much of the work represented here is quite original, and has seen little discussion before (Greek motherese, Igbo proverb and Idiom).

The editors wish to thank all the contributors, both those whose papers appear in Volume 10, number 1, and those whose papers we did not include. We wish also to thank the faculty of the Linguistics Department of the University of Kansas for their support and encouragement for the *KWPL* throughout the year.

RWL

HOW WELL CAN JAPANESE ESL STUDENTS DRAW INFERENCES FROM ENGLISH SENTENCES?

Taeko Tomioka

Abstract: One of the skills ESL (English as a Second Language) students must learn is the ability to draw inferences from English sentences. This study compares the ability of Japanese ESL students and that of native speakers of English to draw two types of inferences, namely presuppositions and entailments, from English sentences containing factive and implicative predicates (Kiparsky and Kiparsky 1970, Karttunen 1971).

Introduction

Most of the energy of second language learners has been devoted to the acquisition of the sounds, syntax and lexical items of the target language. But everyone recognizes that learning a second language involves more than that. It requires using the language appropriately in the social settings of the second culture. This can be exemplified in the following ways: (1) properly interpreting speech acts (requesting, urging, asking information, etc.) which are indirectly conveyed (2) being able to start or finish conversation smoothly by making use of phatic phrases (3) choosing the vocabulary or the expression appropriate to the degree of deference required in each situation (4) understanding more than what is actually stated, because speech events and even written texts make sense to us only when we are allowed to draw inferences based on some of the conversation maxims outlined by Grice (1975) under the 'Cooperative Principle' (5) being able to draw inferences which are inherent in sentences independently of the context, and so on. Several studies have been done focusing on each of these areas of sociolinguistic, pragmatic or semantic competence. (See Spolsky 1980, Hatch and Long 1980, Brook, Schlue and Campbell 1980, Fraser and Rintell 1980, Carrell 1977, 1978, 1984)

For the purpose of this paper I would like to focus on the fourth and the fifth points, especially how Japanese ESL students are able to draw inferences from English sentences carrying presuppositions and several kinds of entailments discussed in Kiparsky and Kiparsky (1970), Karttunen (1971a) and Oh (1973).

Theoretical Background

Definition: In order to make this discussion clearer, it will first be necessary to define the concepts of 'presupposition' and 'entailment'. These are meaning relations and can be roughly defined as below (Kempson 1975:48):

A entails B if the truth of B follows from the truth of A.[1]

A presupposes B if the truth of B follows from the truth of A, and also from the falsity of A.

The following symbols will be used for the sake of convenience:

A --> B   'A entails B.'
A ->> B   'A presupposes B.'

Presuppositions and entailments are exemplified as below:

(1)   That person is a bachelor. --> That person is single.

(2)   Ben Killed Sue. -->   Sue died.

(3)(a) The King of France is bald.
           ->> There is a King of France.
    (b) The King of France is not bald.
           ->> There is a King of France.

(4)(a) Chicago is where Fred met Sally. ->> Fred met Sally.
    (b) Chicago is not where Fred met Sally. ->> Fred met Sally.

There are two important differences between entailments and pre-suppositions. First, presupposition is constant under negation. In other words, the same presupposition is carried over whether or not the antecedent is true. But it is not the case with entailment, in that if the antecedent is false, we do not know whether its consequent is true or false. Secondly, in the case of entailment, a rule of inference known as modus tollens applies[2]; but not in the case of presupposition:

(5)(a) If that person is a bachelor, that person is single.
   (b)   That person is not single.

   (c) ∴ That person is not a bachelor.

(6)(a) If Ben killed Sue, Sue died.
   (b)   Sue did't die.

   (c) ∴ Ben did not kill Sue.

If we apply this reasoning to the presupposition-carrying sentences above, we will have the following contradictory conclusions:

(7)(a) If the King of France is bald, there is a King of France.
   (b) There is not a King of France.

(c)∴?The King of France is not bald.

(8)(a) If Chicago is where Fred met Sally, Fred met Sally.
   (b) Fred didn't meet Sally.

(c)∴?Chicago is not where Fred met Sally.

In the case of presupposition, it is thought that if the consequent is false, its antecedent will have no truth value, i.e. it will be neither true nor false; or it will not constitute a statement at all, because presupposition is assumed by the speaker to be true, and based on that assumption the speaker frames a statement.

Factive predicates: According to the Kiparskys' observation (Kiparsky and Kiparsky 1970), the following pairs of sentences are different not only in the sense of their predicates but also in that each sentence (a) presupposes the truth of its complement sentence:

(9)(a) I regret that the gun is loaded.
  (b) I suppose that the gun is loaded.

(10)(a) It is odd that the door is closed.
   (b) It is likely that the door is closed.

(11)(a) I don't regret that the gun is loaded.
   (b) I don't suppose that the door is closed.

(12)(a) It is not odd that the door is closed.
   (b) It is not likely that the door is closed.

Asserting sentence (a) commits the speaker to the belief that the complement sentence following the predicate is, by itself, true. Thus the truth of the following sentences:

(13)   The gun is loaded.
(14)   The door is closed.

follows from the truth of (9)(a) or (11)(a), and (10)(a) or (12)(a), respectively. They call (a)-type predicates 'factive predicates'.

Subclassification of English Predicates: Karttunen (1971a) expanded the idea of factive predicates by identifying the same kind of semantic property in certain adjective predicates which take infinitive

complements (e.g., glad, proud, lucky):

(15)(a) John was glad to see his parents.
     (b) John was not glad to see his parents.

These sentences presuppose 'John saw his parents.' It is not the case if 'glad' is replaced by 'willing':

(16)(a) John was willing to see his parents.
     (b) John was not willing to see his parents.

Karttunen (1970, 1971a, b) also observed several other kinds of inferences which can be drawn from similar sentence structures. The following are some of the examples illustrated by Karttunen (1971b):

(17)(a) John managed to kiss Mary. --> John kissed Mary.
     (b) John did not manage to kiss Mary.
          --> John did not kiss Mary.

(18)(a) John avoided getting caught in the traffic.
          --> John did not get caught in the traffic.
     (b) John did not avoid getting caught in the traffic.
          --> John got caught in the traffic.

(19)   John forced Mary to stay home. --> Mary stayed home.

(20)   John prevented Mary from leaving.
          --> Mary did not leave.

(21)   Tom did not have an opportunity to leave the country.
          --> Tom did not leave the country.

(22)   Bill did not hesitate to call him a liar.
          --> Bill called him a liar.

As shown above, sentences (17)-(22) carry entailments but each case is unique in the circumstances under which entailment holds. For example, (17) and (18) carry entailments when matrix sentences are both affirmative and negative. (19) and (20) carry entailments only when they are affirmative; (21) and (22) only when negative. They are in certain cases non-committal with respect to whether the event described in the complement takes place. Each of the (a) sentences below is compatible with either one of the two continuations in (b):

(23)(a) John didn't force Mary to stay home.
     (b) ...and she went out.
          ...but she chose to stay home.

(24)(a) John didn't prevent Mary from leaving.
 (b) ...and she left.
   ...but she chose not to leave.

(25)(a) Tom had an opportunity to leave the country.
 (b) ...and he left the country.
   ...but he chose not to do so.

(26)(a) Bill hesitated to call him a liar.
 (b) ...therefore, he didn't say anything.
   ...but his conscience forced him to do so.

In order to account for all these phenomena, Karttunen (1971b) subclassified English predicates, including factives, based on whether the truth of a matrix sentence is a sufficient or a necessary condition for the truth or the falsity of the complement sentence; in other words, depending on the circumstances under which the inferential conclusions we have observed above hold.

The following chart (adapted from Karttunen 1971b:22[3]) clearly shows the result of the subclassification. The '+' sign is used when a sentence is regarded as true; '-' when false. The '+/-' sign means that a sentence may be regarded as either true or false. The variable 'α' may represent either '+' or '-' so long as the two occurrences of 'α' within a sentence have the same truth value.

(27)

Class		Main Sentence	Complement Sentence	Example
Class 1	Factive	+/-	+	regret
Class 2	Negative Factive	+/-	-	pretend
Class 3	Implicative	α	α	manage
Class 4	Negative Implicative	α	$-\alpha$	avoid
Class 5	If-Verb	+	+	cause
Class 6	Negative If-Verb	+	-	prevent
Class 7	Only-If-Verb	-	-	be able
Class 8	Negative Only-If-Verb	-	+	hesitate

More predicates belonging to each of these classes are as follows:

    Class 1 be aware, comprehend, take into consideration, bear in mind, ignore, make clear, know, resent

    Class 2 dream

    Class 3 bother, happen, remember, see fit, have the misfortune, take the time/opportunity

    Class 4 neglect, fail, forget

    Class 5 make, force, persuade, make sure, see to it

    Class 6 dissuade, talk out of, keep from

    Class 7 can, enable, possible, be in the position, have the courage/patience/chance

    Class 8 'hesitate' is the only example identified by Karttunen (1971b).

Finally, in addition to the inferential relations discussed above, Karttunen (1971a) observes that sentences (17) and (18) contain presuppositions in their main verbs. The following English sentences (28) carry an identical entailment, namely sentence (29), but they carry various kinds of presuppositions.

(28)   Yesterday, John didn't $\begin{Bmatrix} \text{happen} \\ \text{get} \\ \text{manage} \\ \text{bother} \\ \text{remember} \end{Bmatrix}$ to kiss Mary.

(29)   Yesterday, John didn't kiss Mary.

For example, with manage as the main verb, whatever is meant by its complement is assumed to be difficult for the subject to accomplish. Happen presupposes that whatever occurs is accidental. Remember suggests that the subject is expected to accomplish the action described in the complement and so on.

Purpose: If Karttunen is correct in his discussion (1971a:341) that every language distinguishes between implicative and non-implicative verbs, but only the inventory of each class is different from language to language, we may expect to have cases in which in one language a certain sentence is accompanied by a certain entailment but the closest equivalent of that sentence in another language is not. Based on this assumption, Carrell (1984) investigated the ability of ESL learners

from several language backgrounds to draw inferences, and compared it with that of native English speakers. This study shows that ESL learners are in the process of acquiring that ability for English.

I have investigated how much of this is true of Japanese ESL students by conducting an experiment to calculate their ability to draw inferences from English sentences. In order to compare two related systems, X and Y, in this case the English and Japanese inference systems, we have to study three areas as exemplified in the figure below:
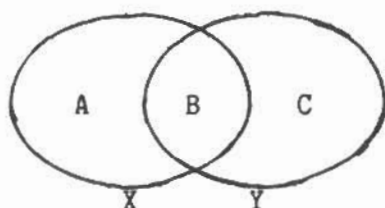
A: specific to X
B: common in both X and Y
C: specific to Y

Because of the time limitation, this study only deals with areas A and B, and C is left unexamined. In other words, of the three possibilities below, only the first two are considered:

(A) Second language learners have to acquire competence in drawing inferences correctly just as they have to acquire new vocabulary items or new sentence structure.
(B) Second language learners have no difficulties in drawing inferences in the target language.
(C) Second language learners have to forget the entailments which hold true only in their native language, but not in the target language.

Problems: I have dealt with 'presupposition' and 'entailment' as semantic properties. In other words they have been treated as properties associated with particular lexical items and certain grammatical constructions, and also as predictable independenly of the context in which they are used. But several difficulties are observed with this position.[4] I will be concerned with only one of them here; i.e. the case of negation.

Negative sentences are always 'ambiguous' because of negation scope differences; in other words the meaning of the negative sentence depends on which elements the negative element applies to. As is clearly argued in Kempson (1977), the semantic representation of negation should be in the form of a disjunction of the negation of each of the conditions for the truth of the corresponding positive sentences. So, for example, the speaker's intention of sentence (30) below can be interpreted as (31)(a), (b) or (c):

(30)   The person is not a woman.

(31)(a)   The person is a man.
    (b)   The person is a little girl.
    (c)   The person is a little boy.

In the case of (a), the condition of femininity is not met; in (b), the
condition of adulthood is not met; and in (c), both conditions are not
met.   When we follow Kempson's assumption, there is the case in which
the element of presupposition is negated. This negation is referred to
as 'external negation' as opposed to 'internal negation,' which is a
presupposition-preserving negation.   The external negation can be
illustrated as below:

(32)   Mary does not regret that she has not told the truth.
       (In fact, she did tell the truth.)

(33)   John did not pretend he was sick.
       (In fact, he really didn't feel good.)

(34)   John didn't manage to kiss Mary.
       (Rather, he was forced to.)[5]

The problem is that, under these interpretations, inferential conclu-
sions discussed so far no longer hold.

As Kempson (1975:81) puts it, one of the aims of a semantic
theory is to predict all possible interpretations of every well-formed
sentence of the language, thus a semantic theory is not only
committed to predicting the obvious interpretations of sentences, but
all possible interpretations.   On this assumption, we have to admit
that 'presupposition' and 'entailment' cannot be handled only in the
field of semantics, but rather should be in the field of pragmatics,
because in cases of negation, for example, the semantic theory fails to
predict whether certain predicates carry presupposition (or entailment)
or not.   It is only decided depending on the speaker's intention or on
the context in which a certain sentence is uttered. I will not examine
here further theoretical discussion about the domain of
'presupposition' and 'entailment'.   It will suffice to suggest one
possibility, i.e. we may handle presupposition and entailment under
negation and in some other problematic cases, which I did not discuss
here, as 'implicature' along the lines of Grice's discussion of
conversation maxims. (See further: Grice 1975)

Although the theory suggests the use of the term 'implicature' in
certain cases, I will continue to use the terms 'presupposition' and
'entailment' to avoid unnecessary confusion and for the following
reasons.   (1) Even though inferential conclusions do not necessarily
hold for each of the sentences below, there is a clear difference

between sentences (35)(36) and (37)(38); i.e. the likelihood that they hold seems to be much higher for sentences (35)(36) than sentences (37)(38); to be more precise, without any preliminary information or contextual reasons, the hearer is most likely to prefer the interpretation in which inferential conclusions hold in sentences (35)(36), while it is not the case in sentences (37)(38).

(35)(a) John does not regret that he has not told the truth.
   (b) (John did not tell the truth.)

(36)(a) John did not manage to kiss Mary.
   (b) (John did not kiss Mary.)

(37)(a) John did not force Mary to change her mind.
   (b) (Mary did not change her mind.)

(38)(a) Tom was able to leave early.
   (b) (Tom left early.)

(2) My main concern in this study is the preferred interpretation, which most native speakers of English are supposed to come up with, and which seems to be the most useful for ESL students.

Method

Subjects: Two groups of subjects participated in the present study. Twenty-five native speakers of English on the campus of the University of Kansas served as a control group. Thirty advanced level Japanese ESL students were chosen as an experimental group. This second group is made up of 26 graduate or undergraduate students who have already fulfilled the Applied English Center (AEC) requirements, more than 500 points (of a possible 600) on the AEC proficiency exam, and 4 students who are still taking coursework at the advanced level at the AEC. I controlled for sex by choosing nearly the same number of male as female students for both the groups. I did not take into account variants such as age difference, the period of time Japanese students had spent in the United States or the academic status of the subjects, i.e. *whether they were graduate or undergraduate students.*

Corpus: 32 English sentences were selected for this experiment (See Appendix). Each sentence is accompanied by an inferential conclusion. These sample sentences fall into the following three groups:

   Group I   Conclusion sentences are related to an entailment of
               the target sentences.
   Group II   Conclusion sentences are related to a presupposition.
   Group III   Conclusion sentences do not hold, or may hold or not,
               depending on the context in which they are used.

The sentences of Group III were employed just to conceal the right answers and the result was not counted regardless of the answer the subjects chose.

Group I is further divided into two groups: Group I-A, relating to an entailment which is supposed to be easy[6] for the Japanese students, because its closest equivalent in Japanese also includes the same entailment. Group I-B, relating to an entailment which is supposed to be difficult for the Japanese students, because its closest equivalent in Japanese lacks such an entailment. An example from group I-B is:

(39)   Mary persuaded John to go to the party.
        --> John went to the party.

The closest equivalent of 'persuade' in Japanese, 'settokusuru, means 'to talk to make a person believe the subject's opinion' and doesn't necessarily mean the person's accomplishment of the action suggested by the complement sentence. In Japanese the following sentence is fully well-formed and acceptable:

(40)   ?Mary persuaded John to go to the party, but John decided not to do that.

Again the following sentence is meaningful in Japanese:

(41)   ?Mary forced John to go to the party, but he didn't go.

I originally planned to divide Group II into two groups in the same way, but only the sentences whose conclusions hold in both languages were employed, because it was almost impossible to find predicates which include a presupposition in English and not in Japanese. Sentences in Group II are almost the same as those Carrell used in her experiment (1984).[7]

Hypotheses:
    Null Hypothesis: There is no difference in the ability to draw inferences from English sentences between native English speakers and Japanese students for each group (Group I-A, I-B and II) of the sentences.

    Alternative Hypothesis: There is significant difference in achievement of drawing inferences from English sentences between native speakers of English and Japanese students.

Procedures: In Carrell's study, subjects were asked to make true/false judgements about each premise-conclusion pair which was presented orally by the experimenter. Subjects were given only eight seconds to process each item. In my experiment, subjects were asked to

make the same kind of judgements, but materials were given in written form and subjects were allowed to use as much time as they needed. The reason for this change is that in Carrell's method the following factors might have affected the results: the subjects' listening comprehension ability and their ability to process given information in a very short period. Both of these abilities are quite different from the ability of drawing inferences.

Results

On the following page, the results of this experiment are shown in terms of the percentage of errors made by each group of subjects for each group of sentences.

These results are in several ways quite different from the results of the experiment conducted by Carrell. In her study, (1) native speakers performed better than foreign students in making both types of inference. (2) Semantically negative inferences are more difficult to draw in both types of inference for both native and foreign subjects. (3) Presuppositions are more difficult than entailments for both native and foreign subjects. On the other hand the results of this study show the following points: (1) In drawing presupposed inferences the Japanese students performed consistently in most of the parts, while native speakers had a great difficulty in the judgement of items #17, 29 and 32. This made the overall performance of native speakers in Group II a little worse than that of Japanese students. (2) Semantically negative presuppositions were difficult for both subject groups. (3) For entailments, overall performance of native speakers (Group I-A and I-B together) was much better than that of Japanese students, and the difference was noticeable for Group I-B. (4) Semantically negative entailments tended to be difficult for both subject groups, but in Group I-A, performance of Japanese students did not show this tendency.

In order to determine the significance of the difference in achievement by both subject groups for each group of sentences, these data were statistically analized by means of T-score. The table below reports the results of this analysis:

	Group I-A	Group I-B	Group II
t cal	0.163	4.62	−1.114

α = 0.05 (level of significance)
df = 53 (degree of freedom)
t crit = ±2.004~2.009 (significant at |t cal|<2.004~2.009)

Percentage of Errors for Each Item

ENTAILMENTS Group I-A   Group I-B

item #	polarity	native	Japanese	item #	polarity	native	Japanese
23	pos	0%	13%	4	pos	20%	53%
1	neg	4%	13%	12	pos	4%	40%
2	neg	0%	7%	27	pos	8%	17%
16	neg	12%	3%	7	neg	24%	47%
				13	neg	20%	63%

PRESUPPOSITIONS Group II

item #	polarity	native	Japanese	item #	polarity	native	Japanese
10	pos	0%	10%	5	neg	4%	17%
26	pos	0%	10%	17	neg	56%	20%
29	pos	56%	20%	20	neg	8%	23%
				32	neg	52%	10%

N=25 native
N=30 Japanese

Percentage of Errors for Presuppositions vs. Entailments

Positive vs. Negative

PRESUPPOSITIONS Group II   ENTAILMENTS
                                   Group I-A   Group I-B

_____ = native speakers   ----------= Japanese students
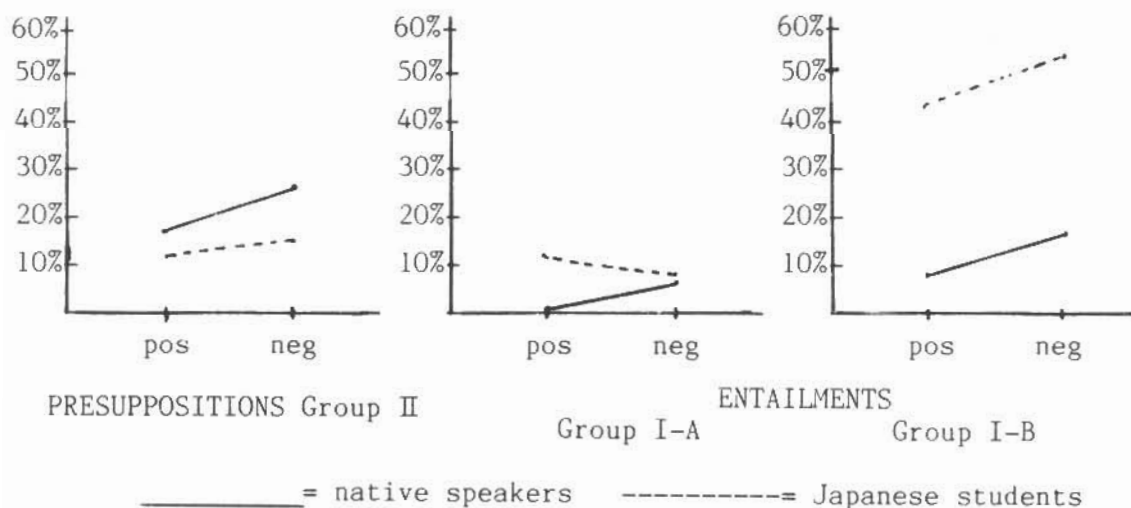
For Groups I-A and II, the null hypothesis was supported, which will be repeated here for the sake of convenience: There is no significant difference in the ability to draw inferences from English sentences between native English speakers and Japanese students.

For Group I-B, the null hypothesis was refuted and the alternative hypothesis was supported, i.e. there is significant difference in achievement of drawing inferences from English sentences between native speakers of English and Japanese students.

Discussion

The results of this investigation show a number of interesting things:

First, it can safely be said that presuppositions are more or less universal, or at least very similar in English and Japanese for the following two reasons: (1) it was almost impossible to find sample sentences which include presuppositions only in English and not in Japanese (2) as the statistical result shows, there is no significant difference in the performance of drawing presupposed inferences between both groups of subjects.

Second, the Japanese ESL students are in the process of acquiring competence in drawing inferences (entailments) from sentences whose Japanese counterparts do not include the entailments. In other words their judgements are sometimes correct, but often affected by their judgements about Japanese equivalents. So they are apt to understand the sentence, 'I remembered to post the letter' in the way they do for its Japanese equivalent as 'I had in mind to post the letter.'

Third, presuppositions seem to be more difficult than entailments. (Except for Group I-B for which Japanese students performed very poorly.) This result is consistent with the results given by Carrell and also by former researchers (Just and Clark 1973, Hornby 1974) who investigated only the performance of native speakers. This seems to be explained along the lines of the discussion given in Just and Clark (1973:30):

> Presuppositions normally contain information that the speaker assumes he and the hearer can both take for granted at that point[8] in the conversation. It is old information. Implications[8] normally contain the new information the hearer does not yet know and the speaker wants to get across. .... The presupposition is assumed to be known already.

Therefore, it is reasonable to conclude that people usually concentrate on new information and need more conscious effort to draw presupposed

inferences. So there are more possibilities of making mistaken judgements about presuppositions. It is especially true in cases when subjects are given only a few seconds to react to the questions as clearly shown in the previous experiments.

Finally, in my study, even though there still seems to be a tendency for subjects to have difficulty in drawing semantically negative inferences, semantic polarity of the sentence types (whether they include negative inferences or positive inferences) did not play as noticeable a role as in the previous research. This also can be explained by the fact that in Carrell's study subjects were tested using a limited response period. As the results of experiments in Just and Clark show, semantically negative sentences take more time to access even by native speakers. Examples of semantically negative sentence pairs in their study are as follows:

(42)   John forgot to let the dog out.
         --> The dog is in.

(43)   John forgot to let the dog out.
         --> The dog is supposed to be out.

(44)   It was thoughtless of John to let the dog out.
         --> The dog is out.

(45)   It was thoughtless of John to let the dog out.
         --> The dog is supposed to be in.

So it might also be plausible to conclude that if we limit the response time in a test, the subjects have a greater chance to make mistaken judgements about semantically negative inferences.

Conclusion

This study investigating the Japanese ESL student's ability to draw inferences from English sentences in comparison with the native speaker's ability represents but a small part of the broader domain which ESL researchers have recently begun to focus on and which ESL learners have scarcely paid attention to. This study is based on the observations of 'entailment' and 'presupposition' defined in semantics, but the study can be also included in the domain of pragmatics, because in some cases (under negation etc.) semantic theory fails to capture generalizations, and we have to decide whether the inferential conclusions hold or not depending on context or the user's intention and so on.

The results of this study seem to suggest the following pedagogical implications:
First, there is a good chance that ESL teachers can facilitate or

enhance Japanese students' performance in understanding indirectly conveyed inferences by teaching students explicitly about these additional aspects of each sentence. This addition would be particularly valuable in Japan, where English teaching still strongly relies on the so-called Grammar-Translation method, and most of the teaching materials are given to students separately from the proper contexts in which they are used. It is, therefore, extremely difficult now for students to acquire this kind of competence just from the materials dealt with in class. Once English sentences are translated into Japanese, students tend to understand those sentences based on the inference system specific to Japanese.

Second, none of the bilingual dictionaries published in Japan so far include explicit explanation about these kinds of entailment. If we can determine that presuppositions are more or less universal, but entailments are not, bilingual dictionaries should include an explanation or translation which is devised so students will understand the entailment each English predicate implies. This might involve a lot of money for those who conduct some kinds of business by means of English.

What is not covered by this study and is needed next in this domain of research is linguistic and empirical research on the nature of inference drawing in Japanese, especially in area C discussed above. Kuno (1973), Nakau (1973) and Josephs (1976) include brief discussions about factive and implicative predicates in Japanese, but full investigation of this area is yet to come. More precise comparison of both languages in this domain will give us better insights in our pedagogy.

NOTES

1. Under these definitions, A and B represent any proposition. Even though later I might use expressions like
    'A certain sentence entails its complement sentence.'
or   'A certain sentence presupposes another sentence.'
my concern is not with the sentence as a sequence of sounds, but with what the sentence says about the world. For the most part, I disregard the complicated relation between sentences and propositions and take each sentence to correspond exactly to one proposition as suggested in Allwood et al. (1977).

2. This is not the case if we assume the presupposition-preserving negation is the only interprtation of a negative sentence.

For example, in (5) in the text, the premise, (5)(a) and (b), does not necessarily imply the conclusion (c) if we assume that 'That person is not a bachelor; he is married.' is the only possible interpretation of the sentence (c).

3. Class 2 predicates are added by Oh (1973) to Karttunen's original subclassifications:

John pretended that he was sick. ->> John was not sick.
John did not pretend that he was sick. ->> John was not sick.

4. Some peculiar behavior of presupposition-carrying verbs is observed in embedded sentences, conditionals and disjunctions. See further Karttunen (1973) and Wilson (1975).

5. This example is theoretically possible even though it might strike native speakers as an extremely implausible interpretation.

6. This judgement was made based on my own intuition and on some advice given to me by my Japanese friends.

7. I originally intended to group sentences #19 and 30 (see Appendix) into Group I-A and Group II respectively, but after collecting the data, these two were excluded from consideration because of the limited usage of the word 'dare' in American English.

In selecting sample sentences, I avoided using negative sentences in order to avoid the 'ambiguity' of negative sentences discussed above.

8. This term is approximately equivalent to the term 'entailment' which I use in this paper.

REFERENCES

Allwood, Jens, Lars-Gunnar Anderson, and Östen Dahl. 1977. Logic in linguistics. Cambridge: Cambridge University Press.

Brook, S. V., K. Schlue, and C. Campbell. 1980. Discourse and second language acquistion of yes/no questions. In Larsen-Freeman 1980:56-74.

Carrell, Patricia L. 1977. Empirical investigations of indirectly conveyed meaning: asssertion versus presupposition in first and second language acquisition. Language Learning 27.353-69.

_____. 1978. The given-new strategy: testing presupposition and assertion in L1 and L2. On TESOL '78, ed. by C. Blatchford and J. Schachter, 232-9. Washington, D.C.: TESOL.

_____. 1984. Inferencing in ESL: presuppositions and implications of factive and implicative predicates. Language Learning 34.1-21.

Fraser, B., and E. Rintell. 1980. An approach to conducting research on the acquisition of pragmatic competence in a second language. In Larsen-Freeman 1980:75-91.

Grice, H. P. 1975. Logic and conversation. Syntax and Semantics, ed. by P. Cole, and J. L. Morgan, 3.41-58. New York: Academic Press.

Hatch, E., and M. H. Long. 1980. Discourse analysis, what's that? In Larsen-Freeman 1980:1-40.

Hornby, Peter A. 1974. Surface structure and presupposition. Journal of Verbal Learning and Verbal Behavior 13.530-8.

Josephs, Lewis S. 1976. Complmentation. Syntax and Semantics, ed. by M. Shibatani, 5.307-69. New York: Academic Press.

Just, M.A., and H. H. Clark. 1973. Drawing inferences from the presuppositions and implications of affirmative and negative sentences. Journal of Verbal Learning and Verbal Behavior 12.21-31.

Karttunen, Lauri. 1970. On the semantics of complement sentences. Papers from the Sixth Regional Meeting of the Chicago Linguistic Society, 328-39. Chicago: Chicago Linguistic Society.

_____. 1971a. Implicative verbs. Language 47.340-58.

_____. 1971b. The logic of English predicate complement constructions. Bloomington: Indiana University Linguistics Club.

_____. 1973. Presuppositions of compound sentences. Linguistic Inquiry 4.169-93.

Kempson, Ruth M. 1975. Presupposition and the delimitation of semantics. London: Cambridge University Press.

Kempson, Ruth M. 1977. Semantic Theory. Cambridge: Cambridge University Press.

Kiparsky, Paul, and Carol Kiparsky. 1970. Fact. Progress in Linguistics, ed. by M. Bierwisch, and K. Heidolph, 143-73. The Hague: Mouton.

Kuno, Susumu. 1973. The structure of the Japanese language. Cambridge: MIT Press.

Larsen-Freeman, Diane. 1980. Discourse analysis in second language research. Rowley: Newbury House Publishers.

Nakau, Minoru. 1973. Sentential complementation in Japanese. Tokyo: Kaitakusha.

Oh, Choon-Kyu. 1973. Relations between presupposition and implication. Papers from the Mid-America Linguistics Conference, 1-10. The University of Iowa.

Spolsky, Bernard. 1980. What does it mean to know a language? Readings on English as a second language, ed. by Kenneth Croft, 26-42. Boston: Little, Brown and Company.

Wilson, Deirdre. 1975. Presuppositions and non-truth-conditional semantics. New York: Academic Press.

APPENDIX

1 (A) John neglected to lock the door.
____(B) *John didn't lock the door.*

2 (A) John forgot to lock the door.
____(B) John didn't lock the door.

3 (A) The teacher warned them to study harder.
____(B) They studied harder.

4 (A) Mary persuaded John to go to the party.
____(B) John went to the party.

5 (A) It was thoughtless of John to open the window.
____(B) John opened the window.

6 (A) The teacher prohibited them from going to the party.
____(B) They didn't go to the party.

7 (A) She dissuaded her son from going to the party.
____(B) Her son didn't go to the party.

8 (A) He was likely to lock the door.
____(B) He locked the door.

9 (A) Mary encouraged Tom to tell the truth.
____(B) Tom told the truth.

10 (A) It was thoughtful of John to open the window.
____(B) John opened the window.

11 (A) John was kind enough to help me.
____(B) John helped me.

12 (A) John remembered to lock the door.
____(B) John locked the door.

13 (A) The teacher talked them out of going to the party.
____(B) They didn't go to the party.

14 (A) The bad weather discouraged us from climbing the mountain.
____(B) We didn't climb the mountain.

15 (A) John had in mind to lock the door.
____(B) John locked the door.

16 (A) Business prevented him from going there.
____(B) He didn't go there.

17 (A) I neglected to lock the door.
____(B) I was supposed to lock the door.

18 (A) Mary urged John to go to the party.
____(B) John went to the party.

19 (A) John dared to solve the problem.
____(B) John solved the problem.

20 (A) It was inconsiderate of John to open the window.
____(B) John opened the window.

21 (A) John was brave enough to go there.
___(B) John went there.

22 (A) His salary enabled him to have a holiday abroad.
___(B) He had a holiday abroad.

23 (A) John managed to solve the problem.
___(B) John solved the problem.

24 (A) John tried to solve the problem.
___(B) John solved the problem.

25 (A) The doctor tempted the patient to eat more.
___(B) The patient ate more.

26 (A) It was considerate of John to open the window.
___(B) John opened the window.

27 (A) Mary forced John to go to the party.
___(B) John went to the party.

28 (A) Mary advised John to go to the party.
___(B) John went to the party.

29 (A) I remembered to lock the door.
___(B) I was supposed to lock the door.

30 (A) I dared to solve the problem.
___(B) I was not expected to solve the problem.

31 (A) John decided to remain silent.
___(B) John remained silent.

32 (A) I forgot to lock the door.
___(B) I was supposed to lock the door.