The Effect of Preceding Context on the Comprehension of Gapping Structures

Yasushi Mitarai
Oita University
Takao Furuya
Joetsu University of Education

This paper examines the effect of preceding context in enhancing the comprehension of gapping structures in English. A test was conducted with four groups of high school students. Two of them were a higher-level control and an experimental group and the other two were lower-level counterparts. The contextual effect was observed significantly between the two higher-level groups whereas it was not found between the lower-level groups. Thus, it was concluded that only higher-level learners can employ preceding context as a tool for top-down reading through inferencing. Concurrently, as the lower-level learners demonstrated, relative lack of necessary language competence causes a hindrance to the successful utilization of the top-down processing.

1. Gapping and Second Language Reading

Readers encounter various elliptical expressions when reading passages in English. In such cases, they utilize knowledge of grammar or contextual information in order to fill in the deleted parts and to derive the meaning of the sentence. This process of reconstruction, however, is not necessarily performed without effort by learners of English as a second or a foreign language. The difficulty lines, in part, in the fact that the ellipsis represents "the absence of something the reader is required to identify" (Nuttall 1982: 93). The difficulty may also be due to the fact that the instruction of the structures has not been adequately carried out, either by approaching them as grammatical items as such or as crucial phenomena for better reading comprehension.

Teachers, however, are intuitively aware that there is some relationship between the comprehension of elliptical expressions and reading ability in English. Yet experimental studies have not yet been done to confirm this belief or to investigate whether there are any means to facilitate identification other than learned language skills. For this reason
we decided to undertake this experimental study.

Among a number of subcategories of elliptical constructions, we selected gapping on the grounds that it is the structure that readers find most troublesome. Gapping is exemplified in the following two sentences:

(1) Tom likes apples and Mary doesn't like oranges.
(2) Ugliness is the symptom of disease, beauty is not of health.

Both (1) and (2) lack certain verbal constituents in the middle of the sentences. This construction is only possible in coordinate clauses when certain structural conditions are fulfilled. It is not our intention to discuss the conditions in details in this paper but it should be noted that it is fundamentally a phenomenon which takes place within a single sentence containing two clauses and, as such, preceding context is not a necessary condition for this structural formation.

To our knowledge Imamura (1989) is the only previous experimental study which investigated the structural comprehension of gapping by Japanese learners. In her study Imamura found that junior-college students could not satisfactorily simplify complete sentences into those with gappings but that the same subjects were successful in recovering deleted elements in gapping sentences. As regards the latter finding, we infer that the results of her reconstruction test were affected by the use of relatively simple test sentences and also by the presence of instructions that notified the subjects that gapping had been performed on the sentences.

Since our study focuses on the comprehension of sentences with gapping, specifically the identification of the deleted parts with the help of contextual inference, we included more complex sentences than did our predecessor and added distractors in order that our subjects might not detect our intention. That is to say, our concern was with clarifying whether learners were able to discover and comprehend concealed gapping structures.

It is important here to consider the nature of second language reading, as a basis for our research scheme. It has been pointed out that second language as well as first-language reading is characterized by the interaction between top-down and bottom-up processing (cf. Carrel et al. 1988). The former method of processing starts with the highest level of reading components, makes predictions, and searches for information to verify whether the predictions are correct. The latter processing belongs to the traditional view of reading which looks at this activity as the cumulative application of lower processing skills up to higher ones, such as beginning with the recognition of words and building up to the integration of discourse.

To apply this idea of reading to the interpretation of gapping, top-down reading specifies that the reader extensively uses the contextual knowledge of preceding passages in order to work out the coherence (Widdowson 1978), "local coherence" (Dijk
and Kintsch 1983) in particular, between adjacent sentences. The identification of gapping is expected to be accomplished through the process of seeking coherence. On the other hand, bottom-up processing predicts that the reader will depend more, if not entirely, upon grammar and start with finding out the apparent structural awareness of a sentence resulting from gapping.

In the practice of teaching gapping, a traditional approach has been the bottom-up style, that is, to have learners point out what is deleted in a sentence. In contrast to this, we wish to emphasize the importance of using preceding context to deal with this linguistic phenomenon. Our approach is also categorized as a semantic rather than syntactic approach in the sense that the learner is expected to be aware of the incongruence between two adjoining sentences before he attempts to comprehend the sentences disregarding gapping. Hence this is a "conceptually driven" processing as opposed to a "data-driven" processing (Carral and Eisterhold 1988).

On the basis of this background we conducted a translation test of gappings to investigate the influence of preceding context. Specifically the purpose of the test was to answer the following research questions: (1) Will preceding context promote the comprehension of gapping structures? (2) Will the effect of preceding context be affected by the language proficiency of subjects?

2. Method

(1) Subjects

The subjects consisted of 84 third-year students at Fujikawaguchiko High School. They were divided into a higher and a lower group of 42 students each on the basis of the results of four term tests. Each group of 42 was further divided into an experimental group and a control group ($t=.45, n.s.$ for the higher groups; $t=.16, n.s.$ for the lower groups). Table 1 shows the average scores of four term tests for respective groups.

Table 1: Means and Standard Deviation for Each Group

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher</td>
<td>control</td>
<td>77.43</td>
</tr>
<tr>
<td>level</td>
<td>experimental</td>
<td>76.43</td>
</tr>
<tr>
<td>lower</td>
<td>control</td>
<td>55.71</td>
</tr>
<tr>
<td>level</td>
<td>experimental</td>
<td>56.10</td>
</tr>
</tbody>
</table>

(2) Materials and Procedures

The test battery was made up of ten sentences, five of which involved gapping and the remainder of which were distractors (see APPENDIX). Sentences with gapping were
adopted from Ito (1978). As the five original sentences were accompanied with no preceding context, we added an appropriate context sentence before each of them. Thus, we obtained two types of test batteries: The test battery for the control groups consisted of the five original uncontextualized sentences and five distractors, while the one intended for the experimental groups was made up of five contextualized sentences and five distractors. Even-numbered sentences were those we aimed to investigate, and those with odd numbers were distracting sentences.

Constructed context sentences are marked by brackets "[ ]", which were not put on the actual battery. The subjects' task was translation of the English sentences into Japanese. Subjects were allowed to use a dictionary in order to minimize the influence of their vocabulary. The test was administered by the second author in July of 1990, and the subjects were given a one-hour time limit.

3. Results and Discussion

The results of the test are presented in Table 2. Each of the five sentences was scored one point if the translation was correct. Thus individual subjects' scores ranged from zero to five.

Table 2: Means and Standard Deviations of Each Group

<table>
<thead>
<tr>
<th>A</th>
<th>control (n=21)</th>
<th>experimental (n=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher</td>
<td>x̄=2.95</td>
<td>x̄=3.48</td>
</tr>
<tr>
<td>SD=1.28</td>
<td>SD=0.68</td>
<td></td>
</tr>
<tr>
<td>lower</td>
<td>x̄=2.33</td>
<td>x̄=2.33</td>
</tr>
<tr>
<td>SD=1.15</td>
<td>SD=1.07</td>
<td></td>
</tr>
</tbody>
</table>

A2×2 AVNOVA was calculated on the results. Table 3 displays the results of the ANOVA.

Table 3: ANOVA for Gains in Scores Related to Level and Contextual Effect

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>d.f.</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>context (A)</td>
<td>1.43</td>
<td>1</td>
<td>1.43</td>
<td>1.21</td>
</tr>
<tr>
<td>level (B)</td>
<td>16.30</td>
<td>1</td>
<td>16.30</td>
<td>13.81**</td>
</tr>
<tr>
<td>A×B</td>
<td>1.47</td>
<td>1</td>
<td>1.47</td>
<td>1.24</td>
</tr>
<tr>
<td>Error</td>
<td>94.50</td>
<td>80</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>113.7</td>
<td>83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**p.<.01**

In our subjects the main effect of preceding context was not observed significantly \( F = 1.21, n.s. \). Analysis by level revealed that the higher groups performed better than the lower groups \( F = 13.8, p.<.01 \). Interaction was not significant \( F = 1.24, n.s. \). Dissatisfied with the results of ANOVA, we calculated a \( t \)-value between the two higher-level groups. As a result we obtained a significant difference between the two groups \( (t=1.76, p.<.05) \). What this means is that contextual effect was not operative across the board, but that it was restricted to relatively higher-level learners. This is pointed out by Takanashi and Takahashi (1987), who argue for strong correlation between reading ability and the score of the cloze test, as “the capacity to utilize contextual clues serves as a crucial factor for reading ability.”

The failure in overall effect of context may be in part attributable to a paucity of preceding context to assist the experimental groups in identification of gapping structures. Another, presumably more fundamental, reason for this will be that the subjects' shortage of grammatical knowledge prevented successful identification of gapping structures. While emphasizing the importance of grasping the intersentential relationships, Tanabe (1990) maintains that understanding grammatical structures of individual sentences is a prerequisite. This boils down to the significance of bottom-up processing skills. As Clarke (1988:120) rightly points out “the role of language proficiency may be greater than has previously been assumed; apparently, limited control over the language ‘short circuits’ the good reader’s system causing him/her to revert to poor reader strategies…”

Now let us turn to some other findings obtained from this study. Table 4 shows percentages of correct responses for each sentence in the test.

**Table 4: Percentages of Correct Responses for Each Sentence**

<table>
<thead>
<tr>
<th></th>
<th>(2)</th>
<th>(4)</th>
<th>(6)</th>
<th>(8)</th>
<th>(10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>0.0</td>
<td>71.9</td>
<td>85.7</td>
<td>80.9</td>
<td>57.1</td>
</tr>
<tr>
<td>experimental</td>
<td>23.8</td>
<td>95.2</td>
<td>95.2</td>
<td>85.7</td>
<td>47.6</td>
</tr>
<tr>
<td>lower level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>9.5</td>
<td>71.4</td>
<td>81.0</td>
<td>66.7</td>
<td>9.5</td>
</tr>
<tr>
<td>experiment</td>
<td>0.0</td>
<td>80.9</td>
<td>80.9</td>
<td>52.0</td>
<td>14.3</td>
</tr>
</tbody>
</table>

The subjects found sentences 2 and 10 to be the most difficult. Most of the subjects who correctly answered these questions belonged to the higher-level groups. Hence it can be inferred that the ability to interpret gapping constructions is a possible criterion to assess second language proficiency.

Responses to sentence 8, repeated as in (3) below, provided interesting information regarding the process of recognition and reconstruction of gapping.
(3) There is a difference between the actions of men and those of animals. The actions of men were said to be controlled by mind, those of animals by instinct.

In the translation of (3) we found approximately three patterns, which we considered to be three stages in the process. Translations which exemplify each stage are shown in Figure 1.

**Stage 1:** The subject cannot identify the gapping.

example: Ninningen ha kokoroni yotte kontororu shikaga sorerano doubutsuha honnouni yotta to ieru

**Stage 2:** The subject can identify the gapping but compensates for the deleted parts with his own words without consulting the preceding context.

example: hitono koudouha kokoroni seigyo sareru, doubutsuha honnouni yotte koudou suru

**Stage 3:** The subject can identify the gapping and can reconstruct the deleted parts appropriately with reference to preceding context.

example: hitono koudouha kokoroni seigyo sareru, doubutsuha honnouni yotte koudou kontororu sareru to iwareta

**Figure 1:**

Three Stages of the Reconstruction of Gapping

Of the three stages above, Stage 2 answers were most frequently observed. This type of answer will have been brought about from a sentence-level reading. As a remedy for these errors we should direct the reader’s attention to the previous context and encourage him to make up for the deleted parts appropriately. This top-down strategy is particularly effective for learners with advanced inference abilities, as it is an indirect way to finding gapping.

**4. Conclusions**

This study has validated the positive effect of preceding context on the interpretation of gapping, particularly for higher-level subjects. This result suggests that it will be possible to exert an indirect instruction of the construction rather than a direct approach which requires the reader to reconstruct the deleted constituents.

Our aim has been to advocate the top-down approach to gapping. However, we do not wish to be understood that we intend to downplay the role of bottom-up processing in
reading. On the contrary we are aware of the importance of linguistic capacity to reading ability (cf. Cooper 1984) and also of the fact that too much reliance on top-down processing neglects bottom-up processing. As Eskey (1988:97) arguably states: "We must not, I believe, lose sight of the fact that language is a major problem in second language reading, and that educated guessing at meaning is no substitute for accurate decoding."

We would like to conclude this paper by pointing out two remaining problems. First, scoring procedures need revision in order to be more objective. Second, it is possible that a test battery with more redundancy in context may bring out different results. These problems are to be examined in future study.

Notes

1 Imanishi and Asano (1990) extensively discuss the constraints on gapping. Araki (ed.) (1986) also presents those constraints collected from the relevant literature.

2 Yamada (1985) reports on the effectiveness of contextual presentation as a way to teach the scope of negation in a complex sentence with the because subordinate clause.

References in English


Clarke, M. A. (1988) "The short circuit hypothesis of ESL reading-or when language competence interferes with reading performance." In Carrel, P. et al. (eds.).


References in Japanese


Imamura, H. (1989) "Daigakusei no bunkouzou no rikaido ni tsuite-kuushoka henkei
otoushite kangaeru.” *Nanzan Eibungaku*, 13, 41-55.

**Appendix**

**TEST BATTERY**

1 It is neither too hot nor too cold. I wish this weather would last all the year round.
2 [Some people say that a man’s appearance tells us something about his physical condition. For example.] Ugliness is one of the symptoms of disease and beauty of health.
3 It is what we save that makes us rich. It is what we digest that makes us strong.
4 [There are two basic rules to be a good short story.] The plot must be simple and the characters few.
5 The news of Mary’s having married the son of a farmer was known to all the people in the village.
6 [Here is an interesting observation of people when they look into a mirror.] The cheerful man looks into a mirror and becomes too cheerful, the gloomy man too gloomy.
7 Develop a sense of humor : learn to laugh——even at times when you feel more like crying.
8 [There is a difference between the actions of men and those of animals.] The actions of men were said to be controlled by mind, those of animals by instinct.
9 The stranger in London, especially if he has come, from Paris, finds London a little dull at first.
10 [What is the best body depends on environments.] Dark skin has advantages in tropical climates, a compact body in mountain areas and short strong legs where people grow rice.

100