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IDENTIFYING AND EXPLAINING L2 LEARNERS' DIFFICULTIES:
A CASE OF THE JAPANESE PARTICLES WA AND GA

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
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*****

The Ohio State University

1995

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Dedicated to Michiko and Sarah
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Minor Field: Japanese linguistics
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<th>Description</th>
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<tr>
<td>ACC</td>
<td>accusative</td>
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<tr>
<td>COM</td>
<td>confirmation marker</td>
</tr>
<tr>
<td>COMP</td>
<td>complementizer</td>
</tr>
<tr>
<td>CONJ</td>
<td>conjunction</td>
</tr>
<tr>
<td>COP</td>
<td>copula</td>
</tr>
<tr>
<td>EP</td>
<td>extended predicate ((--n) desu/(--n) da)</td>
</tr>
<tr>
<td>GEN</td>
<td>genitive</td>
</tr>
<tr>
<td>GIV</td>
<td>giving verb (Auxiliary verb)</td>
</tr>
<tr>
<td>GRN</td>
<td>gerund</td>
</tr>
<tr>
<td>INT</td>
<td>interjection</td>
</tr>
<tr>
<td>NEG</td>
<td>negative</td>
</tr>
<tr>
<td>SU</td>
<td>subject (nominative)</td>
</tr>
<tr>
<td>PAS</td>
<td>past</td>
</tr>
<tr>
<td>PROG</td>
<td>progressive (Auxiliary verb)</td>
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<tr>
<td>Q</td>
<td>interrogative</td>
</tr>
<tr>
<td>QT</td>
<td>quotative</td>
</tr>
<tr>
<td>TOP</td>
<td>topic</td>
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CHAPTER I

THE PROBLEM

Introduction

This study is strongly motivated by the desire to seek pedagogically useful information about the Japanese particles WA and GA.

It is not uncommon in any language for a single grammatical function to be indicated by more than one linguistic form. In Japanese, the grammatical subject of a sentence is indicated by GA, which is a case particle often called the subject marker. The grammatical subject also can be indicated by WA, a so-called topic or theme marker in Japanese. Some linguistic environments allow only GA, and others only WA. Further, there are many cases where both are possible. Because these particles often appear in very similar linguistic environments, it is not easy to explain why both are acceptable in one case and only one is acceptable in another case. The puzzling state of affairs involving these two particles has been a source of problems
for both teachers and students of Japanese as a second language (henceforth referred to as L2 Japanese).

In his book *The Structure of the Japanese Language*, Kuno states:

The distinction in meaning between *wa* and *ga* is a problem that perpetually troubles both students and instructors of Japanese. (Kuno, 1973a:37)

Two decades after this statement was made, *WA* and *GA* still remain a conundrum. Ito, Tahara and Park describe learners' experiences with *WA* and *GA* as follows. ¹

The distinction between *WA* and *GA* troubles students of all levels, from the elementary to the advanced. Yet *WA* and *GA* are basic words that are used frequently in daily life.

This would imply that ideally these particles should be understood thoroughly by the time a student reaches an advanced level of Japanese, in itself not an easy task. The description continues further.

Native Japanese can distinguish between the different uses of WA and GA, but they also find it difficult to explain analytically why they choose one particle over the other in a specific context. There seem to be so many problems involved with WA and GA that even experts of the Japanese language cannot give a clear explanation of proper usage of the particles. The problem seems troublesome enough to be qualified as the topic of a dissertation. The uses of WA and GA seem affected by subjective and psychological factors that come from the Japanese way of thinking, thus is not only governed by grammatical rules.

The persistent state of this problem with WA and GA might give the impression that this topic rarely has been studied by researchers, but in fact, there are a huge number of studies on WA and GA. For the most part, however, these studies have been conducted from the linguistic perspective which focuses on describing the intuition of first language (henceforth referred to as L1) adult native speakers when using the particles.

The standard analysis of WA and GA in Japanese linguistics has been established by Kuno (1973a:37ff.), who has classified the uses of WA into two categories (thematic WA and contrastive WA) and the uses of GA in three categories (neutral description GA, exhaustive listing GA, and objective GA). This classification predicts that any occurrence of WA
and GA except those that occur in subordinate clauses can be classified under one of the five categories. This might be helpful to a certain degree, when L2 Japanese learners interpret WA or GA used in sentences produced by someone else, because it gives them a rough idea of the basic functions of the particles. When the L2 learners attempt to speak or write their own sentences coherently, however, they need more than a 'rough idea' about the functions of these particles because there are many cases where either WA or GA seems appropriate within the same linguistic context. An example is provided below.

\[ (1) \text{A:} \text{Kondo no shoodan GA} \]
\[ \text{this time GEN business transaction SU} \]
\[ \text{umaku itte-kureru to ii-nda kedo naa,} \]
\[ \text{well go-GRN-GIV CONJ good-EP but INT} \]
\[ \text{‘I hope that the business transaction} \]
\[ \text{will go well this time.’} \]

\[ \text{B: Kocchi WA yokute mo} \]
\[ \text{this side TOP good-GRN even} \]
\[ \text{mukoo WA/GA un to iwanaidaroo} \]
\[ \text{counterpart TOP/SU yes QT will-not-say} \]
\[ \text{‘Even if we wanted it, they would not offer a} \]
\[ \text{positive response.’} \]

\[ ^2 \text{This sentence by B appears in Teramura (1991) but in a} \]
\[ \text{discussion not related to this topic.} \]
How can an L2 Japanese learner decide on either WA or GA in speaker B's case? The standard classification established by Kuno (1973) might suggest WA is appropriate here because B's sentence shows a contrast between the opinions of the two parties. But under the same classification system, GA seems equally possible. Among the three uses of GA given by Kuno, objective GA does not fit here because there is no object to be marked by GA. The remaining uses of GA are neutral description GA and exhaustive Listing GA. It is not clear which of the two better fits the situation, but either could be used. Further, contrastive sense often implied by WA seems to remain even if one uses GA in the above case. This leads one to ask what is the difference in the contrastive sense between WA and GA. The above example demonstrates that an identical linguistic environment often allows for either WA or GA, and that it is often difficult to explain the subtle differences created by the two particles. Such cases are quite common. Here is another example.

(2) A: Motto yukkuri shiteikeba ii noni...
more leisurely do-GRN-leave-if good though
'I wish you could stay longer.'
Native speakers of Japanese would use GA here, but again it is not easy to explain exactly how the meanings differ when GA is chosen over WA. These are the most confusing problems with WA and GA, yet they rarely have been examined by linguists.

Linguistic perspectives have had a major influence on L2 Japanese studies, which more or less have followed the standard classification of linguistics in studying WA and GA. More specifically, linguistic contexts have been divided into two cases: those allowing only WA or only GA. These studies, however, are not rigorous enough to investigate linguistic situations where either WA or GA seem equally appropriate. It is not surprising, therefore, that both teachers and students continue to suffer from the ambiguities that surround WA and GA. Earlier L2 Japanese studies lack an examination of the difficulties that L2 Japanese learners
often face when learning WA and GA. There is no way to help these learners without knowing the source of their troubles. This study assumes that the grey area in which both WA and GA seem appropriate is a major source of problems for students of Japanese, and must be accounted for in any L2 Japanese study.

Statement of the Problem

The Japanese particles WA and GA have been studied primarily by Japanese linguists. Some studies are syntax-oriented (see Cook, 1993, for a review of these studies) and some are discourse-oriented (e.g., several studies published in Hinds, Maynard and Iwasaki, 1987). Analyses by traditional Japanese linguists include, among many others, those by Mikami (1981), Mio (1948), and Onoe (1981). There are also studies by recent Japanese linguists in Japan (Masuoka, 1987; Moriyama, 1988; Nitta, 1991; Niwa, 1988; Noda, 1984, 1986; Teramura, 1991). Of all the studies on WA and GA, Kuno's *The Structure of the Japanese Language* (1973) is probably the most influential.
Linguistic studies are basically product-oriented rather than process-oriented in the sense that they are interested in accounting for distributional facts about WA and GA in given texts produced by native adult speakers of Japanese. Developmental processes whereby language is acquired are not the main focus of these studies. In contrast, an investigation of the acquisition process, beyond the description of the produced data, is the major concern of L2 researchers who want to know how and when language acquisition takes place among learners (Larsen-Freeman and Long, 1991). The above contrast reflects different research orientation. For this reason, this study assumes that L2 researchers cannot and should not expect from the above linguistic research detailed accounts of the acquisition processes of these particles.

Previous L2 studies on WA and GA provide descriptive data obtained through various instruments, which include cloze tests (Nagatomo, 1993; Russell, 1985; Sakamoto, 1993), oral interviews (Doi & Yoshioka, 1990; Ishida, 1991;

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3 Teramura (1991) incorporates L2 learners' perspectives in his analysis of the particles, thus his study should be distinguished from the works of other scholars.

The limitation of these studies is, first, they contribute little to the development of any L2 acquisition research. L2 studies can make great contribution by systematically and collaboratively examining the predictions and questions posited by a particular L2 acquisition model. This is not possible if a study is not based on any L2 acquisition model. Research should be "...a systematic approach to finding answers to questions." 4 Second, sound language acquisition models which are based on systematically collected data often offers universal principles. Without employing any acquisition model, analyses will gain little independent support from such universal principles, resulting

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4 Hatch and Farhady's 1982 study (as cited in Larsen-Freeman and Long, 1991:10)
in a reduced validity of the analyses. This study employs a well-grounded language acquisition model in order to fully characterize the acquisition process of WA and GA. 5 Due credit, however, should be given to the descriptive data provided by the above-mentioned L2 studies, which helped narrow down the number of problems involving WA and GA encountered by L2 Japanese learners.

Studies of WA and GA in L1 acquisition are found in Clancy (1985), which provides an extensive review of L1 Japanese acquisition studies in general. Studies find that WA and GA first appear in children's speech around two years old. Tahara and Ito (1985), in their study of native Japanese speakers, also found that children started using these particles a little before two years old, although "mastery of WA" did not occur until around 14 years old. 6 This suggests that acquisition of at least some function of

5 In this thesis no distinction is made between 'acquisition' and 'learning' and the two words will be used interchangeably unless otherwise indicated.

6 Tahara and Ito (1985) observe that the anaphoric function of WA is difficult for native Japanese children to acquire. The researchers apparently assume that the acquisition of this function indicates the complete mastery of multiple functions represented by WA.
WA might be more difficult than that of GA in L1 children. This observation seems to conflict with the descriptive data provided by L2 studies on WA and GA, which commonly report that learners produce a higher rate of correct usage with WA than GA.

There are also psycholinguistic studies involving adult L1 speakers and L2 learners. Studies by Ito, Tahara and Park (1993) involved sentence-interpretation experiments, in which L1 and L2 participants were asked to identify the "agent of the sentence" (= doer of the action in the sentence), while listening to simple sentences that involved the interpretation of WA and GA. They investigated which of the particles tends to be associated with the feature of the agent, or agentivity. Their findings include: (1) GA demonstrates agentivity stronger than WA does in both native speakers and L2 learners except elementary level speakers, and (2) L2 native English learners predominantly use the word-order strategy in identifying the agent (which is often marked by WA/GA), and as they advance in learning Japanese, they become able to use the semantic strategy (whether the given noun is animate or inanimate), which is the dominant strategy used by natives speakers.
The above psycholinguistic studies were conducted typically with artificial sentences containing two nouns and one transitive verb (e.g., NNV: Uma-ga, hako-o tataita 'The horse hit the box'). The sentences used in psycholinguistic analyses are highly controlled in order to increase the reliability of the collected data. However, the generalizability of the results is confined to simple sentences. In contrast, the present study aims to investigate situations where WA and GA are processed beyond the simple sentence level, that is, in a discourse context. In this sense, this study will add new information to the findings of previous psycholinguistic studies.

In sum, while linguistic analyses of WA and GA provide distributional facts about the particles, such analyses are basically meant to represent grammatical knowledge that adult native speakers of Japanese possess, and they do not provide facts about developmental processes that will lead to the acquisition of proper usage of the particles by non-native speakers. This study argues that a language acquisition model should be sought for this latter purpose. As previously mentioned, the majority of existing L2 studies on
WA and GA do not employ any acquisition model. As a result, problems involving WA and GA have not been fully studied in light of language acquisition processes that display universal tendencies as well as some variabilities in language acquisition. It has yet to be investigated exactly how and when L2 Japanese learners are successful in learning how to use WA and GA. It was also argued that this study is different from psycholinguistic studies in its scope of studying WA and GA in that the focus of psycholinguistic studies is confined to sentence level but the focus of the present study goes beyond the sentence level to the discourse level.

This study proposes that the ultimate goal of L2 studies on WA and GA is to describe and explain the difficulties that learners are faced with in learning these particles. This task requires a description of the developmental processes of learners. Such process studies traditionally have been conducted within the context of a longitudinal study. However, process studies do not have to be associated only with longitudinal studies. Experimental studies also can be designed in such a way as to investigate the developmental

It is true that in order to study the SLA process we must be able to trace changes diachronically, or over time, which would seem to suggest the adoption of a longitudinal approach, i.e., one which would allow the researcher to trace the process, not just analyze the product or outcome at any one point in time. However, a synchronic cross-sectional study can be designed in such a way as to emulate the diachronic process of SLA. If the subjects represent a range of language proficiency, then it is assumed that their aggregate performance at a single point in time will reflect a developmental picture similar to that obtained by a researcher studying the second language development of a single subject over time. (p. 13)

The current study provides synchronic data that was produced by subjects under four proficiency levels, which can be viewed as the diachronical development of a single learner. Without the context of a developmental learning process, production data will be less meaningful and the data will remain descriptive.

The present study aims to identify and describe the difficulties that L2 Japanese learners encounter, and then analyzes the nature of these difficulties in detail.
Significance of the Problem

This study has been motivated by the desire to eliminate a long-standing obstacle for L2 students and teachers of Japanese. Correct identification of the difficulties that learners are faced with in learning WA and GA will provide immediate benefit to Japanese classrooms, by specifically suggesting a new focus of instruction.

The present study develops a new direction of L2 Japanese research on WA and GA. Traditionally, linguistic contexts for these particles have been analyzed in two ways: contexts for WA and contexts for GA. This study proposes that two-way analysis is insufficient to fully describe linguistic contexts involving WA and GA, due to the fact that many cases exist where either WA or GA is equally acceptable. These linguistic contexts have never been investigated before. This study proposes that these indeterminant contexts are closely associated with the difficulties that L2 Japanese learners experience. Thus, at least three
linguistic contexts for WA and GA must be assumed. They are contexts for (1) WA only, (2) GA only, and (3) contexts where either WA or GA is possible. By adopting a three-way classification system, this study attempts to provide a new picture of linguistic contexts for these particles.

Finally, the main focus of analysis in this study is the cognitive process that L2 Japanese learners go through in learning WA and GA. More specifically, this study aims to explain, in terms of processing difficulty, why some uses of these particles are more difficult to learn than others. Past studies generally have attempted to show varied degrees of difficulty by associating learners' experimental test scores with linguistic functions of those particles. It is not clear, however, why some functions are often associated with low test scores and others with high scores. In other words, it is not yet well articulated that the underlying mechanism that makes some cases more difficult for L2 learners.

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7 In fact, there is one more linguistic context where neither WA nor GA appears. This will be another interesting focus of research on WA and GA. This study, however, focuses on learners’ difficulties in using these particles rather than in the “non-use” of the particles. Thus, the latter case is excluded from this study.
Japanese learners than others. The present study attempts to provide new pieces of information about this mechanism, adopting the notion of cue-based learning in the Competition Model, which is a framework for cross-linguistic study that aims at accounting for processes of language acquisition in terms of universal as well as variable aspects.

**Purpose of the Study**

The purpose of this study is to investigate the effect of 'cues,' which are hypothesized to affect the selection of the Japanese particles WA and GA in a cloze test which asks subjects to fill in the blanks with a particle. The notion of a 'cue' comes from the Competition Model (Bates and MacWhinney, 1987; Bates and MacWhinney, 1989). The Model assumes that language acquisition is a problem of mapping between form and function, which is guided by various types of linguistic cues. This notion of cue-based learning is one of the key concepts in this model. The basic assumption here is that local cues require less amount of storage and cross-
referencing for interpretation than do global cues. This implies that language processing tasks involving local cues will be processed more easily and thus acquired earlier than those involving global cues. Based on this assumption, linguistic contexts in which WA and GA appear are categorized under two major types of cues: local cues and global cues. Prior to the survey, a cloze test that contained 48 blanks to be filled in with either WA or GA was created. The 48 blanks were divided into four groups as follows: 12 for local WA, 12 for local GA, 12 for global WA, and 12 for global GA. Questions from each group were randomly distributed throughout the test. The major hypothesis of this study is that the combination of the cue type (local vs. global) and the particle type (WA vs. GA) will have a different affect on the learners' selection of the particles. The design was

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6 The definition here roughly follows Kail (1989). But this study does not include cognitive demand on short-term memory in the definition as Kail does.

9 Kail's topological cues, as he states, involve only "linguistic cues." As will become clearer later, however, it is suspected that WA and GA involve non-linguistic cues, e.g. communication motivation. In order to distinguish this important difference, topological cues are replaced in this study with global cues, which supposedly involve both linguistic and non-linguistic cues.
motivated by a number of research questions. In order to investigate the problem as closely as possible, the research questions were divided into two categories: quantitative questions and exploratory questions. Under the first category, several hypotheses will be statistically verified. Under the second category are questions that will examine the obtained statistical results through descriptive data such as error rate, confidence level scale, and follow-up interviews. The quantitative research questions are phrased below.

(H1) With a cloze test that asks adult L2 Japanese learners to fill in blanks with a particle, is there any significant difference in the frequency of incorrect responses that is attributable to cue type?

Earlier, it was briefly mentioned that past L2 studies on WA and GA often reported that subjects responded with a higher rate of correctness in the use of WA. This fact will be examined with the following question.

(H2) With a cloze test that asks adult L2 Japanese learners to fill in blanks with a particle, is there any significant difference in the frequency of incorrect responses that is attributable to particle type?
Following the cue type and the particle type, the third independent variable of interest is the proficiency level of the subjects, for which the research question is formed as follows.

\[(H3)\] With a cloze test that asks adult L2 Japanese learners to fill in blanks with a particle, is there any significant difference in the frequency of incorrect responses that is attributable to proficiency level?

Finally, research questions concerning possible interaction among the independent variables are described below.

\[(H4)\] Is there any significant interaction between the particle type variable and the level of cue type variable?

\[(H5)\] Is there any significant interaction between the particle type variable and the level of proficiency variable?

\[(H6)\] Is there any significant interaction between the cue type variable and the level of proficiency variable?

\[(H7)\] Is there any significant interaction among the particle type variable, the level of cue type variable, and the level of proficiency?

Exploratory research questions will be examined with descriptive data, including the error rate, the confidence level report, and interview data.
The first group of questions is concerned with the error rate of the responses. Six categories of WA and another six categories of GA, with a total of 12 particle categories are designated. Thus, the first question is:

(EQ1) How does the error rate rank among the 12 categories overall? Also, how does the error rate rank within the six WA categories as well as within the six GA categories?

The answers to these questions will help us find areas students find most difficult in learning WA and GA.

L2 studies on WA and GA indicate that subjects often respond with more error to tasks involving GA than to tasks involving WA. This fact will be verified quantitatively, but even after the statistical result has been obtained, questions will still remain concerning the source of this difference. Hence, the following questions.

(EQ2) Why is it the case that GA elicits more incorrect responses than WA? Does this mean that GA is inherently more difficult than WA? Do learners feel more comfortable with WA?
The next question is related to the metalingual knowledge of L2 learners. This will be examined in reference to the confidence level data and the error rate.

(EQ3) How does the metalingual knowledge of learners manifest itself in the confidence level data? How does metalingual knowledge compare with the error rate?

The next several questions will be analyzed with interview data. The first questions below intend to verify past findings about the difficulties involved in learning WA and GA.

(EQ4) Among the Japanese particles, which one do learners find most difficult? What makes this particle so difficult to learn?

(EQ5) What kind of strategies do learners use to find out the appropriate use of each particle?

Theoretical Bases

Perspectives on Second Language Acquisition (SLA) Research

It is essential for any study to define its field of work. Defining the field of second language acquisition
(SLA) research, however, is not easy. Ellis (1994) observes that "[S]econd language acquisition is a complex, multifaceted phenomenon and it is not surprising that it has come to mean different things to different people" (p. 15). In the present study, SLA research is broadly defined as the study of how learners learn a second language, with the goal of describing and explaining learners' underlying knowledge of the second language.

The present study employs the Competition Model. Before discussing the Model, however, it is helpful to make an overview of various approaches to SLA. Such an overview first will provide not only the available focuses of SLA studies, but also will supply information regarding how to work on various topics in order to produce a sound SLA study. Second, it will serve as a criterion to evaluate an SLA model or theory because the overview tells us what topics a good theory should cover. Four major areas of the approaches to SLA studies have been identified by Ellis, and are presented in Table 1 below. The top row of the above table indicates two major focuses of SLA studies. One places a focus on learning itself (Areas 1-3), and the other on individual
learners (Area 4). The next row divides study focuses into two parts: descriptive studies (description) and explanatory studies (explanation). Under these two categories are four study areas. Area 1 belongs to the description, and the rest (Areas 2-4) belongs to the explanation.
**Table 1.**

"A framework for Investigating L2 Acquisition"

Table 1.1. in Ellis (1994:18)

<table>
<thead>
<tr>
<th>Focus on learning</th>
<th>Focus on the learner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Explanation</td>
</tr>
<tr>
<td>Area 1</td>
<td>Area 2</td>
</tr>
<tr>
<td>Characteristics of learner language</td>
<td>Learner-external factors</td>
</tr>
<tr>
<td>errors</td>
<td>social context</td>
</tr>
<tr>
<td>acquisition orders and developmental sequences</td>
<td>input and interaction</td>
</tr>
<tr>
<td>variability</td>
<td></td>
</tr>
<tr>
<td>pragmatic features</td>
<td></td>
</tr>
</tbody>
</table>

These four areas in the table present the basic elements that SLA researchers need to consider. The task of SLA research, then, is to characterize learners' language, (e.g., its systematicity and variability), and then explain the characterization in terms of three major factors: learners'
external factors (e.g. input environments), learners' internal factors (e.g., universal cognitive processing), and individual differences (e.g., motivation). This task specification not only serves as a helpful guideline for researchers studying SLA, but also helps us examine SLA theories and models in terms of their comprehensiveness.

To obtain a complete picture of SLA will require the endeavor of many different individual studies, which should be examined both singularly and in conjunction with other SLA studies. Obviously it is not possible for a single study to cover completely the areas in the above table, while it is often necessary for a single study to encompass more than one area. The present study will first provide descriptive data on learners' errors in the experimental test (Area 1). Next, possible reasons for the different rate of errors will be examined in association with factors such as linguistic features of the text (input environments in Area 2), universal cognitive processes in knowledge acquisition (Area 3), and learners' strategies (Area 4). The areas of concentration, however, will be the characterization of systematic errors manifested by the experimental subjects
(Area 1) in association with universal cognitive processes in learning (Area 3). To accommodate these areas, the Competition Model was chosen as the best available language acquisition model for the study to investigate the learning processes of WA and GA among L2 Japanese students.

The Competition Model

This model provides cognitive accounts of language acquisition. It is the instantiation of an interactionist approach in the sense that the model assumes that the input interacts with cognitive mechanism in important ways. It is also an instantiation of a functionalist approach in that the model assumes that linguistic forms are in the service of a communicative function. Language acquisition is hypothesized as the mapping of form and function. One of the key concepts in the model is cue-based learning from which form-function mapping is developed. It is assumed that there are various linguistic cues guiding the proper mapping of form and function. The learners' task is to find one-to-one mapping between form and function in order to express or interpret the right communicative function. Form-function mapping is,
however, assumed to be a many-to-many relationship. Thus, cases arise where one cue signals a certain function and another cue signals a different function at the same time. This is a case of competition of cues, from which the Competition Model derives its name. On the other hand, there are other cases where more than one cue signals the same function. This is a case of a coalition of cues. The assumption is that in cases where multiple linguistic cues compete, form-function mapping understandably will not be easy, whereas in the case of cue coalition, the mapping will be rather easy. The question at hand is how these differences will affect the final stage of language acquisition. The answer to this question is not simple but the model assumes that learning the relevant cues is crucial because they guide the mapping of function and form, which is assumed to be the process of language acquisition. The next sections examine the model in comparison with other SLA theories, which and is followed by a detailed description of the model.

Nativist theories posit an "innate biological endowment that makes learning possible" (Larsen-Freeman and Long, 1991:227). An example is Chomsky's language acquisition device (LAD). It is hypothesized that LAD is activated when a child is exposed to a language, enabling the child to learn the language in a short period of time. The influence of learners' external factors are minimized within this framework.

Environmentalist theories of learning assume, according to Larsen-Freeman and Long, that "an organism's nature, or experience, are of more importance to development than its nature, or innate contribution" (p. 249). A typical example, from the late 1950s, is the stimulus-response theory of behaviorists, in which language acquisition was equated with "habit formation" to be accomplished mainly through repetition and imitation. Pedagogical application of this
theory was the audio-lingual method of language learning in the 1960s. A more recent example is the Acculturation Model by the Harvard Project. This model hypothesizes that the social and psychological distances from speakers to the target language play a major role in SLA.

Interactionist theories include both learners' external factors and learners' internal factors. The inclusion of both factors into SLA research suggests that SLA is "too complex to be handled by less powerful nativist or environmentalist factors alone" (Larsen-Freeman and Long, 1991:266). The Competition Model is one instance of this approach, in which "the learner's grammar is viewed as an emergent property resulting from the interaction between input and cognitive mechanisms" (Ellis, 1994:374). In this model, statistical properties of the input plays "a major role in determining order of acquisition as well as the nature of the final state" (Bates & MacWhinney, 1987:158). The nature of interaction will be discussed in more detail in the next section.

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Functionalist approach. The Competition Model employs a functionalist approach to language performance and language acquisition. Functionalism is described as follows: "[T]he forms of natural language are created, governed, constrained, acquired and used in the service of communicative functions." 11 The task of the language learner, therefore, is to find appropriate linguistic forms according to the communicative function that the individual intends to convey. This matching between linguistic form and function is referred to as "form-function" mapping. Thus, language acquisition in this model is defined as a problem of mapping form and function.

The model assumes two types of mapping: horizontal mapping and vertical mapping. The former is represented by form-form as well as function-function correlations, and the latter is represented by form-function correlations, which represent the ultimate goal of language acquisition. Bates and MacWhinney (1989) observe that children usually do not directly acquire the form-function correlation. Instead,  

11 MacWhinney, Bates, and Kliegl's 1984 study (as cited in Bates and MacWhinney (1989:3)).
they gradually narrow down the scope of the target form-function correlation. This is accomplished by examining formal correlations between items that are positionally connected and semantically related. For instance, an English speaking child might start learning the third singular "-s" by adding the form whenever sentences that start with "Mom" or "Dad" are followed by "go." At this stage, it is assumed the child knows the positional sequence of linguistic items: "Mom/Dad + go-es" (form-form mapping). The child might soon extend the possible sequence to "Mom/Dad + come-s" because of the semantic connectedness of the final lexical items. While the child encounters many other sentences, this individual will gradually narrow down the scope, and eventually learn that the morpheme "-s" is attached to the verb when the child learner uses a third singular subject in the present tense. At this point the learner has completed the form-function mapping.

This kind of horizontal mapping can be assumed to be the natural first step for children in learning a language because forms are usually easier for them to detect than abstract functions. In this sense, horizontal mapping
plays an important role in the initial stage of language acquisition.

Studies under the model typically examine the mapping of one particular function and several specific linguistic devices that serve as cues. The function in question is the "agent" in sentences, and the cues are word order, agreement, case, and animacy. Examples are illustrated with the following sentences from Ellis (1994:374).  

Mary kissed John. (word order)
Money they like. (agreement)
She kissed him. (case)
This book Mary likes a lot. (animacy)

In the first sentence, both "Mary" and "John" are animate nouns and qualify to be the agent, or doer, of the action. But the word order signals that Mary is the agent of the sentence. Likewise, in the second sentence, because the third singular "-s" is not attached to "like," the "money" is not the agent. Thus, "agreement" is the cue in the second sentence. The third sentence illustrates a case of cue coalition, nominative case (she), and the sentence-initial

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12 The explanation following the sentences are mine.
position, if the position is assumed to be another possible cue for the agent (as is often assumed in this model). In the last example, the animacy cue of "Mary" signals the function "agent" and wins out over "this book," which is inanimate. 13

Using these fixed and objective functions and cues, experiments frequently have been conducted to demonstrate how differently these cues would signal the "agent" of the sentences in languages. A cross-linguistic study showed that English speakers tended to use word order to encode agency, Russian speakers primarily used case markings, and Japanese speakers tended to rely on animacy (Ellis, 1994:374). Viewing these differences within situations of SLA reveal many interesting facts. For instance, Kilborn and Ito (1989) found that English-speaking learners of Japanese at the beginning level tended to rely on the word order cue to identify the agent in their sentence processing task in Japanese. On the other hand, English-speaking learners of

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13 The above examples show that English has four types of cues that signal agency. This is not the case with every language. For instance, there is no agreement between verb and subject in Japanese.
Japanese at the advanced level tended to use the animacy cue more than the word order cue for the same purpose. Because the primary cue for the agent is word order in English and animacy in Japanese, it was interpreted to mean that the transfer of strategy from word order to animacy is related to the acquisition of the L2. It is not clear yet whether the shift of the cue use contributed to the improvement of the speakers' abilities in the L2 or if itself is the result of the improvement. However, the result suggests that manipulation of some linguistic cues can possibly expedite L2 acquisition. In fact, the Competition Model offers accounts of various phenomena in L2 acquisition with linguistic devices serving as a cue.

**Cue-based learning.** Because one function can be represented by more than one form, the learner must learn how to select the right form in order to express communicative function correctly. Likewise, because one form can be associated with multiple functions, the individual also needs to learn how to properly match the given form with the right function in order to interpret the linguistic forms.
correctly. The Competition Model hypothesizes that such selections are guided by linguistic cues. Four broad types of cues are posited: word order, vocabulary, morphology, and intonation. The value of cues is determined by several factors. Cue availability "represents the extent to which a cue is there when you need it," and cue reliability "represents the degree to which a cue leads to the correct interpretation when you count on it." These two constitute cue validity. Finally, conflict validity is the measure of cue validity when two or more cues conflict (Bates and MacWhinney, 1987:41). This principle of cue validity is assumed to determine the order of acquisition in general. Ellis gives an English example to illustrate cue validity.

...if we consider the information available to the L2 learner regarding the role of word order in realizing agency in English, we can characterize this "cue" as relatively reliable (the noun phrase preceding the verb is typically the agent) and readily available (the input is likely to supply plentiful examples of this mapping). Also in English, word order tends to override other cues (except agreement). Thus, in a sentence like "Mary bit the dog," "Mary" is the agent, even though experience of the world might lead one to suspect that "the dog" is more likely the agent. ...children respond to those cues which are salient and easily detectable (such as word order), but once these have been established they turn their attention to sentences containing conflicting
cues (for example, "That person we all love," where there is conflict between the word order and agreement cues). Ultimately it is these sentence that help them to establish the dominance patterns of the cues. (Ellis, 1994:375)

The above example suggests that mapping between form and function will take place early in acquisition when the validity of the relevant cue is high. When two or more cues conflict with each other and indicate multiple forms or functions, the completion of mapping will take place later in acquisition because this mapping involves an evaluation of multiple cues for conflict validity, which complicates the mapping process.

Summary of the Competition Model. The following recapitulates the major components of the model relevant to the subsequent discussion. The Competition Model defines language acquisition as a problem of form-function mapping which is driven by various linguistic cues. Some cues represent a higher value to the learner than other cues. The value is determined by cue validity which consists of availability and reliability, as well as conflict validity. The value of cues changes during the learning process. There
is a tendency among L1 children to depend on easy cues such as word order. Once easier cues have been established, however, they tend to shift their reliance to conflict validity, which is a measure of the cue validity when more than two cues conflict. Language acquisition that involves high cue validity (i.e. mapping led by cues of high reliability and availability) will take place early. The acquisition process that involves conflict validity will take place later, but cues with conflict validity will be those that establish the dominance patterns of the cues, which suggests that language acquisition will not be completed before the acquisition of various cues that hold conflict validity. This is understandable because form-function mapping often consists of many-to-many relationships, where learners must seek the valid cue from among competing cues in order to find one-to-one-mapping.

Ellis (1994) observes the strength of the Competition Model as being that it provides a convincing account of many L2 acquisition phenomena, including the role of the L1, the effect of input, and the gradual way in which native-like ability is acquired (p. 378ff.). He also maintains that the
main weakness of the model is over-reliance on rather artificial interpretation tasks with unnatural sentences, which ignores pragmatic procedures increasingly assumed to be important in language acquisition.

**Application of the Competition Model**

The notion of conflict validity in the Competition Model is relevant to the present study of WA and GA. L2 learners of Japanese often show an imbalanced misuse of these particles, both in writing and speaking. Linguistic classification of these particles is not quite helpful in clarifying the distribution of errors. One possible hypothesis to interpret this situation is that the higher error rate is associated with the linguistic environment that contains competing cues, whereas the lower error rate is related to non-competition environments. In order to advance this hypothesis, the linguistic environments of WA and GA were divided into two categories. The local environment refers to the linguistic environment where there is no competition of cues. The global environment refers to the environment where more than two cues are competing, signaling
the opposing particles simultaneously. Thus, the major
criterion of the distinction between local vs. global cues is
whether or not cue competition exists. Under the local
environment are local cues, which usually are represented by
a lexical item that signals either WA or GA, but not both.
On the other hand, under the global environment, the correct
corrective is not signalled by a single lexical item. Instead,
one of the competing cues must be selected based on a
synthesis of information available within the context.
Because this requires the additional operation of comparing
and cross-referencing elements within the sentence, the
processing demand is assumed to be higher than in cases of
local cues. Following Kail (1989), it is assumed that
global cues require higher cue cost than local cues. High

14 The description of global cues follows the definition of
topological processing in Kail (1989).

15 Kail assumes that his topological cues require high cue
cost because they make greater demands on short-term
memory. In our case, memory capacity will be less relevant
because the experiment is conducted with a cloze test,
which is not a performance test like the listening tests
often used in Competition Model studies. It is assumed that
that global cues in the present study still require an
additional processing cost because they require a synthesis
of information to reach the right particle.
cost cues are often highly reliable, but difficult to learn. In the case of WA and GA, the cost of a global cue might be too high for some learners. In such a case, only a local cue that is available in the situation might be identified and interpreted, resulting in the wrong choice of a particle. If this is really the case, WA and GA led by local cues should be learned earlier than those led by global cues. L2 learners' intuition toward WA and GA should be predicted by how they can handle those particles under the global environment.

Validity of Error Analysis

It was Corder (1967) who changed researchers' views of learner errors as something to be corrected into a view of the errors as a significant subject of investigation. Corder's major contribution in the 1960s and 1970s is represented by the fact that his results empirically refuted behaviorists' views of language acquisition as solely based on habit formation through stimulus and response with no creativity. Analyzing learners' errors showed that learners made creative as well as systematic errors reflecting that
language development was not solely based on imitation. Researchers have pointed out, however, some problems with error analysis. Learners are known to avoid using linguistic constructions when they feel they are not ready to use them. Error analysis does not work well in examining the developmental stages of such construction. Ellis (1994) also observes that such analyses have tended to focus on errors alone, ignoring what learners can do correctly, and that the definition of errors has not been made clear. As a result, many past studies using error analysis have turned out to be rather unreliable.

In conducting error analysis in this study, a cloze test was used which presented various linguistic environments. Subjects were required to answer every question. The error was defined as a response that did not match the response of the baseline data. The baseline data was obtained from 11 native speakers of Japanese, who answered all the questions with a 100% matching rate. The cloze test makes it possible to examine a learner's error in

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one place in relation to the correct responses in other places. This will give a picture of what the learner cannot do as well as what the individual can do. Further, because the experimental results consist of cross-sectional data with four language proficiency levels, it is possible to observe error responses semi-diachronically, assuming that different proficiency levels represent the different developmental stages of a single learner (cf. Larsen-Freeman and Long, 1991). The main purpose of the error analysis is to see how learners reveal different rates of error according to different linguistic environments. For this purpose, the data was analyzed quantitatively with specific statistical methods, and qualitatively through introspective data such as one's confidence level toward the response and follow-up oral interviews. The above methodological approach to error analysis is supported in the following statement by Ellis. 17

17 In his statement, Ellis cites Bardovi-Harlig and Bofman (1989) and Taylor (1986).
...[T]he study of learner errors can still serve as a useful tool and is still undertaken, often as a means of investigating a specific research question. ...[it] can prove illuminative when employed in the detailed, qualitative analysis of learner language... (Ellis, 1994:20)

Validity of the Cloze Test

In general, literature in the field of testing designates three types of validity: construct validity (i.e., if a given test measures what it is intended to measure), content validity (i.e., if the sample of activities to be included in a test thoroughly represents the target domain), and criterion-related validity (i.e., if the test correlates with other established tests or future criterion for performance). One way to approach the concept of validity is to regard construct validity as "a comprehensive concept which includes the other types" (Anastasi, 1982:153), which was followed by the present study.

What is intend to measure in the present study is L2 learners' intuition toward WA and GA. This will consist of several types of knowledge. The cloze test represents conversational discourse but in a written form (cf. Appendix D). Thus, to a certain degree, it will involve reading
comprehension abilities. Next, the fill-in-the-blank test will also require grammatical knowledge about the usages of WA and GA. Third, because the dialogues in the text simulate natural conversation, pragmatic knowledge unique to speech communication is also required in order to choose the correct particle. Thus, an L2 learner's intuition toward WA and GA in this study is a composite knowledge of competence (grammatical knowledge about WA and GA), performance (knowledge about how WA and GA are used in conversational discourse), and reading comprehension ability (performance). This knowledge is operationally defined as an L2 Japanese learner's ability to use WA and GA in written conversational discourse.

The next question to be asked is content validity. That is, whether or not cloze tests can legitimately measure the L2 learner's intuition toward WA and GA.

According to Weir (1991), "the term 'cloze' was introduced by W.L. Taylor (1953) who took it from the gestalt

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10 For instance, demonstrative such as are, 'that over there,' and sore, 'that one' would be more frequently used in conversation than in written communication in order to refer to objects that the speaker and the listener visually share.
concept of 'closure' which refers to the tendency of individuals to complete a pattern once they have grasped its overall significance." The following is the definition by Taylor.

A cloze unit may be defined as: any single occurrence of a successful attempt to reproduce accurately a part deleted from a "message" (any language product), by deciding from the context that remains, what the missing part should be. (Taylor, 1953:416)

In the present study, the missing part is a blank to be completed with any particle that sounds most natural to the experimental subjects.

The validity of the cloze test is extensively discussed in Wier (1990), who incorporates the findings of many studies. The following enumerates several negative views of the test cited in Wier: (1) a cloze test is a much less effective measure for assessing "general proficiency" in that it does not correlate as well with other established general

19 In the discussion that follows, a cloze test is narrowly defined. Namely, it is a fill-in-the-blank task, which is constructed by deleting words with a certain fixed frequency, e.g., every fifth word. Our cloze test, which is not designed this way, is constructed by deleting WA or GA according to the purpose of the researcher.
proficiency measures within a monolingual group, (2) the test is not suitable with restricted range groups, (3) the test does not seem to correlate well with productive tests of speaking and writing, and (4) it seems more successful for syntax and lexis at the sentence level than for reading comprehension in general or for inferential or deductive abilities.

Among the above arguments, (1) is less relevant because the 'general proficiency' of learners is not the focus of the present study. What is intended to measure is L2 learners' intuition toward WA and GA, which, rather, is a "local proficiency." With regard to (2), four proficiency levels of learners are incorporated into the study, and (3) is irrelevant for the obvious reasons. Finally, (4) can be taken as supportive of the present study because about half of the questions in the test under the local cue group require only lexical and syntactic knowledge.

There are many more positions supportive of cloze tests in general and of the particular case in this study as well. The following present the positive aspects of the test. Bormuth finds that cloze tests are valid and uniform measures
of reading comprehension ability. Heaton (1975) maintains that "cloze tests measure the reader's ability to decode interrupted or mutilated messages by making the most acceptable substations from all the contextual clues available" (p. 122). Alderson points out that the cloze procedure becomes a measure of the similarity between the patterns that the decoder is anticipating and those that the encoder had used. Finally, and more recently, Bachman (1990) observes, "In the investigation of how individuals process information in a reading passage, for example, the cloze would seem to have a great deal of potential" (p. 68).

The above discussion demonstrates that cloze tests are suitable in measuring learners' abilities to reconstruct a linguistic context through reading a text. The cloze test in the present study asks subjects to reconstruct the context by filling in the blank with a particle by reading the information contained in short dialogues. Earlier, L2 Japanese learners' intuition toward WA and GA was defined as

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their ability to use WA and GA in written conversational discourse. Because this inevitably involves reconstruction of a linguistic context through reading a text, it will follow that the cloze test is a suitable measure of one's intuition in this area.

Validity of Data

This section discusses perspectives on data that is required for good research.

Ellis (1994) recognizes three broad types of data in SLA research and discusses the advantages and disadvantages of each type of data. The classification is presented in Figure 1 below. The first major group in the figure below is "language use data," which refers to data that "reflects learners' attempts to use the L2 in either comprehension or production." This data is further divided into two types, depending on whether the data has been obtained from natural settings, or has been elicited by the researcher. Finally, elicited data can be clinical or experimental. The former represents any sort of data elicited from learners, and the latter, types of data elicited with a focus on the
researcher's interests. The second major data type is learners' "metalingual judgements" often elicited by a grammaticality judgement test. The third type is represented by "self-report" data often obtained through questionnaires and interviews.
Figure 1. "The Data Types Used in Second Language Acquisition Research" (Ellis, 1994:67).
The following summarizes the discussion by Ellis. The language use data enables us to observe "the linguistic and pragmatic features of the L2 that learners typically employ in different situations." This is ideal in the sense that the ultimate goal of investigation is to reveal the language ability of L2 learners in natural settings. The major disadvantage of this approach that Ellis observes is that "... it is time-consuming and difficult to collect, and may not provide information relating to the specific features that are the target of the study, or not in sufficient amounts to make a quantitative analysis possible" (p. 671).

More importantly, the present study argues, this type of data is often collected under little control, resulting in the collection of unsystematic data, reducing the researcher's ability to draw accurate conclusions. Ellis suggests that elicited language use data is necessary for a systematic investigation of variables that influence performance.

Clinical elicitation has been conducted through spoken as well as written tasks.Composition, oral interviews, and role plays are among the instruments used for such elicitation. The major problem is that often the data does
not provide the features that the researcher is interested in. This is the motivation behind experimental elicitation. Some of the instruments used to elicit this type of data are structured exercises such as transformation exercises, fill-in-the-blanks, and sentence combining. Problems with experimental elicitation concern issues of construct validity, i.e., to what extent those instruments measure what the researcher wants to measure. Ellis provides the result of one study that used the Discourse Completion Questionnaire. The study found that the elicited data was both similar to and different from conversations occurring in more or less natural settings. "[T]he usual way to establish the validity of the data collected by this instrument is by establishing to what extent they display the same features as natural speech data" (p. 672). In reference to this validation principle, the above result was interpreted to suggest that experimentally elicited data often requires concurrent validation with natural language use data.

Metalingual knowledge refers to learners' knowledge of language. For instance, it will tap into learners' metalingual knowledge to ask which particle should be used in
a sentence. This knowledge is often divided into competence and performance. The former is what learners know about the language, and the latter is their knowledge of how the language is used for communication. Metalingual judgement tasks are often assumed to provide evidence related to competence rather than performance. Ellis maintains that this is not warranted. "Metalingual judgements involve 'performance' just as much as natural language use, albeit of a different kind... all data, from whatever source, can be used to investigate both competence and performance" (p. 673).  

Further, Ellis describes one great advantage of metalingual judgement tasks over language use data. Only the former tells us what learners do not know as well as what they do know. There is no way of knowing what learners avoid using in language use data.

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22 It is assumed that the cloze test in the present study measures learners' knowledge in the sense Ellis maintains here. The dialogues contain conversational discourse. Though the dialogues are written form, they require pragmatic knowledge necessary to interpret the discourse (e.g., frequent use of demonstratives such as ano, 'that'). Thus, the present study assumes that the judgements involve both competence and performance.
Several disadvantages of metalingual judgements relevant to the present study include "the problem of determining exactly what it is that learners judge when they evaluate sentences, and the variability that arises from different learners' 'skills' in performing such tasks" (p. 674).

The last data type to examine here is self-report data. This type of data has been successfully utilized to gain insights into individual differences and to identify learning strategies. Instruments include written questionnaires, oral interviews, and think-aloud tasks. This type of data has "proved invaluable in uncovering some of the affective and cognitive factors involved in L2 learning, factors that are not readily observable in language behavior" (p. 674). The question is how well learners are aware of their own affective status and cognitive process. Possible problems include a learner's motivation behind the report of the individual. What researchers want to know is what subjects did and why, but studies show that subjects tend to report what they felt they should have done instead.

The preceding discussion indicates that a single type of data is often insufficient for SLA research. Depending on
situations under which data was collected (e.g., natural or elicited), learners seem to use different linguistic knowledge. Also, even within the same situations (e.g., natural settings), different tasks will tap into different type of L2 knowledge. Ellis concludes that "[G]ood research is research that makes use of multiple sources of data and that gives recognition to the limitations of the data sources used ..." (p. 676).

The present study employs an experimental elicitation task using a cloze test. The cloze test contains conversational dialogue in written form, which requires pragmatic knowledge typical of conversational discourse. For instance, use of demonstrative such as are, 'that one over there,' is frequent in conversation. Learners need to have pragmatic knowledge that such demonstratives refer to an identifiable object, which is normally marked by WA in Japanese. Because this is performance knowledge, the cloze test is assumed to be tapping into a learner's performance as well as competence about WA and GA. The blanks in the cloze test are classified by the researcher, according to the different linguistic environments determined by cue types.
Thus, the first collection of data from this study represents experimental elicitation that induces learners' L2 intuition toward WA and GA. The increasing number of incorrect responses is assumed to indicate in an inversely proportionate manner the accuracy of the learners' intuition, and indicate in a proportionate manner the degree of difficulty of the test items.

The present study also analyzes two types of self-report data. One is confidence level data with a five-point scale measure. This is intended to measure learners' confidence about their own responses. This is a type of metalingual judgements data. The degree of difficulty measured by the error rate will be examined in reference to the confidence level. A correspondence between a low confidence level and high error rate as well as a high confidence level and low error rate should result. A problem will manifest itself if a high confidence level is associated with many errors.

Another type of self-report data is an oral-interview with subjects. The main purpose of the interview is to identify, through direct contact with the learners, the nature of the difficulties they experience with WA and GA.
It will be investigated how and why learners feel WA and GA are difficult and what kind of strategies they use in order to choose the correct particle.

Thus, the present study employs three sources of data. L2 intuition toward WA and GA will be elicited, and the result will be submitted to a statistical procedure to verify several null hypotheses. Then, the nature of difficulty found in the data will be compared with the other two types of data: confidence level data and interview data.
Definition of Terms

Conversational discourse Short conversation by two native adult Japanese with one exchange each.

Cloze Test Instrument to elicit L2 Japanese learners' intuition toward WA and GA. Subjects were asked to fill in the blanks with the particle that sounded most natural to them. A total of 48 blanks were contained in 48 independent dialogues exchanged by the same two interlocutors, Sato and Yamada. Both were intended to represent a male speaker, with Sato being of a socially higher status than Yamada, which was represented in each individual's speech style. The following is the original definition of the cloze test.

A cloze unit may be defined as: any single occurrence of a successful attempt to reproduce accurately a part deleted from a "message" (any language product), by deciding from the context that remains, what the missing part should be. (Taylor, 1953:416)

Confidence level A five point-scale instrument that asks subjects to indicate their confidence level about their own response right after each fill-in-the-blank task.
**Cue Cost.** "Differential processing demands imposed by different kinds of cues" (Kail, 1989:97). In the case of WA and GA, the cost of a global cue might be too high for some learners. In such an instance, only a local cue that is available in the situation might be identified and interpreted, resulting in the wrong choice of a particle. This implies that the cost of a cue possibly differs from learner to learner, reflecting individual differences.

**Degree of difficulty.** Degree of difficulty of WA or GA in particular linguistic environments reflected in the number of learners' errors. The increasing number of learners' errors indicate a proportionally high degree of difficulty. Errors are expected where L2 learners' intuition toward WA and GA is not stable.

**Error.** Responses given by subjects that do not coincide with the key answers prepared by the researcher and verified by 11 educated adult native speakers. Operationally defined as the measurement of L2 Japanese learner's intuition toward WA and GA in discourse.
Error analysis Analysis of learners' errors in the elicited data.

Global Cue Linguistic context where multiple competing cues exist, indicating opposing particles. In this sense, there is competition among cues, possibly complicating the process of particle selection. The following illustrate a case in point.

Sushi wa/ga suki-janain desu.
sushi TP/SU to like-NEG be

'[It's that] I don't like sushi.'

In the above example, the object of the predicate suki, 'to like,' signals GA, whereas the negated form of the predicate signals WA, representing a situation where two opposing cues are competing.

Language questionnaire. Simple questionnaire that asks subjects about their language experience.
Local cue  Cues that appear in a local environment where there is no competition among cues, and that signal either of the particles WA or GA, but not both. Represented by a single lexical cue. For example, wh-subjects in Japanese represent a local cue for GA-marking as illustrated below. The example shows that the existence of the cue *Dare*, 'who,' serves as a sufficient condition to determine the particle.

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Dare ga kimasu ka. 'Who is coming ?'
who  SU  come  Q
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L2 learners' intuition toward WA and GA  L2 Learners' ability to use WA and GA in a conversational discourse written in Japanese. The ability is measured by the number of incorrect responses in a cloze test which presents a conversational discourse written in Japanese. The conversational discourse was created by the researcher. The increasing number of errors is inversely proportionate to the accuracy of the L2 learners' intuition and proportionate to the degree of difficulty of the test item containing WA or GA.
**Particle Types** Two types, i.e., WA and GA. WA indicates theme and GA indicates either grammatical subject or with some predicates, grammatical object, as explained by Kuno (1973). Only those WA and GA that follow noun phrases in the main clause are investigated in this study. Local WA and local GA refer to WA and GA that appear with local cues, whereas global WA and global GA refer to those particles that appear with global cues.

**Product vs. Process study** Product study refers to research on product or outcome at any one point in time, whereas process study refers to research on changes conducted diachronically, or over a period of time (Larsen-Freeman and Long, 1991:13).

**Proficiency Level** Four language proficiency levels designated by the Japanese program at The Ohio State University: the 2nd year, the 3rd year regular, the 3rd year intensive, and the 4th year. \(^{23}\)

\(^{23}\) In reality, these are four achievement levels. Students advance to each level from the previous upon completion of the course with a grade of D or above (Dr. Charles Quinn, personal communication).
Quantitative vs. Qualitative Data  In this study, quantitative data refers to quantified data for the purpose of statistical procedures to confirm or disconfirm hypotheses. Likewise, qualitative data refers to types of descriptive data obtained from the researcher's close observations of behavior or phenomena. These types of data are complementary in nature, rather than mutually exclusive. Quantified data that is not for the purpose of confirming or disconfirming hypotheses is included among the qualitative data in this study.

Second Language Acquisition (SLA)  L2 learners' process of mapping between form and function guided by linguistic cues (Bates and MacWhinney, 1987). Major factors that influence this process are input environments, mechanisms of cognitive processes, and individual differences. It is the process of general problem-solving and no biological device is specifically assumed for language acquisition.
Assumptions

1. The cloze test developed by the researcher is a valid means to classify the Japanese particles WA and GA according to local and global cues.

2. The cloze test developed by the researcher is a valid means of investigating the subjects' intuition toward WA and GA in a conversational discourse written in Japanese.

3. The subjects possess basic skills of reading and comprehending Japanese in the given cloze test used in the experiment.

4. The subjects will complete the cloze test to the best of their ability.

Limitations

1. The experiment was conducted with a small sample (N=35). Therefore these results can only serve as preliminary information in evaluating the role of cue types in learning the particles WA and GA by L2 Japanese learners.
Cue types have been categorized by a single researcher. Therefore, generalizations should be drawn from these results with caution. Replication of this study examining the validity of the categorization is advisable.
CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

In Japanese, the most common word order in a simple sentence with a transitive verb is Subject-Object-Verb (SOV). Ellipsis is common when the referent is recoverable from the immediate discourse environment, and a single verb can constitute a sentence. The same is true with a single adjective, or a 'noun+copula' sequence. The word order is rather flexible as long as the verb or predicate comes last. The grammatical role of words is indicated by postpositional particles. Such particles include a subject marker (GA) and a topic marker (WA). These two particles frequently share the same linguistic environments. It is often difficult,

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1 Jorden and Noda (1987) classify major sentences of Japanese under three types. They are roughly (i) verbal sentences, (ii) adjectival sentences, and (iii) noun + copula sentences.

2 The particle GA marks grammatical subjects. Its main role is to indicate the grammatical role of words. In this sense, this particle and other particles indicating grammatical relation are often called case particles. The particle WA is not included among case particles because its main role is to indicate "topic," which is a semantic or pragmatic role rather than a syntactic role.

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therefore, for non-native speakers to determine which particle to use when both seem acceptable. Further, in such an instance, native speakers often have difficulty explaining why they ultimately select one particle over the other. Sometimes particle selection greatly alters the meaning of a sentence. Other times WA and GA can be used almost interchangeably. Finally, it is more common to drop particles in colloquial speech, which might make the input situations rather difficult to learners. The following will describe how WA and GA have been treated in linguistic studies as well as in L1 and L2 acquisition studies.

**Linguistic Analysis of WA and GA**

**Overview.** Matsumura (1965) provides a historical review of studies by western grammarians on WA and GA starting from Rodoriguez in the 17th century through Chamberlain in the late 18th century. Matsumura’s description demonstrates that most of today’s notions associated with WA and GA had

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3 Rodoriguez’s study (as cited in Matsumura, 1965).

4 Chamberlain’s study (as in cited in Matsumura, 1965).
already appeared, albeit in a less elaborate form, by the end of the previous century.

Teramura (1988) briefly describes how the debate on "grammatical subjects" among so-called Kokugo Gakusha, or Japanese traditional linguists started in the late 19th century. He starts with a definition of *bun*, 'sentence,' borrowed from the western grammar into Japanese. The definition states that a sentence is a minimal complete (linguistic) unit that represents thoughts. It typically consists of a noun which represents the subject, and a verb which represents the predicate. The problem is that both WA and GA can represent the subject in Japanese and in many cases a single sentence can contain not only a WA marked noun but also a GA marked noun. This situation is illustrated in the form X-WA Y-GA P(redicate). Linguists debate whether or not this is a sentence containing two subjects, and if it is not, which of the nouns, X or Y, is the subject.

Today, two major viewpoints concerning the status of these two noun phrases in one sentence are recognized. One viewpoint assumes that WA indicates the topic or theme, and
GA indicates the subject of a sentence. 5 This opinion seems to be held by a majority of scholars. This position assumes the superior status of the subject (or the nominative) over other predicate arguments such as the object (or the accusative). For example, in English, the particular subject of a sentence triggers a special form for the predicate, e.g., the 3rd person singular -s. Such an agreement is not observed between the object and the predicate. Hence, the grammatical subject enjoys a special status in English. In Japanese as well, as the proponent of this first viewpoint might argue, the social status of the subject of a sentence triggers honorific expressions and thus deserves special recognition. Proponents of a second viewpoint, however, would maintain that honorific expressions also can be triggered by the object of a sentence, and that there is no motivation to recognize a certain nominative as the "subject" in Japanese. A GA-marked noun phrase is simply a nominative argument, and should be treated as a complement, just like other predicate arguments. To this second group, therefore,

5 This paper does not distinguish topic from theme. The two forms will be used interchangeably.
there is no subject in Japanese. The basic Japanese sentence consists of complements (e.g., nouns designated as nominative, accusative, genitive) and a predicate. Complements are not essential elements of the sentence and thus are optional parts within the sentence. Because WA-marked phrases are also optional in either viewpoint, two types of sentences are possible depending on whether or not sentences contain a WA-marked phrase: thematic sentences (yuudai bun), which are sentences with a theme, and themeless sentences (mudai bun), which are those without a theme. Proponents of the viewpoint which does not recognize subject, such as Mikami (1972) and Masuoka and Takubo (1992), are in a minority. Whether or not grammatical subject should be recognized in Japanese has yet to be determined.

Today the major focuses of study in this area are threefold: (1) features of the nouns to which WA or GA is attached, (2) predicate features, or sentence structures, and (3) referential features of these two particles in discourse. Although this paper will discuss these three features separately, they often work in combination to determine the distribution of WA and GA.
Noun Features

Noun features here refer to features inherent to a particular noun or pronoun. They include definiteness, number in person (e.g. 1st person pronoun), and rank in noun feature hierarchy (Silverstein, 1976). Definite nouns are usually associated with WA and indefinite nouns with GA. (e.g., Kuroda, 1979). But not all definite nouns are marked by WA (Inoue, 1979, 1983). Nitta (1991) observes a distribution of GA in relation to personal pronouns and sentence types in a framework similar to that of Mio (1948). Two types of sentences are recognized: genshoo-byoosha-bun, 'sentences describing phenomena,' and handan-hantei-bun, 'sentences of judgements.' The former type is associated with GA and the latter with WA. Nitta maintains that GA-marked nouns in the former type of sentences are found only with third person nouns. Because this genshoo-byoosha-bun describes situations and phenomena around the speaker and the listener, the object of description must be around the two interlocutors. For this reason, Nitta maintains the first and second person cannot stand as the third party object to be described in this type of sentence. On the other hand, in
the latter type of sentence, sentences of judgements, any noun can be marked by GA regardless of the number in person.

Tsunoda (1991) argues that the noun feature hierarchy of Silverstein is relevant to the selection of WA and GA. This hierarchy presents animate pronouns, such as first person pronouns and second person pronouns, in the higher hierarchy and inanimate nouns in the lower hierarchy. Silverstein assumes that nouns in the higher hierarchy are more likely to be the agent and those in the lower hierarchy the patient. Tsunoda applies this hierarchy to the distribution of WA and GA. He argues that WA indicates the theme when the noun in question is higher in the hierarchy, whereas the same particle indicates contrast if the noun is lower in the hierarchy. On the other hand, GA indicates exhaustive listing when attached to a higher noun, and neutral description when attached to a lower noun. Based on this, Tsunoda concludes that the unmarked particle for higher nouns is thematic WA, whereas the marked particle for the higher nouns is exhaustive listing GA. The unmarked particle for lower nouns is neutral description GA, whereas the marked particle for these nouns is contrastive WA. When a noun is
located in the middle of the hierarchy, the interpretation becomes ambiguous between thematic WA and contrastive WA as well as between exhaustive listing GA and neutral description GA.

The above discussion describes the distribution of WA and GA in relation to the inherent features of the noun to which WA and GA are attached. There are other features of nouns describable in terms of their dynamic status in discourse, involving two similar but different notions. One is anaphoricity and the other involves the newness of information. Namely, noun phrases are distinguished as either non-anaphoric or anaphoric as well as by whether they indicate new information or old information. These notions refer to aspects of the noun status which is dynamically determined in individual discourse environments. These will be discussed later as referential features of WA and GA in discourse.
Predicate Features

Predicates features play an important role in determining the selection of WA and GA. For instance, Kuno's descriptive GA is limited to predicates representing actions, existence, or temporary states (Kuno, 1973). Kuno further observes that in sentences that express temporary states, the subject marked by GA can be interpreted as either neutral description or exhaustive listing (e.g., Taro GA iku, 'Taro goes'), whereas in sentences of permanent state, the GA-marked subject is interpreted only as the exhaustive listing (e.g., Taro GA gakusee da, 'Taro is the student'). Niwa (1988) challenges this statement with various counterexamples. He observes that a GA-marked subject can appear with a neutral description reading in sentences expressing the permanent state as long as the subject is preceded by X-WA, as in X-WA Y-GA P(redicate) (e.g., Hanako WA me GA ookii, 'Hanako has big eyes'). In this sentence, Nitta argues, ookii, 'big' indicates the permanent state of Hanako's eyes but the GA preceding the adjective can be interpreted as the neutral description GA contrary to Kuno's prediction, which expects the exhaustive reading here.
Mio (1948) associates thematic sentences (yudai-bun) and themeless sentences (mudai-bun) with sentences of judgement (handan-bun) and sentences of description (genshoo-bun), respectively. Earlier we saw a similar association in Nitta (1991). Nitta is aware that this association is not always accurate.

Masuoka and Takubo (1992) propose a little more elaborate classification of sentence types based on the predicate. They recognize two major types of predicates: stative predicates and active predicates. Basically, the former are represented by involuntary verbs such as aru, 'to exist,' and naru, 'to become.' Imperative sentences are impossible with this type. Typical active predicates are action verbs that can represent the meanings of command, prohibition, petition, solicitation, and so on. Masuoaka and Takubo observe that a stative predicate usually describes attributes of the theme in a sentence, which is marked by WA. Sentences of an active predicate can constitute two types of sentences, which are classified in a manner very similar to Mio (1948): sentences describing events and phenomena without subjective interpretations, and sentences describing events
and phenomena in relation to a situation specified in terms of time and space. The former usually contains a GA-marked NP and the latter a WA-marked NP. The former is referred to as a themeless sentence (mudai-bun), and the latter referred to as a thematic sentence (yuudai-bun).

Masuoka (1987) presents observation similar to preceding studies in terms of the way he divides the predicate types. But he employs the notion of 'known' and 'unknown' as crucial factors in choosing between WA and GA. Mauoka distinguishes between two types of sentences: those describing attributes (zokusee jojutsu-bun), and those describing events (jishoo jojutsu-bun). The former roughly corresponds to nominal sentences and the latter to verbal sentences, referred to as meishi-bun and dooshi-bun, respectively, by Mikami (1981). In sentences describing attributes, the functional meaning of each particle is easily definable. Namely, GA indicates exhaustive listing and WA indicates thematic reading (Taroo GA/WA kashikoi 'Taro is smart'). In such sentences, therefore, the correct selection of WA or GA easily can be based on the functional meanings of the particles. Masuoka finds that this is not the case with sentences describing
events, which depend on the conditions at the discourse level. Namely, whether or not the subject noun is marked by WA or GA depends on whether the noun is known or unknown, which cannot be predicted from the sentences type.

Kuroda (1972, 1973, 1979, 1987) provides a unique contribution to the study of predicate features. Following a type of judgement theory, Kuroda observes two different types of judgements: the categorical and the thetic. Of the two, according to Kuroda, “only the former conforms to the traditional paradigm of subject-predicate [structure of sentences], while the latter represents simply the recognition or rejection of material of a judgement” (1972:154). Kuroda then claims that “the difference between the sentence types with the particles GA and WA correspond to the distinction between the thetic (subjectless) judgement and the categorical judgement” (1972:161). GA is associated with the former and WA with the latter type.

Referential Features in Discourse

There are two major approaches to the study of the referential features of WA and GA. One method of study
focuses on how a protagonist or a character is introduced into a story, and is maintained with various referential options in subsequent discourse contexts. In other words, these studies are interested in functions of WA and GA in the development of a story (e.g., Hinds 1976, 1983). The second approach to studying the referential features of WA and GA concentrates on how discourse notions such as new vs. old and non-anaphoric vs. anaphoric interactively constrain the distribution of WA and GA (Kuno 1973; Inoue 1979, 1983). We will now focus again on the first method of study.

Hinds investigated how characters in a Japanese narrative were referred to when mentioned more than once. Hinds and Hinds (1979) found that a character is typically introduced by GA, then subsequently referred to with WA and then referred to by an ellipsis. Hinds (1983, 1984) defines that an ellipsis a neutral means of referring to a character once that character has been established as the topic of conversation. Clancy and Downing (1987) refer to the discourse function of WA as a local cohesive device (p.46). Clancy (1980) compares referential options in English and Japanese with a focus on third person human referents.
Clancy (1992) also conducted an experiment with 60 Japanese children and 10 Japanese adults to investigate referential strategies used in narrative discourse. Four independent variables incorporated in the study were age, discourse context, plot centrality, and type of narrative. She found the main effects of the first three variables as well as effects from the interactions among all variables. Maynard (1980, 1981, 1987), employing written narratives, identifies WA as a "staging device"—a device for expressing the narrator's perspective in Japanese. According to Maynard, WA serves to create a theme by identifying NPs that are to remain on the thematic stage, whereas NP-GA provides information subordinate to the thematic information when GA marks given information (1981:127). Maynard (1981) also demonstrated through a written narrative for children that contrary to the common assumption, given information is marked by GA. She argues that "GA marks given information only so long as that NP is not chosen to be the theme of the discourse." Watanabe (1989) attempted to identify the discourse function of WA and GA, and that of zero anaphora, through a quantitative study of written narrative text.
Researchers who use the second approach to studying the referential features of WA and GA are interested in describing how the status of information (e.g., new vs. old and non-anaphoric vs. anaphoric) influences the distribution of WA and GA. A detailed review of these notions will be provided below because this complicated system of status ranking is quite relevant to our later discussion. In accounting for the distribution of WA and GA, Inoue employs the notion of known elements (*kichi yooso*) and unknown elements (*michi yooso*) as well as the notion of old and new information. The known-unknown pair applies to subject noun phrases (NP). This is basically the same as Kuno's (1973) anaphoric vs. non-anaphoric contrast. Subject NPs that represent known elements include proper nouns, definitized nouns (NPs with a definite article in English), pronouns, and generic nouns. According to Inoue, these are items which already appeared in a preceding context or items which are commonly understood from general experiences. Unknown elements include non-generic indefinite nouns (e.g., a gentleman), and NPs containing quantifiers (e.g., many friends).
The new-old pair has two aspects. One aspect is related to the speaker's perspective and the other to portions of a sentence associated with the new and the old. Whether or not information carried by NPs is new is determined by the speaker. New information is indicated by GA and old information is indicated by WA. New information refers to information the speaker assumes that the listener does not know. Old information refers to information the speaker assumes that the listener knows.

Independent of this dynamic speaker's perspective of information status, Inoue assumes a general arrangement of information in terms of newness. Namely, old information comes before new information in discourse. Inoue assumes that the sentence-initial position is for old information, and the place right before the predicate becomes the place for new information in Japanese unless the predicate itself is a focus. This means that subject NPs normally appear in the place for old information (= sentence-initial position), and new information about the subject is provided in the rest of the sentence.
With the two pairs of notions referring to subject NPs, known-unknown and new-old, Inoue clarifies Kuno's (1973) four-way classification of WA and GA. Figure 2 below illustrates our summary of Inoue (1979, 1983), where the treatment of known and unknown elements is featured. The figure indicates that known elements, whether they are taken as new or old, generate some ambiguity. When they are treated as new and marked by GA, this GA indicates exhaustive listing or neutral description. The distinction relies on the feature of predicates. Namely, if the predicate indicates a permanent state of the subject NP, then the GA indicates exhaustive listing. When the predicate indicates action, the GA is ambiguous and could describe either a neutral description or an exhaustive listing. Likewise, ambiguity exists when known elements are treated as old, in which WA is interpreted as either a thematic reading or a contrastive reading. Such ambiguity does not exist in the case of subject NPs representing unknown elements. When they are treated as new and marked by GA, then that GA always indicates neutral description. When they are treated as old and marked by WA, that WA always indicates contrast.
The following are several examples. The numbers in the brackets correspond to those in Figure 2 above.

(a) Taro GA gakusee desu.
   SU student COP

'Taro is the student.'   [(1) Exhaustive L]
The general order of information is used to account for how functions of WA are differently interpreted, depending on the position of WA in a sentence. Inoue assumes, for instance, that WA appearing in the sentence-initial position is most readily interpreted as thematic WA in normal word order. She also assumes that the contrastive connotation of WA-marked phrases is strongest when the phrases are closest to the predicate. This connotation becomes weaker as the
phrases move away from the pre-predicate position, and the connotation is the weakest when the WA-marked phrases are furthest from the predicate, i.e., when they are in the sentence-initial position. Thus, the thematic meaning of WA arises for WA-marked subject NPs.

Emphatic connotation of exhaustive listing GA is also related to the positional condition. The sentence-initial position is most strongly associated with the known elements, which are usually marked by WA indicating theme. When known elements are treated as new information and marked by GA, however, emphatic connotation arises. This results in an exhaustive listing reading of GA. This is obligatory when the predicate indicates the permanent state of the subject. Two things are noteworthy in Inoue's analysis. First it attempts to account for the underlying mechanism whereby contrastive WA gradually changes to thematic WA as the WA phrase moves away from the pre-predicate position toward the sentence-initial position. Namely, WA indicates contrast in one place within the sentence for the new (=pre-predicate position), and it indicates theme in another place for the old (=sentence-initial position). This suggests that
different functional meanings of WA are definable to a certain degree according to the position of the particle in a sentence.

Second, as early as the late 1970's, Inoue explicitly pointed out that the new or old status of subject NP is decided by the speaker (and it is marked by GA if it is new and WA if it is old). This statement implies that a single NPs in the same linguistic environment can be marked by either WA or GA, depending on the speaker's perspective. This also suggests that there are linguistic environments that allow both WA and GA, creating variability in the selection of WA and GA among native speakers. Nevertheless, such linguistic contexts in which both particles are possible have been rarely investigated until now.

Other Focuses

Other studies of interest include Noda (1984), who examined the first sentences of Japanese newspaper articles and found four conditions crucial in determining the selection of WA and GA: (1) predicate feature, (2) feature of the subject noun, (3) word order, and (4) the function that
the sentence plays in the passage. Noda (1986) also classifies subordinate clauses according to the degree of subordination to the main clause. In general, the subject in a subordinate clause is marked by GA in Japanese. But Noda indicates that this is not always the case. The subject in a subordinate clause can be marked by WA when the degree of subordination to the main clause is low. Prior to Noda's study, Kuno (1973a:207-209) also discussed what he calls "command power of NP-ga" (207), which affects the differences in the scope of NP-GA phrases, according to the degree of subordination of the subordinate clause to the main clause. McGloin (1987) discusses the relationship between WA and negation. She finds that WA-marked negation is more objective and non-evaluative when compared with non-WA-marked negation, which imposes the speaker's/writer's subjective value judgements and therefore is evaluative (p. 179). Finally, Fujii (1987) and Wolf (1987) studied WA in both Classical Japanese and Modern Japanese, providing a diachronic study of WA.

The ways in which the functions of WA and GA are conceptualized also vary. Some are quite interpretive, based
On intuition. Onoe (1981) observes that the core function of WA is to designate a sentence’s theme, then combine the theme with the predicate (Nibun-Ketsugoo) for the purpose of making logical judgements. Onoe assumes that kakari-joshi-see, the nature of WA-marked themes requiring a judgement, is the essential nature of WA.

Ito and Tahara (1985) define the functions of WA and GA in three ways. The first definition describes the particles’ syntactic functions. "[W]a marks the topic of the sentence without indicating the case relationship of the preceding NP to the predicate, while ga indicates a specific case, usually the nominative or the subject to the predicate" (p. 121). The discourse function of WA, according to Ito and Tahara, is to convey old information, while the discourse function of GA is to convey new information. They also assume another function of WA and GA: the referent-comparison function (contrastive WA and exhaustive listing GA).

Makino (1987) accounts for the use of WA and GA in terms of what he calls Communicative Orientation (CO). According to Makino, CO is the direction toward which communication is oriented and is a functional notion that consists of
speaker/writer orientation and listener/reader orientation. He argues that the principle of CO has a broader application than the so-called notion of new vs. old.

Cook (1993) proposes abstract schemes for WA and GA and the relationship between WA and GA. WA marks a container and demarcates a certain portion of a scene relevant to a participant. GA marks a participant in some portion of a scene not necessarily a participant in a container (p. 393).

Despite so many of these studies on WA and GA, analyses that will help resolve L2 learners' difficulties are very few, if any. Teramura (1982) observes L2 learners have difficulties in figuring out when they have to pick up an item as a topic or whether or not it is natural to pick it up as a topic. Teramura's observation can be conversely stated as follows: learners need to know in which context they should not pick up an item as a topic or whether it is unnatural to pick it up as a topic. According to Teramura, the question of either WA or GA is ultimately determined by discourse conditions (p. 44). He classifies three cases: (1) when X cannot be thematized, (2) when X must be thematized, and (3) where X-WA and X-GA are both possible but with
different meanings. Teramura's statement points out the problems of past studies, in which study focuses were limited to the first two cases above. Stated differently, the main question of analyses was which of the two particles, WA or GA, should be used in a given linguistic context. There was no inquiry into the third possibility. Most studies presented interpretations of NPs already marked by either WA or GA in a text, rather than studying how and why one should or should not select either WA or GA in producing a text. With the lack of research in this area, and thus lack of sufficient teaching methods to help students choose between WA and GA when both seem appropriate, using WA and GA correctly in a Japanese composition must be very hard for learners. The following discusses some of the major problems in linguistic analyses related to WA and GA from learners' perspective.

**Topic: Elusive Notion**

Linguists generally define GA as the subject marker and WA as the topic marker in a Japanese sentence. The role of subject in Japanese sentences, however, is unclear. As
discussed earlier, it is debatable whether or not Japanese sentences have "subject" in the sense of the subject in English. There are also other issues to be resolved, including problems of the double subject construction (X-GA Y-GA construction) and the status of GA-marked noun phrases in so-called stative predicates (e.g., X-WA Y-GA wakaru, 'X understands Y'). Overall, however, the notion of subject is less problematic than the notion of topic because problems with subject are confined to the sentence level.

Topic is often defined as what the sentence is talking about. In reality, however, the definition varies among scholars. Ito et al. (1993) find that the concept of topic (or theme) is defined in various ways, depending on the researcher. They also find, however, common ground among the definitions. Namely, the definitions they examined all referred to the speaker’s psychological state in relation to the discourse context and environment (p. 16ff.). The problem is the fact that the notion is speaker-dependent, or dependent on events that take place in the speaker’s mind. This implies that the speaker is allowed considerable freedom in choosing a topic. The question is how a topic is
selected, such as in the English sentence "A friend of mine came to visit me yesterday." Provided that this is the first line in a diary, non-native Japanese speakers would assume that "a friend" would qualify as the sentence's topic, and thus would need to be marked by WA in Japanese. As illustrated below, however, tomodachi, 'friend,' must be marked by GA.

(1) a. *Kinoo tomodachi WA kita.
   yesterday friend TOP came

   b. Kinoo WA tomodachi GA kita.
      yesterday TOP friend SU came

   c. Kinoo tomodachi GA kita.
      yesterday friend SU came

Sentences (1b) and (1c) illustrate that kinoo, 'yesterday' can be optionally marked by WA. At this point, we easily get lost in determining which noun is the topic, and in what sense. 6 As shown in these examples, the notion of "topic"

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6 It is assumed that time words when followed by WA provide a certain fixed temporal space, which are often followed by a description that introduces new events and phenomena occurring in that time space. When such events are unpredictable, then both the subject and the predicate represent new information and the former is marked by GA.
is quite elusive and can be applied to either "sentence topic," "discourse topic," or "speaker's topic" (Brown and Yule, 1983). In this sense, the assignment of topic seems to give much freedom to the speaker. The above example, however, indicates that a complicated process is involved in the selection of the right particle.

The notion of "old" (or given) and "new" are often associated with WA and GA, respectively. Such notions again are speaker-dependent. "Givenness (or old) information is that knowledge which the speaker assumes to be in the consciousness of the addressee at the time of the utterance" (Chafe, 1976:30). Likewise, "old information refers to things the speaker can assume from the discourse context that the listener knows..." (Inoue, 1983:49). The designation of "new" and "old" can vary, depending on individual speakers, especially in such cases as when an item is designated as "old" by way of implication from overt linguistic items.

Another notion relevant to topic is anaphoricity. It is well known that a subject in an anaphoric reference is often

WA-marking of time words can be assumed as optional in event descriptions (cf. (1c)).
marked by WA. Grammar books often give the impression that this is an obligatory requirement, but in actual speech this is not always the case. A problem arises, therefore, when an anaphoric subject also happens to be the focused element of a sentence. Such anaphoric subjects MUST be marked by GA, contrary to the typical grammar book generalization. 7 This suggests that the distribution of WA and GA in relation to anaphoricity in combination with the notion of focus merits more research.

Capturing the generalization of topic is in no way an easy task for linguists. "In studying how grammatical forms

7 The following example illustrates a case in point.

Kore tada no booru-pen deshoo ?
this common of ball-point pen COP

Kore ga 1-man-en desu ka.
this-SU ¥10,000 COP Q

'This is just a common ball-point pen, isn’t it? Is this (really) ¥10,000?'

The underlined kore, 'this,' in the second line represents an anaphoric reference in that it refers back to kore, 'this' in the first sentence. Demonstratives (e.g., the second kore) are often marked by WA in Japanese. In the above case, however, WA sounds awkward. Instead, it is marked by GA because the item is focused to indicate some emphasis, such as the speaker’s surprise.
map onto discourse functions, the linguist is forced to
describe psychological structures and mental states that are
not well understood even by the psychologist" (Bates &

Analysis with Newness and Anaphoricity: Problems

This section reviews Kuno's (1973a, b) analysis of WA
and GA. It will be first illustrated that the notions of
newness and anaphoricity correctly predict the distribution of
WA and GA. It will be revealed, however, that linguistic
environments which are defined uniquely for one particle
represent only one case: exhaustive listing GA under
anaphoric, new noun phrases. This means that other
linguistic environments accommodate more than one choice: in
one case the choice can be either thematic WA or contrastive
WA, and in another case, it can be either neutral descriptive
GA or contrastive WA, leading to an often confusing and
problematic situation for learners.

Kuno (1973a, b) classifies the uses of WA into two
categories (thematic use and contrastive use) and the uses of
GA into three categories (neutral description GA, exhaustive
listing GA, and objective GA). In his analysis, he elaborates on NP types in terms of both new vs. old information, and non-anaphoric vs. anaphoric. Figure 3 below illustrates our summary of Kuno's (1973a, b) analysis. 9

\[
\begin{array}{ccc}
\text{Anaphoric} & \text{Non-anaphoric} \\
\text{Old} & \text{New} & \text{New} & \text{Old} & \text{Non-existent} \\
[A1] \text{Thematic WA or Listing GA} & [B] \text{Exhaustive} & [C1] \text{Neutral Description GA} & \text{or} & [C2] \text{Contrastive WA} \\
[A2] \text{Contrastive WA} & & & \\
\end{array}
\]

\textit{Figure 3. Summary of Kuno's Analysis of WA and GA (1973a, b)}

In the above figure, anaphoric NPs refer to those that have been mentioned and recorded in the registry of the

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8 Discussion of objective GA is irrelevant and will be excluded here.

9 The argument in this portion is taken from Tomita and Hiki (1994).
present discourse, including NPs of unique reference such as the sun and the moon, and generic NPs such as whales (Kuno 1973a, b). \(^{10}\) Anaphoric NPs often represent old information but they can also carry new information in certain contexts. As illustrated in (3b) below, new information represents a meaning that is not immediately predictable from the given context. One more piece of important information that is stated in Kuno but is not presented in the above figure, concerns GA. Namely, "...only the subject of action verbs, existential verbs, and adjectives and nominal adjectives that represent changing states can be followed by the descriptive ga, while there are no such restrictions in the case of exhaustive-listing ga" (Kuno 1973a:50-51). The following examples are from Kuno (1973b) except for (2'). \(^{11}\)

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\(^{10}\) Kuno's 1973a study describes anaphoric NPs and generic NPs separately. But in Kuno's 1973b study, the two categories seem to merge as anaphoric NPs in the sense that they are both types of NPs present in the speaker's/listener's registry.

\(^{11}\) Examples (2)-(4) are from p.217 and (5) from p. 29. Example (2') as well as all glosses and translation are mine. Orthographical modification has been made for a unified presentation.
(2) a. Taro-WA mada dokushin desu ka.
   TOP still single COP Q
   'Is Taro still single ?'

   b. Hai, kare-WA mada dokushin desu. (Anaphoric, old-[A1])
      Yes he TOP still single COP
      'Yes, he is still single.'

(2') a. Taro-WA imasu ka.
    TOP exist Q
    'Is Taro there ?'

   b. Hai, Taro-WA imasu ga... (Anaphoric, old-[A2])
      Yes TOP exist but
      'Yes, Taro is here, but ...'

(3) a. Taro to Hanako to Natsuko no-uchi-de dare-GA
       and and among who-SU
       ichiban se-ga-takai ka
       first tall Q
       'Who is the tallest among Taro, Hanako and Natsuko ?'

   b. Taro-GA ichiban se-ga-takai. (Anaphoric, new-[B])
      SU first tall
      'Taro is the tallest.'

(4) a. Rusu-chu dare-ka tazunete-kimashita
       during-the-absence anyone-Q came-to-see
       ka.
       Q
'Did anyone come to see me while I was out?'

b. Hai, *boku-no shiranai on’na-no-hito-GA* (Non-

yes my unknown woman-SU anaphoric, 

new-[C1])

tazunete-kimashita

came-to-visit

'Yes, some woman that I didn’t know came to see you.'

(5) a. *Oozei-no-hito-wa patii-ni kimasen ga* 

many-people-TOP came but

*omoshiroi hito-WA* 

interesting person-TOP 

*hibori-mo* 

one-person-even

kimasendeshita. 

didn’t come

'Many people came to the party but not even a single 

person who was interesting came.'

(Non-anaphoric, new-[C2])

The information provided in Figure 3 is summarized in 

terms of new and old information in (6) below.

(6) a. Old information is marked by WA, and it 

represents either thematic or contrastive 

meaning.

b. New information is marked by either 

neutral description GA (if non-anaphoric), 

exhaustive Listing GA (if anaphoric) or 

contrastive WA (non-anaphoric)
In the above figure, non-anaphoric new information is marked by either GA [C1: neutral description GA] or WA [C2: contrastive WA]. The former is well-known and exemplified by (4). But the latter has not been focused on in linguistic literature. Kuno (1973a, 1973b) does not explicitly state that contrastive WA ([C2] in Figure 3) marks new information. He does state, however, that contrastive WA can mark non-anaphoric NPs as well as anaphoric NPs. Under the non-anaphoric category, as shown in Figure 3, any information must be new. Thus, it follows that non-anaphoric NPs marked by WA are always new information (Cf. Kuno's example in (5) above). Provided with such a linguistic situation, either WA or GA is possible. Indeed, (5) seems to sound good with either WA or GA.

The above discussion, as well as Figure 3, illustrates that a type of linguistic environments unique to one particle represents only one case: exhaustive listing GA under anaphoric and new noun phrases. Other linguistic environment allow not only more than one reading (thematic WA or contrastive WA) but also both WA and GA (contrastive WA and neutral description GA). This perspective of examining
linguistic environments for WA and GA was not incorporated into past studies, which simply interpreted sentences where WA or GA already appeared. We realize that the specification of linguistic environments of WA and GA must consider at least the three following factors: (1) whether or not a given context allows both WA and GA, (2) if it does, how each selection changes the meaning, and (3) why one particle is selected over the other in terms of the immediate discourse context.

**Mapping communication motivation.**

This section argues that communication motivation such as emphasis and contrast play a crucial role when linguistic environment accommodates both WA and GA.

Although the definition of "subject," as well as the necessity of the designation itself for NP-marked GA, is not clear-cut, the distribution of GA syntactically can be defined to a certain degree. Nouns described in (7) below are normally marked by GA.
(7)  a. the subject of wh-question sentences  
b. the subject of sentences responding to wh-subject question sentences  
c. the subject of stative predicates  
d. the subject of subordinate clauses  

There are cases in which the generalization in (7) does not apply to the distribution of GA, and it is in these cases that the selection of WA and GA is often confusing. Examples are given below.

(8) A:Kondo no shoodan ga this time GEN business transaction SU  
   umaku itte-kureru to ii-nda kedo naa. well go-GRN-GIV CONJ good-EP but INT  
   'I hope that the business transaction will go well this time.'

12 Examples of (7a) and (7b) are given below.

   Dare GA ikimasu ka. (Who is going ?) -- (7a)  
   Taro GA ikimasu. (Taro is going.) -- (7b)

13 "Stative predicate" is Kuno's (1973) term, which includes suki, 'to like,' and wakaru, 'to understand.' The object of these stative predicates is usually marked by GA.

14 Whether or not the subject of a subordinate clause is marked by GA depends on the degree of subordination of the clause to the main sentence. See Noda (1986) for details.
In B’s utterance, *mukoo* ‘counterpart,’ is marked by GA, which cannot be predicted by the generalization in (7). Linguistic forms and syntactic structure do not give any clues to the selection of GA. Further, a problem exists in that WA is also possible in this context, producing a sentence with a slightly different meaning. Clearly we need a new criterion for selecting one particle over the other in such an instance. The issue of particle selection seems to be related to the communication motivation of the speaker. That is, the selection depends on whether or not the speaker emphasizes the source of the problem with GA, or simply contrasts two opposing opinions with WA. This suggests that semantic notions such as emphasis and contrast are relevant to the selection of these particles. Here is another example.
(6) A: Motto yuukuri shiteikeba ii noni...
more leisurely do-GRN-leave-if good though

'I wish you could stay longer.'

B: Ee, demo mongen GA
right but curfew SU

juichi-ji nandesu.
eleven o'clock COP-EP

'Thank you, but [it's the case that] the curfew is
at eleven.'

In B's utterance, mongen, 'curfew,' is marked by GA. The context again allows for WA to appear here. This time, however, WA might sound rather impolite because it would be taken to mean that the speaker is only concerned about the curfew, ignoring A's kind offering. This interpretation again involves the semantic notion of emphasis or focus. In the above case, for instance, GA would sound more polite than WA to the listener (=A) because B can focus the main reason for declining the offer on the curfew time. Namely, with GA he can imply that he himself wants to stay longer (regardless of his true mind), but the problem is the curfew time which unfortunately conflicts with A's offer. When WA is used instead, the speaker would sound selfishly concerned about the curfew time, with little regard for A's offering. The
implication is that the curfew time is more important than A’s offering, which sounds rude to A. The notion of contrast again is relevant. This time, one of the contrasted items is chosen against someone’s favor, resulting in impoliteness. This example illustrates that WA and GA play important roles in properly reflecting communication motivation. In the above case, for instance, in order to be polite to his listener, the speaker should not generate contrastive connotation by using WA. The notions of emphasis and contrast have been long known to linguists but rarely have been discussed in terms of communication function as shown above.

To summarize, the above linguistic discussion has pointed out that the notion of topic and associated nations, such as new vs. old and non-anaphoric vs. anaphoric, are elusive because they depend on the speaker’s assumptions toward the listener’s knowledge. Hence, mapping of the topic to WA is difficult. Secondly, there is only one linguistic case where the linguistic environments are uniquely defined for a single particle: exhaustive listing GA under anaphoric, new noun phrases. Figure 3 above demonstrates a confusing
case, indicating that either (contrastive) WA or (neutral description) GA is possible under a non-anaphoric new noun phrase. This paper proposes that distribution information of WA and GA should specify this. Finally, communication motivation such as emphasis and contrast play a crucial role in the selection of WA and GA.

L1 Acquisition Studies of WA and GA

From Onset to Completion

L1 acquisition studies indicate that Japanese children acquire case particles fairly early. Clancy (1985) describes that basic particles, including WA (topic) and GA (subject) emerge in speech approximately between the ages of 1;8 to 2;6.

Other studies seem to indicate that the age of onset for both GA and WA is a little before 2 years old. The manner in which these two particles are acquired is not always straightforward. Miyazaki (1979) studied Noji's diary data

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and found that the child in Noji's study started using GA at 2;1 years old, but did not use it with adult frequency until 11 months later. 16 Clancy (1985) suggests that this delayed process results from input environments where the acquisition is hindered because the omission of the particle is frequent in casual adult conversation. Miyazaki also examined the rate of omission of the two particles in the same study above. She found that the omission rate of GA gradually decreased and became close to that of the adult speakers (around 10%) at the age of 2;4. On the other hand, she found that the omission rate of WA remained high, ranging from 52% to 100% even after children passed their fifth birthday. Similar difficulties involving WA have been observed in other studies. For instance, Tahara and Ito (1985) investigated the acquisition of discourse functions of WA and GA among native children in the age range of 4 to 14. The discourse function of WA is defined as conveying old information and that of GA as conveying new information. Tahara and Ito found that younger children (4-5 year-olds) incorrectly used GA when they referred to old information. The next age group

16 Noji's 1976 study (as cited in Miyazaki, 1979).
(6-12 year-olds) was able to use WA to convey old information but in a somewhat unstable manner. Their data demonstrated that the mastery of WA did not occur until around 14 years old.

These above studies suggest that conceptualizing the function of WA might be inherently more difficult than conceptualizing that of GA in L1 children. This observation seems to conflict with the descriptive data provided by L2 studies on WA and GA, which commonly report that learners produce a higher rate of correct responses with WA than with GA. This issue will be discussed in relation to the data of the present study in a later chapter.

**Word Order and Particles**

Studies show that children understand sentences well when they are presented in the canonical order, which in Japanese is Subject-Object-Verb (SOV). Hayashibe (1975) had 30 children act out semantically reversible and irreversible simple active sentences in SOV and OSV order. 17 These are

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17 Examples of reversible and irreversible sentences are exemplified as follows.
both in Noun-Noun-Verb (NNV) order. The age range was 3;0 to 5;11. Some children ignored case markers and interpreted OSV sentences as if they were SOV. This tendency was more noticeable when semantically reversible active sentences were given in OSV order. Hayashi found that only the older children in his study could interpret both SOV and OSV reversible active sentences correctly. This was interpreted to mean that the older children could utilize information provided by the case marker, whereas the younger children could not. This led Hayashi to conclude that children acquire word order strategy before case marker information. Children especially find it easy to understand sentences when items are in the canonical word order NNV. In other words,

Ia) Uma-ga hako-o ketta. 'The horse kicked the box.'
Ib) Hako-o uma-ga ketta. 'The horse kicked the box.'
II) Uma-ga kuma-o ketta. 'The horse kicked the bear.'

In (Ia), Uma, 'horse,' is an animate noun, whereas hako 'box,' is inanimate. For this reason, it is impossible for hako to be the agent of the action 'kick.' The agent must be the horse. In this sense, the semantic role (=agent) is irreversible between the 'horse' and the 'box.' Thus, even when the word order is changed as in (Ib) this semantic irreversibility is assumed to help children, who often ignore case markers, to correctly understand that the second noun in (Ib) is the agent. Children tend to get confused in figuring out the agent in situations like (II), where both nouns are animate and the semantic role is reversible.
children learn the sequence of N-N-V, and then later learn the grammatical role of each N (i.e., whether or not the first N is S or O, which is indicated by case particles).

Hakuta (1982) conducted a similar experiment with 48 children in the age range of 2;3-6;2, and found the same tendency: his subjects comprehended sentences better when they were in the canonical order. In his experiment, sentences were created on two levels of word order (SOV vs. OSV) as well as two levels of voice (active vs. passive). There were four types of sentences resulting from the above combination and three replications of each type with a total of 12 sentences. Each subject heard these 12 sentences and was asked to act out what he or she heard using animal toys. Hakuta found that his subjects interpreted the first-noun as the agent whenever the noun was marked by GA. This strategy resulted in two important findings. First, because the subject of passive sentences is marked by GA (or WA) in Japanese, the passive subject marked by GA was incorrectly interpreted by children as the agent. This was interpreted to mean that children go through this stage of systematic reversal of agent-patient role before learning passive
constructions, in which the first GA-marked noun represents the patient instead of the agent. This would also imply that children learn the active construction before the passive one. Hakuta also found that the second noun, which was the agent, marked by GA (e.g., N-o N-ga V) in active sentences, was not detected despite the signal provided by the subject/agent marker.

Recall that Hayashibe's subjects interpreted OSV sentences as if they were SOV. We see the same tendency in Hakuta's subjects who interpreted OSV/passive sentences as if they were SOV/active, i.e., agent-patient-v when, in fact, they were patient-agent-v. Whether the first N is the agent or the patient is signaled by the particle. Both Hayashibe and Hakuta demonstrated that younger children could not take advantage of the information provided by case particles, suggesting that children learn locational information first and then learn the functions of particles. This generalization in Hayashibe's study was limited to "simple active affirmative declarative sentences with transitive verbs" (p. 15). Hakuta's study extended to passive sentences, in which children were unable to correctly
interpret the particle because of the non-canonical word order.

To summarize, children understand sentences in canonical order and when the first noun is the agent. It would be interesting to see whether or not we can find similar tendencies in L2 learners. If novice L2 learners use the GA-marked first noun strategy like Hakuta's subjects did, for instance, experimental tools such as cloze tests would result in different error rates, depending on the location of the blanks. If the blank for WA or GA is attached to the first noun, then we might expect more correct responses than when the blanks are located somewhere else in the sentence. Thus, the above information from L1 acquisition studies contributes to the examination of differences and similarities between L1 and L2 acquisition of WA and GA.

Ito, Tahara, and Park (1993) investigated the acquisition of WA and GA with 80 subjects of various age groups including children of 4, 5, 6, 8, 10, 12, and 14 years old as well as adults. They define "agenthood," or doosa-nushi-sei, as the probability in which the noun phrase marked by a certain particle is chosen as the agent in active
sentences. They attempted to find how the strength of agentivity represented by WA and GA change as the age advances among native speakers. The experiment was conducted within the framework of the Competition Model. Subjects listened to various sentences which contained two nouns and one transitive verb. Three contrasts were incorporated into the sentences: (1) presence of particles (WA only, GA only, both WA and GA) (2) order of particles (WA/Ø, Ø/WA, GA/Ø, Ø/GA, GA/WA, WA/GA), and (3) animacy (animate or inanimate). Subjects listened to tape-recorded sentences and were asked to act out using toys what was described in sentences such as Inu ga kame tataita, 'The dog hit the turtle,' [GA/Ø], and Crayon WA rakuda GA kisu shita, 'The crayon, the camel kissed' [WA/GA].

The overall results showed that GA demonstrated stronger agentivity than WA. In the case of adult responses, agentivity of GA was stronger than that of WA regardless of whether the sentence contained both WA and GA or only one of the two. In the cases when the sentences contained only one of the particles (WA/Ø, Ø/WA, GA/Ø, Ø/GA), the rate of correct response was slightly higher when the particle was
attached to the first noun (WA/∅, GA/∅). The difference in the rate between [WA/∅, GA/∅] vs [∅/WA, ∅/GA] was minor with older children and adults. The data demonstrated, however, that the choice of agent was difficult for the lower age group (4-6) when the first noun was not accompanied by either particle (∅/WA and ∅/GA). This coincides with the results of Hayashibe (1975) and Hakuta (1982), suggesting again that young children use the first noun strategy to identify the agent. They tend to get lost when the first noun is not accompanied by any particle because they have not learned the case system yet. Recall Hayashibe’s conclusion that children learn word order strategy first and then learn the case information. Ito et al. added more specific time information to the above observation. Namely, it is not until 10-12 years old that children can correctly choose, just as adults can, the agent without interference from with the confusion caused by the location of particles.

Another interesting finding in Ito et al. is a U-curve phenomenon in the use of strategy in the experimental subjects. Their experimental results showed that children from 4 to 8 years old tend to use animacy information
(meaning strategy) to comprehend sentences. This tendency decreases from 10 to 14 years old, while the use of case information (case strategy) increases during the same period. Then, as the age advances, the use of meaning strategy increases again and finally it balances out with the case strategy in adult native speakers. This phenomenon is referred to as a U-curve phenomenon, which, according to Ito et al, is also observed in the acquisition of other languages.

In summary, L1 acquisition studies on WA and GA provide quite intriguing and useful information in investigating SLA of WA and GA. The discussion of strategies is especially interesting. It has been confirmed that children tend to understand sentences well when linguistic items are in the canonical position. Researchers also have found various strategies that children use. In the earliest stages, children use the first noun strategy in determining the agent when the noun is marked by GA (Hakuta, 1982), often ignoring case information (Hakuta, 1982; Hayashibe, 1975). This fact together with finding involving the canonical word order strategy, suggests that children learn word order strategy
first (Hayashibe, 1975), or more specifically, they learn the location of a single specific linguistic item (i.e., first noun + GA as a single set). Children then start using particle strategy (case marker information) and meaning strategy (animacy information) but the latter seems to be used more frequently during this period (4-8 years old). The tendency is reversed around 10-14 years old and later the two strategies are balanced in adults (Ito et al., 1993). It also has been reported that younger children seem to find it difficult to distinguish linguistically between new and old information, failing to correctly manipulate WA (for old information) and GA (for new information) (Ito and Tahara, 1985; Tahara and Ito 1985).

L2 Acquisition Studies of WA and GA

Most L2 studies investigate WA and GA based on the linguistic classification of these particle, typically following Kuno’s study (1973). This classification recognizes two types of WA (thematic and contrastive) and three types of GA (exhaustive listing, neutral description,
and object marker of stative predicates). 18 These are categories found in main clauses. In addition, the classification recognizes GA in subordinate clauses. The major finding of these studies is that learners responded correctly more often when the task required the suppliance of WA, rather than GA (Ishida, 1991; Nagatomo, 1993; Russel, 1985; Sakamoto, 1993; and Yagi, 1992, among others). These study do not provide any plausible explanations about why GA is more difficult than WA for L2 learners. Furthermore, the above linguistic classification of WA and GA does not explicate the acquisition processes whereby L2 learners develop the ability to use WA and GA although the classification does inform us of the linguistic environments in which these particles appear. Hence, there is a need for a theoretical model that investigates how and when language acquisition takes place, and which will also inform us of why some linguistic functions are more difficult for L2 learners to learn than others. The next section will examine several studies conducted within specific acquisition models.

18 In Japanese, the subject in a subordinate clause is usually marked by GA. Stative predicates refer to a group of predicates such as wakaru, 'to understand,' and dekiru, 'to be able to.' These are referred to as GA-predicates in this study.
The Competition Model

Several L2 studies (e.g., Ito et al., 1993; Kilborn & Ito, 1989) related to the acquisition of WA and GA were conducted within the framework of the Competition Model (cf. Chapter 1 for an introduction of the model). These studies were interested in the possible transfer of processing strategies of L2 learners from their first language, in which transfer of strategies was assumed to be a part of the L2 acquisition process. English uses word order to indicate the grammatical role in sentences, whereas Japanese uses particles with rather free word order except for the rigid sentence-final position of the predicate. For English-speaking learners of Japanese, therefore, acquiring the ability to use particles is crucial for them to correctly indicate the grammatical role in sentences. In this sense, acquisition of L2 Japanese by English-speaking learners can be viewed as a process of sifting from the word order strategy to the particle strategy. It is possible that we might find that some of the learners' systematic errors during this process involve a shift of strategies. Hence, the above studies can provide insights into error analysis
Involving particles such as WA and GA and therefore are relevant to the present study.

Harrington (1987) conducted a sentence interpretation experiment with three groups of subjects: L1 English, Japanese ESL, and L1 Japanese subjects. There were 12 adult subjects in each group. Subjects listened to sentences that contained two nouns and one transitive verb and were asked to identify the subject of the sentences. These sentences were contrasted for word order, animacy, and stress. Judging from his list of vocabulary (p. 359), Harrington probably used sentences such as "The fish greets the rock" in his experiment. Harrington found that L1 English subjects relied heavily on word order in the interpretation of the sentences. This trend was clearly indicated when sentences were in the canonical word order, NVN. The L1 Japanese subjects did not rely on word order. Instead, they used animacy cues. The Japanese ESL group used animacy cues as well as word order cues. They were more sensitive to the NVN order than the monolingual Japanese subjects were. This seems to suggest that the Japanese ESL group was proceeding from animacy cues
to word order cues during the process of learning English. No effect of stress cues was found in either language. 19

To summarize, the monolingual subjects used the strategy of their own first language, i.e., English monolingual subjects used word order cues and Japanese monolingual subjects used animacy cues. On the other hand, ESL subjects used both animacy cues and word order cues.

On the basis of Harrington's result which indicated the change of strategies in the Japanese ESL subjects from animacy cues to word order cues, a similar change of strategies in the reversed order in the case of American learners of Japanese as a second language (JSL henceforth) can be expected.

Ito, Tahara, and Park (1993) studied use of learners' strategy in sentence interpretation with 29 subjects within the same framework, the Competition Model. Subjects belonged to one of four groups: monolingual native Japanese speakers

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19 Harrington also reports that there was a split in the L1 English group: one subgroup preferred animacy cues, and the other group preferred the word order cues. This was taken to suggest caution “in attempting to typify languages on the basis of processing strategies drawn from probabilistic tendencies evident in grouped data, and leaves open the role of such processing strategy topologies as a potential source of variation in interlanguage” (p. 351).
(J1, n=8), native Japanese speakers also fluent in English (JE2, n=8), American teachers of Japanese as a second language (EJ2, n=5), and American learners of Japanese (EJ2L, n=8) who had studied Japanese for at least one year since entering college. Procedures common to studies using the Competition Model were employed. Sentences with two nouns and one transitive verb were prepared. Sentences were contrasted for three levels of animacy (animate-animate, animate-inanimate, inanimate-animate), three levels of word order (NNV, NVN, VNN), and seven levels of particles (WA/0, 0/WA, GA/0, 0/GA, WA/GA, GA/WA, 0/0). There were a total of 72 stimulus sentences which consisted of 18 sentences without particles (particle-less sentences; 0/0) and 54 sentences with one or two particles (particle sentences). Subjects listened to a recorded voice and were asked to choose the agent of the sentence. The following summarizes the parts that are relevant to L2 learners.

The L2 data of Ito et al. demonstrates a result quite similar to Hakuta's (1982) L1 Data, in which children used the first noun strategy when the noun was marked by GA. One type of sentence in Ito et al. was a GA-only sentence (GA/0
or $\emptyset$/GA). With these sentences, L2 Japanese learners selected the first noun that was marked by GA (= GA/$\emptyset$ case) as the agent 96% of the time when the word order was NNV, the canonical word order in Japanese. The rate was not as high as this when the sentences were not in the canonical order even if the first noun was marked by GA, and when the first noun was not marked by GA even if the sentence was in the canonical order. This is exactly the same result as Hakuta's L1 data, suggesting both L1 children and L2 learners find it easy to process sentences with the first noun marked by GA in the canonical word order. Another finding in this study was that L2 learners tended to choose WA more of the time than they chose GA as the agent, especially in GA/WA sentences, contrasting the reverse tendency of native speakers. Namely, WA represented stronger agentivity than GA did among these learners. As we saw earlier, Ito et al., in their L1 study, demonstrated that native Japanese find more agentivity with GA than with WA. The current L2 data, therefore, can be taken as an indication that these L2 learners are developing a sensitivity to agentivity when both GA and WA appear in a sentence.
The Pienemann-Johnston Model

Yoshioka (1991) studied the acquisition of WA, GA and O with 75 American adult learners of Japanese in Hawaii. The proficiency level of subjects ranged from elementary to low intermediate. Her study was based on the Pienemann-Johnston Model (P-J model henceforth). Within this model, Yoshioka explains, language acquisition is viewed as a process of abandoning restrictions of language complexity imposed by the limited memory and processing capacity of the learner which determine the acquisition order of linguistic items.

Learners of a foreign language initially have to learn the canonical word ordering of the target language (SVO in German and English, SOV in Japanese, etc.). Then they learn to modify the word order by acquiring permutation rules of different degrees of complexity. (p.7)

The model posits developmental stages in sequence that learners are assumed to follow. Yoshioka illustrates P-J model’s developmental stages one through four with German examples. As the stages advance, “the modification operations... increase in difficulty ... because the permutation operations involved in higher stages require
perception of the syntactic structure of the sentence in more detail" (p. 8). She proposed that in terms of the P-J model, the acquisition of WA belongs to stage 3, and that of GA and O to stage 5. This can be interpreted to mean that WA is acquired earlier than GA and O, and that GA and O will be acquired around the same time.

Yoshioka employed three types of instruments: a comprehension test, an elicited imitation test, and free-style interviews. She examined three hypotheses regarding language acquisition that included particles and word order flexibility: (1) the acquisition of GA and O do not precede the acquisition of WA, (2) the acquisition of GA does not precede the acquisition of O, and (3) the acquisition of word order flexibility does not precede the acquisition of GA and O. The hypothesized acquisition order is schematically described as follows.

word order flexibility > GA > O > WA

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20 In her earlier statement (p.32), Yoshioka assumes that GA and O belong to the same developmental stage 5, which would mean that they represent the same degree of difficulty. In light of this statement, the second hypothesis here is puzzling because it suggests that the degree of difficulty between GA and O is different.
The above description indicates that the acquisition of word order flexibility is most difficult, whereas the acquisition of WA is least difficult. In other words, it was hypothesized that the acquisition of the leftmost linguistics item implied the acquisition of everything to the right of the item.

The result of the comprehension test showed a significant difference between WA (71.4%) and O (45.4%) but a slight difference between WA (71.4%) and GA (69.7%). In reference to the above schematic acquisition order, the result "partially supported" the hypothesis.

Using an elicited imitation test, Yoshioka examined implicational relationships among WA, O, and three types of GA: subjective use of GA, existential GA and object GA. Because the result of the comprehension test demonstrated a significant difference between WA and O, she also expected an implicational relationship between these two particles, in

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21 It is assumed that the three types of GA to which Yoshioka refers are represented by the following examples.

Taro-GA kimashita. 'Taro came' (Subject)
Taro-WA eega-GA sukida. 'Taro likes movies.' (Object)
Soko ni uchi-GA aru. 'There is a house there.' (Existential)
which the acquisition of O would imply the acquisition of WA. She found no such implicational relationship between the two particles. She did find, however, an implicational relationship among the other particles. Based on this result, she revised her hypothesis concerning the implicational scale from the original one, in which WA (Stage 3) and O (Stage 5) belonged to two different developmental stages. Now, in Yoshioka’s hypothesis, they belong to the same stage. The whole scale would now appear in order of decreasing difficulty as follows:

object use of GA > existential GA > subject use of GA > WA and O

In her original hypothesis, Yoshioka assumed WA was easier to acquire than O. But now she speculates that they represent the same degree of difficulty. GA and O represented the same degree of difficulty (Stage 5) in the original assumption but the above scale indicates that they now belong to the two different stages. The above order supports her second hypothesis.
In the interview test, Yoshioka found exactly the same order of difficulty among the particles. Finally, the third hypothesis was not supported. "...[T]here was no evidence to show that once learners acquire ga and o, they will be able to comprehend reversed word order sentences with more ease than before" (p. 89).

Yoshioka’s study produced two other important findings. Both come from the results of the elicitation imitation test. First, Yoshioka found that learners repeated sentences containing correct particles more often when the sentences appeared in the canonical positions (i.e., Agent-WA/GA... Patient-O... Verb) than when they appeared in non canonical positions. Second, she also observed the tendency for all the particles in the sentence-initial position to be more accurately repeated. These findings led her to argue that the position of target linguistic items in a sentence plays an important role in determining the ease of repetition.

In sum, Yoshioka found with three measures that “the particles were more correctly used in the general order of

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22 The test did not contain object use of GA in sentence-initial positions and the above statement does not apply to such cases.
wa, ə, followed by *ga,* and she concluded that within "the limited range of syntactic structures the Pienemann and Johnston model is applicable to the Japanese language" (p.92).

The focus of the present study is the difference in the rate of correct responses between WA and GA. Like many other past studies, Yoshioka's study found that experimental subjects responded more correctly when WA rather than GA was involved in the task. What made Yoshioka's study different from other L2 studies on WA and GA, however, is that it attempted to account for the different rate in the correct use of these particles in terms of "the limited memory and processing capacity of the learner," (p.6) which are assumed to be universal cognitive processes. This common ground makes it possible to accumulate data on WA and GA in a systematic manner. An accumulation of findings on this common ground will contribute not only to an understanding of the underlying mechanism that governs the use of these particles, but also to the development of language acquisition models as well as to SLA studies in general. Yoshioka suggests that future research should focus on
contexts where learners need to distinguish between WA and GA in order to observe subjects' ability to use WA and GA. The present study focuses on such contexts to provide useful information from a cognitive perspective.
CHAPTER III

METHOD

Sample and Population

The sample for this experiment was drawn from students of Japanese 206, Japanese 509, Japanese 510/511 and Japanese 612 at The Ohio State University.

Table 2.
Course Sequence of Japanese Program at The Ohio State University 1

<table>
<thead>
<tr>
<th>Class</th>
<th>Summer</th>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>-</td>
<td>101</td>
<td>102</td>
<td>103</td>
</tr>
<tr>
<td>2nd year</td>
<td>-</td>
<td>104</td>
<td>305</td>
<td>206</td>
</tr>
<tr>
<td>3rd year</td>
<td>-</td>
<td>507</td>
<td>508</td>
<td>509</td>
</tr>
<tr>
<td>4th year</td>
<td>-</td>
<td>610</td>
<td>611</td>
<td>612</td>
</tr>
<tr>
<td>Intensive</td>
<td>110</td>
<td>201/211</td>
<td>310/311</td>
<td>510/511</td>
</tr>
</tbody>
</table>

(Equivalent to) (1st year) (2nd year) (3rd year) (3rd year)

Note. Dashes indicate that no course is offered.

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1 The description of the course sequence is prepared in reference to the electronic course description in OASIS at the university. Japanese 510/511 is the second half of the third year intensive level.
The course sequence above in Table 2 provides information regarding the classes taken by the sample in this experimental study.

The 1st year level was not included in the study because the survey text in the experiment contained several grammatical constructions that were not covered in the 1st year level at the time of the experiment (e.g., the extended predicate). Those constructions were necessary in order to maintain the authenticity of the survey text. Hence, the 1st year level was excluded from the experiment.

The experiment was conducted from late April through early May in 1995. At this time, the number of students in each class was 13 (Japanese 206), 15 (Japanese 509), 9 (Japanese 510/511) and 6 (Japanese 612). Out of 43 students, a total of 35 subjects participated in the experiment. Table 3 below shows the breakdown of the participants by proficiency level. There were 11 students from the 2nd year class (Japanese 206), 13 students from the 3rd year regular class (Japanese 509), 7 students from the 3rd year intensive

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2 This is a grammatical term in Jorden and Noda (1989) that refers to the construction "-n desu". Generally, this construction is translated into English as 'it's that..."
class (Japanese 510/511), and 4 students from the 4th year class (Japanese 612).

Table 3.

<table>
<thead>
<tr>
<th>Class</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>3rdReg</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>3rdInt</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>4th</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19</strong></td>
<td><strong>16</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

Note. 3rdReg = 3rd year regular
3rdInt = 3rd year intensive

The number of class hours each student had had by the time of the experiment was estimated as follows: 275 hours for the 2nd (5 and 1/2 quarter x 50 hours), 425 hours for the 3rd regular (8 and 1/2 x 50 hours), 412.5 hours for the 3rd intensive (150 [summer]+150 [autumn]+75 [winter]+37.5 [spring]), and 500 hours for the 4th (425 + 30 [autumn] + 30 [winter] + 15 hours [spring]).

3 Because the experiment took place around the middle of the spring quarter, half of the class hours are counted for that quarter. This is an estimate based on the assumption that all subjects had started from the beginning of The Ohio State University's Japanese program. Actual language
The age of the majority of the subjects was estimated around 20 years old. Out of 35 subjects, one third of them had been in Japan for various lengths of time, with two weeks being the shortest period and four and half years the longest.

Table 4.
Experience of Staying in Japan

<table>
<thead>
<tr>
<th>Levels</th>
<th>Number of subjects</th>
<th>Length of stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>2</td>
<td>1 year</td>
</tr>
<tr>
<td>3rd Regular</td>
<td>1</td>
<td>1 year</td>
</tr>
<tr>
<td>3rd Intensive</td>
<td>1</td>
<td>1 year &amp; 10 mon.</td>
</tr>
<tr>
<td>4th</td>
<td>1</td>
<td>1 year</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4 &amp; half years</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>- - -</td>
</tr>
</tbody>
</table>

The number of subjects who stayed in Japan for more than one year was 6, as illustrated in Table 4 above.

Experience in time length indicated in the questionnaire ranged from one to six years.
It is assumed that the majority of the subjects are taught with *Japanese: The Spoken Language* by Joden and Noda (henceforth referred to as JSL). The following briefly characterizes the parts of the textbook relevant to the input environment of WA and GA. Basically each lesson of JSL is organized around short conversations. In the first three lessons of JSL part 1, these conversations are provided in polite speech style ('desu-masu' style). Particles, except those that come at the end of the sentence, are mostly dropped in these conversation. This ellipsis of particle is common in spoken communication whether the speech style is polite or plain. Both WA and GA together with $0$ (object marker) are introduced in lesson four for the first time as a "phrase particle." The explanation on those particles are very detailed with many examples, ranging a total of five pages (pp. 87-92). It is summarized that the explanation of WA and GA given in JSL is probably much higher than the average level. On the other hand, ellipsis or $0$-marking in drills for spoken and listening practice found in the book indicate that students are taught omission of particles as a possible choice in spoken language.
The native language of 30 subjects was English. The native languages of the other 5 subjects were Korean (1 student in the 4th year, and 2 in the 2nd), Mandarin Chinese, as well as Malay (1 in the 3rd regular) and Mandarin Chinese, as well as Taiwanese (1 in the 2nd). The reason that Korean subjects were included in the data requires some explanation because the Korean language has two particles, nun and i/ka, which roughly correspond to the Japanese WA and GA, respectively. This fact implies that learning these Japanese particles must be fairly easy for Korean natives and the advantage might be reflected in their scores, thus affecting the overall data for this experiment. This speculation turned out to be true with the score of the Korean subject in the 4th year, who earned a perfect score in the survey. This data was included as a confirmation of this speculation. Hence, the numerical data for the 4th year level should be interpreted with caution. With the other Korean speakers, the scores of the 2 students in the 2nd year class did not reflect how their language background affected their scores. Their scores did not seem to drastically affect the overall results. As for speakers of languages
that use Chinese characters, their advantage in reading need be considered carefully. However, because the text did not include any Chinese characters, no L1 advantage was assumed with any subjects in this survey.

The above sample of students was selected for three major reasons. First, students at the researcher's own institution had served for a pilot study and they could not be used again. Second, the main textbook used in the 2nd, the 3rd regular and the 3rd intensive classes is *Japanese: Spoken Language* (Jorden and Noda, 1987), which is the same textbook that the researcher uses at his own college. The familiarity with the textbook made it easy for the researcher to properly adjust the survey text to the proficiency level of the subjects. This adjustment process was taken very seriously in order to minimize unwanted effects on data that might be caused by reading problems. Third, geographical proximity was important in order to give the cloze tests and conduct follow-up interviews in a timely manner. The Ohio State University was the closest major institution that provided easy access to the researcher who was teaching full-time at his own institution during the time
of the experiment. The proximity also gave the researcher the chance to meet The Ohio State University's Japanese instructors one by one. Prior to the experiment, the researcher explained the outline and purpose of the study to the instructor of each level, spending about 40 minutes with each instructor. It was hoped that the instructors' full understanding of the experiment would positively affect the seriousness of the subjects participating in the survey.

**Research Design**

The independent variables of primary interest in this experiment were particle type (WA vs. GA) and cue type (local vs. global). These were both fixed and active independent variables in the sense that the variables were selected according to the researcher's interest (fixed rather than representative), and that they were systematically manipulated by the researcher (active rather than assigned) (cf. Kennedy and Bush, 1985). Because the sample size was small, a repeated measurement design was employed. The sequence of the test items in the experimental text was
counter-balanced in accordance with the requirements of the repeated measurement design, in order to minimize carry-over effects of the data in one cell to another. Thus, particle types and cue types served as two within-subjects independent variables. There was one fixed, categorical independent variable (proficiency level). Subjects were nested under this categorical variable, and proficiency level served as a between-subjects independent variable. This mixed design of one between- and two within-subjects option allowed an examination of the effects of possible interaction among the variables as well as the main effect of each independent variable. Finally, the dependent variable was the frequency of incorrect responses in a cloze test that consisted of 48 fill-in-the-blank questions. The design layout is illustrated schematically in Table 5 below.
Table 5.
One Between- and Two Within-Subjects Design in the Experiment

<table>
<thead>
<tr>
<th>Level</th>
<th>WA</th>
<th>GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td></td>
<td>n=11</td>
</tr>
<tr>
<td>3rd regular</td>
<td></td>
<td>n=13</td>
</tr>
<tr>
<td>3rd intensive</td>
<td></td>
<td>n=7</td>
</tr>
<tr>
<td>4th</td>
<td></td>
<td>n=4</td>
</tr>
</tbody>
</table>

Total number of observation = 35x4 =140 N=35

The original number of observation was 1680 (N=35x48 questions). Because the cell sizes varied among the proficiency levels, however, the cell mean was used for ANOVA, instead of this original number of observation (Kennedy and Bush, 1985). With the above three factors, an analysis of variance with repeated measures was conducted on the incorrect response data. In order to correct unequal but proportionate cell sizes, the least square solution was employed for calculation (Winer, 1971).
Explanation of Variables

One of the independent variables of primary interest was particle type. It was a fixed, active variable and had two levels; WA and GA. The researcher picked up 48 different linguistic environments where either WA or GA appeared. Half of them (= 24) contained WA and the other half (=24) GA. Then, the places in the sentences containing the target particles were left blank.

The second independent variable of interest was the type of cue. This was also a fixed, active variable with two levels: local cue and global cue. "Cues" refer to the linguistic signal that was hypothesized to guide learners to the right particle to be selected. Local cues are represented by a single lexical cue. They appear in linguistic environments where there are no conflicting cues, and that signal either of the particles WA or GA, but not both. Global cues are represented by a linguistic context in which multiple competing cues exist, indicating opposing particles. In this sense, there is a competition among cues, possibly complicating the process of particle selection.
The third independent variable was the learners' language proficiency. It was a fixed, categorical variable. There were four levels: the 2nd year level, the 3rd year regular level, the 3rd year intensive level, and the 4th year level. The categorization followed the label assigned by the Japanese program at The Ohio State University.

The dependent variable was incorrect responses obtained from completed cloze tests which asked subjects to fill in the blanks with a particle. There was some concern that the frequency of correct responses might contain right answers reached by conjecture, which would contaminate the data. It was decided to count the incorrect responses in order to avoid this problem.

The cloze test was validated by nine educated, adult native speakers of Japanese who took the same test. Their responses showed a 100% matching rate with the key answers prepared by the researcher. Any response that did not match the researcher's key answer was defined as an error.
Instruments

Ellis (1994) states that "[G]ood research is research that makes use of multiple sources of data [and] that gives recognition to the limitations of the data sources used ..." (p. 676). Following Ellis, three types of instruments were employed in this study: a cloze test, confidence level scale, and follow-up oral interviews (cf. Chapt. 1 for a full justification of the method employed in this experiment).

Prior to the experiment, a cloze test was designed by the researcher in order to elicit L2 Japanese learners' intuition about WA and GA (cf. Chapt. 1 for a definition of the cloze test). The test was written in Japanese.

Linguistic contexts in which WA and GA appear were classified under the two types of particles (WA and GA) and two types of cues (local cues and global cues), and were provided in random order in the cloze test. The test presented 48 conversational dialogues in written form. Each of the 48 dialogues contained one blank. There were 24 blanks for WA and another 24 blanks for GA, which were randomly arranged. Under the 24 blanks for WA, half of them
were associated with local cues (12 local WA) and another half with global cues. (12 global GA). In a similar manner, 24 blanks for GA were divided into 12 local GA, and 12 global GA. Subjects were instructed to fill in each of the 48 blanks with a particle that would sound most natural to them.

The dialogues in the test were controlled in such a way that they would represent conversations by two male native Japanese, Sato and Yamada. Sato represented a status socially higher than that of Yamada. The status difference was reflected in their speech style. All Sato's utterances demonstrated plain speech style, while Yamada's demonstrated polite style. Each dialogue had one blank in either Sato's or Yamada's part. The ratio of blanks between Sato and Yamada was not controlled in any way. The expected responses were all either WA or GA. This fact was not told to the subjects in order to avoid contamination of the data possibly caused by an arbitrary one-or-the-other choice, which would constitute confounding cues irrelevant to the experiment.

Because Japanese has many particles, and the subjects in this experiment were simply asked to fill in each blank "with a particle," the subjects had to figure out the right
particle without any guidance directing them to choose either WA or GA. 4

Efforts were made to minimize possible effects caused by a range in the subjects' reading abilities. The experimental text was mostly written in hiragana and katakana, the two Japanese phonetic alphabets. There was no kanji included and most katakana words were provided in the English alphabet. 5

The 48 blanks in the 48 dialogues were randomly ordered and provided in eight pages with six dialogues on each page of the experimental text (cf. Appendix). In order to minimize the text effect, the number of blanks for WA and GA on each page was counter-balanced as follows.

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4 Martin (1975:38-52) presents nine particles as markers of grammatical relationships: they are -ga, -o, -ni, -de, -to, -no, -kara, -made, and -e. The particle -wa is treated differently and its function is defined as "backgrounding" or "out-focusing."

5 Hiragana is one of the two Japanese phonetic alphabets. Katakana represents the other alphabet, and is usually used for loan words from other languages. Kanji, or Chinese characters, represent both sounds and meanings. Most content words are written in kanji in Japanese. Bound morphemes such as particles and conjugations are written in hiragana. Hiragana used to guide the reading of kanji, is known as furigana.
The above order was used for Set 1 of the experimental text. Another set was prepared as Set 2. The first page of Set 2 also contained 3 WA and 3 GA but continued on to the second page with 4 WA/2 GA, instead of 2 WA/4 GA, which was the sequence of Set 1. Each of four items under a certain category (e.g. WA 1) was scattered roughly on every other page. For instance, WA1 started on the second page with Set 1, and on the first page with Set 2. This arrangement made the two sets look quite different. Subjects were told that two different sets would be distributed but that they were different only in the sequence of the items.

There were some dialogue sentences that would serve as the key answers for the blanks in other sentences. For this reason, the former group was placed after the latter and, on top of each page starting from the second page onward, subjects were given written instruction not to work backward.
After each question in the cloze test, subjects were asked to indicate their confidence level toward their own response on a five-point scale. The scale appeared with descriptive terms. An example is shown below.

<table>
<thead>
<tr>
<th>LOW</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>HIGH</th>
<th>5</th>
</tr>
</thead>
</table>

The confidence level scale was designed in order to find linguistic environments in which learners have trouble.

The third instrument employed in this study was a follow-up interview. Interviews were arranged with 19 subjects. The main purpose of the interviews was to obtain information not available from the experimental test. There were three simple questions at the beginning of the interview that all interviewees were asked: (1) general opinions or impressions of the test, (2) the most difficult topic or aspect in learning Japanese, and (3) the most difficult Japanese particles to learn. The first two questions served as an introduction to the subject matter and to question (3), which directly dealt with the main areas of this study.
Pilot Study

The main purpose of the pilot study was to examine the appropriateness and readability of the experimental text. The researcher designed a pre-experimental cloze test that resembled the experimental test. Three native speakers were asked to fill in 48 blanks in the test with a particle that would sound most natural to them. The result showed a perfect score, confirming that there were no test items ambiguous to the native speakers.

Readability of the text, including vocabulary and grammatical constructions, was controlled within the level of the textbook *Japanese: Spoken Language, Part I* (Jorden and Noda, 1987), which is used during the first through the third year levels at the institution of the subjects, The Ohio State University. The readability was also checked by first year level students at Kenyon College, where the researcher teaches, using the same book. A total of 10 students (four 1st year, three 2nd year, and three 4th year) were asked to complete the pre-experimental cloze test. Those students, especially the first year students, were asked to indicate
unfamiliar vocabulary items by circling them. They were also asked to indicate sentences that they could not understand and in which they had difficulty figuring out the correct particle. Through these procedures, several vocabulary items as well as sentence structures were replaced so that each sentence clearly communicated the intended meaning to the subjects.

**Procedures**

The experiment was conducted with one proficiency level at a time. The instructor of each class arranged the experimental session for the researcher outside of class hours. The researcher directly went to the designated classroom and took surveys. After a brief introductory explanation, the survey started with a language questionnaire followed by the cloze test, the main part of the survey. Subjects were asked to spend 20-30 minutes to complete the test, but no time limit was set. The time spent for the whole session ranged from 20-50 minutes, depending on different individuals.
After each question item in the cloze test was a confidence level scale, which asked subjects to indicate their level of confidence toward their own response on a five-point scale. During the pilot study, subjects often failed to indicate their level of confidence. It was conjectured that this was because the scale was placed on the right-hand side of each question sentence. It was speculated that several subjects became so absorbed in responding to the test that they overlooked the confidence scale. In the experimental cloze test, the five-point scale was placed right under each question sentence to minimize this problem. The subjects turned in the completed test one by one taking varied lengths of time. During this time, the researcher examined each completed sheet to see whether or not there were incomplete blanks or confidence level ratings. Unexpectedly, more than several times the researcher found that subjects left out some portion of the test, which the researcher then asked the subject to complete immediately. As a result, there were no incomplete tests.

To ensure an accurate interpretation of the data, follow-up interviews were arranged with the subjects.
Arrangements for the interviews were made right after completion of the experimental test. The only criterion for the selection of interviewees was the availability of the subject and the researcher. Subjects were asked to sign up on the appointment sheet if they were interested in reviewing their results with the researcher. The interviewed subjects consisted of several individuals from each proficiency level. They were 4 from the 2nd year level, 5 from the 3rd regular level, 6 from the 3rd year intensive level, and 4 from the 4th year level. These interviews were conducted within a week after the experimental test. Except for grading, the researcher did not have enough time for a close examination of the results. Subjects received $5.00 for the primary survey, which included the completion of the cloze test and language questionnaire form, and another $5.00 for the interview.

Data Analysis

The current study was motivated by a number of research questions. To answer some of the questions requires
quantitative analysis, while to answer others calls for qualitative analysis. Therefore, in order to ensure the validity of the study, both types of analyses were employed. Research questions were divided into two categories: quantitative research questions and exploratory research questions. Under the first category, several hypotheses are presented, which will be verified statistically. Under the second category are questions posited to further examine the obtained statistical results. Descriptive data such as the error rate, as well as self-report instruments such as the confidence level scale and follow-up interviews will be employed for this purpose.

Examination of Null Hypotheses

The frequency of incorrect response obtained from the completed survey form were subjected to a three-way repeated measurement analysis of variance (ANOVA) to test the null hypotheses. There were three independent variables: cue type, particle type, and language proficiency with the dependent measure reflected in the incorrect responses in the cloze test. The relevant null hypotheses examined are summarized below.
Ho 1: There will be no significant difference attributable to the difference in cue type in the frequency of incorrect responses on the cloze test.

Ho 2: There will be no significant difference attributable to the difference in particle type in the frequency of incorrect responses on the cloze test.

Ho 3: There will be no significant difference attributable to the range in proficiency levels in the frequency of incorrect response on the cloze test.

Ho 4: There will be no significant interaction between the particle type variable and the level of cue type variable.

Ho 5: There will be no significant interaction between the particle type variable and the level of proficiency variable.

Ho 6: There will be no significant interaction between the cue type variable and the level of proficiency variable.

Ho 7: There will be no significant interaction among the particle type variable, the level of cue type variable, and the level of proficiency.

Examination of Exploratory Research Questions (EQ)

Five exploratory research questions (EQ) were examined using descriptive data, including the error rate, a confidence level report and interview data.

The first group of questions is concerned with the error rate of the responses. In order to examine the error rate in relation to a specific linguistic context, WA and GA were
classified under 12 categories, six each for WA and GA. The relevant questions were posited as follows.

(EQ1) How does the error rate rank among the 12 categories overall? Also, how does the error rate rank within the six WA categories as well as within the six GA categories?

The answers to these questions will help to find the areas students find most difficult in learning WA and GA.

L2 studies on Japanese WA and GA indicate that subjects often respond with more error to tasks involving GA than to those involving WA. This fact could be verified quantitatively, but still leads researchers to ask why this is the case. Hence, the following question.

(EQ2) Why is it the case that GA elicits more incorrect responses than WA? Does this mean that GA is inherently more difficult than WA? Do learners feel more comfortable with WA?

The next question investigates the metalingual knowledge of L2 learners. The confidence level data will be analyzed in reference to the error rate.

(EQ3) How does the metalingual knowledge of learners manifest itself in the confidence level data? How does metalingual knowledge compare with the error rate?
The following questions are associated with the interview data. The first question attempts to confirm past findings about the difficulties involved in learning WA and GA.

(EQ4) Among the Japanese particles, which one do learners find most difficult? What makes this particle so difficult to learn?

The last question investigates how learners cope with complicated situations involving WA and GA.

(EQ5) What kind of strategies do learners use to find out the appropriate use of each particle?
CHAPTER IV
RESULTS AND DISCUSSION

Introduction

This study investigated the effect of linguistic "cues" that were hypothesized to affect the selection of the Japanese particles WA and GA in a cloze test. The experimental test asked adult L2 Japanese learners to fill in the blanks with a particle. The results statistically demonstrated the significant effects of cue type (local cue vs. global cue) as well as particle type (WA vs. GA) but the level of learners' proficiency in Japanese was not significant.

The notion of "cue" comes from the Competition Model (Bates and MacWhinney, 1987). The model posits that language acquisition is a problem of mapping between form and function, which is guided by various types of linguistic cues. The present study follows Kail (1989) in assuming two
The basic assumption is that local cues require less amount of cross-referencing for interpretation to occur than do global cues. This implies that a language processing task involving local cues will be processed more easily, and thus acquired earlier than those involving global cues. It was hypothesized that the selection of WA or GA involving local cues will be processed more easily and thus acquired earlier than those involving global cues.

Based on this assumption of the differences between local and global processing, linguistic contexts in which WA and GA appear were classified under these two types of cues and presented in random order in the form of a cloze test.

1 Kail posits local cues and topological cues. It is not clear from Kail's definition whether or not topological cues include pragmatic knowledge. Pragmatic knowledge as well as grammatical knowledge is relevant to the selection of WA and GA in conversational discourse. In order to make this point clear "global cues" instead of "topological cues" are used in this study. Kail's definition of the cues applies to listening comprehension situations and short term memory, which are less relevant in the present study, which involves reading rather than listening. It is assumed, however, that "cross-referencing" involved in topological cues will be shared by the global cues in this study, and will require extra operations in cases of reading. Hence, global processing will result in a more complicated process for interpretation to occur than in cases of local processing.
Local cues refer to one or more linguistic cues that signal either of the particles WA or GA, but not both. On the other hand, global cues refer to a linguistic context where conflicting cues exist, indicating opposing particles. In this sense, there is competition between the cues, possibly complicating the process of particle selection. Thus, the major criterion that distinguishes local cues from global cues in this study is whether or not there is any competition between cues. If there is any, the situation represents a global cue, which requires a synthesis of available information (e.g., discourse context and communication motivation) in order to properly select WA or GA. Local cues are represented by a single cue (or more than one cue in coalition) that signals either WA or GA, but not both. This, then, is connected with the hypothesis in this study that learners will have less difficulty with those particles in a local environment (i.e., local WA/GA) than those in a global environment (i.e., global WA/GA), and that this difference should be reflected in learners' responses in the experimental cloze test.
Three independent variables were investigated with a 4 x 2 x 2 factorial design with repeated measures. They were learners' proficiency (4 levels: 2nd year, 3rd year regular, 3rd year intensive, and 4th year), particle types (2 levels: WA vs. GA) and cue types (2 levels: local cues vs. global cues). This design made it possible to examine, with a relatively small sample size, not only the main effects of the three independent variables but also any interactions that might occur.

The dependent measure consisted of incorrect responses obtained from a completed cloze test which asked subjects to fill in the blanks with a particle. There was some concern that the frequency of correct responses, rather than incorrect responses, might contain right answers reached by conjecture, which would contaminate the data. It was decided to count the incorrect responses in order to avoid this problem.

Each subject filled in 48 blanks with a particle. There were 12 blanks each for local WA and global WA.

---

2 This study follows Winer's 3-factor repeated measures design for unequal cell sizes. See Winer (1971:546ff).
totaling 24 blanks for WA. Likewise there were 12 blanks each for local GA and global GA with a total of 24 blanks for GA. Thus, the correct answer for half of the overall 48 blanks was WA (12 local WA and 12 global WA) and the other half, GA (12 local GA and 12 global GA). The 48 blanks were presented in the form of 48 dialogues between two male individuals, "Yamada" and "Sato." The speech style was fixed with the informal form for Yamada and the formal form for Sato throughout the dialogues. The dialogues were sequenced in certain patterns so that expected answers would appear unpredictable from the sequence. 3 This arrangement also served to counter-balance the sequence to minimize possible carry-over effects from one question item to another.

The subjects were not informed that all correct answers would be either WA or GA. Instead, they were simply asked to fill in the blanks with a particle that would sound most natural to them. This arrangement avoided the situation where subjects could guess the right answer while maintaining a probability rate of 50%, which could bias the data toward a

3 The arrangement for Set 1 and Set 2 are provided in Appendix E.
lower frequency of incorrect responses. Parts of some questions contained possible answers for earlier questions in the test. For this reason subjects were asked not to work backward. The written direction, "Please do not work on previous page(s)," was given at the top of each page, starting from the second page.

The incorrect response data was first submitted to a three-factor analysis of variance (ANOVA) with repeated measures in order to examine the null hypotheses, followed by several post-hoc analyses. Then, the results were further examined with two types of qualitative data: confidence level data, and follow-up interview data, which will be presented in the discussion section. The numerical results of the incorrect response data will be reported first, followed by a discussion of the data.
Results

The following recapitulates the outline of the experiment.

Independent variables
Proficiency (4 levels): 2nd year, 3rd year Regular, 3rd year Intensive, and 4th year
Particle Type (2 levels): WA and GA
Cue Type (2 levels): Local and Global

Dependent variable
Incorrect response scores in a cloze test that consisted of 48 fill-in-the-blank questions

Subjects (N=35)
2nd year = 11; 3rd year Regular = 13;
3rd year Intensive = 7; 4th year = 4

Total number of observations
The original number of observations was 1680 (35x48). Because the sample size for each level varied, the cell mean was used for ANOVA, instead of the original number of observations. Each cell size was 12. Hence, the actual number of observation was 140 (1680/12).
A three-factor analysis of variance with repeated measures was conducted on the incorrect response data. In order to correct unequal but proportionate cell sizes, the least square solution was employed.

The overall mean was 0.3250; the SD was 0.2492. The main effect of the proficiency level was not statistically significant. However, the main effects of particle type (WA vs. GA) as well as cue type (local vs. global) demonstrated statistically significant differences. There was no interaction in any combination among the three independent variables.

The following first reports the results of the independent variables that showed the main effects: particle type, and cue type. Table 6 below presents results of the three-factor ANOVA with repeated measures.
Table 6.

**Analysis of Variance on Incorrect Responses by Proficiency Level (A), Particle Type (B), and Cue Type (C)**

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>DF</th>
<th>SUM OF SQUARE</th>
<th>MEAN SQUARE</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Ss</td>
<td>34</td>
<td>2.9139</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (proficiency level)</td>
<td>3</td>
<td>0.5204</td>
<td>0.1735</td>
<td>2.2467</td>
</tr>
<tr>
<td>S/A</td>
<td>31</td>
<td>2.3935</td>
<td>0.0772</td>
<td></td>
</tr>
<tr>
<td>Within Ss</td>
<td>105</td>
<td>5.2497</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B (particle type)</td>
<td>1</td>
<td>0.5514</td>
<td>0.5514</td>
<td>9.9951**</td>
</tr>
<tr>
<td>AB</td>
<td>3</td>
<td>0.0181</td>
<td>0.0060</td>
<td>0.1095</td>
</tr>
<tr>
<td>SB/A</td>
<td>31</td>
<td>1.7103</td>
<td>0.0552</td>
<td></td>
</tr>
<tr>
<td>C (cue type)</td>
<td>1</td>
<td>1.3444</td>
<td>1.3444</td>
<td>52.30***</td>
</tr>
<tr>
<td>AC</td>
<td>3</td>
<td>0.0864</td>
<td>0.0288</td>
<td>1.1205</td>
</tr>
<tr>
<td>SC/A</td>
<td>31</td>
<td>0.7967</td>
<td>0.7967</td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>1</td>
<td>0.0015</td>
<td>0.0015</td>
<td>0.5166</td>
</tr>
<tr>
<td>ABC</td>
<td>3</td>
<td>0.0525</td>
<td>0.0175</td>
<td>0.7883</td>
</tr>
<tr>
<td>SBC/A</td>
<td>31</td>
<td>0.6884</td>
<td>0.0222</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>8.1636</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**P<.0035
***P<.00001
Particle Type: WA vs. GA

The main effect of the particle type was statistically significant at the $P<.0035$ level ($F(1, 31) = 9.9950$). The means and SDs were 0.2560 and 0.2276 respectively for WA, and 0.3940 and 0.2522 for GA. The differences in mean demonstrates that questions that involved GA elicited more errors than those that involved WA.

Cue Type: Local vs. Global

The main effect of the cue type variable was statistically significant at the $P<.0001$ level ($F(1, 31) = 52.30$). The mean for the local cue was 0.2155 and the SD was 0.1968, whereas the mean for the global cue was 0.4345 and the SD was 0.2489. The global cues elicited more errors than did the local cues.

Proficiency Level

The main effect of the proficiency level was not significant ($F (3, 31) = 2.25$). The means and the SD are presented in Table 7 below.
Table 7.

Means and Standard Deviations by Proficiency Level.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>0.3902</td>
<td>0.2390</td>
</tr>
<tr>
<td>3rdReg</td>
<td>0.3333</td>
<td>0.2448</td>
</tr>
<tr>
<td>3rdInt</td>
<td>0.2827</td>
<td>0.2629</td>
</tr>
<tr>
<td>4th</td>
<td>0.1927</td>
<td>0.2209</td>
</tr>
</tbody>
</table>

Table 8 below presents all means of incorrect responses by a function of the three independent variables in this experimental study: proficiency level, particle type and cue type.
Table 8.

Means and Standard Deviations by a Function of Particle (WA vs. GA), Cue (Local vs. Global), and Proficiency

<table>
<thead>
<tr>
<th></th>
<th>WA Local</th>
<th></th>
<th>GA Local</th>
<th></th>
<th>WA Global</th>
<th></th>
<th>GA Global</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>2nd</td>
<td>0.2955</td>
<td>0.1914</td>
<td>0.3788</td>
<td>0.2368</td>
<td>0.3333</td>
<td>0.1936</td>
<td>0.5530</td>
<td>0.2694</td>
</tr>
<tr>
<td>3rdReg</td>
<td>0.1154</td>
<td>0.1785</td>
<td>0.3974</td>
<td>0.1929</td>
<td>0.2865</td>
<td>0.1943</td>
<td>0.5321</td>
<td>0.2167</td>
</tr>
<tr>
<td>3rdInt</td>
<td>0.0952</td>
<td>0.0891</td>
<td>0.3095</td>
<td>0.2915</td>
<td>0.2143</td>
<td>0.1791</td>
<td>0.5119</td>
<td>0.2782</td>
</tr>
<tr>
<td>4th</td>
<td>0.0208</td>
<td>0.0417</td>
<td>0.2292</td>
<td>0.2083</td>
<td>0.1667</td>
<td>0.2357</td>
<td>0.3542</td>
<td>0.2580</td>
</tr>
</tbody>
</table>
Many studies have shown the tendency for subjects to demonstrate fewer errors with WA than with GA (Doi and Yoshioka, 1990; Ishida, 1991, and Yagi 1992, among others). Contrary to these past findings, the data in Table 8 shows that the error rate for global WA is constantly higher than that of the local GA across the proficiency levels, providing a case where the error rate for WA is higher than that for GA. These findings will be discussed later.

Turning to the proficiency level in Table 8 above, the error rate in global environments, whether WA or GA, remains rather high. It does not go below the 30% level except for global WA at the 4th year level. The tendency of a relatively high rate is most noticeable with global GA, in which the first three levels (2nd, 3rd regular, 3rd year intensive) responded with incorrect answers around 50% of the time. It is also noticeable that the results of the 2nd year level showed little difference in all environments except for the global GA case in which the error rate was considerably higher than the others.
Post-hoc Analyses

As already reported, the main effects of the particle type (WA vs. GA) and cue type (local vs. global) were statistically significant. In order to further examine the nature of the effects, two different multiple comparison tests were conducted.

Comparison: four categories of WA and GA. This post-hoc analysis concerns four cell means that involve the particle type and the cue type. These are the means for local WA (0.1571), local GA (0.2738), global WA (0.3548) and global GA (0.5143). In order to examine the differences among all pairs, a post-hoc comparison test was conducted employing the Tukey-Kramer HSD multiple comparison test, which rectifies the problem of an unequal sample size through conservative estimate (Hayter, 1984). As shown in Table 9 below, the result demonstrated significant differences at the \( p < .05 \) level when global GA was involved, as well as between the global and the local WA. The order of the error mean demonstrates structural hierarchy among the means. Namely, GA elicited more errors than WA did, and the global elicited more errors than the local did.
Table 9.

Comparison for All Pairs Using Tukey-Kramer HSD

<table>
<thead>
<tr>
<th>Category</th>
<th>Means</th>
<th>Global GA</th>
<th>Global WA</th>
<th>Local GA</th>
<th>Local WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td></td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global</td>
<td></td>
<td>0.35</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td>0.27</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td>0.16</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>WA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P < .05

Comparison: Twelve categories of WA and GA. The purpose of this section is to provide answers to the exploratory question 1, which is repeated below.

(EQ1) How does the error rate rank among the 12 categories overall? Also, how does the error rate rank within the six WA categories as well as within the six GA categories?
The post-hoc analysis in this section involves 12 categories of WA and GA. Prior to the experiment, WA and GA were classified under 12 categories according to linguistic environments: WA1-WA6 and GA1-GA6. 4 Each of these 12 categories contained four questions. Hence, subjects responded to 48 questions (12 x 4) in the test. With a total number of 1680 observations (35(N) x 48 question items), one-way ANOVA was conducted on these 12 categories. The results indicated statistically significant differences among the categories ( F(11, 1678)=17.25, P<.0001).

The means under 12 linguistic environments were further submitted to a multiple comparison test. Table 10 below compares the 12 means. The Tukey-Kramer HSD multiple comparison test indicated that those pairs marked by an asterisk were significantly different at the P<.05 level. The table answers the exploratory research question 1, indicating the rank order of error rate among 12 particle categories with WA3 the lowest and GA4 the highest. The

4 The linguistic labels for these categories simply describe typical linguistic environments where the relevant particles appear. This study makes no attempt to propose a new classification system for these particles.
error rate ranking within the six WA categories and within the six GA categories are summarized below in order of increasing error rate.

**WA:** WA3, WA1, WA2, WA6, WA4, WA5  
**GA:** GA1, GA2, GA3, GA5, GA6, GA4

The above ranking indicates higher error rates of WA categories under global environments (WA6, WA4, WA5). A similar tendency is observed with GA categories. Namely, GA categories under global environments (GA5, GA6, GA4) show higher error rates.
Table 10.

Multiple Mean Comparison within Twelve Linguistic Environments (WA1-WA6 and GA1-GA6).

<table>
<thead>
<tr>
<th>Means</th>
<th>GA</th>
<th>GA</th>
<th>WA</th>
<th>GA</th>
<th>GA</th>
<th>WA</th>
<th>GA</th>
<th>WA</th>
<th>GA</th>
<th>WA</th>
<th>GA</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

GA4  0.5785
GA6  0.5214
WA5  0.4643
GA5  0.4429
GA3  0.3429 * *
WA4  0.3357 * *
GA2  0.3357 * *
WA6  0.2643 * * * *
WA2  0.2214 * * * *
WA1  0.1714 * * * *
GA1  0.1429 * * * * * *
WA3  0.0786 * * * * * * *

*P<.05
Among the 12 categories, Table 10 above demonstrates that there are three GA and one WA among the four highest error means. They all belong to the global environment. The lowest four means all belong to the local environment, and the middle four means demonstrate a mixture of local and global environments. The table also indicates that among the same particle types, the error rate and the degree of difficulty did not show statistically significant differences if the particles in comparison were associated with the same cue type (e.g. GA6 and GA4).  

**Summary of Null Hypotheses**

The following summarizes the result of the null hypotheses tested in the previous sections.

**H0 1:** There will be no significant difference attributable to the difference in cue type in the frequency of incorrect responses on the cloze test.

---

5 One exception is when WA6 was involved. This was categorized as a global WA but its error rate showed a statistically significant difference from WA5, another global WA, with statistical significance.
This hypothesis must be rejected on the basis of the data. The $F$-ratio ($F(1, 31) = 52.30$) for this variable was significant at the $p < .001$ level.

$H_{o2}$: There will be no significant difference attributable to the difference in particle type in the frequency of error responses on the cloze test.

This hypothesis also must be rejected on the basis of the data. The $F$-ratio for this variable was significant at the $p < .01$ level ($F(1, 31) = 9.9950$).

The data indicated that the following hypotheses ($H_{o3}$, $H_{o4}$, $H_{o5}$, $H_{o6}$, and $H_{o7}$) must be retained.

$H_{o3}$: There will be no significant difference attributable to the range in proficiency levels in the frequency of incorrect responses on the cloze test.

$H_{o4}$: There will be no significant interaction between the particle type variable and the level of cue type variable.

$H_{o5}$: There will be no significant interaction between the particle type variable and the level of proficiency variable.

$H_{o6}$: There will be no significant interaction between the cue type variable and the level of proficiency variable.
**H0.7:** There will be no significant interaction among the particle type variable, the level of cue type variable, and the level of proficiency.

**Discussion**

The original motivation behind this study was to identify difficulties that students might experience in learning WA and GA. This section further examines the reported results in terms of learners' difficulties that are manifested in a hierarchical structure within the data. Operationally it is assumed that the degree of difficulty of WA or GA in particular linguistic environments is reflected in the number of learners' errors. The increasing number of learners' errors indicates a proportionally high degree of difficulty. Errors are expected where L2 learners' intuition toward WA and GA is not stable.

**More Errors with GA and Global Cues**

The experimental results demonstrated statistically significant differences in the main effects of the particle type variable and the cue type variable. The main effect of the proficiency level was not significant, and there was no
interaction among the variables. In what follows, therefore, the details of those two independent variables that demonstrated the main effect will be discussed.

Figure 4 below presents the error rate of WA and GA by proficiency level. The figure suggests that learners tend to experience more problems with GA than with WA. The difference was statistically significant. This tendency is observed across the proficiency levels with varied degrees of difficulty. Though the difficulty decreases as the proficiency level advances with both WA and GA, the picture is somewhat different between the two particle types, i.e., the error rate of GA stays rather high even with the highest proficiency level.
Figure 4. Error rate of WA and GA by a Function of Proficiency Level.
Another way to look at this type of cross-sectional data is suggested by Larsen-Freeman and Long (1991). Data like the one in this study, which include ranges of proficiency levels, can be viewed as the diachronical developmental stage of a single learner, i.e., different proficiency levels represent the proficiency level of a single individual at different points in time. Viewed this way, the data reflects how an individual L2 learner starts learning WA and GA (at the 2nd year level) and also shows the final stage (4th year) after four years of learning Japanese. The final stage indicates that GA is more difficult to learn than WA within the same amount of time.

A quite similar picture is obtained with regard to cue type variable, which is shown in Figure 5 below.
Figure 5. Error Rate of Local and Global Cues by a Function of Proficiency Level.
The highest error rate for the local cue is 31.43% (2nd year) and the lowest is 9.38% (4th year), whereas the highest for the global cue is 46.6% (2nd year) and the lowest is 29.17% (4th year). This last figure for the 4th year level is even higher than the local error rate for the 3rd year regular level (20.19%) and the 3rd year intensive level (15.48%). The overall figure shows that (1) particle selection that involves local cues improves as the proficiency level advances, but (2) when particle selection involves global cues, the degree of difficulty seems to stay the same despite the advancement in proficiency level. If the data is taken as reflecting the results of a single learner, the picture would mean that learners experience difficulty with particle selection in a certain type of linguistic environment, i.e., the global environment.

This section has shown the general tendencies of the difficulties that learners might experience, and is summarized in two points: (1) GA seems to give learners more difficulty than WA, and (2) global cues give learners more difficulty than local cues. A more detailed picture of such difficulties emerge when particle type and cue type are
combined in the interpretation of the results, which will be described in the next section.

**Contradictory Finding: More Errors with WA**

Earlier, the results of an all-pair comparison were reported about the means with local WA, local GA, global WA and global GA (cf. Table 9). It showed that there were significant differences between some of the pairs at the $p<.05$ level of the Tukey-Kramer HSD test. Among the pairs of significant difference were local WA and global WA, as well as local GA and global GA. This fact suggests that the same particle represents different degrees of difficulty, depending on how each particle is associated with the cue type. Thus, these four categories of WA and GA give us clues in accounting for the nature of learners' difficulties in a structured manner. Figure 6. below presents WA and GA under the four categories.
Figure 6. Error Rate by a Function of Particle Type, Cue Type, and Proficiency Level.
One of the major findings of this study is observed in this figure. Namely, the data show a category of WA that elicited more errors than some categories of GA. Contrary to this result, many studies in the past have reported that subjects demonstrated fewer errors with WA than with GA (Doi and Yoshioka, 1990; Ishida, 1991, and Yagi, 1992, among others). The current data show that the error rate for global WA is constantly higher than that of local GA across the proficiency levels. This result suggests that the four-way categorization of WA and GA provides a more detailed picture of learners' difficulties than does the standard, binary analysis of WA and GA.

Now observe the cross-sectional data in Figure 6. At the beginning level (2nd year), the degree of difficulty does not seem to make much difference among the four categories, except with the global GA. As the proficiency level advances, however, the differences in difficulty among the first three categories become more obvious. With local WA, the error rate is very low at the 4th year level. Moving up to the next category, the error rate for the local GA at 4th year level is still 16.67%. The rate for the global WA and
the global GA are 22.92% and 35.40%, respectively. This last figure for the global GA indicates that the level of understanding of the global GA at the 4th year level is about the same as the level of understanding of WA and GA at the 2nd year level. These results make clear the difficulties that learners face.

Looking at a combination of cue type and particle type, it is possible to describe the hierarchy of the four categories based on the error rate as follows: local < global for the cue type, and WA < GA for the particle type. By combining particle type and cue type, the error rate is, for the most part, predictable. The only unpredictable error rate that occurs is when the values of cue type and particle type conflict, i.e., local GA vs. global WA. In this case, the cue type suggests that the latter (global WA) would show a higher error rate, whereas the particle type suggests that the former (local GA) would turn out a higher error rate. The data shows that global WA constantly elicited slightly more errors than did local GA, indicating that the cue type (= global) is the better criterion rather than the particle type (= GA) in this particular conflicting case.
error rate is equated with the learners' difficulties, the order in increasing difficulties is as follows: local WA, local GA, global WA, and global GA. This is, in fact, the order that is shown in Figure 6 above.

The order of difficulty among the four categories have been identified above. Now the specific linguistic environments that are associated with the error rate will be examined. As shown in Table 10, linguistic environments for WA and GA were classified under 12 categories. Namely, the 12 categories consisted of three subcategories under each of the four categories of local WA, the local GA, global WA and global GA.

In the next several sections, the implications provided by the result of the all-pair comparison of these 12 categories will be first discussed. It will be demonstrated that the degree of difficulty of the 12 categories is systematically reflected in learners' patterns of learning particles. Then, the 12 categories will be described in linguistic terms in relation to the error rate.
12 Categories of WA and GA: Learning Pattern and Difficulties

WA and GA in local and global environments were classified into 12 categories according to linguistic features contained in each dialogue in the experimental cloze test. These features were supposed to represent a potential linguistic cue. The 12 categories were WA1-WA3 (local WA), WA4-WA6 (global WA), GA1-GA3 (local GA) and GA4-GA6 (global GA). These categories were not included in the independent variable of the original research design because controlling the linguistic environments in any reasonable way is difficult to do. But because this study is interested in how a particular linguistic environment affects the selection of WA and GA, post-hoc one-way analysis of variance was conducted with the 12 categories as independent variables. As reported already, the result showed significant differences among the categories, and subsequently an all-pair comparison test was conducted, which showed strong effects of particles under global environments (cf. Table 10 above). The 12 means in the table represent in decreasing order the overall mean for each category based on 140 observations each (i.e., 35 subjects x 4 questions in
The order also indicates in decreasing order the degree of difficulty of each category. An asterisk in the table demonstrates statistically significant differences between pairs of means. Because it is assumed that the degree of difficulty corresponds proportionally to the increasing number of error responses, significant mean difference is equated with a significant difference in the degree of difficulty. For instance, under the column of GA4 in Table 10, eight asterisks appear. This indicates that there are significant differences in the degree of difficulty between GA4 and the eight categories beside the asterisks. In terms of difficulty level, therefore, these eight categories belong to a group different from that for GA4. On the other hand, GA4 and GA6 can be classified in the same group as they are the only two categories which are significantly different from all the others except for WA5 and GA5. In a similar manner, moving across toward the right, WA5 and GA5 constitute one group, and GA3, WA4, and GA2 another group. After completing this process five groups emerges. Each category in the same group represents a similar degree of difficulty, as illustrated in Figure 7.
Figure 7. 12 Categories of WA and GA Classified into Five Groups According to the Degree of Difficulty. The figure suggests that routes of acquisition vary within each group and across neighboring groups, but the reversed order of acquisition is unlikely between items in different groups when the groups are not next to each other. Items in the neighboring groups are not significant in terms of the degree of difficulty, but WA6 and WA3 demonstrate an exception to this observation.
Five groups appear in Figure 7: A, B, C, D and E. The figure shows that pairs with significant mean differences are separately placed across one box and those with non-significant differences are placed within the same box or in boxes next to each other. For instance, the figure shows that the mean of GA4 is significantly different from that of GA3 (separated across one box) but not so different from GA6, (in the same box) nor from GA5 (placed in the neighboring box).

Figure 7 is meant to illustrate the following interpretation based on the data from this experiment. Learners will acquire the ability to use the particles under different linguistic environments starting from the group at the bottom of the figure as indicated by the straight arrow on the right. Within each group and within the neighboring groups, the order of acquisition may vary. This occurs because the degree of difficulty reflected in the error means is not significantly different among the groups. This implies that no one category, within each group or within neighboring groups, requires a significantly higher cognitive process than others. In this sense, mastery of one category
is not dependent on the other categories and routes of acquisition can vary due to individual differences. For instance, some might learn GA1 first and then WA2, or may learn them in the reverse order. However, among the groups that do not directly follow each other in sequential order, the degree of difficulty is significantly different, possibly requiring extra operations in the cognitive process (e.g., extensive cross-referencing). For this reason, an acquisition sequence opposite from the normal direction would not take place in this case. Hence, it is unlikely to find learners who acquire WA4 first, for instance, and then later master GA1 or WA3. Examples of these impermutable cases are indicated by the curved arrows in the figure. The above figure seems to illustrate the approximate acquisition order of WA and GA by L2 learners.

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6 The data indicate that WA6 and WA3 together represent an exceptional case. They are in the two different groups next to each other, but the data indicates that the mean difference is significant. At this moment, little is known about the reason for this.

7 See Ellis (1985) for the fixed acquisition order and varied acquisition routes.

8 The interpretation here resembles that of the acquisition route and sequence in a morpheme study by Dulay and Burt (1976), which attempted to predict the acquisition order of
Now the focus of the examination is further narrowed down with 12 categories for WA and GA. Table 11 below presents the means of 12 categories by proficiency level. The order of 12 categories is based on the overall error rate in decreasing order. It corresponds to Table 10 and the group labels (A-E) correspond to those in Figure 7. The ranking order at each proficiency level is indicated under the rank column, which is somewhat different from that of the overall error mean rate in Table 11. It is assumed that groups near the bottom indicate a lesser degree of difficulty for learners. The error rate is indicated in percentage by dividing the sum of the errors for each category by the relevant denominator, which is $n \times 4$ questions, i.e., 44 ($n=11 \times 4$) for the 2nd year level, 52 ($n=13 \times 4$) for the 3rd year level.

---

... various morphemes with different functions. The focus of the present study is on two morphemes, WA and GA, with similar functions, which, this paper proposes, are acquired differently depending on the associated processing types (local processing and global processing). In this sense, this study observes the phenomena under a far more controlled context than that for the morpheme study. It also has independent support from the principled mechanism of cognitive process, whereas the morpheme study was driven by the obtained data without any independent support from outside disciplines. It is claimed that there is a significant difference between so-called morpheme studies and the present study.
year regular level, 28 (n=7 x 4) for the 3rd year intensive level, and 16 (n=4 x 4) for the 4th year level.
Table 11.

Error Rate Ranking for 12 Categories by Proficiency Level

<table>
<thead>
<tr>
<th></th>
<th>2nd Rank (%)</th>
<th>3rdReg Rank (%)</th>
<th>3rdInt Rank (%)</th>
<th>4th Rank (%)</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA4</td>
<td>2 (52.3)</td>
<td>1 (57.7)</td>
<td>1 (71.4)</td>
<td>1 (50.0)</td>
<td></td>
</tr>
<tr>
<td>GA6</td>
<td>1 (61.4)</td>
<td>3 (53.8)</td>
<td>3 (42.9)</td>
<td>2 (37.5)</td>
<td>A</td>
</tr>
<tr>
<td>WA5</td>
<td>4 (45.5)</td>
<td>2 (55.8)</td>
<td>2 (42.9)</td>
<td>3 (31.2)</td>
<td></td>
</tr>
<tr>
<td>GA5</td>
<td>2 (52.3)</td>
<td>4 (48.1)</td>
<td>5 (39.3)</td>
<td>6 (18.8)</td>
<td>B</td>
</tr>
<tr>
<td>GA3</td>
<td>8 (36.4)</td>
<td>7 (32.7)</td>
<td>6 (39.3)</td>
<td>4 (25.0)</td>
<td></td>
</tr>
<tr>
<td>WA4</td>
<td>7 (40.9)</td>
<td>8 (26.9)</td>
<td>4 (42.9)</td>
<td>4 (25.0)</td>
<td></td>
</tr>
<tr>
<td>GA2</td>
<td>5 (43.2)</td>
<td>5 (38.5)</td>
<td>8 (17.9)</td>
<td>6 (18.8)</td>
<td>C</td>
</tr>
<tr>
<td>WA6</td>
<td>9 (31.8)</td>
<td>6 (36.5)</td>
<td>9 (7.1)</td>
<td>8 (12.5)</td>
<td></td>
</tr>
<tr>
<td>WA2</td>
<td>10 (29.5)</td>
<td>9 (21.2)</td>
<td>7 (21.4)</td>
<td>9 (6.2)</td>
<td></td>
</tr>
<tr>
<td>WA1</td>
<td>5 (43.2)</td>
<td>11 (9.6)</td>
<td>12 (0.0)</td>
<td>11 (0.0)</td>
<td>D</td>
</tr>
<tr>
<td>GA1</td>
<td>11 (20.5)</td>
<td>10 (15.4)</td>
<td>9 (7.1)</td>
<td>9 (6.3)</td>
<td></td>
</tr>
<tr>
<td>WA3</td>
<td>12 (15.9)</td>
<td>12 (3.8)</td>
<td>9 (7.1)</td>
<td>11 (0.0)</td>
<td>E</td>
</tr>
</tbody>
</table>

Note. The order of the categories corresponds to that in Table 10 in the result section. The group labels (A-E) correspond to those in Figure 7.
The above table roughly confirms the same acquisition pattern that was shown earlier in Figure 7. Rank numbers assigned to each of the 12 categories vary depending on the proficiency level. But the variability is largely confined within each group (e.g., within group A) or within the neighboring groups (e.g., within group A and group B). For instance, GA4 was the most difficult category for the 3rd year regular, the 3rd year intensive, and the 4th year levels, but GA6 was the most difficult for the 2nd year level. This reflects variability within group A. The category ranked second most difficult was GA4 and GA5 for the 2nd year level, WA5 for the 3rd year regular and 3rd year intensive levels, and GA6 for the 4th year level, indicating variability both within a group and within neighboring groups. The items in group A are significantly different in the error mean, or in degree of difficulty, from those in group C. In cases like this, as was proposed earlier, learning in the reversed order (i.e., learning categories in A first, and then categories in C) would not be likely to take place. If the reversed learning order were possible then, the same numbers in group A would be found in group C. The table shows that no rank numbers in group A are found in
group C at any proficiency level, suggesting that a reversed learning order is not possible. It also indicates that the impermutability of learning is not unique to a particular proficiency level but common to all the levels. By and large, a similar tendency can be found in the items in groups B and D, C and E, and needless to say, between items located more than two groups away from each other. Hence, on the basis of the current data, it seems plausible to hypothesize that the data indicate the approximate learning pattern of WA and GA by L2 Japanese learners.

Local and Global Processing in the Competition Model

This section examines the relationship between error rate and cognitive processes. The specific question is phrased as follows: what kind of cognitive processes are involved in the significant mean differences among the error rate, or learners' difficulties? The focus of the question is to find out why some particular categories among the 12 elicit more errors than others. For this purpose, the notion of the local and global processing of language in the Competition Model is employed. Then, in reference to those processing constraints, the error rate will be examined
together with specific linguistic environments where WA and GA appear. The following will first describe the background concept of global and local processing.

Earlier, it was hypothesized following Kail (1989), who asserts the idea of processing differences within the framework of the Competition Model, that global environments would require a large amount of cross-referencing for interpretation to occur, representing cases where processing the cue(s) would be less easy. Thus, the subject will be less able to detect the proper uses of WA and GA that are guided by these global cues, and his skills to eventually do so will be acquired late. If this is really the case, then the processing differences between the local cues and the global cues should be reflected in the cross-sectional data, which is assumed roughly to represent learners' developmental processes in learning WA and GA.

**Local cues.** The basic assumption of local cues is associated with availability (i.e., how often the cues are available when needed) and reliability (i.e., how often the cue leads to the correct form-function mapping) (Bates and
MacWhinney, 1987). These two notions constitute cue validity, and high cue validity will make it easy to find the correct form-function mapping. The form-function mapping is assumed to be the process of language acquisition which is guided by linguistic cues. Hence, learning cues is the first step in acquiring language.

Local cues in this study are defined as follows. They are cues that appear in a linguistic environment where there is no competition among cues. They are cues that signal either of the particles WA or GA, but not both. Local cues are mostly lexically-oriented in the present study. They usually are represented by a concrete, single lexical form clearly signaling one particle. Following Kail (1989), it is assumed that local cues require less processing demand. This ease of processing combined with a learner's frequent exposure to these cues suggest the early acquisition of linguistic items led by local cues. The Competition Model, in fact, recognizes the importance of “statistical properties of the input to play a major role in determining order of acquisition as well as the nature of the final state” (Bates and MacWhinney, 1987:158). Namely, if a certain cue
frequently occurs with a certain form or role, and it leads to the correct form-function mapping with a high rate of success, then the validity of the cue increases in the long run.

**Global cues.** A global cue in this study is defined as a linguistic context where multiple competing cues exist, indicating opposing particles. Because of the cue competition, the process of particle selection becomes complicated, requiring extra cross-referencing of elements within the context.

In a natural language situation, form-function relationships are often many-to-many. This suggests that there will be many linguistic situations where cues are competing. It can be expected, therefore, that learners will learn easy local cues first, and then move on to global cues. This suggests that advanced learning probably will involve more focus on global cues than local cues.

Several points need to be clarified before these notions are applied to the collected data. The original notions of local and global cues are applied to on-line interpretation of sentences that are heard, while the cloze
test in the present study involves the understanding of conversational discourse in a written form. Among the differences between the original use and the present application of cue-based learning is that time constraints are less relevant in the case of a written form. In this sense, the Competition Model that was originally designed as a model for aurally provided sentence interpretation was applied to conversational discourse in writing in this study. It is assumed, however, that the same construct "cue validity" is measured under the two different conditions. The essence of the global cues relevant to both types of discourse is twofold. Often, the relevant information is not represented by a single linguistic form, and therefore some kind of synthesis of information is required to reach the target form or function. Second, there are cases where competing cues signal opposing form or function, further complicating the process of information-synthesis. Thus, each linguistic form in isolation does not provide much information, and even can be misleading when a selection must be made based on competing cues signaling two different forms. It can be seen now that global cues, whether in
listening or reading, will require a synthesis of information in order to reach the correct form-function mapping under different time constraints as well as through different channels (ears vs. eyes). The next several sections will first examine WA and GA in relation to local cues, followed by examination of those particles in relation to global cues.

**Local WA and GA: Linguistic Description**

Table 12 below presents WA1-WA3 and GA1-GA3 under local cues. The table also provides a description of the cues. The categories are simply descriptive labels of linguistic environments in which the relevant particle appears in the experimental cloze test. This study has no intent of proposing a new system of classification. Some of the categories merge with the standard linguistic terms. For instance, WA1-WA3 could all be described as Kuno’s “thematic WA” (1973). The classification system used in Table 12 was employed, however, because the pilot study indicated that this arrangement might better distinguish learners’ errors associated with different cue types.
The cue types identify specific linguistic items that were hypothesized to be a clue (= cue) for the right selection of particles. The description for the category labels and cue types were classified prior to the experiment in reference to linguistic analysis (e.g., Kuno, 1973) and information about strategies used by subjects in the pilot study. The latter was obtained from the oral interviews with the subjects.
Table 12.

WA and GA under Local Cues

<table>
<thead>
<tr>
<th>Local WA</th>
<th>[CATEGORY]</th>
<th>[EXAMPLE CUES FOR WA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA1: Wh-question with</td>
<td>Demonstrative/proper</td>
<td>Demonstrative/proper</td>
</tr>
<tr>
<td>exophoric reference</td>
<td>nouns at the discourse-</td>
<td>nouns at the discourse-initial position</td>
</tr>
<tr>
<td>WA2: Exophoric reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA3: Anaphoric reference</td>
<td>Repeated mention of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the identical item</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local GA</th>
<th>[CATEGORY]</th>
<th>[CUES FOR GA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA1: Focused question</td>
<td>Wh-subject</td>
<td></td>
</tr>
<tr>
<td>GA2: Ga Predicate</td>
<td>Object of GA Predicate</td>
<td></td>
</tr>
<tr>
<td>GA3: Focused response</td>
<td>Preceding wh-subject question</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** "Ga Predicate" refers to a group of verbs whose object is marked by GA, e.g., *suki*, 'to like'.

Local cues are represented by the frequent occurrence of particular linguistic items with either WA or GA but usually not with both. Thus, a typical condition for the local environment is that: (1) there is an overt linguistic cue that will signal either WA or GA but not both, and (2) there is little or no competition of cues that signals opposing particles simultaneously. When a linguistic environment meets with this typical condition, the association of the cue and the relevant particle represents form-form mapping, which is the easiest task for learners. For instance, wh-subjects are a typical local cue that signal GA in Japanese (e.g., Dare-ga, 'Who-SU'). A learner does not need to know at the beginning the functions represented by this sequence. What the person needs to know is the association of dare, 'who,' with ga, 'SU=subject,' often at the sentence initial position. In this sense, the learning starts with form-form mapping. This is an example of horizontal mapping. Gradually the learner will learn the link between dare, 'who' (=form) and the notion of subject (=function) as well as the link between GA (=form) and subject (=function). This is an example of horizontal
(=form-form) mapping developing into vertical (form-function) mapping.

As the condition gradually deviates from the typical pattern, the difficulty would be expected to increase and errors expected to become more frequent. For instance, dare, 'who,' implies person and the notion is associated with the agent which often becomes the subject of the sentence. Hence, there is a link of person-subject-agent, which signals GA in coalition. On the other hand, with a sequence such as Dono hito GA, 'Which person-SU,' the wh-word dono, 'which,' alone does not directly signal the possibility of agent, although dono hito, 'which person,' as a whole, might. This is assumed to be a less typical case of wh-words associated with subject GA. Thus, it is expected that for beginning level students, GA marking should be easier with Dare-ga than with Dono hito ga, 'Which person-SU.' This suggests that immediacy in signaling is an important component of a valid local cue.

Local WA and the error rate. The following discussion is made in reference to Table 11. Among the three local WAs, only WA3 (anaphoric reference) contains an exact
repetition or its equivalent pronoun. An example is provided with the target particle [WA] in the bracket.

A: Ano hito Tanaka-sensee ?
    that person Mr. Tanak

    'Is that person Mr. Tanaka ?'

    no that person TOP Mr. Tanaka is-not

    'No, that person is not Mr. Tanaka.'

In the dialogue, A starts a question with ano hito, 'that person,' then B answers the question with the same word. This type of "second-time mention" of the same item is often called an anaphoric reference, in which the second mention of the word (anaphor) refers back to the first mention (antecedent). This second-mentioned item in the above situation is a local cue for WA in the sense that the cue is overt and no competition of cues is observed here. The Competition Model predicts that this will not very difficult for learners. The data in Table 11 indicates that this category is among the groups producing the least errors.

The situation is a little different with the other local WAs: WA1 and WA2. One thing that is shared by WA1 and
WA2 but not by WA3 is that the blank for the particle is in the sentence that initiates the dialogue with the first two WAs, but the blank is in the response sentences with WA3. In the former case, because learners have had no previous utterances in the dialogue, they have no overt linguistic items to refer back to for the selection of the particle, whereas a reference was possible in the case of questions for WA3 (anaphoric reference). According to the Competition Model, this difference in the availability of references resulted in a higher error rate with WA1 and WA2 than with WA3.

WA1 is what is called an exophoric reference (Halliday and Hasan, 1976). Simply stated, this is a type of anaphoric reference but the referent is not within the text (i.e., not within the utterances, written text, etc.). The following illustrates the difference between WA1 and WA3.

A: Ano hito [WA] Tanaka-sensee ?
   that person TOP Mr. Tanaka

'As for that person), is that Mr. Tanaka ?'

   NO that person TOP Mr. Tanaka COP-not

'No, that person is not Mr. Tanaka.'
B's utterance ano hito, 'that person,' is anaphoric in the sense that its referent (ano hito, 'that person') is in the previous sentence (= within the text). On the other hand, the referent of ano hito, 'that person,' in A's utterance is outside of the text because that word does not refer to an object in spoken words or written words. In this sense, the referent was not within the text before A said the word. This is essentially anaphoric in the sense that the speaker refers to the target object that is identifiable to the listener, and therefore, such a reference in the case of WA1 is often marked by WA in Japanese for the same reason as in the case of WA3 (anaphoric reference). Second year subjects do not seem to recognize this exophoric situation. The results of the follow-up interviews revealed one source of errors for this proficiency level. The dialogues in WA1 all contain wh-words in the predicate position (e.g. Ano ookii hito WA dare? ‘Who is that tall person?’). As the corresponding translation above shows, however, 'who' comes in the subject position in English, instead of in the predicate position. Several 2nd year students used the approach of identifying dare, 'who,' as a wh-subject in
English. These students incorrectly answered GA because wh-subjects are usually marked by GA in Japanese, as in Dare ga kita no, 'Who came?' The result was Ano hito [GA] dare, where the correct particle was WA, as in Ano hito [WA] dare. The trick is that wh-words in the predicate are usually preceded by WA because the construction is used to identify an anaphoric or exophoric reference which is marked by WA. Hence, the proposed cue for WA1 is "the location right before the wh-word in the predicate." It was found out in the follow-up interviews that no subject used this cue other than in the confused way as described above. The data showed that subjects in the proficiency levels beyond the 2nd year level had little trouble with WA1, indicating the error rate decreases as the proficiency levels advances.

WA1 represents exophoric questions with wh-words, whereas WA2 provides examples of exophoric sentences without wh-words as illustrated below.

A: Yoshida-san [WA] omoshiroi hito da ne
Mr. Yoshida TOP funny person COP COM
'Mr. Yoshida is a funny person, isn't he?'
The error rate for WA2 was slightly higher than for WA1 for a reason yet to be determined. These categories do not seem to constitute major problems for learners, judging from a lower error rate as the proficiency level advances.

Local GA and the error rate. In Japanese, wh-subjects (e.g., dare, 'who') are usually followed by GA. This GA-marking is quite invariant with GA1, indicating high reliability on the cue (i.e., the wh-word in the subject position). This invariability is reflected in the error rate in Table 11 above, where the ranking of the error rate for GA1 is the lowest among the three local GAs. An example is provided below.

Subject markers, both WA and GA, are often omitted in colloquial speech. The zero form (=without GA) is possible in the case in discussion. The focus of this study, however, is to identify learners' difficulties when they have to use particles. The present study will remain within this focus and omitted cases will be left for future study.
A: Dare [GA] gakusee na no ?  
Who SU student COP Q  
'Who is the student ?'

B: Sumisu-san desu.  
Mr. Smith COP  
'[It's] Mr. Smith.'

GA2 represents GA predicates. Typically, the object of a sentence is marked by O in Japanese. With some predicates, however, objects are marked by GA instead of -O. Ga-predicates refer to this group. Examples are X ga suki, 'to like x,' X ga wakaru, 'to understand x,' and X ga dekiru, 'be capable of doing x.' Though these are exceptional cases of object-marking, the absolute number can be said to be small enough for memorization. The following is an example.

A: Audition doo datta ?  
how COP-PAS  
'How was the audition ?'

B: Ashita kekka [GA] wakarimasu  
tomorrow result ACC know  
'I'll get the result tomorrow.'
The objective GA often changes to WA especially when the predicate itself is in the negative form (e.g., A: *Nihongo ga wakarun desu ka.* ‘[Is it that] you understand Japanese?’ B: *Ie, nihongo WA wakarimasen.* 'No, I don't understand Japanese’). Provided that the default particle with these predicates was GA, and that the negative form signaled WA, this did not seem difficult to learners. The error rate in Table 11, however, suggests that lower level students had some difficulty (43.2% for 2nd year students, and 38.5% for 3rd year regular students). The upper two levels showed a reasonably low error rate, indicating that improvement can be expected as time goes by.

GA3 is the last case of local GA. Here is an example.

A: Dare GA ichinen-see ?
   who SU freshman

‘Who is a freshman?’

B: Sumisu-san [GA] ichinen-see desu.
   Mr. Smith SU freshman is

‘Mr. Smith is the freshman.’
In responding to the wh-subject question, the subject of the response sentence is usually marked by GA. *Dare ga, 'Who-SU' in A's utterance represents the case of a focused question (GA1) and GA as in *Sumisu-san ga, 'Mr. Smith-SU,' is a case of a focused response (GA3). Both GA1 and GA3 are quite invariant, and thus have a high reliability rate. Yet the error rate of GA3 is higher than GA1, and indicates some trouble across the proficiency levels. The major difference between the two categories is the distance between the cue and the relevant particle. The cue in GA1 is assumed to be the preceding wh-word. The cue (wh-subject) is next to the particle (GA). On the other hand, the cue in GA3 is the 'wh-subj + GA' that is located in the previous sentence. This can be interpreted to mean that cross-referencing across the sentences will involve more complicated processing than referencing within a single sentence. For this reason, GA3 is not a typical local cue. This observation may partly explain the rather high error rate with this cue. The error rate in Table 11 demonstrates, however, that the error rate is not only high but also persistent as the proficiency level advances. The reason behind this merit further investigation.
Various linguistic forms that represent local cues were examined above. In examining these local cues in association with the error rate, it is important to keep in mind the following. First, these six categories are closely associated with a concrete lexical form that signals the particles, where the horizontal (form-form) mapping strategy is usable. The horizontal mapping is an easy task of form matching. For this reason, the above six categories show a lower error rate. Also, for the same reason, where horizontal mapping is available and obvious, the error rate demonstrates little difference among the proficiency levels. Secondly, it is noted that the distance between the cue (form) and the target particle affects particle selection. The case in point is GA3. The proposed cue for that category was the wh-subject question that came before the response sentence. (e.g., Dare GA, 'who' $\rightarrow$ $X-[GA]$ 'X-SU'). Because the cue was explicit, it was assumed that this category was not hard for learners. On the contrary, the error rate was not only high but also did not seem to decrease sufficiently as the proficiency level advanced. It is suspected that cues located across sentences affected the selection. This might
be due to local perspectives of the learners in responding to the task. If this is the case, then learners need to be guided to look for cues beyond the sentence level as well as within the sentence. If this speculation is correct, a clearer tendency of the "local perspectives" of the learners should be observed under the global environment.

Table 13 below summarizes local WA and GA using specific linguistic items. The cues are underlined and the target particle is in brackets. The order corresponds to the Error Rate Ranking in Table 11.
Linguistic Items Representing Local Cues

<table>
<thead>
<tr>
<th>Cue description</th>
<th>Example cues particle</th>
<th>L/S*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA3 Preceding Wh-subject question</td>
<td>A: <strong>Dare-ga</strong> ..? 'Who'</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B: Sato-san [ ]       [GA] 'Mr. Sato-SU' S</td>
<td></td>
</tr>
<tr>
<td>GA2 Object of GA-predicate</td>
<td>Kekka [ ] <strong>wakaru</strong> [GA] 'know the result' S</td>
<td></td>
</tr>
<tr>
<td>WA2 Discourse-initial</td>
<td><strong>Kore [ ]</strong> [WA] S</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Ano hito [ ]</strong>+ wh? [WA] 'that person' S</td>
<td></td>
</tr>
<tr>
<td>WA1 Discourse-initial</td>
<td><strong>Ano hito [ ]</strong>+ wh? [WA] 'that person' S</td>
<td></td>
</tr>
<tr>
<td>WA3 Repeated</td>
<td>A: <strong>Ano hito WA</strong> ? 'that person' S</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B: Ano hito [ ]       [WA] 'that person' L</td>
<td></td>
</tr>
</tbody>
</table>

* L/S: long-distance cue/short-distance cue. Long-distance cues refer to cues located in different sentences, whereas short-distance cues refer to those in the same sentence as the target particle they signal.

** 'Wh-nominal predicate refers to **dare desu** ka as in **Ano hito-WA dare desu** ka? 'Who is that person ?'
Global WA and GA: Linguistic Description

In the discussion of WA and GA under local environments, it has been revealed that a single lexical item often provides a crucial cue to the selection of the right particle. The focus of the enquiry now is on linguistic environments where competing cues signaling opposing particles. Namely, one cue signals WA and the other cues GA. Table 14 below presents WA and GA under global cues, which are described as a linguistic situation represented by competition between or among the cues. As can be found in the category label, global cues heavily involve semantic interpretation of the linguistic situations. This suggests that the processing of linguistic information will be more complicated compared with the local environments where the crucial cue is often a single lexical item.
Table 14.
WA and GA under Global Cues

<table>
<thead>
<tr>
<th>Global WA</th>
<th>[CATEGORY]</th>
<th>[COMPETING CUES]</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA4: GA predicate in negation</td>
<td>[Cues for GA]</td>
<td>[Cues for WA]</td>
</tr>
<tr>
<td></td>
<td>Object of GA predicate</td>
<td>Negation that follows</td>
</tr>
<tr>
<td>WA5: Contrast</td>
<td>New information</td>
<td>Unweighted item in contrast</td>
</tr>
<tr>
<td>WA6: Unfocused response</td>
<td>Preceding wh-subject</td>
<td>Delimited item</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Global GA</th>
<th>[CATEGORY]</th>
<th>[COMPETING CUES]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA4: Counter-stative identification</td>
<td>New information</td>
<td>Item in contrast</td>
</tr>
<tr>
<td>GA5: Identification of agent</td>
<td>Action verb</td>
<td>Shared information</td>
</tr>
<tr>
<td>GA6: Subject of reason clause</td>
<td>New information</td>
<td>Shared information</td>
</tr>
</tbody>
</table>
Global WA and the error rate. WA4-WA6 were categorized under the global environment because they were all assumed to contain competition of cues signaling the opposing particle. As expected, the error rate was generally high with global WA, except with WA6. First this exceptional case will be discussed with the example below. The target particle WA in B's utterance is indicated by the brackets.

A: Kinoo no paatii ni wa dare-ga itta no ?
yesterday of party to TOP who-SU went Q

'Who went to yesterday's party?'

B: Saa, yoku wakarimasen kedo watashi-[WA]
well well not sure but I-TOP

ikimasendeshita.
did not go

'I am not sure, but (as for myself) I did not go.'

One of the two competing cues proposed here is the preceding wh-subject question that signals GA for the subject of the response sentence (i.e., Dare ga ...? 'Who-SU...?.' --> X-ga 'X-SU...'). This is the same cue as for GA3, as was shown earlier. The question by A above requests B to replace the 'who' part with a substantial content, which is the focus of
the question. The content of focus, if it is to be given, must be marked by GA in Japanese. In the above case, however, B does not fill in the focus with a content. Instead, he provides information stating that there was at least one person who did not go, and that was himself. This is a case where the speaker delimits the applicability of his statement to himself. Such delimitation is marked by WA in Japanese. Hence, the competing cue that signals WA is proposed as the delimited item, i.e., Watashi, ‘I.’ If this cue was competing with another cue for GA (=wh-subject in the preceding A’s utterance) in the selection process, then that should have been reflected in the error rate. The error rate ranking in Table 11 indicates that such a competition might have caused problems only for the lower two proficiency levels. The rate for WA6 for the upper two proficiency levels was reasonably low. This seems to indicate that those subjects who made errors here had some specific cues that detracted them from selecting WA, which was the expected response. One reason may be because the preceding wh-questions sentence (= cue for GA) confusingly led the
experimental subjects to answer GA. However, this contradicts the result of the local GA3 case that was shown earlier. In that category, the error rate was rather high across the proficiency levels, which suggested that the subjects did not use this cue. It is hard to accept the hypothesis that the subjects were attracted by the cue for GA in questions for WA6, and were not aware of the same cue in questions for GA3. The lower two proficiency levels, however, still had problems with the WA6 questions, and in fact made as many errors as they did with other global cues, whereas the error rate with the upper two levels was as little as it was for the local cues. Further research is required to understand the details.

The next category is WA4, which represents cases where the objective GA of a GA predicate is converted to WA when the object is used anaphorically. This often induces errors because the GA predicate itself represents a cue for GA (= GA2), whereas the item in anaphoric use is often marked by WA. The following illustrates an example of WA4. The target WA is in brackets.

---

10 This was not verified during the interview portion of the test.
A: Tenisu shinai?
   tennis won't

 'Won't [you] play tennis [with me]?'

B: Tenisu [WA] dekinai-ndesu.
   tennis TOP not-able-EP

 '(It's that) I cannot play tennis.'

In the above situation the object tenisu, 'tennis,' in B's utterance is an anaphoric use in the sense that it repeats or refers back to the identical word in A's utterance. This anaphoric reference is a quite natural consequence in a situation of questions and answers like the ones above. Anaphors (= words that refer back to the antecedent) in such a particular situation are invariably marked by WA. Another possible cue that might indicate the use of WA here is the predicate in the negated form. In general, the object markers (either -O or -GA) tend to be converted to WA before negated predicates in Japanese. Thus, there are at least two possible cues for WA with WA4 against the opposing cue for GA, which is the existence of the GA-predicate itself, i.e., the cue for GA2. The GA-predicate is an overt linguistic form that immediately calls for a GA-marking of the object. On the other hand, anaphoricity or negations themselves do
not necessarily call for an invariant form of the particle, but rather exist in coalition. It is hard to predict which side -- the GA-predicate side or the anaphoricity/negation side-- will win out in this cue competition. However, the GA-predicate (GA2) has been classified under the local environment. Further, it is hypothesized that learners will, in general, learn local cues first. One possible prediction about the competition is that lower level students will use the cue for the GA-predicate. The expected result, if such is the case, will be a higher error rate within the two lower proficiency levels. The actual results shown in Table 11 are mixed. The 2nd year and the 3rd year intensive students made errors about the 40% of the time, whereas the 3rd year regular students and the 4th year students made errors around 25% of the time. The result of the 3rd year intensive students (42.9%) is especially puzzling. One possible interpretation of this situation is that the cue for GA in this context (= GA-predicate) is very strong for 3rd year intensive students. This is evidenced by the error rate for GA2 where the GA-predicate is the relevant cue. The error rate under that category is 17.9% for the 3rd year intensive
level-- the lowest-- followed by 18.8% for the 4th year students. Both groups demonstrate the higher error rate for WA4 (42.9% for the 3rd year intensive and 25% for the 4th year), where the negated version of the GA-predicate appears. Apparently these subjects were aware of the cue for GA (GA-predicate). Such a tendency was not clearly observed with the lower two groups. This might be an instance of the U-curve phenomenon cited in Ito et. al. (1993), which roughly refers to a learning stage where learners' knowledge is unstable due to an on-going reorganization process that seeks a generalization that will solve a wider range of problems. At this stage, a learner is learning new knowledge and is often less stable than before until he reaches a new generalization, when the degree of stability goes up again. Thus, this stage of less stability figures as the bottom part of the U-curve.

It is not clear whether or not 3rd year intensive students are at the bottom of the U-curve. If this is the case, learning is currently taking place within them. The error rate for WA4 is 40.9% with the 2nd year students, and 42.9% with the 3rd year students. Provided that the above
discussion is valid, it is possible to say that these two similar figures are qualitatively quite different. Yet little is definite and further research is necessary in this category.

The last category of WA under the global environment is WA5. The following is an example with the target particle WA in brackets.

A: Eego no gakkoo doo ?
   English of school how
   'How's your English school ?'

   many-EP
   '(It's that) the teacher is interesting but the homework is a little too much.'

The proposed cue for WA here is a contrastive connotation. In more specific linguistic terms, the cue is the unweighted item in weighted contrast. Some discussion is necessary because this is not a standard definition.

A typical pattern of contrastive expressions in Japanese is schematically characterized as follows:
A wa X...kedo, B wa Y
but
'A ...X, but B....Y.'

The pattern shows that the items in contrast are picked up by WA and the two clauses are connected by any conjunction meaning "but." The appearance of two WAs is quite typical. Having two WAs, however, is not a requirement. Making contrast is possible with WA for the first item and GA for the second item. The example of WA5 above illustrates such a case. This latter construction seems required in communication situations where the speaker needs to place an emphasis on one of the items in contrast, which usually is the second item and is marked by GA instead of WA. In the above example, in response to the preceding question, the speaker is assumed to be placing an emphasis on a problematic aspect (houmuwaaku-GA ooindesu '(it's that) the homework is too much'), rather than on a positive aspect (sensee-WA omoshiroin desu kedo, '(It's that) the teacher is interesting but ...'). The subject of the emphasized clause is, thus, marked by GA, which is quite common in Japanese. When there is no communication motivation such as emphasis, the standard
construction for contrast is used with two WAs as was described schematically earlier. This standard construction for contrast is referred to in the present study as an unweighted contrast. An unweighted contrast contains two unweighted items in contrast, but with no emphasis on either of the two and both are marked by WA. On the other hand, another contrastive construction as in WA5 is referred to as a construction for weighted contrast in this study. The weighted contrast contains two items in contrast: the unweighted item and the weighted item, in that order. The former is marked by WA and the latter by GA. Thus, the cue for WA in WA4 is the unweighted item in contrast (Sensee-WA, 'The teacher-TOP'), in the construction of the weighted contrast.

Another possible cue for WA is related to the notion of a whole-part relationship. Briefly stated, once "the whole" is mentioned, then the existence of its parts is assumed or treated as shared information. Such a linguistic item in the subject position is typically marked by WA. In the English school example above, E's utterance starts with sensee, 'the teacher.' This sensee will be semantically
subcategorized under gakkoo, 'school,' in A's utterance. It is assumed that schools have teachers. The 'teachers' are assumed as shared information and thus the equivalent word in Japanese is marked by WA.

The cue for GA that experimental subjects were expected to use was the notion of 'new information.' As shown in Inoue's model (1979, 1983), such a label is rather tricky. An interpretation of newness is complicated because it depends on the judgement of the speaker. Further, the newness of the information must be distinguished in two ways: by the newness of the subject nouns and by the newness of the content that the sentence represents. In the above example, the subject noun (sensee, 'teacher') can be taken as the old or shared information from the whole-part (school-teacher) relationship. This suggests that the "teacher" should be marked by WA. On the other hand, the sentence containing the "teacher" can be considered to be providing new information about the subject (i.e., the teacher is interesting). This suggests that the "teacher" should be marked by GA. A competition of cues exists here. The question is why the "teacher," the subject of the sentence that conveys new
information, must be marked by WA here unlike in other similar cases (e.g. Otoo-san GA kimashita yo. 'Your father has arrived.')

One way to interpret this situation is to hypothesize that the weighted contrast cannot have two weighted items, or two focuses at the same time. Apparently, "too much homework" in the above sentence is the better candidate for the focus and for GA-marking, which will preclude the possibility of sensee, 'teacher' being marked by GA due to the above hypothesis.

The experimental subjects in the present study seemed to be detracted by the newness represented by the content of the first sentence in the WA5 example. The whole sentence, however, represents what is referred to as the weighted contrast in the present study, in which only one focus is allowed. In the above case, the focus is houmuwaaku, "homework," which is marked by GA. For this reason, sensee, "teacher" cannot be marked by GA.

It has been observed that the utilization of the cues for both WA and GA requires knowledge involving more than a single linguistic item as well as complicated semantic
interpretation which can involve subjective judgements about the newness of information as well as the speaker’s focus. The high error rate with WA5 in Table 11 reflects this situation.

Local and global WA under the six categories appear in order of decreasing difficulty in Table 15 below, which is taken from the WA portion of Table 10. Significant differences were observed whenever global WA (WA4, WA5, or WA6) was involved, as indicated by an asterisk (e.g. WA6 and WA3).

Table 15.

<table>
<thead>
<tr>
<th>Rank Order of the Six WA</th>
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<tbody>
<tr>
<td>WA5</td>
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<tr>
<td>WA5</td>
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<tr>
<td>WA4</td>
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<td>WA6 *</td>
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<td>WA2 *</td>
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<tr>
<td>WA1 *</td>
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<tr>
<td>WA3 * * *</td>
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</table>


Global GA and the error rate. The final category containing the highest error rate includes GA5, GA6, and GA4, in order of increasing error rate. An example of GA5 is given below.

A: Kyoo WA isogashikute kaigi ni ikenai naa.
   today TOP busy-GRN meeting to can’t-go INT
   ‘I’m afraid I’m too busy to go to the meeting today.’

B: Ja, watashi [GA] ikimashoo ka.
   Well then, I SU shall-go Q
   ‘Well, then, shall I go (for you) ?’

The basic function realized in this group of sentences is referred to as "identification of agent" in the present study. That is, when an agent such as the source of responsibility for some events or the candidates for volunteer are to be identified, the grammatical subject tends to be marked by GA, instead of WA. Agents are basically the doers of action. Thus, the proposed cue for GA for this group is "action verb." This is based on information about strategy, which was obtained during the oral interview of the pilot study. This cue name for GA is somewhat misleading, because with any action verb the subject of a sentence can be
marked by WA in various conditions, thus choosing GA based on "action verb" alone will produce a cue of rather low validity. Due to the lack of a better cue description, however, the above term was employed as the cue for this type of GA. The opposing cues for WA are the subject noun phrases that carry "shared information" or "old information" in the sense of Inoue (1979, 1983. Also see the earlier discussion of WA5 above). The subjects of the actual sentences in this group were either Watashi, 'I,' or Sumisu-san, 'Mr. Smith.' Thus, the cues for WA were these lexical items. Though opposing cues look fairly simple, they represent another area requiring subjects to choose between two particles which seem equally appropriate. The high error rate indicates that this group of question was not as easy as was assumed. The error rate ranking in Table 10 indicates that the two competing cues were almost equally strong, with the error rate at 52.3% for 2nd year students and 48.1% for 3rd year regular students. It is suspected that a simple and concrete lexical cue for WA such as Watashi, 'I,' and proper names at the discourse-initial position, are strong cues to signal shared information to be marked by WA. Given the mapping principle,
which stipulates that mapping starts with form-form mapping, it is easy to understand that the error rate is rather high with the lower two groups mentioned above.

The candidate cue for WA seems quite reasonable in this category. On the other hand, the cue for GA (= action verb) seems too abstract and unreliable to be utilized. The baseline data in this study showed that all nine adult native speakers selected GA. There seems to be a clear cue for native speakers. It is assumed that the basic function realized in the sentences of GA5 is closely related to the communication motivation of the speaker. There are times when we need to identify the agent or the doer explicitly such as when we seek the source of responsibility, when we decide on a job assignment, and when we offer to volunteer for something. In such cases, the agent is the focus. The relevant question is "who did it" or "who is going to do it." Naturally, such focus is emphasized in the discourse. Such a communication situation matches well with the well-known function of GA, i.e., indication of a focused object.

The sentences in GA5 also can be viewed as providing new information regarding the agent. Because the subject
nouns that carry new information are marked by GA, as already seen earlier, the subjects' problems might have been related to confusion over the notion of new vs. old. In order to properly provide new information, however, one has to understand what is being discussed, or what is the focus of the immediate discourse. When the dialogues by the two interlocutors are examined, it is noted that the first speaker speaks declarative sentences that contain implied questions. The above example shown earlier is one in which speaker A simply states that he is too busy to go to the meeting today. Then, B volunteers to go by stating, 'Shall I go (for you) ?' Notice that A's utterance does not directly ask B to volunteer. But B interprets the sentence as a possible request for him to volunteer. In this sense, B identifies the focus of A's sentence, and then responds properly, keeping the focus by using GA. Without this sense of focus, there would be little systematic motivation to use GA in such sentences. Thus, the process of particle selection may require pragmatic knowledge or knowledge of how communication motivation is realized through WA and GA. The above discussion suggests that more research on WA and GA is
needed in relation to pragmatics in order to discuss the issue beyond speculation.

The next category, GA6, involves grammatical subjects of a reason clause. An example is given below.

A: Kyoo paatii ni ik-anai no ?
   today party to not-go Q

   'Aren’t you going to the party today ?'

B: Ee, tomodachi [GA] uchi ni kurundesu.
   right friend SU home to come-EP

   'Right. A friend of mine is coming to visit me.'

The proposed cue for GA is new information represented by the whole reason clause, the subject noun phrase, and the predicate part. The cue is not easy to spot. Some explanation is necessary of why reason clauses tend to contain a subject marked by GA, instead of WA. When people explain a reason, they often present the source of the problem and how the problem was created. Chances are that the "source" carries new information and the way the problem was created also conveys new information. An example is given below.
A: Dooshite konakatta no ?
   why didn't come

   'Why didn't you come ?'

B: Kuruma [GA] koshoo-shita-ndesu
   car SU broke-down-EP

   '(It's that) the car broke down.'

The utterance of B illustrates the point made above.

The proposed cue for WA is related to the appearance of subject nouns such as tomodachi, 'friends,' chichi, 'my father,' and ashita, 'tomorrow,' which seem so generic as to be taken as shared knowledge. When viewed as shared information, these nouns are mistakenly marked by WA. The error rate for 2nd year students was 61.4%, indicating that this lexical cue for WA was stronger than the cue for GA at this level. Likewise, the error rates for the rest of the levels also stayed high: 53.8% for 3rd year regular, 42.9% for 3rd year intensive and 37.5% for 4th year. The Competition Model predicts that a cue of high validity might not be used when the cue cost is too high. Namely, if the interpretation of the cue involves a complicated process, it is abandoned and the easier cue available in the context is
employed. The current data might be an example of such an instance. Namely, the cue for WA (= nouns with generic nature) is much easier than the cue for GA (= reason clauses) and the former wins out over the latter. However, more investigation will be required to see whether or not competition actually exists between a single lexical cue (such as Watashi, 'I') and a semantic cue such as new information conveyed by reason clauses.

The final category, GA4 is now discussed, for which an example is provided below.

A: Ano hito, Tanaka sensee ?
   that person teacher

   'Is that Mr. Tanaka ?'

B: Ie, sono tonari no hito [GA] Tanaka sensee desu.
   No that next of person SU teacher COP

   'No, the one next to that person is Mr. Tanaka.'

This category is labeled as "counter-stative identification." The proposed cue for GA here is new information conveyed by the subject noun phrase. In the above example, ano hito, 'that person,' in A's utterance is counter-statively negated
by B, who provides another subject noun phrase (*sono tonari no hito, 'the one next to that person*) that conveys new information. Hence, this noun phrase is marked by GA. The assumed cue for WA is the existence of items or individuals in contrast. In the above example, *ano hito, 'that person,' in A's utterance, and *sono tonari no hito, 'the one next to that person,' can be taken as contrasting phrases. Another motivation for using WA is that both persons indicated by the demonstrative (*ano, 'that person') represent an exophoric reference in the sense that both persons are identifiable. This identifiability is linked to the status of shared information that is often marked by WA. The error rate was highest out of all 12 categories, as shown in Table 10. The dialogues used might have been presenting an unfamiliar flow of exchanges to the experimental subjects. More familiar sequences are three-part exchanges, in which negation of the first utterance is inserted between the two above (e.g., *Ie, ano hito wa Tanaka sensee ja arimasen. 'No, that person is not Mr. Tanaka*). The lowest error rate was 50% at the 4th year level. The 3rd year intensive level showed unusually high error rates for this category (71.4%). These students provided a total of 28 answers to the questions in this
section \((n=7\times4\) questions). Out of the total 28 questions, 20 were incorrect. Out of these 20, 16 were concentrated among four individuals who missed all four questions in this category. While the results might be a reflection of individual differences, more than half of the subjects (4 out of 7) did not get any of the questions right. This seems to indicate that they used some cue to lead them to answer WA, which was not the right response. Because two individuals appear in contrast in each dialogue, contrastive connotation was probably used as a cue by the subjects. However, when E's response in the dialogue is examined, it is noticed that it identifies the right item that is counteractive to the previous statement. Again, the major function of GA is used in this dialogue effectively, i.e., focusing, or foregrounding the object. The data suggests that the mapping between this important function (focus/foregrounding) and the form (= GA) is not well understood by learners. At the same time, "contrast" might be one of the strongest cues to them in distinguishing a WA environment from a GA context. In fact, during the interviews, subject most often stated that they used WA to indicate contrast and GA to indicate specificity.
Table 16.

Difficultly Ranking of the Six GA

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<tr>
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<th>GA4</th>
<th>GA6</th>
<th>GA5</th>
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</tr>
<tr>
<td>GA3</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA2</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA1</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
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</tbody>
</table>

Table 16 above, which is the GA portion taken from Table 10, presents the difficulty ranking of the six GA categories. The gaps between each category are larger than those in the WA category, resulting in greater differences in difficulty when compared with WA.

In the previous sections, it was shown that particle selection was generally less difficult for learners under local environments than under global environments. Explanations were provided employing the notion of local and global processing in the Competition Model. Local processing is largely related to form-form mapping, which is rather a
simple matching of concrete lexical items (e.g., wh-subject and GA). On the other hand, global processing, as shown earlier, often requires an interpretation of the whole dialogue in order to successfully reach a specific function of the particle. In this sense, global processing is more involved with the mapping of form and function.

Both WA and GA have multiple functions. In addition, there are many linguistic environments that accommodate functions of WA and GA at the same time. It is no wonder that the mastery of WA and GA under global environments is quite difficult to L2 Japanese learners. First, they have to understand each function of WA and GA in various linguistic contexts. But this is not enough. Learners also have to know how they should proceed when they find competing cues that signal the use of two different particles at the same time. The data demonstrates significant errors made by learners when global environments were involved, suggesting the need for rigorous research of WA and GA in this area.

More Errors with GA Revisited

One aspect that the present data does not directly explain is why GA elicits more errors than WA does. Earlier,
this question was raised in Exploratory Question 2, which is repeated below. This section attempts to provide a tentative answer to this question.

(EQ2) Why is it the case that GA elicits more incorrect responses than WA? Does this mean that GA is inherently more difficult than WA? Do learners feel more comfortable with WA?

As demonstrated earlier, it was not always the case in the present study that GA elicited more errors than WA. The data showed that global WA elicited more errors than local GA. Nevertheless, under the same type of cue, GA elicited more errors than WA. This limitation in past studies could make a huge difference in results, but still a general tendency similar to those in the past studies is observed in the present data. At this moment, only speculation is available for possible reasons. For instance, one possible reason might be related to the matter of probability. In the experimental cloze test, blanks for the particles were located mostly after the first subject noun (except for object nouns in the case of GA-predicates). If this is a place where WA appears statistically more in number
than GA does, then the probability of choosing the right particle will be higher if one uses WA in that place. The strategy that learners would employ is: "If unsure, use WA for the first noun." It is suspected that this actually might be the case. There is no such statistical evidence at this moment. However, the general information structure seems to support this speculation. In communication, old/shared information is first presented to the listener, followed by new or unpredictable information (cf. Discussion of Inoue (1979, 1983) in Chapter 2). Thus, in the following examples, (a) is the normal word order if Yamada-san, 'Mr. Yamada,' is already the shared information. The order in (b) is used only to provide some additional meaning, e.g., for emphasis.

(a) Yamada-san WA gakusee desu.
   Mr. Yamada TOP student is
   'Mr. Yamada is a student.'

(b) Gakusee desu, Yamada-san WA.
    student COP Mr. Yamada
    'A student, Mr. Yamada is.'

Indeed, two subjects indicated that they would use WA when they were not sure of the correct particle. The data is presented in the "Follow-up Interview" section.
The above example suggests that noun phrases that carry old/shared information tend to appear at the initial positions of a sentence/discourse. Shared/old information is marked by WA in Japanese. The probability that learners are exposed to situations where the first noun is marked by WA can be further reinforced in classroom practice. In typical language classrooms, the instructor picks up a topic and asks a student a question about the topic. The student often replies back with the same/shared topic marked by WA. It is possible that learners of Japanese somehow pick up this distributional fact and try WA in the blank following the sentence-initial subject noun phrase. The experimental subjects were asked to fill in 48 blanks. The expected answers were 24 WA and 24 GA. The data, with 35 subjects showed that they did significantly better when the correct answers were WA. While other possibilities must not be ruled out, distributional information seems worthy of investigation in order to examine the nature of the lower error rate with WA.

There is little to say about the two other questions in EQ2 above. It is not clear whether or not the use of GA is
inherently more difficult than the use WA. During the interviews, no subject indicated that he felt more comfortable with WA than with GA. There were two subjects in the 3rd regular class who reported that they tended to use more WA than GA. It was not verified, however, whether or not this was the general tendency among learners. More investigation is necessary in order to answer this exploratory question.

Confidence Level

This section analyzes, employing the confidence measure, difficulties subjects may experience when learning WA and GA. Subjects' ability of metalingual judgements will be examined in relation to the error rate. This is related to the third exploratory question, which will be answered at the end of this section.

Right after each question, the subjects were asked to indicate on a five-point scale their confidence level toward their response. The scale appeared with descriptive terms as follows.

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
It was expected that items of difficulty would be associated with a low confidence level. It turned out, however, that the outcome was hard to interpret because the subjects did not indicate their confidence levels in similar ways. Some indicated their confidence level on a two-point scale with either 2 or 3, and some used just 4 and 5, whereas others used the full five-point scale. Taking an average of summed scores of the individuals would not make sense because the above five-point scale does not represent an interval scale, which means that the distance between figures may have been interpreted differently, depending on the individual. There is no way to verify which is higher in confidence between subject A’s 3 and subject B’s 5. In order to eliminate this problem, this researcher first considered converting the obtained scores so that all of them would fit a three-point measurement scale: 2 points for above-average scores (4 and 5), 1 point for the average score (3), and 0 points for below-average scores (2 and 1). This did not work because there were many subjects who used only two points to indicate their confidence level (2 and 3, as well as 4 and 5). In order to accommodate these two-point scale groups, scores of
each individual were first divided into three categories: the highest scores, the mid-scores, and the lowest scores for each individual. For interpretation purposes, only the highest scores (henceforth H-scores) and the lowest scores (henceforth L-scores) for each individual were used. With this binary classification, one can objectively identify items about which each subject felt less comfortable when choosing particles in the cloze test.

The first expectation was that the L-scores would be associated with particle categories that showed a higher error rate in the experiment. Namely, it was expected to have a result where GA rather than WA, as well as global cues rather than local cues, was associated with L-scores. In order to see this, L-scores for each of the 12 particle categories were counted and then classified by proficiency level. For instance, L-scores appeared five times with WA1 at the 2nd year level. The overall number of questions was 44 (n=11, and 4 questions under WA1) in this case. Thus, the number of the L-scores (5) was divided by 44 to obtain 0.1136, or 11.36%. This figure was interpreted to mean that the subjects felt less comfortable 11.36% of the time when
they selected a particle under WA1. The whole results are shown in Appendix H. Contrary to the expectation, the result did not demonstrate any clear association between items of the high error rate and L-scores except that GA6 (global GA) indicated a somewhat high rate of association when compared to the other groups. This is partly because only the lowest scores were counted for each individual. For this reason, the data for "uncomfortableness," if indicated by the next lowest figure, for instance, is missing from the above results.

Because it was not possible to obtain reliable data about learners' difficulties from the L-scores, the H-scores were also counted in a manner similar to the way the L-scores were counted but with the goal of finding a different ratio. This time focus of examination was on the ratio of the correct response to the number of H-scores that appeared under each of the 12 categories. The background assumption was this: if the particle selection is easy enough, then the subject will tend to indicate this with a higher confidence level. If a certain item is answered correctly as the high confidence level indicates, then this can be interpreted to
mean that the subject was aware of a specific cue in mind that led him to the right particle. On the other hand, if the subject indicated high confidence, while selecting the wrong particle, then this is an indication of insufficient understanding of the linguistic context. Namely, that particular linguistic context requires the subject to make a more careful examination in order to reach the right answer. Thus, a low ratio of a correct response to the H-score was interpreted as an indication of the difficulty of that item.

Counted first were the number of correct responses that individual subjects gave to the 48 particle questions. Then the H-scores were summed up for each of the 12 categories and each sum was divided by the number of correct responses. For instance, H-scores appeared 18 times for WAI at the 2nd year level. Out of 18 times, the subjects gave correct responses eight times. Hence, the 2nd year level subjects correctly responded to WAI 44.4% (8 divided by 18) of the time. Likewise, the ratio was calculated for other categories. The results of WA and GA are provided separately in Figures 8 below and Figure 9 on page 254.
Figure 8. Difficulty of WA Categories Reflected in the Ratio of Correct Responses to the H-scores. The rate of correct responses is based on the ratio of the correct responses to the H-scores. H-scores were obtained by counting frequency of the highest confidence scores that subjects provided for each category.
What would the correct response rate be when a subject indicates the highest confidence level within his or her own scale? According to the results as shown in Figure 8, the higher the rate, the more accurate a subject's intuition toward WA and GA. The figure summarizes the answers to the above question, organized according to proficiency level.

With local WA (WA1-3), the two upper levels (4th year and 3rd year intensive) demonstrate a 100% correct response rate. This indicates that these subjects' intuition about local WA is very accurate compared to the other two proficiency levels. On the other hand, the rate of the 2nd year level for WA1 and WA2 are still less than 80% accurate, suggesting that these subjects are still in the process of learning the reliable cues for these WA categories. A little different situation is observed with global WA. It is noticeable here that the difference between proficiency levels somehow becomes blurred in the sense that the rate does not go far beyond 80% with any proficiency level except in the case of WA6. In other words, learners' intuitions

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12 The overall results for WA6 were also very high for some reason yet to be determined. This category is excluded from the current discussion. See the section on "Global WA and the error rate" for speculation on the high accuracy rate.
are not much different here. This rather unpredictable situation seems to suggest that systematic learning has yet to occur with these WA categories. Looking at this same fact with a focus on the linguistic category leads us to believe that the global group is difficult for learners.

The H-scores for GA, which are illustrated in Figure 9, are now examined. The figure is similar to that of WA in several points. The upper level proficiency groups demonstrate high accuracy rates of intuition with local GA (GA1-GA3), whereas their intuition does not seem to work in the same way with global GA (GA4-6). Further, the difference in scores among proficiency level almost disappears in the case of GA4. Yet subjects indicated a high degree of confidence in this area, leading to the conclusion that the subjects have yet to learn systematic procedures that will cumulatively increase their knowledge about WA and GA. If they had learned such a procedure over a period of time, the differences in ability most likely would have been reflected in the different proficiency groups. It is reasonable to suspect that global GA is more difficult for learners than local GA.
Figure 9. Difficulty of GA Categories Reflected in the Ratio of Correct Responses to the H-scores. The rate of correct responses is based on the ratio of the correct responses to the H-scores. H-scores were obtained by counting frequency of the highest confidence scores that subjects provided for each category.
This section examined the difficulties learners might experience by observing their confidence level. The confidence rate that was the lowest within each individual was first examined. The data did not indicate any interesting facts about the difficulties learners might experience. This is partly because the focus was of examination was on the confidence level that was the lowest within each individual. Psychologically speaking, it is quite possible that a subject would feel uncomfortable if the individual kept indicating the lowest rate wherever the individual came across trouble. Chances are, therefore, that this trace of trouble is indicated in the next lowest rate. In this sense, the problem is somewhat easy to trace, if learners perceive some difficulties. The real problem is when a learner has full confidence in selecting a particle, yet his choice is wrong. The data demonstrated that such cases indeed existed in the experiment. These situations are summarized below in answer to the third exploratory question.

(EQ3) How does the metalingual knowledge of learners manifest itself in the confidence level data? How does metalingual knowledge compare with the error rate?
As shown in the H-scores, the 3rd year intensive level and the 4th year level demonstrated higher accuracy of metalingual judgements, in general, than the other two lower proficiency levels, as was expected. The accuracy rates of the two upper levels were especially high under local environments. When global cues were involved, however, accuracy rates tended to decrease in all proficiency levels, and the differences in abilities between the two upper levels and two lower levels became blurred. This was interpreted to mean that learning the use of WA and GA under global environments is difficult and students' abilities in this area do not greatly improve over time as expected.

Follow-up Interview

This section focuses on the final group of the exploratory questions, which are repeated below.

(EQ4) Among the Japanese particles, which ones do learners find most difficult? What makes these particle so difficult to learn?

(EQ5) What kind of strategies do learners use to find out the appropriate use of each particle?
Follow-up interviews were arranged with 19 subjects. The arrangements were made right after the completion of the experimental test, and the researcher had little information about the language ability of individual subjects at this time. The only criterion for the selection of interviewees was, therefore, the availability of the subject and the researcher. The interviewed subjects consisted of several individuals from each proficiency level: there were four from the 2nd year level, five from the 3rd year regular level, six from the 3rd year intensive level, and four from the 4th year level.

Interview sessions were held mostly in English and were conducted in reference to the completed test sheets as well as to the language questionnaire. Each session lasted about 20 to 30 minutes. At the beginning of each interview, the researcher asked the interviewee to describe the following: (1) general opinions or impressions about the test, (2) the most difficult aspects of learning Japanese, and (3) the most difficult Japanese particles to learn.

13 The interview sessions with two 4th year advanced students were held entirely in Japanese.
After the interviewee answered these three questions, the session was generally divided into two parts. During the first half of the session, the researcher picked up specific question items from the test sheet and asked why the subject selected a certain particle. The purpose of this question was to find out strategies that might have been used by the subject, but that were unknown to the researcher. During the latter half of the interview, the researcher answered as many of the subject's questions as time allowed. The following will first describe a brief summary of the three questions. The discussion will then focus on more details.

During the first couple of minutes, subjects were asked to freely comment on any aspect of the text or the experiment. One subject from the 3rd year regular class said that the text, which was written mostly in hiragana (except for some English words), was not easy to read. She thought that kanji with furigana for some words would have been easier. 14 Other responses were directly related to the

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14 Hiragana is one of the phonetic alphabets in Japanese. Most content words are written in kanji, or Chinese characters. Bound morphemes such as particles and conjugation are written in hiragana. Hiragana used as a guide in reading kanji, are called furigana. For native
particles and will be presented below. The second initial question focused on difficulties students find in learning Japanese. The researcher asked what topic students find most uncomfortable in learning Japanese. Responses varied. Subjects generally responded by referring to broad areas such as grammar, composition, or listening comprehension. Comments related to grammar were often more specific. Subjects overwhelmingly mentioned particles, followed by honorific expressions, as an especially difficult area. In fact, as expected, all 19 subjects indicated particles as an area that gives them difficulty. The third question asked which particles are most difficult to learn. The responses overwhelmingly were WA and GA, followed by NI and DE.\textsuperscript{15} The following are all responses to the question of what speakers, as well as perhaps for advanced learners of Japanese, a text with a mixture of kanji and hiragana is a lot easier to read than one with hiragana alone, partly because kanji helps the reader find word boundaries within the text, which normally does not contain any spaces between each word.

\textsuperscript{15} As a locational particle, in general, DE indicates the location of action, whereas NI indicates the location of static objects. Because English does not contain such a linguistic distinction, teachers of Japanese often find it difficult for American students to grasp the difference between NI and DE.
particles subjects rank as the most difficult. Subjects are identified as numbers 1-19. 16

...WA and GA. I'm never sure which is the correct form, that's, um,, 'cause I think that they have similar meanings ... [1]

I'd say WA and GA, I get confused quite a bit because they seem a lot alike. It seems like when to use each one depends on the situation. The problem is figuring out which situation calls for WA and which calls for GA. [4] 17

... differentiating between WA and GA, often that's where I have the most trouble. [5]

Yes, particles, GA and WA. I guess it all depends upon the situation you're contrasting and comparing. So I kind of have problems with GA and WA... [12]

I've always had problems with the difference between GA and WA... [14]

16 The utterances of subjects often included hesitation noises such as "ah" and "um." In instances the subject did not complete a sentence, the incompletion is indicated by three commas (,,,). On the other hand, three dots (...) indicate the omission of a portion that the researcher thought irrelevant to the on-going discussion.

17 The original statement appeared as follows, but edited in the main text above for clarity. "I'd say WA and GA. I get confused quite a bit because they seem a lot alike and how to use,,, but it seems like,,, it depends on the situation, on which one,,, on whether I use which one... the problem is to figure out which situation that is."
difficult. Yeah, because to me it's such a grey area, sometimes here and sometimes there. It is difficult, WA and GA. [19]

With such as the case, it is not surprising to see that some learners were not confident about the results of the experimental test. The subject below answered 40 questions correct out of 48 correctly, receiving one of the highest scores. Still, he was not very confident about his score.

I am surprised that I was able to get the score that you said I got because I didn't feel so confident all the time writing my answers down. [13]

In rating his confidence level, he used all of the five points, but most of the time he indicated his confidence level as either four or three. This rating matches the above statement, suggesting that the above statement is trustworthy. There was also a reverse case where a subject expected a better result than she actually obtained. Out of 48 questions, this subject answered 33 (68.8%) correctly.

I thought it [the test] was more difficult than I expected. I didn't think I would do as badly as I did... Particles are that difficult...[usually]...not as difficult as they were today. [9]
The above statements suggest that subjects have little criterion that they can rely on when selecting WA and GA. It was wondered whether or not they had sufficiently studied these particles and studied the questionnaires. After examining the subjects' questionnaires, it turned out, however, that there was little problem with the subjects' motivation for studying Japanese. Out of 19 interviewees, 11 indicated their academic major. Nine of these 11 were Japanese majors. It can be assumed that these subjects had higher than average motivation in learning Japanese. In fact, all were aware of their problems and seemed to be trying to solve them, but found it difficult to do so for various reasons. For instance, subjects found it rather hard to get help in or out of class.

...even when I ask Japanese friends of mine, they say, usage is probably split [between WA and GA], and then they just give up explaining. "We just know how to use it. There is no explanation for it." Of course, the instructor explains it, in a way, and [the instructor] just has us practice more of it to get used to the differences. [3]

The following also indicates that because there are possibly so many other topics to be covered in class, not as much time
as an instructor would desire can be devoted to teaching these particles.

'...I don't know, I don't think it was stressed a lot in the beginning 101, 102, and 103 the first year. I don't really think the particles were stressed that much, I think it was more on the vocabulary. So, I've always had a really hard time..." [7]

The remarks below, by a subject whose mother is Japanese, reveal that it is difficult to receive input during conversations with native speakers.

... When I was younger I didn't grow up speaking Japanese, but I heard it a lot. In normal conversation, Japanese people tend to omit particles, so when we're in class I don't know what the right particle is because I'm not used to hearing it. I'm just used to hearing sentences with the omitted particle, so I really have a problem with that. [7] 18

The above statement suggests that the frequency of these particles in the oral texts of native speakers is not high. Thus, as the Competition Model predicts, a low frequency of

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18 The original statement appeared as follows. "...though when I was younger I didn't grow up speaking Japanese, but hearing it a lot, a lot of times particles are omitted a lot. You know, a lot, a lot, omitted and so, when we're in class, I don't know what those words are because I'm not used to hearing it. I'm just used to hearing the omitted particle, so I really have a problem with that."
linguistic items seems to affect the rate of acquisition. In summarizing the above discussion in response to exploratory question 4, WA and GA are the most difficult particles for students to learn and it is because (1) getting help either in or out of class is difficult, (2) a limited class schedule often cannot afford enough time to focus instruction on these particles, and (3) receiving input during conversations with native speakers is also hard because WA and GA are often omitted.

Now the discussion focusses on strategies that subjects usually use in selecting WA and GA. The researcher asked subjects why they picked WA (or GA) in the case of a correct answer, and what were their reasons for doing so. The general tendency shows that subjects rely on, in many cases, what they have heard before as illustrated below.

I don't know for sure, but that's what the sensee (the instructor) would have said. [1]

... that seems to be the particle most used in our practice drills. [2] 19

19 The original statement appeared as follows. '...that seems to be the most things to be used from the practice.'
It sounded right. [5]

I am going a lot off of what I’ve heard. It [=GA] just sounded completely wrong 'cause I’ve never heard of it. [7]

It just sounds right to set it off with WA. [10]

...it [=GA] just didn’t sound right. [14]

*Ga o ireru to nanka ga okashii desu ne.*
[Somehow it sounds awkward if you put GA there.] [16]

Specific reasons for selection were also reported. However, these techniques were often misleading because they were based on a local situation which cannot be generalized to broader situations. In other cases, subjects used strategies too vague to distinguish between linguistic environments for WA and GA. The following illustrates some examples. They all describe one aspect of WA and GA but are not concrete enough to help learners systematically choose one particle over the other.

I always use GA if it’s trying to focus on... if someone asks about something, and then you say this is this, or,,, I don’t know, I guess that’s the only time I really try using it. [2]
...if it's negative, I put WA down...Often use WA after watashi, 'I,' because you don't emphasize yourself often." [2]

If a question asks about a particular thing, then the particle will be GA... [if] the question is not about particular thing, I use WA. [3]

WA is [=means] 'at least,' and since they are talking about the specific object, it might be GA. [8]

...I know WA is often used as a contrast. [15]

Boku no kangae de wa GA no hoo ga 'specific' desu ne. [In my opinion, GA is more specific.] [16].

The above examples, together with data not listed here, indicate that WA is associated with contrastive and comparative connotation, negation, and particular lexical items such as watashi, 'I', and kedo, 'but,' as well as associated with the meaning "at least," whereas GA is associated with wh-words, specificity, and focus. All the associations characterize some aspect of each particle and are similar to what is proposed as cues in the present study, but each association in isolation will not help much because cues are often in competition, as illustrated already.
The final data is related to the speculation made earlier about the reason that subjects tend to respond correctly when WA is the answer than when GA is the answer. It was speculated that the strategy that learners would employ is, "If unsure, use WA for the first noun." Here are two subjects who reported similar strategies.

I think I use WA too much. I always use WA. It's sort of like it always fits, you know, when I translate it as kind of "at least" in my head, you know, this, "at least" I feel like it always works. [9]

There were some sentences where I would not have used a particle at all. Usually on those, I would put WA, so that I would use a particle, but usually in conversation, I wouldn't have used a particle at all. So some of those I thought,,, well, maybe I should just put the particle anyway although in regular conversation I wouldn't have. [11]

The above examples indicate subjects' preference toward WA when they are unsure. Whether or not this is the general tendency among learners must be examined in the future.

In this section it has been confirmed that WA and GA are the most difficult of all Japanese particles for students to learn because it is often hard to receive input on proper usage in both formal settings and in natural settings. It
was also revealed that in order to find out the right particles, subjects used several cues. The cues are similar to what was proposed in the present study, but are too vague or too simple to be useful in cases where cues are in competition, suggesting that future instruction as well as future research should focus on this area.
CHAPTER V

SUMMARY

Overview of the Study

This study investigated the effect of linguistic "cues" that were hypothesized to affect the selection of the Japanese particles WA and GA in a cloze test. The experimental test asked adult L2 Japanese learners to fill in the blanks with a particle. The results demonstrated the statistically significant effects of cue type (local cue vs. global cue) as well as particle type (WA vs. GA), but the level of proficiency was not significant.

The notion of "cue" originates in the Competition Model (Bates and MacWhinney, 1987). The Model defines language acquisition as a problem of mapping between form and function, which is guided by various types of linguistic cues. Kail (1989) conducted a study within this framework. Following Kail, the present study assumes two major types of
cues: local cues and global cues. 1 It is assumed that local cues require less amount of cross-referencing for interpretation to occur than global cues do. It has been hypothesized that the selection of WA or GA involving local cues will be processed more easily and thus acquired earlier than those involving global cues. This implies that advanced learners can interpret global cues better than learners at lower proficiency levels.

Based on this assumption of the differences between local and global processing, linguistic contexts in which WA and GA appear were classified under these two types of cues and presented in random order in the form of a cloze test. Local cues refer to one or more linguistic cues that signal either of the particles WA or GA, but not both. On the other hand, global cues refer to a linguistic context where conflicting cues exist, indicating opposing particles. This competition between the cues is assumed to complicate the process of particle selection. Thus, the major criterion that distinguishes local cues from global cues in this study

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1 The global cue is an equivalent to Kail's topological cue. For more details, see footnote 1 in Chapter 4.
is whether or not there is any competition between cues. If there is any, the situation represents a global cue, which requires a synthesis of available information (e.g., discourse context, communication motivation) in order to properly select WA or GA. Local cues are represented by a single cue (or more than one cue in coalition) that signals either WA or GA, but not both. This, then, is connected with the hypothesis of the present study that learners will have less difficulty with those particles in a local environment (i.e., local WA/GA) than those in a global environment (i.e., global WA/GA), and that this difference should be reflected in learners' responses in the experimental cloze test. Incorrect responses on the cloze test were used to measure the degree of difficulty learners experience. Namely, a higher error rate for a given item was interpreted to indicate more difficulty.

**Summary of Findings**

This study has demonstrated that learners' difficulties in learning WA and GA can be identified and explained as a
function of particle types and cue types. The analyzed data suggests that learners will master WA and GA under local environments before they learn these particles under global environments. This is because local processing is largely related to form-form mapping (Bates and MacWhinney, 1987), which is rather a simple matching of concrete lexical items (e.g., wh-subject and GA). On the other hand, global processing often requires an interpretation of the whole discourse in order to successfully reach a specific function of the particle. In this sense, global processing requires more cross-referencing of available information, and is more difficult.

The experimental subjects made less errors when the correct answer was WA than when it was GA. This result is not surprising. It coincides with the findings of previous L2 studies on WA and GA. When this result was examined by a function of particle type (WA vs. GA) and cue type (local vs. global), however, a new picture of the error rate emerged. Namely, the degree of difficulty differed within the same particle, depending on whether the particle was associated with local cues or global cues. The data indicated that
items under local environments were less difficult than those under global environments: local WA was easier than global WA, and local GA was easier than global GA. When these four categories were ranked in terms of difficulty, the order from easiest to most difficult turned out to be local WA, local GA, global WA, and global GA. This result supported the basic assumption that local processing is less difficult than the global processing (cf. Kail, 1989). Both WA and GA were further classified under six categories each, according to linguistic environments: local WA (WA1-WA3), global WA (WA4-6), local GA (GA1-3) and global GA (GA4-GA6). Among the same particle types, the error rate and thus the degree of difficulty, did not show a statistically significant difference when the particles in comparison are associated with the same cue type.² For instance, GA6 and GA4 are both associated with global cues. The error rate between the two did not show a significant difference. This result lends support to a two-way categorization of particles under local and global environments. Further, it suggests the order in

² One exception is when WA6 was involved. (cf. Table 10 and footnote 5 in Chapter 4).
which learners will acquire functions of these particles. Learners master WA or GA under local environments and then proceed to those under global environments.

It is not yet clear why learners show the tendency to provide more correct responses when the answer is WA than when it is GA. It was speculated that learners might use WA when they are not sure about the proper particle. There are several reasons to believe this. In discourse, old information is usually provided first and then new information is presented (Inoue, 1979). Old information is marked by WA in Japanese. This suggests the frequent occurrence of WA in the sentence-initial position. Learners might intuitively sense that WA appears more frequently than GA at this particular position, and thus they use WA for noun phrases in this position whenever they are not sure. In fact, such a strategy was reported by two subjects during their interviews. Similar strategies are reported both in L1 studies (Hakuta, 1982) and in other studies L2 (e.g., Ito et al., 1993). In any case, it has yet to be determined whether or not learners' knowledge of WA can be measured largely by the correct responses provided for noun phrases in the sentence-initial position.
Implications

This study has been motivated by the desire to mitigate difficulties learners might experience in learning WA and GA. For this purpose, identifying these difficulties was essential. It was assumed that there were two major linguistic contexts for these particles. One was a local environment where a single linguistic cue clearly indicates a single particle (e.g., wh-subjects indicates GA). The other was a global environment where multiple cues are competing against each other, indicating opposing particles. It was hypothesized that particle selection would be more difficult in this global environment than in the local environment. The present study demonstrated that this was indeed the case, suggesting a new direction for focused instruction. This study also suggests a new direction for research on WA and GA. Past L2 studies on WA and GA have employed conventional linguistic classification, in which linguistic environments for these particles are classified into two categories. A third category was rarely considered in past studies. The present study has demonstrated not only that many linguistic
environments exist that accommodate both WA and GA, but also such environments are the main source of difficulties for learners, clearly suggesting a new focus for future research.

**Limitations of the Study**

Several limitations of this study must be acknowledged. This study attempts to account for learners' difficulties according to different degrees of cognitive demand required by two types of processing: local processing and global processing. This notion was borrowed from Kail (1989), who posited this for listening comprehension of simple sentences. The present study applies this notion toward particle selection through reading comprehension. It is assumed that extra cross-referencing involved in global processing is equally applicable to both listening comprehension and reading comprehension. The result indicated that selection of the particles in global environments, or global processing was more demanding to subjects. However, the validity of the result is limited to conversations in a written form. A similar experiment under oral-aural communication conditions
should be conducted in order to identify exactly what cognitive processes the subject went through when they selected particles in written conversation that required reading.

Both L1 studies (e.g., Hakuta, 1982) and L2 studies (e.g., Yoshioka, 1991) have shown that word order is relevant to the selection of particles. These study indicate that learners acquire linguistic systems better under the canonical word order. In terms of typological universal of language, this is interpreted to mean that unmarked cases in the target language are acquired better than marked cases (e.g. non-canonical word order). The current study employs unmarked word order for the most part in the sense that the relevant particles are associated mostly with the first noun in the sentences. Marked word order was not incorporated in the research design in order to gain control over the experiment by limiting the number of variables. In order to further investigate learners intuition toward the use of WA and GA, it will be necessary to systematically examine their use of WA and GA in places other than the sentence-initial position, that is, cases of marked word order. Ideally, this
should take place with learners from various L1 backgrounds in order to accommodate a perspective of interlanguage transfer. It is no doubt that "no theory of L2 acquisition that ignores the learner's prior linguistic knowledge can be considered complete" (Ellis, 1994:300).

The research design of this study does not systematically select predicate types. For instance, copula is frequently associated with WA (e.g., X WA Y desu. 'X is Y'). Hence, the proper balance of copula and other predicates in the experimental text should be considered.

Finally, the study was conducted with a small sample size (N=35) and a replication with a larger sample size is necessary in order to further examine the generalizations of this study. The accumulation of data with the proper research design will make it possible to examine the utility of the Model that is employed in referent to other studies under a different SLA model.
Recommendations for Further Research

Past L2 studies on WA and GA typically have reported the error rate of these particles based on linguistic classification systems such as Kuno's (1973). It has been illustrated in this paper, however, that such widely prevalent linguistic classification systems are not always helpful in accounting for the distribution of WA and GA. A clear example using GA5 is repeated below.

A: Kyoo wa isogashikute kaigi ni ik-enai naa. 
   today TOP busy-GRN meeting to can’t-go INT
   'I’m afraid I’m too busy to go to the meeting today.'

B: Ja, watashi [GA] iki-mashoo ka. 
   Well then SU shall-go Q
   'Well, then, shall I go (for you) ?'

In B's utterance, watashi, 'I,' is marked by GA. Neither neutral description nor exhaustive listing seems to justify using GA here. The basic function of the type of GA in the above example was termed in this study as "identification of agent" (GA5). Namely, when an agent such as the source of
responsibility for some event or a candidate for volunteer, is to be identified, the grammatical subject tends to be marked by GA, instead of WA. It seems that this identification of agent provides a clearer motivation for GA in this sentence than the above linguistic labels do. Thus, the process of particle selection may require pragmatic knowledge or knowledge of how communication motivation is realized with WA and GA. The above discussion suggests that more research on WA and GA is needed in relation to pragmatics.

As has been mentioned a number of times throughout this paper, linguistic environments where cues are competing should be studied more extensively. There are many cases of competing cues, but systematic study in this area is virtually nonexistent. Such environments should be classified in order to examine the strengths of competing cues in a single environment. Both WA and GA have multiple functions. Learners need to know many functions of each particle and how the functions interact in global environments. What is important for learners to know is the procedure whereby they can purposefully select one particle
over the other when multiple cues are competing. For this reason, study of cue strengths in situations of cue competition is not only essential but also will be rewarding to L2 researchers of WA and GA.
REFERENCES


Kikuchi, Y. (1990). "X no Y ga Z" ni taiou suru "X wa Y ga Z" bun no seiritsu joken-- awasete, "kyoyoodo" no maikakuka. [Conditions on "X wa Y ga Z" that allow the corresponding sentences "X no Y ga Z"--- also clarification of "degree of persmissability". In Shigeru Tsuchida, Yoshimichi Ueno, and Susumu Yoshida (Eds.), *Bunpo to imi no aida* [Between syntax and semantics] (p. 105-132). Tokyo: Kuroshio Shuppan.


APPENDIX A

Language Questionnaire
Language Questionnaire

Name ____________________________

Sex: M/F (Circle One)

1. Language experience
   (a) What is your native language? __________________________
   (b) Do you speak any Asian language(s)?
       No/Yes. What language(s)? __________________________
   (c) What is your current Japanese class? ________________
   (d) Approximately how long have you studied Japanese?
       ________________________________ (e.g. 3 quarters, 1 and half year etc.)
   (e) Which aspect(s) of Japanese do you like studying most?
       (e.g. kanji, composition, conversation, grammar etc.)
   (f) Which aspect(s) of Japanese do you like studying least?
       (e.g. kanji, composition, conversation, grammar etc.)
   (g) Which aspect(s) of Japanese grammar do you find most
difficult?
       (e.g. honorific expressions, specific particles etc.)

2. Other questions
   (a) Have you ever stayed in Japan?
       No/Yes. How long? ________________
   (b) Do you have chances to speak Japanese with the natives outside of the class?
       No/Yes. With whom? ________ How often? ________

* Thank you very much for your cooperation!
APPENDIX B

Cloze Test by Cue Type
Local [WA-1]
(1) さとう：あのおおきいひと（ ）だれ？
　やまだ：スミスさんです。

(2) さとう：あのおおきいひと（ ）どこのがくせい？
　やまだ：OSUのがくせいです。

(3) さとう：あのひと（ ）だれ？
　やまだ：スミスさんです。

(4) さとう：あのひと（ ）どこのがくせい？
　やまだ：OSUのがくせいです。

Local [WA-2]
(5) さとう：よしさん（ ）おもしろいひとだね。
　やまだ：そうですね。

(6) さとう：これ（ ）おもしろいほんだね。
　やまだ：そうですね。

(7) さとう：スミスさん（ ）がくせいなの、それとも
　せんせい？
　やまだ：がくせいです。

(8) さとう：これ（ ）ほんなの、それともぎっし？
　やまだ：ほんですね。

Local [WA-3]
(9) さとう：あのひと、たなかせんせい？
　やまだ：いえ、あのひと（ ）たなかせんせいじゃありません。
(10) さとう：あたらしいうがっこう、あしたのかいきにいくの？
    やまだ：いえ、わたし（ ）いきません。

(11) さとう：このくろいカサ、あたらしいうがっこうの？
    やまだ：いえ、それ（ ）わたしのじゃありません。

(12) さとう：あした、きんようび？
    やまだ：いえ、あした（ ）きんようびじゃありません。

Global [WA-4]
(13) さとう：テニスしない？
    やまだ：テニス（ ）できないんです。

(14) さとう：フランスご、できる？
    やまだ：フランスご（ ）わかりません。

(15) さとう：すし、たべない？
    やまだ：すし（ ）すきじゃないんです。

(16) さとう：テレビでfootballよくみる？
    やまだ：いえ、football（ ）きらいなんです。

Global [WA-5]
(17) さとう：えいこのがっこう、どう？
    やまだ：せんせい（ ）おもしろいんですけど、homeworkがちょっとおおいんです。

(18) さとう：あたらしいかいしゃどう？
    やまだ：Owner（ ）いいんですけどManagerがちょっとうるさいんです。
(19) さとう：このsweaterは どう？
やりだ：いろ（ ）いいですけど、size が
ちょっとちいさいですね。

(20) さとう：いい computer かったねえ。
やりだ：ええ、まあ。design（ ）すきなんですけど、
speedがちょっとおそいんです。

Global [WA-6]
(21) さとう：きょうのかいぎには だれがいくの？
やりだ：さあ、よくわかりませんけど、わたし（ ）
ちょっといそがしいんですが…。

(22) さとう：あの すしレストランは なにがおいしい？
やりだ：さあ、よくわかりませんけど、まぐろ（ ）
おいしくないですね。

(23) さとう：きのうの party には だれがいったの？
やりだ：さあ、よくわかりませんけど、わたし（ ）
いきませんでした。

(24) さとう：こんどのかいぎは いつがいい？
やりだ：さあ、よくわかりませんけど、かようび（ ）
だめでしょうかねえ。みんな、いそがしいですからから。

***************************************************************************

Local [GA-1]
(25) さとう：だれ（ ）がくせいなの？
やりだ：スミスさんです。
(26) さとう：どのひと（ ）がくせいなの？
　やまだ：あかいsweaterのひとです。

(27) さとう：だれ（ ）いくの？
　やまだ：スミスさんです。

(28) さとう：どのひと（ ）いくの？
　やまだ：あかいsweaterのひとです。

Local [GA-2]
(29) さとう：Audition、どうだった？
　やまだ：あした けっか（ ）わかります。

(30) さとう：いちばんすきな たべものは なに？
　やまだ：pizza（ ）いちばんすきです。

(31) さとう：そのsoftware どう？
　やまだ：なかなか いいですよ。にほんごで
　E-mail（ ）できるんです。

(32) さとう：いちばんきらいな たべものは なに？
　やまだ：Carrots（ ）いちばん きらいです。

Local [GA-3]
(33) さとう：だれが 1ねんせい？
　やまだ：スミスさん（ ）1ねんせいです。
（34）さとう：どのひとが１ねんせい？
ヤまだ：あのあかいsweaterのひと（ ）
１ねんせいです。

（35）さとう：どれがスミスさんのくるま？
ヤまだ：あのあかいの（ ）スミスさんのです。

（36）さとう：どのくるまがスミスさんの？
ヤまだ：あの、あかいの（ ）スミスさんのです。

Global [GA-4]

（37）さとう：あのひと、たなかせんせい？
ヤまだ：いえ、そのとなりのひと（ ）たなかせんせいです。

（38）さとう：あのあかいsweaterのひと、スミスさん？
ヤまだ：いえ、そのままのひと（ ）スミスさんです。

（39）さとう：このくらいカサ、ヤまだくんの？
ヤまだ：いえ、そのあかいの（ ）わたしのです。

（40）さとう：あした、きょうようび？
ヤまだ：いえ、きょう（ ）きょうようびです。

Global [GA-5]

（41）さとう：きょうはいそがしくてかいぎに
いけないなぁ。
ヤまだ：じゃ、わたし（ ）いきましょうか。
(42) さとう：このケーキ、おいしいね。
　やまだ：おいしいですねね。これ、スミスさん ( ) つくったんです。

(43) さとう：あしたの partyで、すしたべたいねえ。
　やまだ：じゃ、わたし ( ) すしかってきましょう。

(44) さとう：やまだくん、よしさんでんわした？
　やまだ：ええ、よしさんにはスミスさん ( ) でんわしました。

Global [GA-6]
(45) さとう：きょう、partyにいかないの？
　やまだ：ええ、ともだち ( ) うちにあるんです。
　わたし、まだ19ですから。

(46) さとう：ビール、のまないの？
　やまだ：ええ、ちち ( ) うるさいんです。
　わたし、まだ19ですから。

(47) さとう：Paperかいてるの？
　やまだ：ええ、あした ( ) dueなんです。

(48) さとう：あれ、もうかえるの？
　やまだ：ええ、そとで taxi ( ) まってますから。
*Fill in the blanks so that each completed Japanese sentence will approximately correspond in meaning to the English sentence. You only need to translate the underlined part. 1

(49) There are many small colleges in Ohio.
(ちいさいだいがくがたくさんあります。

(50) Cars run on the right-hand side in America.
(= People drive on the right-hand side in America.)
(くるまは みぎがわをはしります。

(51) There are many high-rise buildings in New York.
(たかいビルがたくさんあります。

(52) Most people speak English in America.
(ほとんどのひとが えいごをはなします。

---

1 This portion (49-52) served as a preliminary experiment for a future study and is not studied in this paper.
APPENDIX C

Cloze Test by Cue Type

(English Translation)
Local [WA-1]

(1) Sato: Who is that tall person ?
   Yamada: (That's) Mr. Smith.

(2) Sato: Which school is that tall person from?
   Yamada: (That's) a student from OSU.

(3) Sato: Who is that person ?
   Yamada: (That's) Mr. Smith.

(4) Sato: Which school is that person from?
   Yamada: (That's) a student from OSU.

Local [WA-2]

(5) Sato: Mr. Yoshida is a funny man, isn't he ?
   Yamada: That's right, isn't it ?

(6) Sato: This is an interesting book, isn't it ?
   Yamada: That's right, isn't it ?

(7) Sato: Is Mr. Smith a student or a teacher ?
   Yamada: (He is a) student.

(8) Sato: Is this a book or magazine ?
   Yamada: (It is a) book.

Local [WA-3]

(9) Sato: Is that person Mr. Tanaka ?
   Yamada: No, he's not Mr. Tanaka.

(10) Sato: Mr. Yamada, are you going to the meeting tomorrow ?
   Yamada: No, I am not.

(11) Sato: Is this blank umbrella yours, Mr. Yamada ?
   Yamada: No, it's not mine.
(12) Sato: Is Mr. Smith a student or a teacher?
Yamada: (He is a) student.

Global [WA-4]

(13) Sato: Why don't we play tennis?
Yamada: I cannot play tennis.

(14) Sato: Do you understand French?
Yamada: No, I don't understand French.

(15) Sato: Won't you have sushi?
Yamada: (It's the case that) I don't like sushi.

(16) Sato: Do you often watch football on TV?
Yamada: No, (it's the case that) I don't like football.

Global [WA-5]

(17) Sato: How is it going with your English school?
Yamada: The teacher is interesting but the homework assignments are little too many.

(18) Sato: How is it going with your new company?
Yamada: The owner is good but the manager is a little picky.

(19) Sato: How do you think of this sweater?
Yamada: The color is good but the size is a little too small.

(20) Sato: You've got a nice computer, haven't you?
Yamada: Well, sort of. I like the design but it's a little slow.
Global [WA-6]

(21) Sato: Who is going to today's meeting?
    Yamada: Well, I am not sure but I am a little busy...

(22) Sato: What's good in that sushi restaurant?
    Yamada: Well, I am not sure, but tuna is at least not good.

(23) Sato: Who went to the party yesterday?
    Yamada: I am not sure, but at least I didn't go.

(24) Sato: What day would be the best for the next meeting?
    Yamada: I'm not sure, but Tuesday is probably bad because everybody seems busy on that day.

Local [GA-1]

(25) Sato: Who is a student?
    Yamada: Mr. Smith is.

(26) Sato: Which person is a student?
    Yamada: (It's) The one in a red sweater.

(27) Sato: Who's going?
    Yamada: Mr. Smith is.

(28) Sato: Which person is going?
    Yamada: The one in read sweater is.

Local [GA-2]

(29) Sato: How was the audition?
    Yamada: I'll know the result tomorrow.

(30) Sato: What is the food you like best?
    Yamada: I like pizza best.
(31) Sato: How do you like the software?
    Yamada: This is considerably good. You can send
e-mail in Japanese.

(32) Sato: What is the food that you hate most?
    Yamada: I hate carrots most.

Local [GA-3]

(33) Sato: Who are freshmen?
    Yamada: Mr. Smith is a freshman.

(34) Sato: Which person is a freshman?
    Yamada: That tall person in red sweater is a freshman.

(35) Sato: Which is Mr. Smith’s car?
    Yamada: That red one is Mr. Smith’s.

(36) Sato: Which car is Mr. Smith’s.
    Yamada: That red one is (Mr. Smith’s).

Global [GA-4]

(37) Sato: Is that person Mr. Tanaka?
    Yamada: No, the one next to him is Mr. Tanaka.

(38) Sato: Is that person in red sweater Mr. Smith?
    Yamada: No, the one in front of him is Mr. Smith.

(39) Sato: Is this black umbrella yours, Mr. Yamada?
    Yamada: No, the red one is mine.

(40) Sato: Is it Friday tomorrow?
    Yamada: No, today is Friday.
(41) Sato: I am afraid I am too busy to go to the meeting today.
    Yamada: Well, then, shall I go (for you) ?

(42) Sato: This cake tastes good, doesn't it ?
    Yamada: It really does, doesn't it. It's Mr. Smith that made this.

(43) Sato: We want to have some sushi at the party tomorrow, don't we?
    Yamada: Well, then I will get some.

(44) Sato: Mr. Yamada, did you call up Mr. Yoshida ?
    Yamada: No, I didn't, but as for Mr. Yoshida, Mr. Smith called him.

(45) Sato: Aren't you going to a party today ?
    Yamada: That's right. (It's the case that) a friend of mine will come visit me.

(46) Sato: Don't you have beer ?
    Yamada: Right. My father is rigid because I am still 19 years old.

(47) Sato: Are you writing a paper ?
    Yamada: Yes. The due is tomorrow.

(48) Sato: Oh, are you leaving already ?
    Yamada: Right, because a cab is waiting for me
APPENDIX D

Experimental Cloze Test
Survey on Japanese Particles

(Please Print Your Name)

* In this survey you will be asked to fill in the blanks with a particle that sounds most natural to you. Following is an example.

  e.g. さとう：これ、なに？
       やまだ：あ、それ（ ）ふろしきです。

* Each dialogue will be followed by a 5-point scale as illustrated below. After you've filled in each blank, please indicate your confidence level by circling 1 (LOW) - 5 (High).

  LOW 2 3 4 5

* There will be 48 blanks to be filled in with a particle, and four simple translation tasks on the last page. It will take about 15-20 minutes to complete the whole set.

* This survey observes the regulation stipulated by the Research Foundation at OSU in order to protect your privacy.

* This survey is intended to get information directly from learners in order to help them learn the usage of Japanese particles efficiently. In this sense, your input is crucial.

It will be greatly appreciated if you could review the result with the researcher within a couple of days through a verbal interview in English. The interview will take approximately 20 minutes. If you are willing to participate in the interview, please stop by and sign up the appointment sheet before you leave. I would like to have five learners from this group. Each participant will receive $5.00 for compensation.
Fill in the blanks below with a particle that you think sounds most natural. Please indicate your confidence level on a five point scale by circling the number 1 (Low) - 5 (High). Please work only forward and do not work backward after the second page.

(1) きとう：だれ( )がくせいなの？
やまだ：スミスさんです。

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(2) きとう：これ( )ほんなの、それともさっし？
やまだ：ほんです。

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(3) きとう：Audition、どうだった？
やまだ：あした けっか( )わかります。

*けっか = result

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(4) きとう：このくろいカサ、やまだくんの？
やまだ：いえ、それ( )わたしのじゃありません。

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(5) きとう：このケーキ、おいしいねぇ。
やまだ：おいしいですねえ。これ、スミスさん( )つくったんです。

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(6) きとう：あたらしい かいしゃ どう？
やまだ：Owner ( )いいんですけれど Managerがちょっとうるさいんです。

*かいしゃ = company
*うるさい = rigid
(7) さとう：きょうのかいぎには だれがいくの？
　やまだ：さあ、よくわかりませんけど、わたし（ ）ちょっといそがしいんですが…。

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(8) さとう：いちばんすきな たべものは なに？
　やまだ：Pizza（ ）いちばんすきです。

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(9) さとう：どのひとと（ ）がくせいなの？
　やまだ：あかいsweaterのひとです。

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<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(10) さとう：このくらいカサ、やまだくんの？
　やまだ：いえ、その あかいの（ ）わたしのです。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(11) さとう：きょう、partyにいかないの？
　やまだ：ええ、ともだち（ ）うちに
　くらんです。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(12) さとう：あのおおきいひと（ ）だれ？
　やまだ：スミスさんです。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
(13) さとう：よしたさん（ ）おもしろいひとだね。
     やまだ：そうですね。 LOW AVE HIGH
                  1  2  3  4  5

(14) さとう：だれ（ ）いくの？
     やまだ：スミスさんです。 LOW AVE HIGH
                  1  2  3  4  5

(15) さとう：あした、きんようび？
     やまだ：いえ、あした（ ）きんようびじゃないんです。
                  LOW AVE HIGH
                  1  2  3  4  5

(16) さとう：そのsoftware どう？
     やまだ：なかなか いいですよ。にほんごで
     E-mail（ ）できるんです。
                  LOW AVE HIGH
                  1  2  3  4  5

(17) さとう：この sweaterは、どう？
     やまだ：いえ（ ）いいですけど、sizeが
     ちょっとちいさいですね。
                  LOW AVE HIGH
                  1  2  3  4  5

(18) さとう：ビール、のまないの？
     やまだ：ええ、ちち（ ）うるさいんです。
     わたし、まだ19ですから。
                  LOW AVE HIGH
                  1  2  3  4  5

*ちち=my father
*うるさい=strict
*まだ=still
(19) さとう：あのにおいいひと（ ）どのがくせい？
やまだ：OSUのがくせいです。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(20) さとう：いい computer かったねえ。
やまだ：ええ、まあ。Design（ ）すきなんですけど、
speedがちょっと おそいんです。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3</td>
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<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(21) さとう：あのひと、たなかせんせい？
やまだ：いえ、あのひと（ ）たなかせんせいじゃありません。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
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</thead>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(22) さとう：いちばんきらいな たべものは なに？
やまだ：Carrots（ ）いちばん きらいです。

*いちばんきらいな

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
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<tr>
<td>4</td>
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<td></td>
</tr>
</tbody>
</table>

(23) さとう：どのひと（ ）いくの？
やまだ：あかいsweaterのひとです。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

(24) さとう：あの すしレストランは なにがおいしい？
やまだ：さあ、よくわかりませんけど、まぐろ（ ）*まぐろ=tuna
おいしくないですね。

<table>
<thead>
<tr>
<th>LOW</th>
<th>AVE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
(25) さとう：だれが1年生？
ヤまだ：スミスさん（ ）1年生です。

LOW AVE HIGH
1 2 3 4 5

(26) さとう：テニスしない？
ヤまだ：テニス（ ）できないんです。

LOW AVE HIGH
1 2 3 4 5

(27) さとう：あした、きょうゆび？
ヤまだ：いえ、きょう（ ）きょうゆびです。

LOW AVE HIGH
1 2 3 4 5

(28) さとう：これ（ ）おもしろいほんだね。
ヤまだ：そうですね。

LOW AVE HIGH
1 2 3 4 5

(29) さとう：ヤまだくん、よしそさんにでんわした？
ヤまだ：いえ、よしそさんにスミスさん（ ）
でんわしました。

LOW AVE HIGH
1 2 3 4 5

(30) さとう：きのうの partyにはだれがいったの？
ヤまだ：さあ、よくわかりませんけど、わたし（ ）
いきませんでした。

LOW AVE HIGH
1 2 3 4 5
(31) さとう：どのひとが1ねんせい？

*1ねんせい=freshman

やまだ：あのあかいsweaterのひと（）

1ねんせいです。

LOW AVE HIGH
1 2 3 4 5

(32) さとう：フランスご、できる？

やまだ：フランスご（）わかりません。

LOW AVE HIGH
1 2 3 4 5

(33) さとう：あのひと、たなかせんせい？

やまだ：いい、そのとなりのひと（）たなかせんせいです。

LOW AVE HIGH
1 2 3 4 5

(34) さとう：あしたのpartyで、すしたべたいねえ。

やまだ：じゃ、わたし（）すかってきましょう。

LOW AVE HIGH
1 2 3 4 5

(35) さとう：あのひと（）だれ？

やまだ：スミスさんです。

LOW AVE HIGH
1 2 3 4 5

(36) さとう：Paperかいてるの？

やまだ：ええ、あした（）dueなんですね。

LOW AVE HIGH
1 2 3 -4 5
(37) さとう：スミスさん( )がくせいないの、それとも *それとも = or せんせい？
やまだ：がくせいないです。

LOW  AVE  HIGH
1  2  3  4  5

(38) さとう：きょうはいそがしくて かいぎに *いけないなあ
いけないなあ。
やまだ：じゃ、わたし( ) いきましょうか。

LOW  AVE  HIGH
1  2  3  4  5

(39) さとう：やまだくん、あしたのかいぎに いくの？
やまだ：いいえ、わたし( ) いきません。

LOW  AVE  HIGH
1  2  3  4  5

(40) さとう：どれがスミスさんのくるま？
やまだ：あの あかいの( )スミスさんのです。

LOW  AVE  HIGH
1  2  3  4  5

(41) さとう：あれ、もうかえるの？
やまだ：ええ、そとで taxi ( ) *そこで =outside まってますから。

LOW  AVE  HIGH
1  2  3  4  5

(42) さとう：すし、たべない？
やまだ：すし( ) すきじゃないんです。

LOW  AVE  HIGH
1  2  3  4  5
(43) さとう：あのひと（ ）どのがくせい？
　やまだ：OSUのがくせいです。

LOW AVE HIGH
1 2 3 4 5

(44) さとう：テレビで football よくみる？
　やまだ：いえ、football（ ）きらいなんです。

LOW AVE HIGH
1 2 3 4 5

(45) さとう：どのくるまがスミスさんの？
　やまだ：あの、あかいの（ ）スミスさんのです。

LOW AVE HIGH
1 2 3 4 5

(46) さとう：えいこのがっこう、どう？
　やまだ：せんせい（ ）おもしろいんですけど、
　homeworkがちょっとおおいんです。
　*おおい
　= (too) much

LOW AVE HIGH
1 2 3 4 5

(47) さとう：こんどのかいぎはいつがいい？
　やまだ：さあ、よくわかりませんけど、かようび（ ）
　だめでしょうねえ。みんな、いそがしいですから。

LOW AVE HIGH
1 2 3 4 5

(48) さとう：あのあかいsweaterのひと、スミスさん？
　やまだ：いえ、そのままえのひと（ ）スミスさんです。

LOW AVE HIGH
1 2 3 4 5
*Fill in the blanks so that each completed Japanese sentence will approximately correspond in meaning to the English sentence. You only need to translate the underlined part.

(49) There are many small colleges in Ohio.
(ちいさいだいがくがたくさんあります。

(50) Cars run on the right-hand side in America.
(= People drive on the right-hand side in America.)
(くるまは みぎがわをはしります。

(51) There are many high-rise buildings in New York.
(たかいビルがたくさんあります。

(52) Most people speak English in America.
(ほとんどのひとがえいごをはなします。

Thank you very much for your cooperation!
APPENDIX E

Arrangement of the Test Items
Arrangement of the Test Items: Set (1)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
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<tbody>
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<td>25 (1)</td>
<td>29 (3)</td>
<td>33 (25)</td>
<td>39 (10)</td>
<td>42 (5)</td>
<td>45 (11)</td>
<td>49-52</td>
</tr>
<tr>
<td>26 (9)</td>
<td>30 (8)</td>
<td>34 (31)</td>
<td>40 (27)</td>
<td>44 (29)</td>
<td>46 (18)</td>
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</tr>
<tr>
<td>27 (14)</td>
<td>31 (16)</td>
<td>35 (40)</td>
<td>37 (33)</td>
<td>43 (34)</td>
<td>47 (36)</td>
<td></td>
</tr>
<tr>
<td>28 (23)</td>
<td>32 (22)</td>
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<td>38 (48)</td>
<td>41 (38)</td>
<td>48 (41)</td>
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</tr>
</tbody>
</table>

Notes:
1. GA1[25-28] must precede GA3 [33-36].
2. GA2[29-32] must precede WA4 [13-16].
3. Ni-wa/De-wa is translation that consists of four questions [49-52].
4. The numbers in parenthesis are serial numbers that will appear on the survey sheet. The last 4 numbers [49-52] do not change.
5. The number of GA/WA in each block is counter-blanced as follows:
   3WA/3GA->2WA/4GA->3WA/3GA->4WA/2GA->3WA/3GA->...
## Arrangement of the Test Items: Set (2)

<table>
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<tr>
<th></th>
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<td>32 (21)</td>
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<td>14 (32)</td>
<td>20 (10)</td>
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<td>30 (11)</td>
<td>31 (14)</td>
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<tr>
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<td></td>
<td>3 (25)</td>
<td>10 (26)</td>
<td>22 (18)</td>
<td>4 (29)</td>
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<td>31 (14)</td>
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<td>16 (47)</td>
<td>17 (34)</td>
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<td>33 (27)</td>
<td>34 (33)</td>
<td>35 (37)</td>
<td>36 (43)</td>
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</tbody>
</table>

### Notes:

1. GA1[25-28] must precede GA3 [33-36].
2. GA2[29-32], must precede WA4 [13-16].
3. Ni-wa/De-wa is translation that consists of four questions [49-52].
4. The numbers in parenthesis are serial numbers that will appear on the survey sheet. The last 4 numbers [49-52] do not change.
5. The number of GA/WA in each block is counter-balanced as follows.
   - 3WA/3GA→4WA/2GA→3WA/3GA→2WA/4GA→3WA/3GA→...
APPENDIX F

Set Corresponding Chart
### Set Corresponding Chart

**WA**

<table>
<thead>
<tr>
<th></th>
<th>1-1</th>
<th>1-2</th>
<th>1-3</th>
<th>1-4</th>
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<td>6</td>
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<td>30</td>
<td>47</td>
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<td>5</td>
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<td>12</td>
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### Set Corresponding Chart

**GA**

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# 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
APPENDIX G

Grading Sheet
<table>
<thead>
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<th>Class</th>
<th>Name</th>
<th>subj#</th>
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<table>
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<td>WA6</td>
<td>12</td>
<td>18 22 36</td>
</tr>
<tr>
<td>GA:</td>
<td>GA1</td>
<td>3</td>
<td>9 15 20</td>
</tr>
<tr>
<td></td>
<td>GA2</td>
<td>4</td>
<td>11 14 21</td>
</tr>
<tr>
<td></td>
<td>GA3</td>
<td>27</td>
<td>33 37 43</td>
</tr>
<tr>
<td></td>
<td>GA4</td>
<td>35</td>
<td>44 17 28</td>
</tr>
<tr>
<td></td>
<td>GA5</td>
<td>39</td>
<td>6 19 46</td>
</tr>
<tr>
<td></td>
<td>GA6</td>
<td>24</td>
<td>30 41 48</td>
</tr>
</tbody>
</table>
APPENDIX H

Index of Less Comfortable Items
Appendix H: Table 1.

**Index of Less Comfortable Items**

<table>
<thead>
<tr>
<th>Level</th>
<th>2nd</th>
<th>3rdReg</th>
<th>3rdInt</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>(44)</td>
<td>(52)</td>
<td>(28)</td>
<td>(16)</td>
</tr>
</tbody>
</table>

- **Local Group (%)**
  - WA1: 11.36, 9.61, 0.00, 6.25
  - WA2: 15.90, 21.15, 7.14, 6.25
  - WA3: 15.90, 15.38, 10.71, 6.25

- **Global Group (%)**
  - WA4: 15.91, 21.15, 17.86, 25.00
  - WA5: 11.36, 11.54, 21.43, 18.75
  - WA6: 6.82, 21.15, 3.57, 6.25

*Note.* L-scores (= the lowest score within a single individual) for each of the 12 particle categories were counted and then classified by proficiency level. Then the number of the L-scores was divided by the overall number of questions. For instance, L-scores appeared 5 times with WA1.
at the 2nd year level. The overall number of questions was 44 (n=11, and 4 questions under WA1) in this case. Thus, the number of the L-scores (5) was divided by 44 to obtain 0.1136, or 11.36%. This figure was interpreted to mean that the subject felt less comfortable 11.36% of the time when they selected a particle under WA1. The table indicates that students felt less comfortable with the global group than with the local group.