A Report on the Development<br>of the Grammatical Morphemes in a Japanese Girl<br>Learning English as a Second Language

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## INTRODUCTION

The following study of the Japancse child Uguisu (Nightingale) was presented at the TESOL conference in Denver, 1974. While Hakuta cautions that this report is based on a preliminary analysis of the data (for a full report, see Hakuta, 1975), the preliminary data presented allows us to make some interesting comparisons between Itoh's younger subject, Takahiro, and Uguisu. The difference in age between Takahiro and the little Nightingale makes for a very different profile of language development. Differences in maturation, adjustment to the school situation, and openness to the new language are quite different. Uguisu's language development is much more similar to that of older chiddren, particularly Paul, the Taiwanese child, reported on in this volume.

The study shows that Brown's first language methodology can yield interesting results when used to analyze second language acquisition data. Brown and his students have used the mean length of utterance (MLU) as a way of dividing first language acquisition data into a number of stages. The acquisition of language within each of these stages has certain characteristics which appear to be fairly consistent from child to child. Stage $I$ is largely limited to production of a number of nouns and verbs. In the second stage,
a set of little words and inflections begins to appear: a few prepositions, especially in and on, an occasional copular am, is or ore, the plural and possessive inflections on the noun, the progressive, past, and the third person indicative inflections on the
verb. All these, like an intricate sort of ivy, begin to grow up between and upon the major construction blocks, the nouns and verbs, to ${ }^{\circ}$ which Stage 1 is largely limited. However, in the course of Stage II we have only the first sprouting of the grammatical morphemes. Their development is not completed within the stage but extends, for lengths of time varying with the morpheme, beyond II and in some cases even beyond Stage V. (Brown, 1973 p. 249)
Brown has been particularly concerned with the acquisition of the linguistic form and semantics of a set of 14 grammatical morphemes which are described in this paper. The Harvard researchers traced the acquisition order for the 14 morphemes for the now-famous Adam, Eve, and Sara. Jill and Peter de Villiers replicated the acquisition order study with 21 clildren. These studies have given us information on the order of acquisition of the 14 morphemes for first language acquisition. Hakuta's study is the first attempt to use this methodology with a second-language learner. The result is a comparison of the order of acquisition for first and second language learners. However, the methodology is not an end in itself for this study. Rather, it leads Hakuta to discuss differences between first and second language acquisition and to present the notion of a simplicity principle as one way of accounting for the data produced by a Japanese child learning a second language.

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A five-year-old girl is extracted from her native environment in Japan and is set to re-root in the neighborhoods of Cambridge, Massachusetts. To look at what systems of roots were left in the soils of Japan would be an interesting topic of study. But even more interesting, and perhaps more relevant, is the emergence and growth of new roots in the new environment. To what extent are the strong roots which survived the cultural transplant going to influence the development of the new roots? Among these new roots, we find the interestingly intricate growth of the language of the new environment-a second language. To focus even further, in this paper, we shall look at the acquisition of grammatical morphemes. There are three principal reasons why this particular aspect of language was chosen for study. (1) A methodology for scoring them in terms of percentage supplied in obligatory context as well as a strict definition of full morpheme control has already been established by Brown (197.3) and his associates; (2) longitudinal (Brown, 197.3) as well as crosssectional (deVilliers and deVilliers, 1973) data have shown a rather remarkable stability in the order of acquisition of thase morpehmes in first language children, and this might provide a level of comparison between first language (LI) and second language (L2) learning which MLU (mean length of utterance) does not; and (3) the process is laborious but easily replicable by other researchers of second language acquisition.

There are, of course, countless other areas to be studied in the future, such as the development of the powerful tool of sentence cmbedding, and this is only a beginning.

## THE SUBJECT AND THE PROJECT

The subject studied here will be called Uguisu, "nightingale" in Japanese. She was 4: II when she came to the United States in October of 1972 with no previous exposure to English. Her parents come from a highly inteflectual background and are visiting. Harvard for two years. Uguisu enrolled in a public kindergarten in November of that year, and that was when her exposure to English began. From then until June of the following year, she spent two hours a day in kindergarten. She has many friends, mostly from working class families, and she actively plays with them in the afternoons as well as on weekends. At home, she speaks Japanese with her parents, although they have recently told me that as of late, her amount of English spoken at home has increased.

This project studying the development of her English began in February of 1973, but it yielded so little data as to be useless. Every week, I visited Uguisu's home in North Cambridge and recorded spontaneous specch of her playing with her friends for lengths varying from one to one and a half hours. The very first visit. Uguisu yielded some 11 utterances. The next week, she produced 3. There is definitely a problem in longitudinal studies of L2 acquisition in that the person interacting with the subject cannot be the mother. Whatever, the following week, pictures were used as stimuli and 27 utterances were extracted, literally speaking. From the end of March until the beginning of April, she was not observed. Then on April 12, her English blossomed. She made 114 multi-word utterances in the span of an hour.

According to her parents, Uguisu, while on a trip, was accompanied by an adult with whom she got along well. Very possibly, it was a matter of confidence rather than competence that she started talking.

From that wonderful spring day in April on, Uguisu indeed was a nightingale turned loose, much to my delight. Speech samples were taken quite randomly, although sticking strictly to the rule that at least two hours of speech be collected every two weeks (save a few exceptions), and from October 1973 on, the sampling was reduced to 2 hours every other sample, and $1-1 \frac{1}{2}$ hours in the rest. However, little damage has been done to sample size because her rate of output has increased.

Two important events have happened to Uguisu during the course of this project. First, summer vacation from kindergarten, and especially the "going-away-for-the-summer" syndrome of America, has reduced her amount of exposure to active speech with peers, especially between samples 10 and 11 . Second, she enrolled in the first grade of public school in North Cambridge, and whatever effects spelling and other forms of instruction may have had on her language is
yet to be determined. To give an example, a recent utterance of hers was "They belong together" referring to two different kinds of goldfish, and one can take a reasonable guess where she might have learnt that from.

A final point to make as far as sampling procedures go is that as of sample 7. the interacter was changed from her peer to adults (frequently myself). This was done because an adult who is conscious of the goals of this project tends nol to interrupt Uguisu in the middle of an utterance, which frequently occurred in the case of her peers, much to my irritation.

This section cannot be closed without a few anecdotes on Uguisu's metalinguistic awareness, which seems to be relatively strong, at least as far as asking for information goes:

Raggedy-Ann: Oh, can I stay for a little bit? I'll just watch. Please, please, please, Uguisu?
Uguisu: I think we can't. Uh, I think we (can).
RA: We can or can't?
U: Can't.
RA: Cant? Why not?
U: I mean, we can...
RA: Can I stay?
U: Yeah.
RA: Yeah?
U : If we can't.
RA: Huh?
U: How do you call "yes"?
RA: What?
U: "Yes we can"?
RA: Yea, "yes we can".
U: Yes we can, but . . you, you have to tell your mother.
On another occasion, she said apologetically to an interacter who was not completely familiar to her: "Well, I call it 'like that" because I don't know do you call this plant."

So such is the status of our little co-operative nightingale: let us now see what she has to say about grammatical morphemes.

METHOD

The morphemes investigated include those studied by Brown (1973) and his associates plus several others which proved frequent enough to yield continuous data. The y are summarized in Table 9.1 along with examples of how they could be used.

Thare are several deviances from Brown's (1973) study worth noting. First, in both the case of the copula and the auxiliary for the present progressive, Brown made a distinction between contractible and uncontractible be. However,

Table 9-1 Morphemes scored and examples of usage

| Morpheme | Forms | Examples |
| :--- | :--- | :--- |
| Present Progressive | -ing $\quad$ | My father is reading a books. |
| Copula | be, am, is, are | Kenji is bald. |
| Auxiliary (Prog.) | be, am, is, are | She's eating a money. |
| *Past Auxiliary | didn't, did | Margic didn't play; Did you?; I did. |
| Preposition in | in | Policeman is hiding in Kenji's shoes. |
| Preposition on | on | Don't sit on bed. |
| *Preposition to | to (directional) | He come back to school. |
| Possessive. | s | My father's teacher. |
| Plural | -s | My hands is dirty. |
| Articles | a, the | She's in a house.; Gimme the play- |
|  |  | dough. |
| Past Regular | -ed | The policeman disappeared. |
| Past Irregular | go-went; come-came | She came back. |
| 3rd Person Reg. | -s | This froggie wants more milk. |
| 3rd Person Irreg. | has, does | She has mother, right? |
| Gonna-aux | am, is, are | I'm gonna died today. |
|  |  |  |

*Morphemes not scored by Brown (1973).
in the case of Uguisu, she has supplied these morphemes to criterion ( $+90 \%$ ) from the earliest samples, and so in this study, that distinction would be pointless. A second deviance is that Brown did not distinguish between the auxiliary for the present progressive and the going to (or gonna) form used to express the future; I found this distinction necessary since goma did not appear in Uguisu's protocols until sample 4 , and she seemed to be using the two quite separately. And finally, Brown mentions that the past form of a verb is used also as a hypothetical, but that this form does not appear in the period which he investigated. Uguisu did use hypotheticals in the context of if... then statements, and this would mark an obligatory context for the past, but such instances were excluded from the count in order to maintain some degree of comparability between the studics.

The morphemes not investigated by Brown are asterisked in Table 9.1. They are: to used to express directionality (mostly with come and go), and the past auxiliary. The latter should not be confused with the past auxiliary for the progressive, as in "He was dying". Rather, it refers to didn't used in negation (I didn't do that) and did or didn't as it appears in questions (Did you steal mp dice?).

Scoring was done according to the rules set by Brown, Cazden and de Villiers. Morphemes were scored $P$ for present in obligatory context, $A$ for absent in obligatory context, $O G$ for overgeneralization (i.e. That's she's book for possessive), and $X$ for incorrectly supplied (These are m.' lefi hands).' If there were any doubts about whe ther the morpheme was obligatory or not, it was omilled from the count. Finally, percentage supplied wals calculated for those morphemes for which there were 5 or more obligatory contexts in a sample. Acquisition point is defined
as the first of three consecutive two-week samples in which the morpheme is supplied in over $90 \%$ of obligatory contexts.

## RESULTS AND DISCUSSION

The results of this partial scoring are listed in Table 9.2. But before going any further, one obvious but important point to notice is that, in Uguisu as well as in the L1 learners Adam, Eve and Sarah (Brown, 1973), the acquisition of these grammatical morphemes is not a sudden but a gradual one. Figure 9.1 charts out the development of some of the grammatical morphemes by Uguisu. It is quite stiking, say, to take the case of the possessive 's, to see that from sample 2 when the morpheme is being supplied $60 \%$ until sample 17 when it starts being reliably supplied ( $+90 \%$ ), it is a period of $7 / 2$ months. Furthermore, an obligatory morpheme is often supplied in one utterance, and in the next breath, the same utterance is repeated, but this time with that morpheme missing. Why such variability exists, even in an L 2 learner, remains to be answered, but the appealing explanation of "limited processing span" necessarily loses some wind, since Uguisu is of an older age than an LI learner.

Table 9-3 maps out the order of acquisition of these morphemes as defined by our criterion. This order is presented alongside those found by Brown (1973) and deVilliers and deVilliers' (1973) cross-sectional study. But before discussing individual morphemes, several general remarks about the rank ordering are in demand.

From sample 1 on, the -ing progressive, the copula and the auxiliary (be) to the progressive are abundantly present, although for none of these has the full percentages been calculated, and they were tied for first rank. From rank order 9 down (past irregular), the morphemes have not reached criterion as of the writing of this paper. Thus, to come up with an order, I took samples $10,12,15$ and 17 in which full scores for these morphemes were available and summed up the totals, thereby obtaining percentages for each morpheme. They were as follows:

| Past irregular | .72 | $109 / 155$ |
| :--- | :--- | :--- |
| Plural | .61 | $104 / 171$ |
| Arlicies | .54 | $.306 / 563$ |
| 3rd P Regular | .35 | $11 / 31$ |
| Past Regular | .26 | $10 / 39$ |
| Gomadaux | .15 | $19 / 127$ |

They were added to the rank order list in that order. And finally, the 3rd Person irregular occurred quite infrequently across the samples, and, consequently, the acquisition point is hard to determine. Thus. it was left out of the rank ordering. although the available data is discussed in the section on third person inflections.

Table 9.2 Results of scoring of grammatical morphemes

| MORPHEME |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| -ing | \% |  |  |  |  |  |  | 95 |  | 100 | 91 |  |  |  |  |  |  |  |  |  |  |
|  | $n$ |  |  |  |  |  |  | 19 |  | 16 | 23 |  |  |  | . |  |  |  |  |  |  |
| $\cos$ | \% |  |  | - |  |  |  | 91 |  | 95 | 95 |  |  |  |  |  |  |  |  |  |  |
|  | n |  |  |  |  |  |  | 78 |  | 125 | 132 |  |  |  |  |  |  |  |  |  |  |
| aux | \% |  |  |  |  |  |  | 93 |  | 92 | 95 |  |  |  |  |  |  |  |  |  |  |
|  | n |  |  |  |  |  |  | 14 |  | 13 | 22 |  |  |  |  |  |  |  |  |  |  |
| in | \% |  | (00) | (00) | - | 100 | (75) | 71 | 61 | 100 | 100 | 100 | 95 | 100 | 89 | 100 | 100 | 100 | 86 | 67 |  |
|  | n |  | 2 | 3 | - | 5 | 4 | 21 | 28 | 27 | 13 | 7 | 22 | 23 | 9 | 12 | 18 | 6 | 7 | 9 |  |
| to | \% |  |  |  | 45 | 73 | 50 | 82 | 75 | 100 | 100 | 100 | 100 | 95 | 100 | - | 85 | - | 100 | 71. |  |
|  | n |  |  |  | 11 | 26 | 14 | 22 | 12 | 29 | 20 | 6 | 23 | 19 | 5 | - | 20 | - | 6 | 7 |  |
| past$\operatorname{dux}$ | \% | - | - | - | - | - | - | 100 | 77 | 94 | 100 | 60 | 94 | 96 | 100 | - | 100 |  |  |  |  |
|  | n | - | - | - | - | - | - | 8 | 13 | 17 | 12 | 15 | 17 | 25 | 11 | - | 7 |  |  |  |  |
| on | \% |  | - | ( 00 ) | - | (50) | - | 100 | 80 | 57 | - | - | (67) | 100 | $\rightarrow$ | - | 100 | - | (100) | (67) |  |
|  | n |  | - | 3 | - | 4 | - | 7 | 5 | 7 | - | - | 3 | 6 | - | - | 5 | - | 3 | 3 |  |
| poss | \% | - | $60$ | 35 | (100) | 63 |  | 75 | - | 67 | - | - | 73 | 85 | 88 | - | 59 | 96 | - | 100 |  |
|  | n | - | $15$ | 20 | 4 | 24 |  | 16 | - | 9 | - | - | 15 | 33 | 8 | - | 56 | 27 | - | 6 |  |
| past <br> irr | \% |  |  |  |  | 43 |  | 72 |  |  | 67 |  | 63 |  |  | 94 |  | 75 |  |  |  |
|  | n |  |  |  |  | 28 |  | 57 |  |  | 88 |  | 30 |  |  | 17 |  | 20 |  |  |  |
| pl | \% |  |  |  |  | 20 |  | 52 |  |  | 57 |  | 64 |  |  | 62 |  | 58 |  | - |  |
|  | n |  |  |  |  | 36 |  | 33 |  |  | 44 |  | 74 |  |  | 29 |  | 24 |  |  |  |
| 2 tt | \% |  |  |  |  | 36 |  | 48 |  |  | 44 |  | 45 |  |  | 85 |  | 65 |  |  |  |
|  | n |  |  |  |  | 107 |  | 122 |  |  | 178 |  | 196 |  |  | 89 |  | 100 |  |  |  |
| $\begin{aligned} & \text { 3rd P } \\ & \text { Reg } \end{aligned}$ | \% |  |  | - | - | - | 33 | 20 | 8 | 9 | 25 | 00 | 17 | 57 | - | (100) | 55 | 50 | 45 | - |  |
|  | ก |  |  | - | - | - | 6 | 5 | 12 | 11 | 16 | 6 | 6 | 7 | - | 3 | 11 | 6 | 22 | - |  |
| $\begin{aligned} & \text { past } \\ & \text { reg } \end{aligned}$ | \% |  |  |  |  | - |  | 0 |  |  | 29 |  | 14 |  |  | 0 |  | 100* |  |  |  |
|  | n |  |  |  |  | - |  | 6 |  |  | 7 |  | 21 | . |  | 6 |  | 5 |  |  |  |
| gonna aux | \% | - | - | - | (67) | - | - | (100) | CO | 00 | 00 | 11 | 17 | 6 |  | 00 |  | 33 |  | 46 |  |
|  | $n$ | - | - | - | 3 | - | - | 3 | 8 | 15 | 12 | 9 | 52 | 63 |  | 33 |  | 30 |  | 28 |  |

( $n=$ number of obligatory concexts; blanks indicate samples not yet scored; - indicates 1 or 0 oblig. context.) ${ }^{*}$ all routines


FIGURE 9-1 Acquisition curves for some representative grammatical morphemes
Table 9.3 Order of acquisition found in the various studies of grammatical morphemes compared

| Brown's Longitudinal, $1973{ }^{1}$ |  | deVilliers and de Villiers' Cross-Sect., 1973 ${ }^{2}$ |  |  |  | Hakuta's Longitudinal |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Adam, Eve, Sarah |  | Method I |  | Method II |  | Uguisu |
| 1 | Pres. Prog. | 2 | Pres. Prog. | 1 | in | 2 | Pres. Prog. |
| 2.5 | on | 2 | Plural | 2 | on | 2 | Copula |
| 2.5 | in | 2 | on | 3 | Plural | 2 | Auxiliary |
| 4 | Plural | 4 | in | 4 | Pres. Prog. | 4.5 | in |
| 5 | Past Irr. | 5 | Past Irr. | 5 | Past Irr. | 4.5 | to |
| 6 | Possessive | 6 | Articles | 6 | 3rd P Irreg. | 6 | Aux Past (didn't) |
| 7 | Uncantr. Cop. | 7 | Possessive | 7 | Past Reg. | 7 | on |
| 8 | Articles | 8.5 | 3rd P Irreg. | 8 | Articles | 8 | Possessive |
| 9 | Past Reg. | 8.5 | Contr. Cop. | 9. | Contr. Cop. | 9 | Past Irr. |
| 10 | 3 rd P Reg. | 10.5 | Past Reg. | 10 | Uncontr. Cop. | 10 | Plural |
| 11 | 3 d P Plireg. | 10.5 | 3rd P. Reg. | 11 | Possessive | 11 | Articles |
| 12 | Uncontr. Aux. | 12 | Uncontr. Cop. | 12 | 3rd P Reg. | 12 | 3rd P Reg. |
| 13 | Contr. Cop. | 13 | Contr. Aux. | 13 | Contr. Aux. | 13 | Past Reg. |
| 14 | Contr. Aux. | 14 | Uncontr. Aux. | 14 | Uncontr. Aux. | 14 | Gonna-aux |

[^0]Now we are ready to review the nature and behavior of these individual morphemes.

## The copula and the auxiliary

When Uguisu says "All the policeman is ghost" or "My hands is sticky", she is lacking number agreement between the subject noun phrase and the be verb. I have looked at all utterances in the data which have plural noun phrase subjects with either the copula or the auxiliary, and only $.06(n=4 / 62)$ had the proper allomorph of be. This is in marked contrast to the copula and auxiliary with the plural demonstrative pronoun these, in which case $.97(n=50 / 52)$ of the verb be agrees with their plural subject. In fact, the two exceptions were the same utterance "What's these?", which means that are always followed these (when used as a pronoun). Furthermore, in 25 other instances, Uguisu has used these to indicate singular referents, but in all instances supplied are. The evidence becomes stronger when one looks at examples in which these was used as a demonstrative adjective:

| M3404 | These two girl is good girl. |
| :--- | :--- |
| M3409 | These girl is sisters. |
| R1103 | Why these are dirty? |
| R1104 | Why these floor is dirty? |
| S4508 | These card is the policeman. |

This suggests strongly that (1) these are is, if not a segmentation error since she does use these in isolation, two words which have a high probability of occurrences together; and (2) number agreement is practically non-existent ( $6 \%$ ) in all other cases. This result is rather surprising, since (1) Uguisu is supplying the copula and auxiliary up to criterion for acquisition (in scoring, cases where is was supplied when are was required were omitted from the count, since it is not exactly an error of "omitted in obligatory context"); and (2) one of the essential "ingredients" in Brown's (1973) description of the semantics of copulas and auxiliary was "number." It seems like our clever little five-year-old subject has found a way to use these two grammatical morphemes without incorporating the notion of number. With this evidence in mind, we camot say that she has "full control" of the copula and auxiliary, but we can say that she has "full control without number agreement."

## The past tense: regular, irregular and auxiliary

It is surprising to find the regular past towards the very bottom of the rank ordering list. The inregular past is not much further ahead. Then why is it the case that the past auxiliary has been supplied with signifieant frequency from the earliest samples? There are at least 3 possible explanations, not mutually exclusive: (1) most verbs used by Uguisu, and most children, are irregular, and by definition of the word are not rule-governed: (2) phonologically, the infrequent regular past forms end witl a stop, and Japanese does not have words ending with such; and
(3) the past auxiliary form is highly regular. In fact, the two dips in performance in samples 8 and 11 are entirely due to the following utterances:

| N3306 | Do you saw this rabbit run away? |
| :--- | :--- |
| N4302 | What do you do? |
| O2512 | Do you saw three feet? |
| S0113 | Do you bought this too? |
| S0114 | Do you bought this too? |
| S0204 | How do you put? |
| S0205 | Do you put it? |

They are all questions, and the other form (in which didn't is used for negation), looking at the infrequent occurrences in samples 4,5 and 6 , has always been supplied in obligatory contexts. This, I think, is an important piece of evidence for what we shall discuss later called the simplicity principle.

## The prepositions: in, on and to

For in and $t o$, the acquisition points are clear. For on, not so clear, perhaps because we have less data.

There is one crucial point to be made concerning obligatory and nonobligatory ins. In Englishi, location need not always be expressed by a grammatical morpheme. In these cases, we can say that prepositions are optional. That is, we can either say "The book is there" or "The book is in there" while pointing to a book in an open drawer. Uguisu has used in 78 times in these optional cases ( 1 have not yet tabulated non-occurrences of these optional cases), and in 43 cases, they were quite obviously not "contained" in any sense of the word, ie. wrong. ${ }^{2}$ In the remaining 35 instances, many were of a doubtful calegory where the context did not make things too clear.

It is tempting to argue a case for some form of semantic interference from Japanese. Japanese marks locatives by a postposed particle -ni, whe ther containment, support, or simple location is intended. Containment/support is distinguished by saying cup-inside-mi (in the cup) or table-top-ni (on the table), and we say point-here-ni (the point is here), marking it with-ni as well. This is decently strong evidence, it secms, for interference.

What of the cases in which prepositions were obligalory? It seems that whenever some preposition other than in or on was required, in substituted (at appears occasionally). In 12 instances, in invaded the rightfut obligatory context of on. The misuses of in are listed in Table 9.4. Other than on, in has taken the place of at, out, off and around. Could this be the result of interference? Perhaps, but also playing an important role might be the limited lexicon of a child wanting to express more than her linguistic capacities permit.

The possessive and the plural
Little can be said here simply because I have not yet in detail looked at the plural noun inflection, but of the data available, there is one thing to notice: that

Table 9-4 Misuses of the preposition in when other prepositions were obligatory

performance is poor on plurals despite the fact that plurals and possessives are homophonous. We cannot attribute any of our results to phonological difficulties, and furthermore, they are both noun inflections. In the English-speaking child (LI), the plural seems to appear before the possessive (Brown, 1973, deVilliers and deVilliers, 1973). Then why is this reversed in Uguisu? Pcrhaps because the notion of plurality (number) does not exist in the Japanese grammar, whereas possession is expressed by a postponed particle -no, and the word order is the same as in English.

Overgeneralization of the possessive 's to pronouns is quite frequent. Examples include you's. she's, he's, and that's. In Japanese, pronouns are inflected for possession, but English LI children also have overgeneralizations (ie. mines, hims; Brown, 1973, p. 326). This is an ambiguous case between overgeneralization and interference.

## Articles: $a$ and the

Articles express the semantic notions of definite/non-definite, and no such exist in Japanese. Obviously, when Japanese want to express definiteness we can resort to "this" or "that", but there is no device which consistently expresses the distinction for every noun. This may account for its low status in the acquisition order.

## The third person

Since these grammatical morphemes all occur with third person singular subjects, it is expected that number should once again come to play a role. Looking at the data for the third person irregular from sample 8 on, at which point it becomes rather frequent, out of the 47 instances in which has was supplied, $.81(n=38)$ had either the subject pronoun she or he. Then could it not be the case that she has and he has were both learnt as routines, or at least that this consistency has made it easier for Uguisu to acquire? After all, only one verb is concerned, as opposed to the regular form, which involves all other indicative verbs. The latter, as can be seen in Table 9.2 , is hovering at about $50 \%$. The crucial evidence may hinge on how long it takes Uguisu to attain criterion in the regular form, which seems to come relatively soon after the irregular form in LI.

## Some hypotheses about the determinants of the order of acquisition

We have taken a quick tour of the morphemes involved, and now, what can be said about the determinants behind this order of acquisition? We have several candidates, non-mutually exclusive. First is the presence/nonpresence of that semantic notion expressed in our morphemes in the Japanese grammar. We have seen that number and definite/nondefinite are not expressed in Japanese. Table 9.5 lists all the morphemes dealt with, along with the semantic notions described by Brown (1973, p. 369) plus one of my own (to: direction), and indications of whether that notion(s) is expressed in Japanese or not. As seen earlier, the copula and the auxiliary come without number agrecment, and therefore "number" has been deleted.

We can make predictions based on the assumption that a morpheme containing a new semantic notion (ie, number, definite/nondefinite) will be acquired later than a morpheme expressing an already-existent notion. Thus the predictions in Table 9-6, with indications of confirmed/disconfirmed. As it turns out, only 3 predictions are disconfirmed, yet this camot be the only explanation. ${ }^{3}$

Our second candidate for determinant is what Lee Williams (personal communication) has coined the simplicity principle. This is similar to one of Slobin's (1973) principles, "Avoid exceptions" and, in a more general sense, what I concluded as a principle "Use whatever you can, but try to make it orderly" in a detailed analysis of samples 1-3 (Hakuta, 1973). What evidence is there that

Table 9-5 Presence/Nonpresence of semantic notions expressed in the grammatical morphemes in Japanese

| MORPHEME | SEMANTIC NOTION | PRESENT/ ( + ) <br> NOT PRESENT (-) <br> IN /APANESE |
| :---: | :---: | :---: |
| -ing | temporary duration | + |
| copula (w/o number) | earlierness | + |
| auxiliary (w/o number) | temp. dur., earlierness | + + |
| in | containment (location) | + |
| on | support (location) | + |
| to | direction | + |
| aux past | earlierness | + |
| regular past | earlierness | + |
| irregular past | earlierness | + |
| possessive | possession | + |
| 3rd person regular | number, earlierness? | - + |
| plural | number | - |
| articles | definite/nondefinite | - |

(Based on Brown, 1973)

Table 9-6 Predictions for acquisition order based on semantic presense/non-presence in Japanese

| ing | $<$ | 3rdp reg | + | to | $<$ | 3rdp reg | + |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ing | $<$ | plural | + | to | $<$ | plural | + |
| ing | $<$ | articles | + | to | $<$ | articles | + |
| cop | $<$ | 3rdp reg | + | aux past | $<$ | 3rdp reg | + |
| cop | $<$ | plural | + | aux past | $<$ | plural | + |
| cop | $<$ | articles | + | aux past | $<$ | articles | + |
| aux | $<$ | 3rdp reg | + | reg past | $<$ | 3rdo reg | - |
| aux | $<$ | plural | + | reg past | $<$ | plural | - |
| aux | $<$ | articles | + | reg past | $<$ | articles | - |
| in | $<$ | 3rdp reg | + | irreg past | $<$ | 3rd p reg | + |
| in | $<$ | plural | + | irreg past | $<$ | plural | + |
| in | $<$ | articles | + | irreg past | $<$ | articles | + |
| on | $<$ | 3rdp reg | + | poss | $<$ | 3rdp reg | + |
| on | $<$ | plural | + | poss | $<$ | plura! | + |
| on | $<$ | articles | + | poss | $\leqslant$ | articles | + |
| $+=$ prediction confirmed <br> - = prediction disconfirmed |  |  |  | result: 27 confirmed |  |  |  |
|  |  |  |  |  |  | 3 disconfi | med |

NOTATION: $X<Y$ means that $X$ will be acquired before $Y$, the justification being that the scmantic notion expressed in morpheme $X$ is also expressed in lapanese, whereas the semantic notion expressed in morpheme $Y$ is not expressed in Japanese.
such a principle exists? As noted earlier in the section on the past tense, the highly regular form of the past auxiliary was acquired quite early, especially relative to the irregular form as well as the infrequent regular form. The simplicity principle can also account quite nicely for the carly "acquisition" of the copula and auxiliary, since if number agreement is left out, it works out to a simple system which can be described by the following context-sensitive rules:

$$
\begin{aligned}
& \text { be--am/I } \\
& \text { are/you, we, they, these } \\
& \text { is/he, she, it, this, that, NP }
\end{aligned}
$$

$\qquad$
or, more concisely, the strategy: IF IT'S NOT $I, Y O U$, WE, THEY, OR THESE, USE IS. Finally, this principle can also account for the relatively early emergence of the third person irregular. And outside of these grammatical morphemes, and this occurs in LI English as well, there is a strong tendency to pick up regular patterns and use them with a great deal of frequency (e.g. hafta).

The third candidate for determinants is phonological interference, and the one evidence to date (mostly due to my ignorance in phonology) is the past regular which, as mentioned earlier, would provide certain difficulties to a native Japanese speaker.

> CONCLUDING REMARKS

We have looked at the development of grammatical morphemes and tried to hypothesize some determinants of acquisition order. Three possibilities have been discussed: (1) semantic differences between $\mathrm{L} /$ and L 2 , (2) the simplicity principle, and (3) phonological differences.

In looking at the data, we must strongly bear in mind that not only are grammatical morphemes one of the many obscrvable aspects of language, it is only one child that has been observed. It would be frutful to see what the order is in other chitdren as well as adults learning a second language, particularly in those coming from native languages which contain the notions of number and definite/ nondefiniteness. More pointedly, is the acquisition order we have seen the result of simply an older child learning a language, or is it the result of the influences of the native language, or is it the result of the interaction of both? The answen would lie in looking at other children as well as the count less other aspects of Uguisu's golden words.

## Notes

1. This last category $X$ is important especially in second tanguage learning, I think, because we would expect more rote memorization as well as segmentation errors to oreur. Unfortunately, the figures in this category are not in at the time of this writime, but to give an illastration of what could occur, I have hooked at the plaralization of the demenstrative adjectives and pronouns this/that and thesc/those in all samples. $68 \%(n=153 / 226)$ were
correctly supplied in obligatory contex is across all samples, but among all instances or these/ those, only $75 \%$ ( $n=153 / 202$ ) were correctly used in a plural context. In other words, these/ hose was used with singular referents in 49 instances. This method will be reported in detail in a for thcoming paper
2. Example: "He was in outside."
3. Merrill Swain has rightully pointed out to me at the conference that one could very well argue the reverse; that is, the child will pay more attention to those morphemes which express notions not present in his/her LI

[^0]:    ${ }^{1}$ This is an average rank order; the Spearman rank order coefficients between Adam and Sarah was +0.88 , Adam
    and Eve +0.86 , Sarah and Eve +0.87 .
    ${ }^{2}$ In Method 1 , the morphemes were rank ordered by the lowest MLU at which the individual morpheme was
    supplied to criterion ( $n=5,+90 \%$; in Method II, the percentages for each morpheme across all children were supplied to criterion ( $\mathrm{n}=5,+90 \%$ ); in Method II, the percentages for each morpheme across all children were +0.84 , Brown's study and Method $\mathrm{II}+0.78$, and Method 1 and Method $11+0.87$.

