The Acquisition of Grammatical Morphemes in (L2) Language Learning : More Than One 'Natural Order' ?

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第二言語の形態素の習得

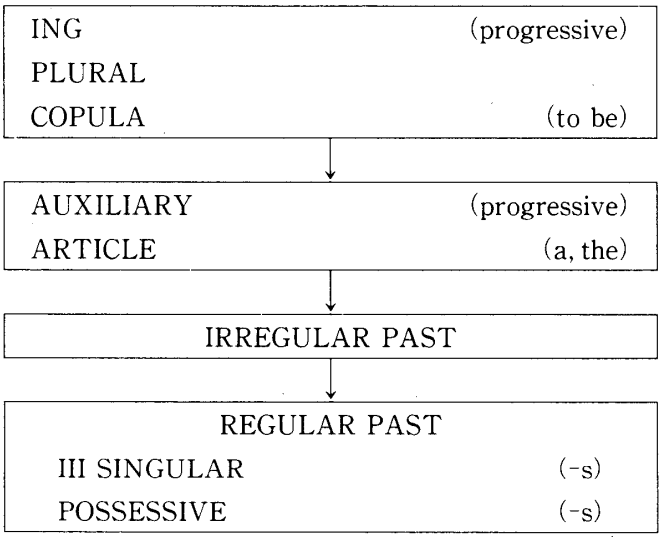
―― 自然な習得順序は一通りではないのか ――

ベイカー・リチャード

Introduction

In earlier papers for this journal, two of the main findings of the research for an M. A. dissertation (Baker, 1986) were presented (Baker, 1987 & 1988). This paper presents the results of a third subdivision of that research, concerning the use of English grammatical morphemes by Japanese and Korean students.

The spoken and written output of these students was analysed in the light of Krashen's 'Natural Order Hypothesis'. According to Krashen & Terrell (1983), "This hypothesis states that grammatical structures are acquired (not necessarily learned) in a predictable order" and, in particular, they give the following 'average order of acquisition of grammatical morphemes for English as a second language (children and adults)' :



However, as Littlewood (1984, pp37-39) points out, this order is not exactly the same as the average order for first language (L1) acquisition, a point explained by Dulay & Burt (1973) by "differences in cognitive maturity". Makino (1980, pp26-27), in considering the L1 studies of Brown (1973), de Villiers (1973) and Porter (1977), and the second language (L2) studies of Dulay & Burt (1974) and Hakuta (1974), comments: "We may well ask if these varied rank orders demonstrate great similarity or substantial differences".

Nevertheless, Bailey et al (1974, cited by Makino) "corroborated the adult acquisition order of grammatical morphemes found for children by Dulay & Burt (1974), and Krashen (1978) attempts to refute porter's (1977) claim of dissimilarity between L1 and L2 acquisition orders. When the morphemes are grouped as in the boxes given by Krashen & Terrell, there is a broad measure of agreement (not unanimity) between researchers as to the order of the groups, though not of individual morphemes within the groups when, according to Krashen (1977, cited by Makino, p38), "adult ESL performers produce English under 'monitor-free' conditions."

It may be expected, therefore, that both Japanese and Korean students would demonstrate this 'natural order', at least in speaking. We may also expect them to demonstrate it in writing, but since they should be able to make more use of the 'monitor' in writing (i. e., they should be able to make use of consciously-learned grammatical knowledge to edit and correct) this is less certain. Since the writing task was one in which their attention should have been focused on the delivery of a message rather than on grammatical form (as stated in the previous paper (Baker, 1988), they were asked to write their own account of 'someone who (has) influenced me'), however, observance of the natural order seems to be predicted by Krashen's theories and the findings of a number of researchers in the same field, including Houck et al (1978), who found that even 'corrected compositions' displayed this order. Makino (op cit) investigated the responses of Japanese adolescents on a written task not unlike the 'Bilingual Syntax Measure'used by Dulay & Burt to investigate spoken production, and found a rank order that correlated significantly with Dulay & Burt's (1974) findings. Makino states, however, that "surprisingly enough", he found articles to be ranked second or third out of nine — higher than the 'natural order' for either L2 or L1 acquisition! When we find items on his test such as his question 10, which provides an obligatory context for the definite article in 'the U. S. A.', and see "the U. S. A." printed on a map on the test paper, we may well consider that this extraordinarily high ranking for articles, from subjects having no articles in their mother tongue, is at least to some extent an artifact of his test.

Tasks, subjects and methods of analysis

The tasks performed by the subjects of the research reported here consisted of the writing task mentioned above ('someone who (has) influenced me') and approximately one minute's speech on a given simple topic, such as 'My family', 'My ambition', 'My hometown' and 'Why I am a university student'. The subjects were ten native speakers of English (three of whom wrote, and most of whom also spoke, on the topic 'someone who (has) influenced me'), eleven Korean students (a 10 % sample of 109 participating in the larger study) and thirteen Japanese students who had completed the writing task voluntarily, in addition to the speaking tasks performed at interview. The Korean students were in their first year at 'K' University, an élite private university in Seoul ; the Japanese students were in their third year at 'C' University, a 'middle-ranking' private university in Nagoya.

Two somewhat different methods of analysis were used for both spoken and written production. First, the production of the native speakers was analysed to determine the frequency of occurrence of the relevant morphemes in the tasks given. Larsen-Freeman (1976) has suggested that the natural order itself reflects the frequency with which such morphemes occur in the speech of native speakers, and it may therefore be anticipated that we would find a similar frequency order in learners' speech on similar tasks. In this study, however, a comparison was made between the frequency of occurrence of certain morphemes in the production of native speakers (speech and writing considered separately) and the frequency of the same morphemes in the production of Korean and Japanese students. To be more precise, a ratio of frequencies was obtained by dividing the number of x-morphemes per 100 words in student production by the number of x-morphemes per 100 words in native production. It was then possible to rank the morphemes according to such ratios, on the assumption that later-acquired morphemes would be used less frequently by the students than by native speakers on the same task, whatever the absolute frequency might be.

The second method of analysis followed the approach of many other researchers in this field, measuring the actual occurrence of morphemes in obligatory contexts. For example, noun phrases were examined in order to determine whether, in the given context, an indefinite or definite article was obligatory. The number of such contexts was counted, and a separate count of actual (and correct) occurrences of the articles was made. By comparing actual with obligatory use, an accuracy percentage (ignoring over-use) was obtained, and compared with percentages obtained for other morphemes.

Results

The one-minute speeches of the ten native speakers and the essays of the three volunteer writers (EVW, or 'English volunteer writers') were analysed to determine the total number of occurrences of each of the morphemes given in Krashen's diagram. For speech, morphemes were counted separately under the SWHIM ('Someone who (has) influenced me') topic and 'other' topics. Immediate repetitions (e. g., "We left — we left on Sunday") were not counted.

The number of occurrences of each morpheme per 100 words, or 'morpheme frequency', was calculated. It was found that the only morphemes occurring more than once per 100 words were the copula 'be' (COP), the regular plural (PLUR), the indefinite article (IND), the definite article (DEF), irregular past (PASTI) and regular past (PASTR). The articles were first considered separately but later combined as 'ART'. This was partly because this made it easier to compare the results with those of other researchers, but also because, while the frequency of IND and DEF considered separately was found to vary widely, the combined ART frequency was much more stable. Further analysis was therefore restricted to the five most frequent morphemes, COP, PLUR, ART, PASTI and PASTR. These include at least one morpheme from each of Krashen's 'boxes'.

PASTI presented some problems in definiton. 'Quasi-past' modals like 'could', 'would' and 'might' were excluded, as was 'had' in the formation of the past perfect, but 'locative' use of 'was' or 'were' (as in "I was in America") was included here (no 'locative' uses of 'be' are included under COP); the possessive 'had' and one or two cases of emphatic 'did' were included under PASTI.

As the native speakers (NS) were found to vary considerably in the use of some morphemes even on the same topic, and in order to avoid a bias in favour of the more fluent speakers, morpheme frequency was first determined for individuals, then the mean frequency was calculated. The mean frequencies for the speech and writing of all subjects is given in table 1. 'NS' includes the three 'EVW', but the scores of the latter are also given separately, for both speech and writing. For speech, separate freqencies are given for the two topic types, 'SWHIM' and 'Other', for both NS and EVW. (All writing was on the SWHIM topic, while almost all Korean and Japanese students (at 'K' and 'C' universities respectively) spoke on 'other' topics only).

Errors of commission were relatively infrequent for both 'K' and 'C' students — mainly such forms as 'teached', some erroneous plurals and IND for DEF or either for the zero article. These errors reflect not just over-use of one morpheme, but often also under-use of a corresponding morpheme, which is shown by low frequencies for the latter. In other words, they demonstrate imperfect control of the system as a whole, rather than individual morphemes. These errors, therefore, are not included in the table.

Table 1. Mean morpheme frequencies (per 100 words)

	COP	PLUR	ART	PASTI	PASTR
Speech:					
NS (SWHIM)	3.875	3.613	4.463	3.475	1.75
EVW (SWHIM)	4.767	3.8	4.2	3.067	3.067
NS (Other)	3.644	3.478	5.622	1.911	1.189
EVW (Other)	3.633	2.6	5.833	3.6	2.36
'K' students	4.25	2.25	2.16	0.93	0.57
'C' students	6.4	3.8	2.3	0.08	0.2
Writing:					
EVW	2.4	4.5	7.033	1.467	1.6
'K' students	4.59	3.25	4.75	2.30	2.74
'C' students	4.33	3.02	3.54	1.88	1.9

Table 2. 'Morpheme frequency ratios' (mfr) of 'K' & 'C' groups

	COP	PLUR	ART	PASTI	PASTR
Speech ('Other' only):					
K/NS	1.17	0.65	0.38	0.49	0.48
K/EVW	1.17	0.87	0.37	0.26	0.24
C/NS	1.76	1.09	0.41	0.04	0.17
C/EVW	1.76	1.46	0.39	0.02	0.08
Writing:					
K/EVW	1.91	0.72	0.68	1.57	1.71
C/EVW	1.80	0.67	0.50	1.28	1.19

As it seemed that different topics yielded different frequencies of certain morphemes, and no 'K' or 'C' students had spoken on 'SWHIM' as a separate topic, it was decided that 'morpheme frequency ratios' (mfr, table 2) should be based on 'other' topics only for speech. This was done twice, first using the frequencies of all nine native speakers whose speech on those topics could be transcribed, then using only the three 'EVW'.

In determining 'morpheme accuracy order' by comparing actual with obligatory use, individual sub-totals were dispensed with, in favour of group totals for 'K' and 'C' students. Use of 'a' for 'an' or vice versa was given half a point under 'actual use', and there were also a few cases judged to be 'half obligatory'. Errors of commission were ignored. Table 3 gives the obligatory, actual, and 'accuracy percentage' figures in all categories.

Table 3. Morpheme accuracy percentages

	COP	PLUR	ART	PASTI	PASTR
'K' Speech :					
Actual	25	14	15½	8	5
Obligatory	27	16½	19	8	5
% Accurate	92.6%	84.8%	81.6%	100%	100%
'K' Writing :					
Actual	77½	53	83½	32	41
Obligatory	81	56	98	33	46
% Accurate	95.7%	94.6%	85.2%	97.0%	89.1%
'C' Speech :					
Actual	29½	18½	10½	1	1
Obligatory	30	20½	22	2	3
% Accurate	98.3%	90.2%	47.7%	50.0%	33.3%
'C' Writing					
Actual	73	49½	65½	29½	25
Obligatory	78	54	84	37	33
% Accurate	93.6%	91.7%	78.0%	79.7%	75.8%

The morpheme rank orders obtained by both methods of analysis may be compared with those given by Krashen, ranking both COP and PLUR as 1.5 in his case, since they occupy the same box. This is shown in table 4, including a weighted mean for each subject group and mode of the present study, to give equal weight to 'mfr' and accuracy.

Table 4. Comparison of morpheme rank orders

	COP	PLUR	ART	PASTI	PASTR
Krashen	1.5	1.5	3	4	5
'K' Speech:					
mfr: K/NS	1	2	5	3	4
K/EVW	1	2	3	4	5
Accuracy	3	4	5	1.5	1.5
Weighted mean	2	3	4.5	2.5	3
'K' Writing:					
mfr: K/EVW	1	4	5	3	2
Accuracy	2	3	5	1	4
Mean=	1.5	3.5	5	2	3
'C' Speech:					
mfr: C/NS	1	2	3	5	4
C/EVW	1	2	3	5	4
Accuracy	1	2	4	3	5
Weighted Mean=	1	2	3.5	4	4.5
'C' Writing:					
mfr: C/EVW	1	4	5	2	3
Accuracy	1	2	4	3	5
Mean=	1	3	4.5	2.5	4

There is considerable variation in the orders found, but the following points can be made:

(1) The copula is ranked first in almost all cases, being used more by 'C' students in particular than by native speakers. This may be due in part to the frequent choice of 'My family' as a topic by these students, since the only native speaker choosing this topic also made copious use of the copula, though not much as 'C' students on the same topic. It is equally possible, however, that less fluent speakers chose this topic because it is easier to deal with using relatively simple linguistic forms.

One example from the 'C' students was: "- Eh - My family is - four members - father, mother, I and - sister, uh - We keeps two cats - um - un - the one is male - eh - another - ah - the other is female. Ah - eto [Japanese 'filler'] - eh - my father is - eto - fifty - um - fifty - two age - eh - fifty - two and my mother is - uh - forty - eight - and my sister is - fifteen - she's a high school student."

(2) In general, the 'natural order' is observed more in speech than in writing. As we saw in table 3, accuracy percentages were, in any case, generally higher in writing, which can be seen as a result of greater use of the 'monitor'. 'K' students demonstrate a remarkably high accuracy ranking for past morphemes, having made no errors of omission in speech. This is, however, based on a limited number of obligatory contexts.

(3) 'C' students appear to observe the 'natural order' more than 'K' students, except for the K/EVW mfr. Since the latter were younger, had probably had less contact with native speakers of English, but were probably more intelligent as a group, this may well be due to more 'K' recourse to 'borrowing' (Ellis, 1984) or, in Krashen's terms, 'L1 + monitor mode'. In other words, 'K' used more conscious knowledge of English grammar to express what they thought in Korean, rather than speaking spontaneously in English. The 'C' students, being volunteers in a third-year oral class (a relatively uncommon choice), may have been more disposed to benefit from naturalistic language acquisition than the 'K' students.

(4) The major variations from the 'natural order', especially in writing but also in the speech of 'K' students, are the less frequent and less accurate use of plurals and, especially, articles. This seems to reflect the general absence of plurals and complete absence of articles in both Korean and Japanese, and is similar to Hakuta's (1974) finding in his longitudinal study of a Japanese child acquiring English as a second language.

(5) While the irregular past is generally ranked before the regular past, the 'morpheme frequency ratios' show the reverse order in many cases. This is contrary to both the 'natural order' and Hakuta's (1974) finding, and may reflect the comparative simplicity of regular structures, which is probably more important in EFL classrooms. It is, however, based on infrequent use of both regular and irregular past in speech, and the difficulty of categorising certain irregular past forms may also have distorted the ratios.

Discussion

Oddly enough, the morpheme which follows the 'natural order' for L2 acquisition most closely, the copula, does not come especially early in L1 acquisition (see, e. g., Brown, 1973). One reason for its prominence in L2 acquisition may be that it is an extremely useful device for explaining new words and expressions to learners, so that they are exposed to it much more in the EFL classroom than elsewhere. At one time, a sentence commonly introduced in the first few lessons, 'This is a pen', was so strongly impressed upon Japanese students that many of them used it as a mock 'greeting' whenever they came across foreigners.

The ranking of the regular past morpheme ahead of the irregular past in some cases may also reflect the ease of presentation of regular structures in the EFL situation, as suggested in the previous section. There was however, considerable variation in the ranking of these structures between speakers, and the instability highlights a problem which is often overlooked : like the articles, both regular and irregular morphemes form part of a system, and

it is questionable whether they can logically be separated. The 'natural order', irregular before regular, takes no account of the 'backsliding' in the use of previously-acquired irregular morphemes (e. g. 'goed' instead of 'went') when the regular morpheme is first acquired. The earlier use of 'went' can be interpreted as a 'routine', like such questions as 'What's your name?' or 'How old are you?', "spoken by performers who have not acquired or learned the rules involved" (Krashen & Terrell, 1983, p42). It can be argued that such irregular morphemes are not genuinely 'acquired' until the whole system, including regular morphemes, has been established.

Closer observance of the 'natural order' in speech than in writing is not unexpected, in spite of Houck et al's (1978) report that this order is also found in 'corrected' compositions. It can be interpreted in terms of variation in the use of the 'monitor', but McLaughlin's (1978) model involving 'automatic' and 'controlled' processes may give a more helpful account (cf also Ellis's (1984) distinction between 'unplanned' and 'planned' discourse).

Closer observance of the 'natural order' by 'C' students may reflect greater reliance on 'acquisition' and less success in learning, as suggested in the previous section. This interpretation, however, is difficult to reconcile with the findings from the fluency study reported in a previous paper (Baker, 1988), hence the alternative explanation outlined there, in terms of Bialystok's more flexible (1978) model.

Our finding that the 'natural order' may be 'distorted' by contrasts between L1 and L2 appears to corroborate Hakuta's (1974) longitudinal speech study (which correlated significantly with Larsen-Freeman's (1975) speech data from Japanese subjects), rather than Makino's (1980) written test. Corder (1981, chapter 10), explaining how such L1 - L2 contrasts may increase "the magnitude of the learning task", suggests that "the nature of the L1 may make passage along the built-in syllabus faster when it bears similarity to L2, but simply has no effect when it is different", the learner being left to "his own unaided cognitive learning capacities".

Why, then, do we find a similarity between the speech data from Hakuta and the 'writing orders' (rather than the 'speaking orders') of the present study? This paradox may be resolved by reference to McLaughlin's (1978) account of the rôle of 'controlled processes' in learning: they "regulate the flow of information between short-term and long-term store" and therefore "underlie learning", but are not all "available to conscious perception". It may be, therefore, that 'controlled processes' are at work both in our writing tasks and in the initial acquisition of speech, in the selection and manipulation of Corder's (op cit) 'simplified codes'. 'Natural orders' found in cross-sectional speech studies (including this study), on the other hand, may be based more on 'automatic processes'; the order would in this case be influenced mainly by the frequency with which the morphemes are actually used and practised. This suggests that the true 'acquisition order' for Japanese and Korean learners is nearer to the 'distorted' order of Hakuta's study rather than the so-called 'natural order', and may account

for Rosansky's (1976) finding that "the actual acquisition order for one learner (studied over time)" did not correlate significantly "with the same learner's accuracy order at single points in time". (Quoted from Littlewwood, 1984).

It would seem, then, that we need to think in terms of at least two 'natural orders' for grammatical morphemes and other linguistic structures: Krashen's 'natural order' for the 'acquisition' of English grammatical morphemes being, in fact, not an acquisition order (at least if we are thinking of the acquisition of linguistic *competence*) for all learners, but a *performance* order, the natural acquisition order (competence acquisition order?) for many learners being strongly influenced by the contrasts between their mother tongue and the target language. Krashen's emphasis on the importance of the natural order (like Corder's 'built-in syllabus') is a valuable reminder of the independent rôle of the learner, but teachers may also have some effect on the performance order by the kind of practice they provide for in their classes.

If there is *no* effective practice, of course, we should not be surprised if we get no effective performance either. In the traditional grammar-translation approach, an absence of any real oral practice produced learners who were unable to speak more than a few words of the language, no matter how much grammar they had studied. Informal communicative approaches may also fail to provide students with really effective practice, however, if they do not pay sufficient attention to grammar. A more balanced approach, what Ellis (1982) calls a 'formal communicative approach', should, by providing students with the structural and other practice which they need, enable them to make the most of more communicative activities. These activities should make clear to the students the relevance of the formal practice, and by doing so maintain their motivation to practise more.

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Bibliography

Bailey, N., C. Madden & S. D. Krashen (1974). 'Is there a "natural sequence" in adult second language learning?' — *Language Learning*, 24, 2, pp 235-243.

Baker, R. J. (1986). 'Japanese and Korean EFL Performance: A Case for a 'Natural Approach'?' — dissertation for the degree of Master of Arts in the University of Kent at Canterbury.

Baker, R. J. (1987). 'Motivation and Personality Factors in Language Learning: Is the 'Affective Filter Hypothesis' a Satisfactory Explanation?' — *Bulletin of Miyazaki Women's Junior College*, Vol. 13, pp 101-108.

Baker, R. J. (1988). 'Differential Skill Development in Japanese EFL Performance: Underdevelopment of the Speaking Skill.' — *Bulletin of Miyazaki Women's Junior College*, Vol. 14, pp 63-75.

Bialystok, E. (1978). 'A Theoretical Model of Second Language Learning' — *Language Learning*, 28, 1, pp 69-83.

Brown, R. (1973). *A First Language: the early stages.* (Penguin — also Harvard University Press).

Corder, S. P. (1981). *Error Analysis and Interlanguage.* (Oxford U. P.)

de Villiers, J. G. & P. A. de Villiers (1973). 'A cross-sectional study of the acquisition of grammatical

morphemes in child speech' — *Journal of Psycholinguistic Research*, 2, 3, pp 267-278.

Dulay, H. C. & M. K. Burt (1973), 'Should we teach children syntax ?' — *Language Learning*, 23, 2, pp 245-258.

Dulay, H. C. & M. K. Burt (1974), 'Natural sequences in child second language acquisition' — *Language Learning*, 24, 1, pp 37-53.

Ellis, R. (1982). 'Informal and formal approaches to communicative language teaching' — *ELT Journal*, 36, 2, pp 73-81.

Ellis, R. (1984). *Classroom Second Language Development* (Pergamon)

Hakuta, K. (1974). 'A Report of the Development of the Grammatical Morphemes in a Japanese Girl Learning English as a Second Language', in Hatch, E. M. (ed) (1978), *Second Language Acquisition* (Newbury House)

Houck, N., J. Robertson & S. Krashen (1978). 'On the domain of the conscious grammar : Morpheme orders for corrected and uncorrected ESL student transcriptions' — (Unpublished manuscript — reference given by McLaughlin, 1978).

Krashen, S. D. (1977). 'Some issues relating to the Monitor Model', in Brown, H. D., C. A. Yorio & R. H. Crymes (eds), *TESOL '77 : Teaching and Learning English as a Second Language : Trends in research and practice*, pp 144-158. (TESOL Washington)

Krashen, S. D. (1978). 'Is the "Natural Order" an Artifact of the Bilingual Syntax Measure ?' (Comments on Porter, 1977) — *Language Learning*, 28, 1, pp 187-191.

Krashen, S. D. & T. D. Terrell (1983). *The Natural Approach : language acquisition in the classroom* (Pergamon/Alemany)

Larsen-Freeman, D. E. (1975). 'The acquisition of grammatical morphemes by adult ESL students' — *TESOL Quarterly*, 9, 4, pp 409-419.

Larsen-Freeman, D. E. (1976). 'An explanation for the morpheme acquisition order of second language learning' — *Language Learning*, 26, 1, pp 125-134.

Littlewood, W. (1984). *Foreign and Second Language Learning : Language acquisition research and its implications for the classroom* (Cambridge U. P.)

Makino, T. (1980). *Acquisition Order of English Morphemes by Japanese Adolescents* (Shinozaki Shorin Press, Tokyo. Japanese publication date is Shôwa 56 ; =1981).

McLaughlin, B. (1978). 'The Monitor Model : some methodological considerations' — *Language Learning*, 28, 2, pp 309-332.

Porter, J. H. (1977). 'A cross-sectional study of morpheme acquisition in first language learners' — *Language Learning*, 27, 1, pp 47-61.

Rosansky, E. (1976). 'Methods and morphemes in second language acquisition research' — *Language Learning*, 26, 2, pp 406-425.