Verb-noun ratio and acquisition style in Japanese children*1

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The claim, that the early vocabulary of very young children consists largely of nouns (Gentner 1982), has been confirmed in the case of children learning English (Goldfield / Reznick 1990, Bates &al 1994, Bates &al 1995), but remains equivocal for other languages like Mandarin (Tardif 1996, Tardif / Shatz / Naigles i. p.) and Korean (Choi / Gopnik 1995).

Reasons for this include the positional salience of verbs and the possibility of argument deletion, qualities which are shared by Japanese as well. Japanese may seem therefore to be a candidate for early verb preference, but our research suggests more complex individual approaches to acquiring Japanese at an early age.

In fact, the results reported for Mandarin and Korean contradict each other (for a short review of the literature see Miyata / Naka 1997; below MN). The contradiction may be caused by the sampling method (e. g. accumulative vs. one-point sampling), as well as by individual differences of the children examined.

A preliminary study of two English and two Japanese speaking children at age 1; 11 (Oshima-Takane / Naka / Miyata 1997) showed a noun / verb ratio of 0.73 for the English, and 0.92 resp. 0.70 for the two Japanese children. This means that individual differences or a acquisition styles may influence the noun or verb prevalence. Okubo (1981) coined the terms *doshigata* [verb type] and *meishigata* [noun type]) in her analysis of the vocabulary of two Japanese children at their second birthday.

To explore this point MN continued the analysis of the data of the same two Japanese boys, analysing the first 20, and the first 50 words (accumulative vocabulary). To obtain also comparable one-point sampling data, the vocabulary of two sessions was analysed. The first session was we choose was the session when the first 50 words had been acquired, the second session was a session 3 months later. In this way we tried to exclude developmental as well as sampling methodical influences.

The results showed a clear difference in terms of noun / verb ratio for AKI and RYO: both prefered nouns to verbs in the early vocabulary, but AKI did so more clearly. For the first 50 words we found a noun / verb ratio of 5.3 for AKI (2;00.05) and 2.9 for RYO (1;11.18). Also when using a one-point sampling method (the vocabulary of the session when the 50-word point was reached) we found a similarly high difference (AKI 5.0,

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RYO 1.8). Morever, this tendency was still visible in the session 3 months after the 50-word point (2.6 for AKI 2;03.04 and 1.4 for RYO 2;02.16).

Table 1 Number and percentage of nouns, verbs and noun / verb ratio for AKI and RYO (cited from Miyata / Naka 1997)

	nouns	verbs	ratio n / v
AKI			
accumulative sampling			
first 20 words	6 (30.00)	2 (10.00)	3.0
first 50 words	21 (42.00)	4 (8.00)	5.3
one-point sampling			
more than 10 words	7 (58.33)	0 (0.00)	7.0
50-word point	10 (37.04)	2 (7.41)	5.0
3 months after session	59 (35.12)	23 (13.69)	2.6

RYO	nouns	verbs	ratio n / v
accumulative sampling			
first 20 words	6 (30.00)	1 (5.00)	6.0
first 50 words	20 (40.00)	7 (14.00)	2.9
one-point sampling			
more than 10 words	3 (23.08)	1 (7.69)	3.0
50-word point	7 (36.84)	4 (21.05)	1.8
3 months after session	23 (34.33)	17 (25.37)	1.4

In the present study we continue the analysis by further widening the age span analyzed (1;6 - 3;0). Also this study now include two additional children besides AKI and RYO: TAI (Miyata in prep.) and TAR (Kokuritsu Kokugo Kenkyujo 1982a, b). Our purpose is to explore whether individual differences in the noun / verb ratio are a stable phenomenon, which can be observed throughout development. We will also try to distinguish further phenomena which might relate to a noun or verb preference in the early vocabulary acquisition.

Method

The basis for this study consisted of weekly longitudinal observational sessions (mother-child interactions) of 4 boys (AKI, RYO, TAI, TAR). AKI corpus (Miyata 1995) is available on CHILDES; RYO (Miyata 1993) is avaiable on JCHAT, while TAI is in preparation (Miyata in prep.). TAR (Kokuritsu Kokugo Kenkyujo 1982a, b) is published in handwritten form: the present study used the computerized JCHAT formatted version of Naka (in prep.).

Six sessions between 18 and 36 months (1;6, 1;9, 2;0, 2;3, 2;8, 3;0) were selected. The

third and fourth session of AKI and RYO are close (exactly two weeks earlier) to the "50-word point" session and the "three-months-later" session of the study mentioned above (MN).

All sessions are transcribed in JCHAT format following Wakachi98 (Miyata / Naka, in prep). The vocabulary analysis was performed with CLAN (MacWhinney 1995) on the base of the automatically morpheme analysis program for Japanese JMOR (Naka, in prep.).

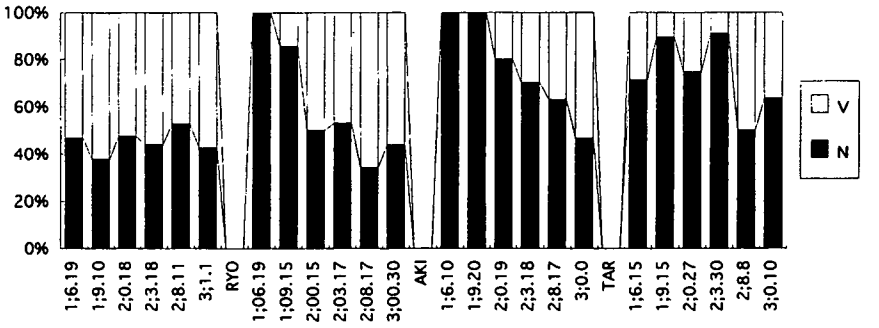
The word types were defined according to their stem, so that in the categories "verb" and "adjective" were only stems. For example "*kita*" and "*konai*" were counted as one type. The category "noun" did not include numerals, proper or demonstrative nouns. Below is a list of the categories used, including their contents and their abbreviations.

PropN	proper names, names of toys ("*Mikkii*"), kinship names for close persons ("*Okkasan*").
N	nouns, babytalk nouns ("*kukku*"), onomatopoetic nouns ("*wanwan*")
VN	verbal nouns ("*sooji*"), babytalk verbal nouns ("*dakko*"), onomatopoetic verbal nouns ("*poi suru*")
V	verbs, including adjectival derivations ("*nomitai*", "*ikanai*")
A (i)	adjectives (*keiyoshi*, "*nagai*")
A (na)	nominal adjectives (*keiyodoshi*, "*shizuka*")
co	interaction words ("*un*", "*hai*"), greetings ("*ittekimasu*")
Onoma	onomatopeia (if not used as VN or N)
Ptl	particles ("*yo*", "*ga*")
Others	adverbs ("*moo*"), conjunctions ("*kedo*") pronouns ("*jibun*"), numerals ("*hitotsu*"), letter names ("*tii*")

Results & Discussion

—— Noun / verb ratio

RYO and AKI both start out without any nouns, while TAR and TAI use also verbs already in the first session at 1;6. TAR has a noun-verb ratio of 2.50, TAI uses even more verbs than nouns (0.88). At 3;0 three children reach similar values around 0.80 (TAI, RYO, AKI), while TAR has a rather high value of 1.75 (table 2, graph 1).

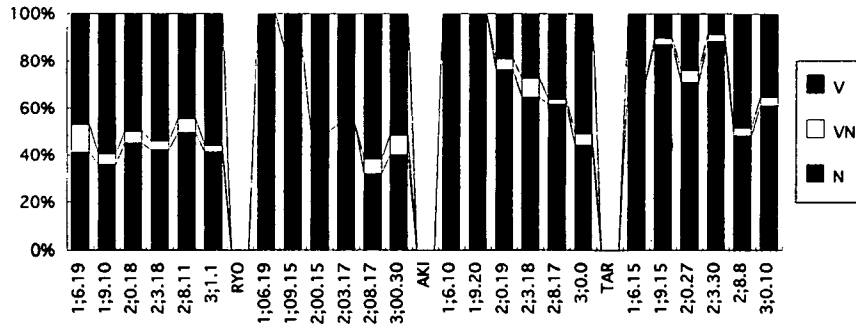


Graph 1 Proportion of V and N for TAI, RYO, AKI, TAR

Table 2 Noun / verb ratio for TAI, RYO, AKI, and TAR at 6 sessions

age	TAI	RYO	AKI	TAR
1;6	0.88	nouns only	nouns only	2.50
1;9	0.61	6.00	nouns only	8.50
2;0	0.90	1.00	4.00	2.95
2;3	0.78	1.13	2.36	10.22
2;8	1.11	0.52	1.71	1.00
3;0	0.74	0.78	0.87	1.75

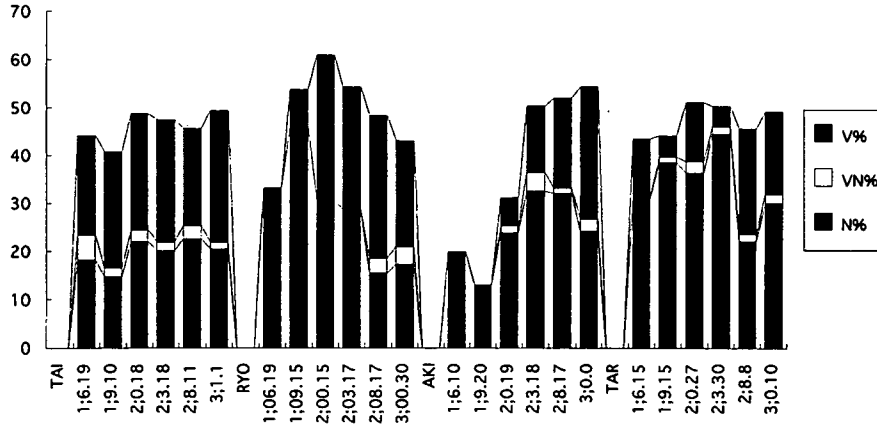
The picture basically does not change when verbal nouns are added, although TAI shows a rather high percentage of verbal nouns throughout all 6 sessions (graph 2).



Graph 2 Proportion of V, VN, and N ratio for TAI, RYO, AKI, TAR

—— Overall Percentage

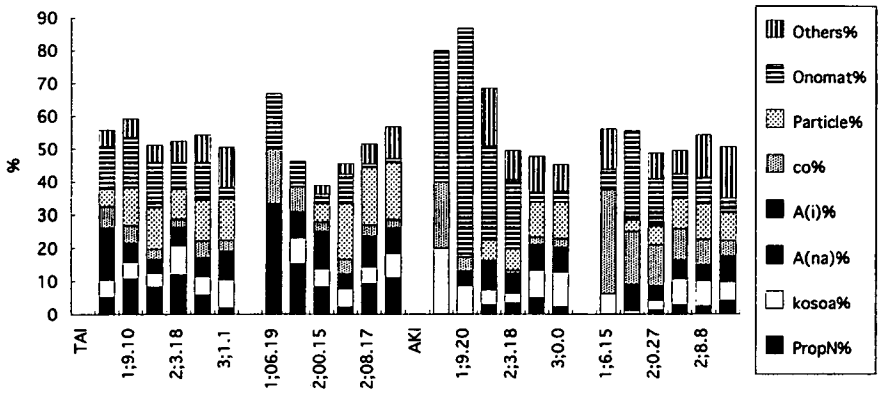
The computation of percentages for verbs, nouns, and verbal nouns in relation to overall vocabulary types, shows significantly how verb-centered TAI is. Also RYO reaches a high verb value, while AKI and especially TAR are noun-centered (graph 3). We can construct a continuum between verb-centered TAI and noun-centered TAR, with RYO and AKI in between.



Graph 3 Percentages of N, VN, and V for TAI, RYO, AKI, TAR(100% = all word types)

—— Other word types

The computation of percentages for the other word types shows considerable differences. All four children show different vocabulary characteristics. TAI and especially RYO use a lot of proper nouns, while AKI and TAR do not. AKI uses extremely many onomatopeias, much more than the other children. TAR produces many different greetings, AKI and RYO do so only in the early sessions, while TAI's repertoire of greetings is rather small. TAI and RYO use more different particles than the other two children, while they have a lower rate for demonstratives. However by the age of three these differences balance out each other more or less (graph 4).



Graph 4 Percentages of other word types for TAI, RYO, AKI, TAR

These characteristics can not be easily related to the childen's noun-or verb-preference, although there seem to be comparable tendencies in Okubo's (1981) data. Okubo proposed two different acquisition styles: *meishigata* [noun type] and *doshigata* [verb type], and showed the difference in the vocabulary of two Japanese children, T and A at 2;0.0. Note that T is identical with TAR in the present study.

Okubo reported values of 72% (T, noun type) resp. 58% (A, verb type) for nouns, and 5% (T) resp. 19% (A) for verbs. She also found higher values for particles in A. As for differences not in type but in token number, she found more adjectives and interjections in T, and more proper nouns and demonstratives in A.

Okubo's percentages are higher than ours, partially because she did not include particles, anxiliaries, kosoado demonstratives, and onomatopoeias into the overall vacabulary. In order to obtain comparable figures we re-computed the numbers from Okubo (1981 : 79).

The percentages show similarities between the verb prefering children and the noun prefering ones. The values for nouns and verbs are even more extreme for TAI and TAR, which may be caused by the rather short observation span (40 resp. 60 minutes vs. a whole day for A and T). Interesting is the higher particle type value for the verb prefering children.

Table 3 Comparison of the vocabulary of verb type and noun type children*

	verb type		noun type	
	A (Okubo)	TAI	T (Okubo)	TAR (=T)
age	2;0.0	2;0.18	2;0.0	2;0.27
N	41.48	22.02	48.48	36.42
VN	3.00	2.38	2.17	2.47
V	15.30	24.40	3.91	12.35
A(i)	4.89	2.38	5.22	3.09
A(na)	2.21	1.79	1.30	1.23
PropN	3.63	8.33	3.04	1.23
Demo	5.68	4.17	5.22	3.09
Ptl	4.89	12.50	3.04	5.56
co	5.05	2.98	4.78	12.35
Onomat	9.94	13.69	20.65	14.20
Others	3.94	5.36	2.17	8.02

* Okubo does not classify verbal nouns, but has the subcategories *asobi* and *ningen no dasa oyobi koi*, which we took for verbal nouns. She also separates *daimeishi* and *kosoado*, which we both classified as demonstratives. We did not include her categories hojodoshi and jodoshi into the overall vocabulary, because most of them are defined as verb flexions by us, and no detailed information was available.

Conclusion

The preference of nouns over verbs or vice versa seems to be a phenomenon of early vocabulary acqusition, especially in the half year after the acquisition of about 50 words. The four children studied reached comparable noun-verb ratios at 3;0, as well as similar percentages for all word types. At the same time the ratio of the first session does not seem to offer a prognosis as to into which type (noun-centered, verb-centered) the child will develop. RYO qualified as a rather verb-centered child, but used only nouns (and demonstratives) and no verbs (or verbal nouns) in the first session. TAI uses a high proportion of verbs but he seems to be an early talker in comparison with AKI, and at 1;6 he seemed to be much further developed than AKI. At 1;6 AKI and also RYO remained in the initial stages of their language development, while TAI was already forming 2-word sentences in his first session at 1;6. That session was roughly comparable to the session at 2;0 for AKI and RYO. As we saw in the previous study (MN), the 50-word point was reached about 2 weeks prior to this session for both AKI and RYO. TAI on the other hand would already produce already 77 different word types in the 1;6 session (comparable to AKI at 2;0, who by then had reached 67 types). TAR's initial observation at 1;6 noted only 16 types, and reached 88 types in the next session at 1;9. His 50-word point should therefore be reached before 1;9. If we now compare the noun / verb ratio of the session after the estimated 50-word point for each child, we again find a clear continuum between TAI and TAR at the extremes (table 2).

Table 2 Noun-verb ratio at the session after the 50-word point for TAI, RYO, AKI, TAI

	age	n / v ratio
TAI	1;6.19	0.88
RYO	2;0.15	1.00
AKI	2;0.19	4.00
TAR	1;9.15	8.50

At this stage this matching can only be tentative. It will be necessary to compare the results presented here with developmentally matched data (e. g. MLU stages), as age has proven to be too rough a measure to compare the development of different children. It would be especially interesting to see at which MLU value the noun or verb preference develops and disappears again. Also it will of course be necessary to examine more children in order to more accurately define the range possible. In order to explore not only the phenomen of noun / verb preference itself but also its source, the input (i. e. the language of the mother) has still to be examined. The data presented here indicates that in fact considerable differences exist between a child's preference for nouns or verbs throughout the second year, but the reasons for this phenomenon remain still unclear.

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