

Vowel Sequences in Poetry

-- Occurrence in Japanese --

Martin GORE

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This paper gives a brief analysis of the frequency of occurrence of vowel sequences (VVs) in a selection of written Japanese poems. Vance (1987) hints at “a tendency for *jiamari* [extra-unit] lines to contain long syllables more frequently than standard-length lines.” This depends, of course, on the definition of “syllable.” The present study finds a tendency for *jiamari* lines to contain VVs, but these tend (with notable exceptions) to straddle morphological boundaries and are thus not typical “syllables” or “diphthongs” in the conventional sense. There are further questions, but these must await future acoustical analyses of VVs and timing in spoken poems.

Keywords: Vowel sequence (VV); written forms; frequency of occurrence; poetry; Japanese; *jiamari*; morpheme.

1. Background

Our investigations so far have been into the phonetic, phonological and perceptual characteristics of the English diphthong (conventionally viewed as a single syllable or part of a syllable) and comparable Japanese vowel sequences (conventionally viewed as dual moras) (see Gore 2006a, 2006b and 2007 for phonetic, phonological and perceptual accounts of the similarities and differences between Japanese and English sequences).

We now, in the present paper, take a look at vowel sequences found in written poetry. We ask whether analysis of the frequency of occurrence of various VVs within and between morphemes in written forms reveals any significant patterns that might suggest single or dual conceptual units, which might in turn justify a more detailed analysis involving spoken forms of these and similar poems. Since this paper is a preliminary study of this area and initially views only frequency of written occurrence, it is, in contrast to the author's previous papers on VVs in Japanese and English (e.g. Gore 2006a; 2006b; 2007), not directly relevant to phonetics. Phoneticians have written about the relevance of poetry and verse structure to phonetics (e.g. Abercrombie 1964), but we claim no relevance for the present study to phonetics at this

stage.

2. Hypothesis

Vance (1987 p.66-67) writes, “It would be interesting if there were a tendency [in Japanese poetry] for jiamari [extra-unit] lines to contain long syllables more frequently than standard-length lines” (for definitions of these terms, see below). This of course depends on how we define “syllable.” Assuming that the “long syllable” here has something to do with vowel count (within a certain frame), Vance's question is of potential relevance to the rhythmic characteristics of the VV, in particular whether the VV is being conceived in terms of one rhythmic unit or two. Whether written VVs, morpheme-internal or otherwise, are statistically associated with jiamari (the presence of an extra rhythmic unit in a line), and whether acoustically they show any unitary “syllabic” characteristics or deviation from mora timing is the focus of continuing work. This paper deals only with the question of statistical association.

3. Method and Materials

In preparation for this, two written sources comprising 150 poems were analyzed for the presence of jiamari and VV occurrence within and between morphemes: (1) *One Hundred Poems* (Takagi 1954)¹, and (2) fifty *waka* and *haiku* from two Japanese high school literature textbooks (Matsuo and Gomi 1978 p.130-159 (*Ancient*), and Ichifuru 1978 p.129-137 (*Medieval and Modern*)). The *waka* has 31 metrical units arranged in five lines of 5-7-5-7-7; the *haiku* has 5-7-5 units. The sound unit is the mora (Kindaichi 1957, 1967; Han 1962; Homma 1983), which normally conforms to a single orthographic unit in kana transcription (V, CV, or N; but with dual-kana CyV as one mora) (see Gore 2006a, sections 3.2.1 and 3.2.7). In some poems the number of written units exceeds 31, allowing two ways to count the extra (jiamari) unit: one preserving the 31-beat format by reading two or more adjacent kana (such as VV or VN) more rapidly than normal, the other allowing an extra beat at the end of the line. There are different schools of reading (Homma 1983), but at the present stage we do not measure spoken timing, only the correlation between (1) the occurrence of VVs and (2) jiamari in the written line. In *One Hundred Poems* we find significant statistical patterns concerning the occurrence of jiamari under certain segmental and morphological conditions (see Results, below). Though these do not necessarily entail the existence of a special unit such as a diphthong, they suggest that further research into the acoustic characteristics and

1 *One Hundred Poems from One Hundred Poets (Ogura Hyakunin Isshu)*, is an anthology of 100 *waka*, each by a different poet, compiled in the thirteenth century by Fujiwara no Sadaie (Fujiwara Teika); its influence continues “as late as the twentieth century” (Keene 1993 p.674) through the card-reading game, *Uta Karuta*.

perception of VVs in poetry is warranted.

4. Results

Among the 30 jiamari poems (total 150 lines), 84 VVs are distributed as follows: 50 VVs are concentrated on 31 jiamari lines (mean: 1.61 VVs per line), and the remainder (34 VVs) are spread out among 119 standard lines (mean: 0.29 VVs per line). By this measure, the probability of a VV occurring in a standard line is less than one fifth of the probability of its occurring in a jiamari line. The VVs (V^1V^1 and V^1V^2) on jiamari lines (as well as those on standard lines) tend to be V^1V^2 between morphemes, or V^1V^1 . Of the 50 jiamari-line VVs, the largest group is /o/ before /o/ or /u/ (31% of all jiamari-line VVs). A morpheme boundary occurs in 74% of these. This is followed by: /ii/ (17%), all spanning word boundaries; /oa/ (11%), all spanning morpheme or word boundaries; /ia/ (4%); and /oi/ (3%). The /ai/ sequence appears only three times in *One Hundred Poems*, and only once in one of the 50 jiamari lines (2%), where it is part of an /iai/ sequence (*One Hundred Poems*, No. 57). Consideration of whether durational compression occurs and which VV is putatively responsible for “allowing” the extra unit to appear in the jiamari line must await future acoustic analysis.

As shown above, the 150 poems analyzed so far show a strong association between jiamari and the presence of a VV on the same line. However, in contrast to Homma 1983, we find no association between jiamari and line length (5-mora vs. 7-mora)². Moreover, the vast majority of the VVs in jiamari lines (whether 6-mora or 8-mora) occur across morpheme boundaries, and there can thus be no justification for calling them “syllables” or “diphthongs” in the conventional sense³. However, there is one poem⁴, like some present-day jingles, that only scans in the 5-7-5 rhythm when all four morpheme-internal CVNs and CVVs (including /ai/) are counted as a single unit. This suggests a counting procedure different from the prevailing mora-based procedure, which we expect acoustic measurements to clarify in future experiments. It is interesting that in the 150 poems analyzed so far, /ai/ occurs *only* in jiamari lines, and that the sole instance of morpheme-internal /ai/ (see footnote 4) preserves the standard count only if counted as a single unit.⁵

2 Homma gives an argument proposed by Bekku (1977) that the 5-7-5-7-7 rhythm is contained within an “8-beat frame” (Haraguchi refers to “octo-moraic structure,” 1988 p.124), and quotes Moorri (1979) who reports an association between line-length and VV occurrence in the *Manyooshuu*. Homma suggests the final line is similar to short lines since it is followed by silence. But in *One Hundred Poems*, we find only 4 cases of jiamari in the third line (short), the second lowest count, as opposed to 8 in the final line, the highest, and there are large variations in jiamari incidence within each line-length group: from 3 to 8 cases in the long group; 4~7 in the short group; 4~8 in the short+final group; and 3~7 in the long nonfinal group.

3 It is also conceivable that some jiamari is allowed because of devoicing (cf. Beckman 1982a).

5. Conclusions

Apart from the above exception, there is little evidence for special metrical treatment of morpheme-internal vowel sequences as opposed to morpheme-boundary sequences. There is thus no suggestion (at the present stage) of the existence of a consistent group of sequences that might be candidates for any special phonological status.

Nevertheless, this preliminary analysis leads us to suspect that VV and VN potentially have an actual or perceived effect on spoken timing, probably regardless of morphology, and that in future work it will be interesting (1) to take measurements to test this in spoken verse and (2) to analyze its perception. Homma (1983) finds that V is shorter than CV (89ms vs. 131ms) in a reading of five poems; we suggest the relationship between hypermetry and the occurrence of a vowel sequence is potentially not just durational but also perceptual, such that an extra V is perhaps *less* noticeable than an extra CV⁶. We thus propose two hypotheses for future acoustic and perception-testing experiments: (1) that jiamari lines with an extra V are durationally closer to standard meter than the conventional mora-counting procedure suggests; and (2) that such lines are less often perceived as being irregular than hypermetric lines that have an extra CV. The first of these hypotheses (1) can be tested in future studies by acoustic analysis of several different schools of reading, and the second (2) by comparing subjects' rhythmic clapping patterns, *after reading* vs. *hearing* representative patterns in (1).

It is not possible at the present stage to reach any conclusions regarding special status for certain sequences, but our conclusions do suggest interesting and specific hypotheses concerning the timing and perception of VVs in poetry that may be tested in future studies based on acoustic data.

4 A.no.ku.ta.ra (5)
 SaN-mya.ku saN-bo-dai no (10) (7 syllables?)
 Ho.to.ke ta.chi (5)
 Wa.ga ta.tsu so.ma ni (7)
 Myoo-ga a.ra.se.ta.mae (9) (7 syllables?)
 (Enlightened / Unsurpassed / Buddhas, / Bless the mountain forest / Where I stand.
 Dengyoo Daishi 747-822, in Shin-Kokin-Shuu 1920)

5 Though we have no acoustic data on spoken poetry yet, this is consistent with some modern jingles, which show clear syllable counting within an "8-beat frame" (see footnote 2, above), e.g. ||J in-sei- |hin-ga- |ya-su- |i || (*Ks Denki* TV commercial 2004-2008). The metrical and acoustic analysis of modern jingles is another potentially fruitful area of investigation.

6 An example of both CV and VV jiamari is found in Kobayashi Issa (1763-1827):
 Su.zu.me no ko (5), *So.ko no.ke so.ko no.ke* (8), *O.u.ma ga to.o.ru* (7). (Baby sparrows / Out of the way, out of the way! / A horse is coming.)

References

- Abercrombie, D. (1964). A phonetician's view of verse structure. *Linguistics* 6.
- Beckman, M. (1982). Segment duration and the 'mora' in Japanese. *Phonetica* 39: 113-135.
- Bekku, S. (1977). *Nihongo no rizumu* [The rhythm of Japanese]. Tokyo: Koodansha Gendai Shinsho.
- Gore, M. (2006a). *English and Japanese Diphthongs and Vowel Sequences*. PhD Thesis. Department of Applied Linguistics. Reading University. 239pp.
- Gore, M. (2006b). Recent Acoustic and Perceptual Analyses of Vocalic Sequences in Japanese and English. *Journal of the English Phonetic Society of Japan 9 & 10: Festschrift for Hyun Bok Lee*. 323-334.
- Gore, M. (2007). A Summary of Research into Vowel Sequences -- with Implications for Language Acquisition. *Bulletin of the Faculty of Education, Kagoshima University (Studies in Education)* 58: 187-194.
- Han, M. S. (1962). The feature of duration in Japanese. *Onsei no Kenkyuu* 10: 65-80.
- Haraguchi, S. (1988). Pitch accent and intonation in Japanese. Hulst, H.v.D. & Smith, N. (eds.), *Autosegmental Studies in Pitch Accent*. Dordrecht, Holland: Foris Publications.
- Homma, Y. (1983). The rhythm of tanka, short Japanese poems. *Proceedings of the 13th International Congress of Linguists, 1982, Tokyo*. 618-624.
- Ichifuru, C. (1978). *Chuusei Kinsei Bungei Shinshoo*. [Japanese Literature Medieval and Modern]. Tokyo: Musashino Shoin.
- Keene, D. (1993). *Seeds in the Heart*. New York: Henry Holt.
- Kindaichi, H. (1957). *Nippongo* [The Japanese Language]. Tokyo: Iwanami Shoten.
- Kindaichi, H. (1967). *Nippongo On'in no Kenkyuu* [Japanese Phonology]. Tokyo: Tookyoodoo.
- Matsuo, S. & Gomi, T. (1978). *Joodai Chuuko Bungei Shinshoo*. [Ancient Japanese Literature] Tokyo: Musashino Shoin.
- Vance, J.V. (1987). *An Introduction to Japanese Phonology*. Albany NY. State University of New York Press.