THE TWO-MORA FOOT IN JAPANESE
-TANKA RECITATION BY THE REIZEI FAMILY-

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ABSTRACT
Existence of a foot consisting of two morae in Japanese has been suggested by several linguists. However, it is very difficult to prove it phonetically in modern Japanese. I examined the slow tanka poetry recitation orally handed down in the Reizei Family since the twelfth century, and found that there were two-mora units with the second mora prolonged.

1. INTRODUCTION
The basic rhythmic unit in Japanese is the mora. The mora coexists with larger units such as a word in prose [1], a poetic line [2], and a group of lines in tanka poems [3]. Although existence of a foot consisting of two morae in Japanese has been suggested by several linguists, it is not easy to prove its existence phonetically. Bekku[4] claimed that the rhythm of Japanese is made of quadruple time, and one beat of this quadruple time is a two-mora foot (p. 52). But his explanation has an experimental support. Poser [5] introduced Teranishi's experiment [6]. According to his experiment, "as the tempo decreased odd-numbered morae (counting from the beginning of the word) changed little in duration, while even-numbered morae lengthened considerably" (Poser [5], p. 80.) Another experiment is necessary to examine these findings in detail. The purpose of this paper is to investigate the very slow tanka recitation by the Reizei Family, and try to find evidence of a foot in Japanese which modern Japanese may have lost.

2. EXPERIMENT
2.1. Methods
I used a copy of a tape of tanka recitation recorded by Mrs. Fumiko Reizei and her father, the late Count Tametsugi Reizei. The Reizeis are called the "Family of Poetry," because they have produced great tanka poets and preserved precious documents and ceremonies including tanka recitation for eight hundred years. Tanka were recited at poetry contests where court poets competed publicly on prescribed topics. The recitation was called "Hikoo." Minegishi [7] wrote that the poetry contest had its golden age in 880-1230 A.D., from the Heian to Kamakura Periods. Hikoo is still adopted at the annual tanka competition held at the beginning of the year at the Imperial Palace, and also at the Reizeis' tanka competition parties held four times every year on special occasions.

There are three styles of recitation. One is prose style reading, and the others are song styles with two different melodies. I have chosen the prose style without melody.

The recorded tanka was from the Kokinshu, Collection of Poems Ancient and Modern, the first Imperial Anthology (c. 905 A.D.). This tanka is the original of the Japanese national anthem. It is composed of thirty-two morae, in 5-7-6-7 morae lines.

Waga kimi wa
Chiyi ni yachiyo ni
Sazareishi no
Iwao to narite
Koke no musa made

(May our friend endure.
A thousand, eight thousand ages:
To a boulder etched with moss.
So to our friend.

Foot 1 2 3 4 5
Mora 250 810 515 435 890 3770

2.2. Measurements
Wide-band spectrograms of the prose style readings by Mrs. Reizei (F.R.), her father (T.R.), and myself (Y.H.) were made with a Kay-Sonagraph (5500). I measured the duration of each segment, mora, foot, line, and pause.

2.3. Results
2.3.1. Line duration
Figure 1 shows the comparison of the duration (ms) of the five lines read by the three speakers. The line duration includes pauses except for the last line.

The pause after each line was considerably long, especially in the Reizeis, as seen in Figure 2 on the next page.

The tempo was very slow; more than seven or eight times longer than my reading of the same tanka. The respective durations of the poem by F.R., T.R., and Y.H. were 50,484 ms, 42,095 ms, and 60,605 ms. The duration of lines including pauses was quite equidistant for Y.H., like my previous experiments in modern Japanese prose style reading[3], and not so much for F.R. and T.R.

2.3.2. Mora and foot duration

1) The Reizeis' style of reading

Table 1. Mora duration (ms) of F.R.'s first line.

<table>
<thead>
<tr>
<th>Mora</th>
<th>Foot (A)</th>
<th>Foot (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>1025</td>
<td>1060</td>
</tr>
<tr>
<td>810</td>
<td>1050</td>
<td>1060</td>
</tr>
<tr>
<td>515</td>
<td>4660</td>
<td>4660</td>
</tr>
<tr>
<td>435</td>
<td>680</td>
<td>515</td>
</tr>
<tr>
<td>890</td>
<td>1100</td>
<td>1100</td>
</tr>
<tr>
<td>3770</td>
<td>4560</td>
<td>4560</td>
</tr>
</tbody>
</table>

In Foot (A), the second mora of the second foot "i" is shorter than the first mora "re." Sazareishi (a pebble) is a compound noun, and there is a morpheme boundary between "re" and "i." In Foot (B), the second foot has only one mora, and therefore, is very short. However, syntactically and semantically we prefer Foot (B). This means that foot formation respects syntax or meaning, and the two-mora foot is easily collapsed by syntactic boundaries, as seen in Figure 4 of F.R.'s third line.

Line 4 has a three-mora word "iwao" (a boulder). But as the next "to" (to) is a postposition, iwao to is naturally divided...
Figure 2. Comparison of the mora duration of the third line.

Figure 3. The mora duration (ms) of Y.H.'s third line.

Figure 4. The mora duration (ms) of F.R.'s third line.

Figure 5. The mora duration (ms) of F.R.'s fourth line.

Figure 6. The mora duration (ms) of Y.H.'s third line.

Table 3. Mora and foot duration (ms) of Y.H.'s third line.

Table 4. Mora duration (ms) of Y.H.'s seven-mora line[9].

3. CONCLUSION

The results revealed the following points in the Reizeis' recitation:

1. The tempo was very slow; more than seven or eight times longer than my reading.
2. The duration of the lines including pauses was, by and large, kept equidistant, but not as equal as in the modern prose style reading.
3. The second mora was longer than the first mora, if there was no syntactic boundary between them.
4. Extremely long prepausal lengthening was observed in the last vowel of each line.

In my previous experiment in modern Japanese, to find acoustic evidence for foot structure is difficult. In modern Japanese, the foot might be an abstract isochronous unit of timing, not appearing on the surface. However, in the very slow tanka recitation by the Reizeis, there were two-mora units with the second mora prolonged, although they were easily collapsed by syntactic boundaries. This might be a piece of evidence for a two-mora foot in modern Japanese.

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REFERENCES