

## ***Today's topics:***

- **Prosodic structure:  
Grouping segments into  
larger units**

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### *Background:*

- *Pitch accent discussion from last time*

# 0. Today's objectives

After today's class, you should be able to:

- Count timing units in Japanese poetic meter; compare Japanese and English intuitions
- Define possible moras and possible syllables in Japanese (to be slightly revised!)
- Assign mora and syllable structure to words
- Present evidence that both moras and syllables are meaningful in the Japanese phonological grammar
- Diagnose impossible “words” in Japanese based on mora and syllable requirements

# 1. Warm-up and review

- According to OJAD, where is the **pitch accent** in...?  
*ikebana* 'flower arranging'  
*karate* 'karate'
- According to Kawahara's algorithm, how are **H and L tones** assigned to these words?

# 1. Warm-up and review

- Some aspects of the mental grammar, we model as an **algorithm** (series of steps) or a **set of requirements** that assigns linguistic structure
  - Today we will look at prosodic structure in a similar way

## 2. Japanese poetic meter

**Work groups:** Answer on a sheet of paper to turn in

- What do you know about the rules for writing **haiku**, either in English or Japanese? Do all group members know the same rules?

- Does this haiku follow your stated rules? Discuss!

|            |           |      |               |             |          |       |
|------------|-----------|------|---------------|-------------|----------|-------|
| 蘭の         | 香         | や    | 蝶の            | 翅に          | たき物      | す     |
| [ ran-no   | ka        | ja   | t̃ɕoo-no      | t̃suɓasa-ni | takimono | suu ] |
| orchid-GEN | fragrance | EMPH | butterfly-GEN | wing-LOC    | incense  | do    |

‘the fragrant orchid / into a butterfly's wings / it breathes the incense’  
— Bashô (trans. Makoto Ueda)

## 2. Japanese poetic meter

- How many 'timing units' in these words?

[ t̪sɯbasa ] 'wing'

[ ran ] 'orchid'

[ t̪ɕoo ] 'butterfly'

## 2. Japanese poetic meter

- Speakers of English tend to count **syllables**

[ t̂suu ba sa ] 'wing' 3

[ raN ] 'orchid' 1

[ t̂ɕoo ] 'butterfly' 1

## 2. Japanese poetic meter

- Speakers of Japanese tend to count a smaller unit

[ t̚su ba sa ] 'wing' 3

[ ra n ] 'orchid' 2

[ t̚ɕo o ] 'butterfly' 2

- This unit is often called 音節 [onsetu] 'sound portion' or 拍 [haku] '(musical) beat' in Japanese
- It is known as a **mora** in the linguistics tradition
  - Term from Latin, describing Greek poetic meter; also borrowed as モーラ [moora] in Japanese)
  - Two possible plural forms in English, *moras* and *morae*

## 2. Japanese poetic meter

- Does Japanese poetry count **syllables** or **moras**?

蘭の 香 や 蝶の 翅に たき物 す  
[ran-no ka ja t̃ɕoo-no t̃suɒbasa-ni takimono su]  
orchid-GEN fragrance EMPH butterfly-GEN wing-LOC incense do

‘the fragrant orchid / into a butterfly's wings / it breathes the incense’  
— Bashô (trans. Makoto Ueda)

五六本 生木 掛けたる 水溜り  
[go-rop-pon nama-ki t̃suuke-taru mizu-tamari]  
five-six-CLS raw-wood hang-CPLT water-pool

‘five or six pieces / of freshly cut timber / over a muddy pool’  
— Nozawa Bonchô (trans. Makoto Ueda)

### 3. Prosodic structure: Moras and syllables

- **Mora requirements in Japanese** (Tsuji-mura 2014: 67)

The mora has one of three realizations ...

- a. (C)V [vowel, possibly with preceding consonant]
- b. the first part of a long consonant
- c. /N/, also called the “moraic” nasal

- Find examples of each type in the poems above!

- Represented in structure diagrams as **μ**

**Association lines** attach segments

*Examples:*

|     |   |   |   |
|-----|---|---|---|
|     | μ | μ | μ |
| /   |   |   |   |
| k a | i | N |   |

### 3. Prosodic structure: Moras and syllables

- The **syllable** clearly plays a role in the phonological structure of many languages, including English
- The **mora** clearly plays a role in the phonological structure of Japanese
  - Also in languages where 'light' and 'heavy' syllables are distinguished — including English!
- Some have argued that Japanese has moras and *does not have syllables*
  - Is the syllable universal?
  - Is there any **evidence** that the **syllable** also plays a role in the grammar of Japanese?

### 3. Prosodic structure: Moras and syllables

Data set – [Prosodic structure in Japanese](#), (1) and (2)

- Which of these examples provide evidence that the **mora** is relevant for the mental grammar of Japanese?
- Are any of these examples difficult to explain if we do not also recognize a role for the **syllable**?

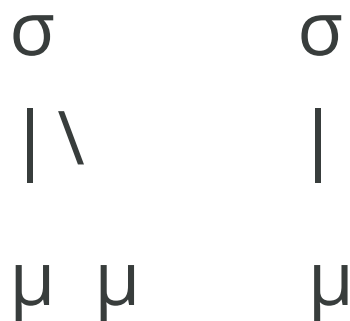
### 3. Prosodic structure: Moras and syllables

- Can just *any* sequence of allowable moras create a legitimate **word shape**?
  - \*[ mbo ]                      [ tombo ] ‘dragonfly’
  - \*[ ntai ]                      [ hantai ] ‘opposite’
  - \*[ ttai ]                      [ ittai ]      ‘(what) in the world...?’
- The symbol ‘\*’ means that a form is **ungrammatical**:  
not accepted by the mental grammar of a native speaker
- Which “mora types” (Tsuji-mura) cannot **start a word**?
  - a. (C)V [vowel, possibly with preceding consonant]
  - b. the first part of a long consonant
  - c. /N/, also called the “moraic” nasal

### 3. Prosodic structure: Moras and syllables

- Moras alone cannot explain possible word shapes!
- **Syllable requirements** in Japanese
  - may contain either 1 or 2 moras
  - must begin with a mora of type (a)
  - cannot have CV as the *second* mora
- Represented in structure diagrams as **σ**  
**Association lines** attach moras

*Examples:*



### 3. Prosodic structure: Moras and syllables

- **Key proposal:** A word is **not a possible word** of Japanese if
  - segments cannot be assigned to legal moras  
*and/or*
  - moras cannot be assigned to legal syllables

### 3. Prosodic structure: Moras and syllables

- Assign **mora** and **syllable** structure to the following word, according to the principles we have proposed

[ k e k k ó n ɕ i k i ] 'wedding'

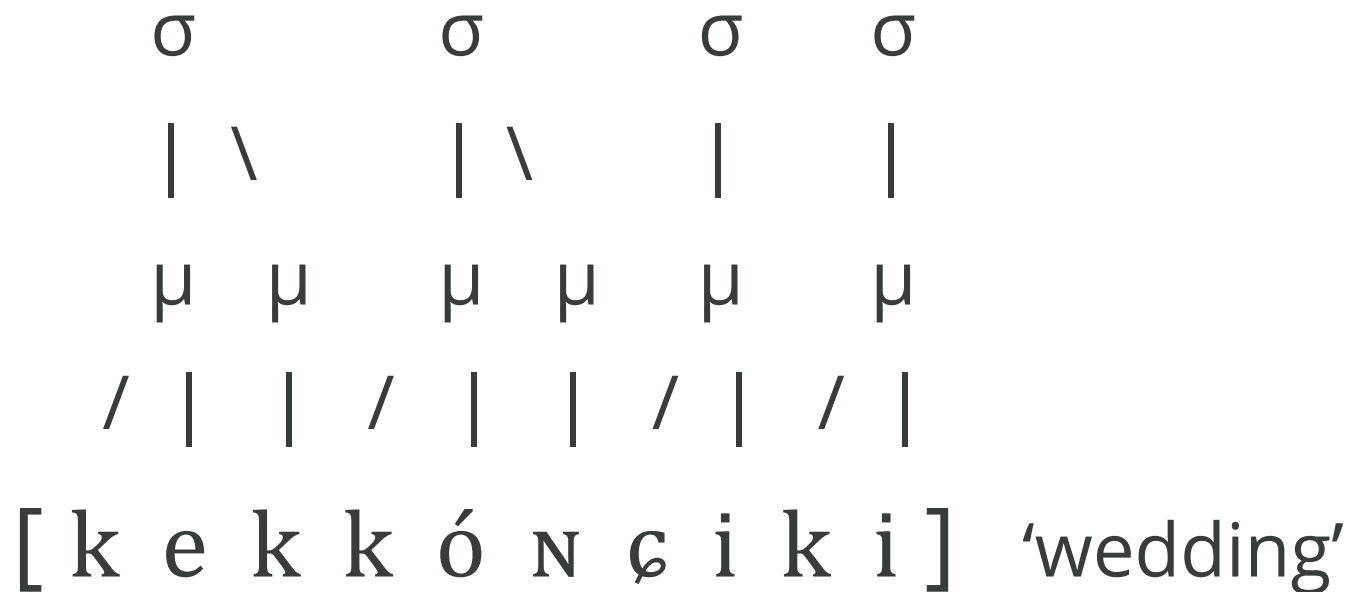
### 3. Prosodic structure: Moras and syllables

- Assign **mora** and **syllable** structure to the following word, according to the principles we have proposed

                  μ   μ        μ   μ     μ     μ  
                  / |   |   / |   |   / |   / |  
[ k e k k ó n ɕ i k i ] 'wedding'

### 3. Prosodic structure: Moras and syllables

- Assign **mora** and **syllable** structure to the following word, according to the principles we have proposed



### 3. Prosodic structure: Moras and syllables

Additional points about Japanese syllable structure

- **Affricates** pattern as single consonants: how many moras in [ atswi ] ‘hot’?
- When there are **two vowels** in a row, our model allows either two light syllables ( $\mu+\mu$ ) or one heavy syllable ( $\mu\mu$ ) to be formed — what actually happens?
  - A number of factors appear to be relevant, including *which vowels* are involved and where the *pitch accent* is
  - Examples in data set [Prosodic structure in Japanese](#), (3)

### 3. Prosodic structure: Moras and syllables

Additional points about Japanese syllable structure

- It appears that Japanese occasionally tolerates a syllable with *three* moras
  - Loanwords:  
[ toon ] 'tone', [ tʃeen ] 'chain'
  - Morphologically complex words:  
[ nihom-ppoi ] 'Japan-like', [ toot-ta ] 'pass-PAST'

## 4. Prosodic structure and pitch accent

Data set – [Prosodic structure](#), set (3)

- Is **pitch accent** predictable in city names with the suffix /-si/?
- What **generalization** can we state that covers the data in part (a) *and* part (b)?

## 5. For next time

- Prep questions — More practice with prosodic structure
- Next time we will have the **wrap-up discussion** for our phonetics and phonology unit
  - Check the **quiz review guide** before class
  - **Questions?** Post on Padlet or bring to class