

Name _____

Syllable Structure in Japanese

1. Basics of Japanese Syllable Structure

1.1. Light vs. Heavy Syllables

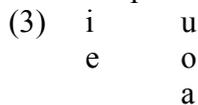
Japanese syllables contrast in what is called *syllable weight*. That is, some syllables are "light" and some are "heavy." The unit of weight is the mora. Light syllables have one mora, heavy syllables have two.

Using the Greek letters μ and Σ to represent the mora and syllable, respectively, light and heavy syllables can be represented as follows:



1.2 Long vs. Short Vowels

Japanese has a five-vowel system:



Vowels contrast in length, e.g. *kite* 'come!' vs. *kiite* 'listen!'.

[Long vowels are spelled with doubled letters, e.g. *ii*, *uu*, etc.]

A syllable with a short vowel is light, a syllable with a long vowel is heavy:



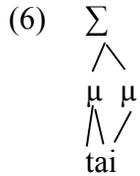
These *prosodic structures* represent syllables and syllable weight. The light syllables of *kite* have one mora each. The heavy initial syllable of *kiite* has two morae. A bimoraic vowel is realized as a long vowel. The initial syllable of *kiite* has *one long vowel*, represented as a vowel dominated by two morae. The double letters are just a spelling convention.

1.3 Onset, Nucleus, and Coda

Each syllable of Japanese contains a vowel, which is the *nucleus* of the syllable. A consonant preceding the vowel is the *onset* of the syllable. Some syllables have an onset, others do not. Where a syllable ends in a consonant (cf. §1.5 below), the consonant ending the syllable is its *coda*.

1.4 Diphthongs

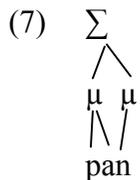
Japanese has diphthongs: *ay*, *oy*, *aw*, spelled as *ai*, *oi*, *au*, respectively, in Japanese orthography. A syllable with a diphthong is heavy. Thus the word *tai* 'red snapper' is bimoraic:



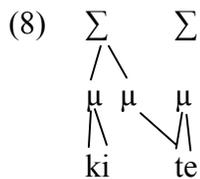
A syllable with a diphthong has a *complex nucleus*, i.e. both the vowel and the following glide belong to the nucleus.

1.5 Closed Syllables

A closed syllable is a syllable that ends in a consonant. Closed syllables in Japanese are heavy; the coda consonant is dominated by a mora. This is the prosodic structure of *pan* 'bread':



The word *kitte* 'cut!' has this prosodic structure:



In *kitte*, there is a single *t*, which closes the first syllable and also serves as onset of the second. A consonant that closes one syllable and serves as onset of the next is called a *geminate* consonant. Geminate consonants are spelled with a doubled letter, as in *kitte*.

There are only two kinds of closed syllables in Japanese: those closed with a nasal (e.g. *pan*) and those closed with a geminate consonant (e.g. *kitte*). Since a geminate consonant cannot occur in word-final position, the only consonant that can occur in word-final position is a nasal.

1.6 Maximum Syllable Weight

The maximum weight of a syllable in Japanese is two morae. Since a coda consonant is dominated by a mora, a closed syllable must have a short vowel. Since a complex nucleus (a diphthong) is dominated by two morae, the vowel in a complex nucleus is always short. Since a coda consonant would add a third mora to the syllable, a syllable with a complex nucleus cannot have a coda consonant.

1.7 Summary of Syllable Types

A light syllable consists of a single mora. It has a short vowel.

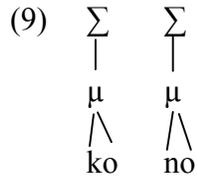
A heavy syllable consists of two morae. There are three types of heavy syllables: (i) those with a long vowel, (ii) those with a complex nucleus (a diphthong), and (iii) closed syllables. A closed syllable may be closed with a nasal or with a geminate consonant.

Each syllable may (or may not) have an onset consonant.

2. Syllabification

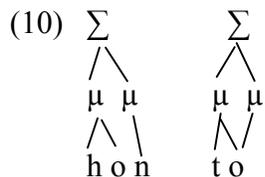
An intervocalic non-geminate consonant is always syllabified as onset of the following syllable (rather than as coda of the preceding syllable).

For example, *kono* 'this' has the structure:



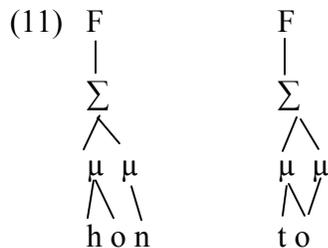
The *n* is the onset of the second syllable, not the coda of the first.

An intervocalic consonant cluster is split between two syllables: the first consonant is coda of the preceding syllable, the second is onset of the following syllable. Thus, the word *hontoo* 'truth' has the syllable structure:

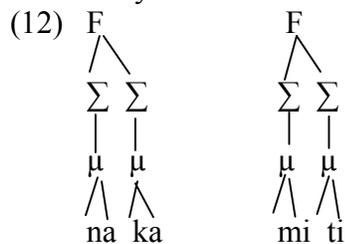


3. The Foot

The *foot* is a higher-level unit of prosodic structure. In Japanese a foot consists of two morae. Thus, it may consist of two light syllables or a single heavy syllable. The word *hontoo* consists of two feet, each consisting of a single heavy syllable:



The family name *nakamiti* consists of two feet, each consisting of two light syllables:



4. Melody vs. Prosody

The sequence of segments that make up a word is known as its *melody*. The organization of the melody into prosodic constituents (morae, syllables, and feet) is known as its *prosody* or *prosodic structure*. Distinct words can have the same melody but differ in prosody, as in the case of *kite* 'come!' vs. *kiite* 'listen!' vs. *kitte* 'cut!'. Compare their prosodic structures in (4), (5), and (8).

5. Some Extralinguistics Uses of the Mora in Japanese

5.1 Poetry

The mora is the basic unit in terms of which the poetic line is constructed. For example, a *haiku* consists of three lines: the first has five morae, the second seven morae, and the third five morae.

5.2 Orthography

In the Japanese writing system, each symbol represents a mora. Thus the units *ka*, *ke*, *ki*, *ko*, *ku* are each written with a single symbol. The word *pan* is written with two symbols since it has two morae; the first symbol represents *pa* and the second *n*.

6. Some Conventions of Japanese Orthography

Two conventions that we will use to write Japanese words have already been introduced: long vowels and geminate consonants are written with double letters.

We will use certain other conventions of Japanese orthography, transposed into the Latin alphabet.

- I. Diphthongs are indicated with vowel letters:
 - ai* indicates [ay].
 - oi* indicates [oy].
 - au* indicates [aw].
- II. Some consonants are indicated in indirect ways:
 - s* before *i* and *sy* elsewhere indicate [š].
 - t* before *i* and *ty* elsewhere indicate [č].
 - z* before *i* and *zy* elsewhere indicate [j].
 - tu* indicates [cu], as in *tunami* 'tsunami'.
 - hu* indicates [fu], as in *taihuu* 'typhoon'.

7. Exercise

Draw the full prosodic structures, indicating feet, syllables, and morae, for the following words:

- | | | |
|-----|-----------------|----------------|
| 1. | tookyoo | 'Tokyo' |
| 2. | asuparagasu | 'asparagus' |
| 3. | herikoputaa | 'helicopter' |
| 4. | kaereru | 'can return' |
| 5. | maisin | 'streptomycin' |
| 6. | hantai | 'opposite' |
| 7. | bankuubaa | 'Vancouver' |
| 8. | hankati | 'handkerchief' |
| 9. | hattori | a family name |
| 10. | intorodakusyon | 'introduction' |
| 11. | hurasutoreesyon | 'frustration' |