

Prosodic structure in Japanese, part (I)
I. Background
(1) Prosodic structure

- (a) Phonologists in the 1960s tried to explain phonological patterns in human language based on **segments** (consonants and vowels) and word/morpheme **boundaries** only
- (b) This doesn't work — to state phonological generalizations, we need to recognize that segments are organized into larger phonological units, such as the **mora** or **syllable**
- (c) These units are known collectively as **prosodic constituents**; the phonological organization of a language above the segmental level is called **prosodic structure**

(2) Controversy concerning Japanese: Does it have syllables? (Is the syllable universal?)
II. The mora: Evidence and basic patterns
(3) The mora (μ) is a prosodic unit that plays a large role in Japanese

- (a) The mora is a phonological structure that contains, and thus groups together, one or more segments
- (b) See Tsujimura (2014: ch 3, sec 3) and the data set “Mora structure in Japanese”
 - We will take T's discussion as a starting point, but further refine her approach

(4) Evidence from speech errors: If we assign mora structure as in Tsujimura's (80), we can say that moras are what is substituted for or transposed in speech errors

μ	μ	μ	μ	μ	μ	μ	μ	μ	
/		/		/		/		/	
da	n	ga	i	sa	i	ba	n	sjo	‘court of impeachment’
	↓		↓						
	i		n						

μ	μ	μ	μ	μ	μ	μ	μ	μ	
/		/	/		/	/			
ku	u	bo	mi	d	do	we	e		‘aircraft carrier <i>Midway</i> ’
	↓								
	b			↑					

(5) Evidence from language games

μ	μ	μ		μ	μ	μ	μ	μ	μ	
/	/	/		/	/	/	/	/	/	
te	ga	mi		te	be	ga	ba	mi	bi	‘letter’

μ	μ	μ	μ	μ	μ	μ	μ	μ	μ	
/		/		/	/	/	/	/	/	
ga	k	ko	o	ga	ba	<u>tsu</u>	bu	ko	bo	<u>o</u> bo ‘school’

- To what extent are language games affected by orthography?

[gakkoo] がっこう <ga> + small <tu> + <ko> + <u>

III. The mora: Implications for the phonological grammar

- (6) The phonological grammar models a native speaker's **knowledge of language**
- (a) We've already seen that the phonological component of the mental grammar contains:
- A set of segmental phonemes
 - Rules to produce any additional allophones of those phonemes in the appropriate environments
- (b) We have argued that these phoneme categories and phonological rules are necessary for describing speaker behavior
- Example: One cause of a 'foreign accent' is when your native-language phonemes or phonological rules carry over into a new language
- (7) If speaker behavior shows that segments are systematically organized into moras in Japanese, then the phonological grammar of Japanese must have a means for *producing* and *enforcing* the necessary mora structures

- (8) Proposal (for the phonological grammar of Japanese):
Algorithm for building mora (μ) structure
- (a) Moras dominate (i.e., contain) segments in phonological structure. All segments must be associated with some mora in a well-formed surface representation.
- A surface representation that does not conform to this requirement is rejected as ungrammatical, unless some phonological rule applies to bring it into conformity
- (b) Segments are associated with moras as follows:
- i. Every instance of a vowel projects, and associates to, a μ
(long vowels associate to two μ)
 - ii. Every /j/ to the left of a μ associates to that μ
 - iii. Every instance of /N/ projects and associates to a μ
 - iv. Every unassociated consonant to the left of a vowel or /j/ associates to the μ of the vowel or /j/
 - v. An unassociated consonant may project and associate to a mora *only if* it is the first half of a long consonant (i.e., is identical to the following consonant)
- These steps are carried out in order. Note that for many of the steps, it matters whether a segment is already incorporated into mora structure or not.

- (9) Back to the **three types of moras** identified by Tsujimura (as amended in class discussion): Does our proposed mora-building algorithm correctly produce all three types?
- Type (a): (C)(G)V
- Type (b): The first part of a long consonant (=the first part of a geminate)
- Type (c): 'Moraic' nasal /N/
- Try **applying** this algorithm to some of the examples on the mora-structure data set!