

W4-1: Japanese syllable- initial consonants

JAPN398D: The Sounds and Dialects of Japanese

9/18/2023

Today's main topic

- Native phonology vs. Loanword phonology
 - Native phonology → Native words, including Sino-Japanese words
 - Loanword phonology → (Western) loanwords
- Japanese has different 2 sets of consonant phonemes for these two phonologies.

Today's class

- Plain and palatalized consonants
- Plain consonants in native/Sino-Japanese words
- Allophones in native/Sino-Japanese words
- Palatalized consonants
- Phonemicization
- Syllable-initial glides and Western loanwords

Plain and palatalized consonants

- Japanese has plain consonants and palatalized consonants in syllable-initial position.
- Plain consonants /C/: e.g. /k/ in か, /h/ in は
- Palatalized consonants /Cj/: e.g. /kj/ in きゃ, /hj/ in ひゃ
 - Small やゆよ are called 拗音 (ようおん) in Japanese.

Plain and palatalized consonants

/w/	/r/	/y/	/m/	/h, p, b/	/n/	/t, d/	/s, z/	/k, g/	∅	
わ	ら	や	ま	はぱば	な	ただ	さざ	かが	あ	/a/
ゐ	り	(い)	み	ひびび	に	ちぢ	しじ	きぎ	い	/i/
(う)	る	ゆ	む	ふぷぶ	ぬ	つづ	すず	くぐ	う	/u/
ゑ	れ	(え)	め	へぺべ	ね	てで	せぜ	けげ	え	/e/
を	ろ	よ	も	ほぽぼ	の	とど	そぞ	こご	お	/o/
	/ry/		/my/	/hy, py, by/	/ny/	/ty/	/sj, zy/	/kj, gy/		
	りゃ		みゃ	ひゃぴゃびゃ	にゃ	ちゃぢゃ	しゃじゃ	きゃぎゃ		/a/
	りゅ		みゅ	ひゅぴゅびゅ	にゅ	ちゅぢゅ	しゅじゅ	きゅぎゅ		/u/
	りょ		みょ	ひょぴょびょ	にょ	ちょぢょ	しょじょ	きょぎょ		/o/

Plain consonants in native/SJ words

- Japanese has 6 contrasting syllable-initial **stops**.
 - /p, t, k/ (voiceless) and /b, d, g/ (voiced)
- In English, syllable-initial voiceless stops are aspirated.
 - e.g. ***p**ill, **t**ill, **k**ill* → aspirated, but ***s**pill, **st**ill, **sk**ill* → unaspirated

Plain consonants in native/SJ words

- In Japanese, word-initial voiceless stops are “weakly” aspirated.
 - /p, t, k/ in an accented syllable (\approx H tone) are also “weakly” aspirated.
 - They are unaspirated elsewhere.
- Examples
 - /t/ in **た**に (谷) ‘valley’ is aspirated [t^h] (word-initial). → LH
 - /t/ in か**た**い (固い) ‘hard’ is aspirated [t^h] (accented). → LHL
 - /t/ in パス**タ** ‘pasta’ is unaspirated [t]. → HLL

Plain consonants in native/SJ words

- The /p/ in ぱひふへほ and the /b/ in ばびぶべぼ are **bilabial** stops. = English /p, b/
 - Phonemic transcriptions: /p, b/
 - Phonetic transcriptions: [p, b]
- The /k/ in かきくけこ and the /g/ in がぎぐげご are **dorso-velar** (tongue body) stops. = English /k, g/
 - Phonemic transcriptions: /k, g/
 - Phonetic transcriptions: [k, g]

Plain consonants in native/SJ words

- The /t/ in たてと and the /d/ in だいでど are **lamino-alveolar** stops.
 - Phonemic transcriptions: /t, d/
 - Phonetic transcriptions: [t̟, d̟] ([t, d])
- The /t/ and /d/ in English are **apico-alveolar** stops.
 - Phonemic transcriptions: /t, d/
 - Phonetic transcriptions: [t̟, d̟]

Plain consonants in native/SJ words

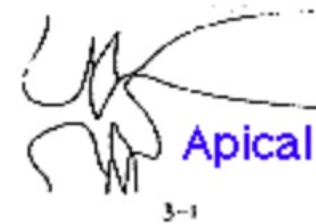
Lamino-alveolar in Japanese

- The part behind the tongue tip (= **tongue blade**) touches the alveolar ridge.



Apico-alveolar in English

- The **tongue tip** touches the alveolar ridge.



After Blandon and Nolan (1977)

https://sail.usc.edu/~lgoldste/General_Phonetics/Constriction_Location/

Plain consonants in native/SJ words

- There are 3 (or 2) **fricatives** in native/Sino-Japanese words.
 - /h, s, (z)/
- The /h/ in はへほ is a voiceless **glottal** fricative.
 - Phonemic transcription: /h/
 - Phonetic transcription: [h]
- /h/ is usually realized with **breathy voice**.
 - English /h/ is also realized with breathy voice.

Plain consonants in native/SJ words

- The /s/ in さすせそ is a lamino-alveolar voiceless fricative.
 - Phonemic transcription: /s/
 - Phonetic transcription: [s̺] ([s])
- English /s/ is a lamino-alveolar voiceless fricative.

Plain consonants in native/SJ words

- The /z/ in ざず (+ づ) ぜぞ is in fact a **lamino-alveolar affricate** in most of the environments.
 - Phonemic transcription: /z/
 - Phonetic transcription: [dz] (and [z̟])
- English /z/ is a lamino-alveolar fricative.

Plain consonants in native/SJ words

- /z/ is realized as [dz]...
 1. At the beginning of a word.
 2. In the middle of a word immediately following a syllable-final consonant.
- /z/ is realized as [z̥] in the middle of a word immediately following a vowel.
 - This might be a Tokyo feature!

Plain consonants in native/SJ words

- [dz]

- ず (図) 'diagram' → Word-initial
- ベンず (ベン図) 'Venn diagram' → Word-medial after a C

- [z̥]

- ちず (地図) 'map' → Word-medial after a V

Plain consonants in native/SJ words

- 四つ仮名（よつがな） → じ/ぢ and ず/づ
- ず and づ had different pronunciations. → /z/ and /d/
- (Likewise, じ and ぢ had different pronunciations.)
- Merger of /z/ and /d/ before /i/ and /u/ occurred in the first half of the 17th century in Kyoto-Osaka (Frellesvig 2010).
 - As a result, づ /du/ is /zu/ in Modern Japanese.
 - In Kochi (Shikoku), the distinction is still maintained (Hirayama 1979).

Plain consonants in native/SJ words

- Japanese has 2 contrasting **nasals** in syllable-initial position.
 - /m, n/
- The /m/ in まみむめも is a **bilabial** nasal.
 - Phonemic transcription: /m/
 - Phonetic transcription: [m]

Plain consonants in native/SJ words

- The /n/ in なぬねの is a **lamino-alveolar** nasal.
 - Phonemic transcription: /n/
 - Phonetic transcription: [n̠] ([n])
- English /n/ is an **apico-alveolar** nasal.

Plain consonants in native/SJ words

- Japanese has only 1 **liquid** in syllable-initial position.
- The consonant in らりるれろ is an **apico-alveolar tap**.
 - Phonemic transcription: /r/ (or /r/)
 - Phonetic transcription: [ɾ] ([r])
- The apico-alveolar trill [r] can occur in Japanese.
 - Some speakers (e.g. my mother) cannot pronounce it.

Plain consonants in native/SJ words

- In popular culture, people sometimes write らゝ for the [ra] sound.
- 「ごらゝ あー！！」
- 先輩の怒鳴り散らす姿があった。‘Senpai shouted in anger.’

「ごらゝ あー！！ライトちゃんと取れえー！」

バットを肩に担いだゴリラみたいな先輩の怒鳴り散らす姿があった。

<http://m-pe.tv/u/m/novel/?uid=nanairodays&id=1&act=viewPage&p=15&CID=9&PHPSESSID=htuvk0re073u26s588erj7qck3>

Plain consonants in native/SJ words

- Japanese has 2 contrasting **semi-vowels** in syllable-initial position.
 - /y, w/
- The /y/ in やゆよ is pronounced like い /i/.
 - Phonemic transcription: /y/
 - Phonetic transcription: [j]
- The /w/ in わ is pronounced like う /u/.
 - Phonemic transcription: /w/
 - Phonetic transcription: [ɰ] (slightly different from [ɯ])

Plain consonants in native/SJ words

- Historically, the four sounds in red existed in Japanese.
- Some (young) Modern Japanese speakers have /ye/, /wi/, /we/, and /wo/.

/w/	/y/
わ	や
ゐ = うい = wi	(い) = yi
(う) = wu	ゆ
ゑ = うえ = we	え = いえ = ye
を = うお = wo	よ

Plain consonants in native/SJ words

- Vowel coalescence (= fusion) in Eastern Japanese

- /ai/ → [e:] ない → ねえ
- /oi/ → [e:] おもしろい → おもしろえ
- /ui/ → [i:] さむい (寒い) → さみい

- /ye/ and /we/

- はやい (早い・速い) 'early, fast' → /ha(y)eH/
- こわい (怖い・恐い) 'frightening, scary' → /ko(w)eH/

Allophones in native/SJ words

/w/	/r/	/y/	/m/	/h, p, b/	/n/	/t, d/	/s, z/	/k, g/	∅	
わ	ら	や	ま	はぱば	な	ただ	さざ	かが	あ	/a/
ゐ	り	(い)	み	ひびび	に	ちぢ	しじ	きぎ	い	/i/
(う)	る	ゆ	む	ふぶぶ	ぬ	つづ	すず	くぐ	う	/u/
ゑ	れ	(え)	め	へぺべ	ね	てで	せぜ	けげ	え	/e/
を	ろ	よ	も	ほぼぼ	の	とど	そぞ	こご	お	/o/

Allophones in native/SJ words

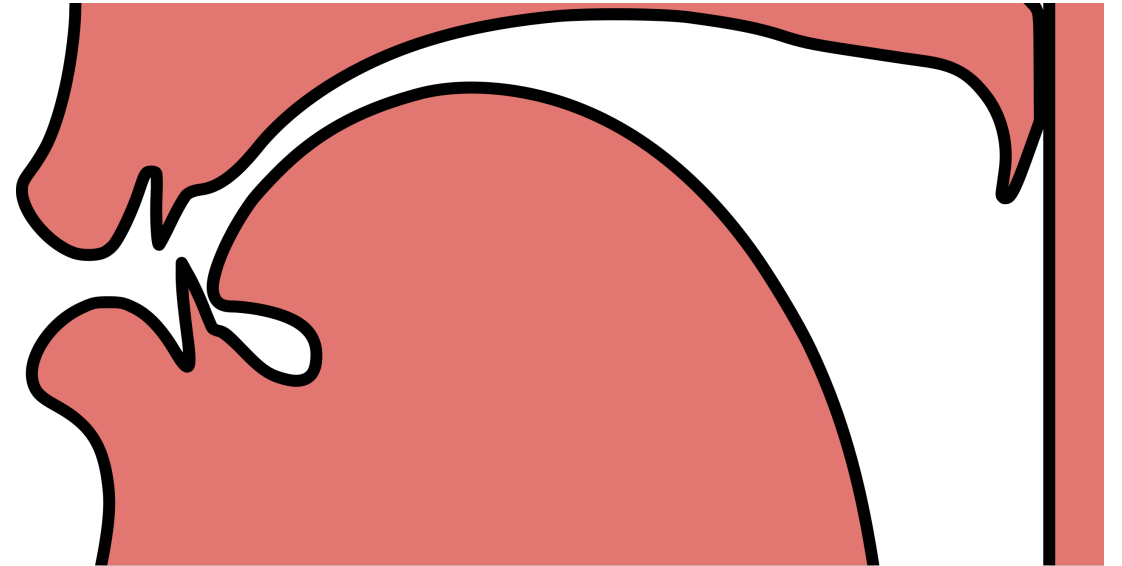
- Vance describes some consonants in **イ段** and **ウ段** with different IPA symbols. → Loanword phonology
- Vance
 - イ段 : し /š/ ・ ぢぢ /j/ ・ ち /č/
 - ウ段 : つ /c/ ・ ふ /f/
- Native phonology
 - イ段 : し /s/ ・ ぢぢ /z/ ・ ち /t/
 - ウ段 : つ /t/ ・ ふ /h/

Allophones in native/SJ words

- Japanese consonants become palatalized (= fronted) before /i/ (イ段) in general.
 - e.g. /ki/ becomes [kʲi].
- し /s/ → [ç] (lamino-alveolo-palatal)
- じ (ぢ) /z/ → [ʝz] (lamino-alveolo-palatal)
- ち /t/ → [çç] (lamino-alveolo-palatal)
- に /n/ → [ɲ] (lamino-alveolo-palatal)
- ひ /h/ → [ç] (dorso-palatal) (e.g. *ich* in German)

Allophones in native/SJ words

- Alveolo-palatal consonants
 - [ɕ] (シ), [t͡ɕ] (ジ・ヂ), [ɕɕ] (チ), [ɲ] (ニ)
 - Between alveolar and palatal
- English /ʃ, ʒ, tʃ, dʒ/ are **post-alveolar** consonants.



https://en.wikipedia.org/wiki/Alveolo-palatal_consonant#/media/File:Alveolopalatal_fricative.svg

Allophones in native/SJ words

- There is no specific name for the sound change before /u/.
- つ /t/ → [ts] (lamino-alveolar)
- ふ /h/ → [ɸ] (bilabial)
- English can have a /ts/ sequence.
 - e.g. *cat-s* /kæts/
 - However, the /ts/ in *cats* is apico-alveolar.

Allophones in native/SJ words

- In traditional Japanese phonology, these sound changes have been considered “allophonic changes”.

/s/ becomes [ç] before /i/.

- /s/ → [ç] / __ /i/ (し)
- /s/ → [s] / elsewhere
- /z, (d)/ → [ʃz̥] / __ /i/ (じ・ぢ)
- /z/ → [dz] / elsewhere
- /t/ → [çç] / __ /i/ (ち)
- /t/ → [ts] / __ /u/ (つ)
- /t/ → [t] / elsewhere
- /h/ → [ç] / __ /i/ (ひ)
- /h/ → [φ] / __ u (ふ)
- /h/ → [h] / elsewhere

Palatalized consonants

	/ry/		/my/	/hy, py, by/	/ny/	/ty/	/sy, zy/	/ky, gy/		
	りゃ		みゃ	ひゃぴゃびゃ	にゃ	ちゃぢゃ	しゃじゃ	きゃぎゃ		/a/
	りゅ		みゅ	ひゅぴゅびゅ	にゅ	ちゅぢゅ	しゅじゅ	きゅぎゅ		/u/
	りょ		みょ	ひょぴょびょ	にょ	ちょぢょ	しょじょ	きょぎょ		/o/

Palatalized consonants

- /y/ in C/y/ triggers palatalization because [j] is close to /i/.

• /ky/ → [kj] (or [kʲ])	きや	• /sy/ → [ç]	しや
• /gy/ → [gj]	ぎや	• /zy/ → [ʝ]	じや
• /py/ → [pj]	ぴや	• /ty/ → [tʃ]	ちや
• /by/ → [bj]	びや	• /ny/ → [ɲ] (or [ɲʲ])	にや
• /my/ → [mj]	みや	• /hy/ → [ç] (or [çʲ])	ひや
• /ry/ → [rj]	りや		



Palatalized consonants

- Syllable-initial /kwa/ and /gwa/ used to exist in Sino-Japanese words.
 - e.g. くわんおん（観音）‘Guanyin’ > かのん
- /w/ gets lost in the late 19th century in Kyoto-Osaka (Frellesvig 2010).
- The only existing word with /kwa/ is 関西学院大学（くわんせいがくいんだいがく） in suburban Osaka.
 - <https://www.kwansei.ac.jp/index.html>

Japanese consonants (conservative)

	Bilabial		Alveolar		Palatal		Velar		Glottal	
Stop	p (ぱ)	b (ば)	t (た)	d (だ)			k (か)	g (が)		
Fricative			s (さ)	z (ざ)						h (は)
Nasal		m (ま)		n (な)						
Tap				r (ら)						
Approximant		w (わ)				y (や)				

Phonemicization

- Due to the influence of (Western) loanwords, some allophones became phonemes in Contemporary Japanese.
- These 5 sounds were added to the consonant inventory.
 - /s/ → [ɕ] / __ /i, y/ (し・しゃ・しゅ・しよ)
 - /z, (d)/ → [ʃɕ] / __ /i, y/ (じ・じゃ・じゅ・じよ)
 - /t/ → [tɕ] / __ /i, y/ (ち・ちゃ・ちゅ・ちよ)
 - /t/ → [ts] / __ /u/ (つ)
 - /h/ → [ɸ] / __ /u/ (ふ)

Phonemicization

- [ɕ] used to occur only before /i, y/: し・しゃ・しゅ・しょ.
- /ɕ/ can now occur before /e/ in (Western) loanwords.
 - e.g. シェリー 'sherry', シェフ 'chef', マルシェ 'marché'
- Vance's transcriptions in the textbook:
 - Phonemic transcription: /š/
 - Phonetic transcription: [ɕ]

Phonemicization

- [t͡ɕ] used to occur only before /i, y/: じ・じゃ・じゅ・じょ.
- [t͡ɕ] can now occur before /e/ in (Western) loanwords.
 - e.g. ジェイムズ 'James', ナイジェリア 'Nigeria'
- Vance's transcriptions in the textbook:
 - Phonemic transcription: /j/
 - Phonetic transcription: [t͡ɕ] (or [t͡ɕ])

Phonemicization

- /z, (d)/ → [ʃz̥] / __ /i, y/ (じ・じゃ・じゅ・じょ)
- [d] can now occur before /i/ in (Western) loanwords.
 - e.g. ディズニー ‘Disney’
- [d] can now occur before /u/ in (Western) loanwords.
 - e.g. キャンドゥ ‘Can Do’ (100-yen shop)
- /dy/ can now occur syllable-initially; only /dyu/.
 - e.g. デュエット ‘duet’, デュース ‘deuce’

Can★Do

<https://www.cando-web.co.jp/>

Phonemicization

- [ç̣ç̣] used to occur only before /i, y/: ち・ちや・ちゆ・ちよ.
- [ç̣ç̣] can now occur before /e/ in (Western) loanwords.
 - e.g. チェース 'Chase (Bank)', チェック 'check'
- Vance's transcriptions in the textbook:
 - Phonemic transcription: /č̣/
 - Phonetic transcription: [ç̣ç̣] (or [cç̣])

Phonemicization

- /t/ → [ç̚] / __ /i, y/ (ち・ちや・ちゆ・ちよ)
- [t] can occur before /i/ in (Western) loanwords.
 - e.g. ティアラ 'tiara', ペナルティ 'penalty'
- [t] can occur before /u/ in (Western) loanwords.
 - e.g. トゥシューズ 'toe shoes (< ballet shoes)'
- /ty/ can occur syllable-initially; only /tyu/.
 - e.g. テューバ 'tuba', テューダー 'Tudor' (cf. チューバ, チューダー)

Phonemicization

- [ts] used to occur only before /u/: つ.
- [ts] can now occur before /i, e, a, o/ in (Western) loanwords
 - e.g. エリツィン ‘Yeltsin’, フィレンツェ ‘Firenze (< Florence)’,
ツァーリ ‘tsar’, カンツォーネ ‘canzone’
- Vance’s transcriptions in the textbook:
 - Phonemic transcription: /c/
 - Phonetic transcription: [ts]

Phonemicization

- [ɸ] used to occur only before /u/: ふ.
- /ɸ/ can occur before /i, e, a, o/ in (Western) loanwords.
 - e.g. フィールド 'field', フェイク 'fake', ファイヤー 'fire', フォルダー 'folder'
- Vance's transcriptions in the textbook:
 - Phonemic transcription: /f/ (following Hepburn Romanization)
 - Phonetic transcription: [ɸ]

Phonemicization

- Some speakers use /v/ for the v sound in (Western) loanwords.
- Examples
 - ヴァイオリン (バイオリン) 'violin'
 - ヴィーナス (ビーナス) 'Venus'
 - ヘヴン (ヘブン) 'heaven'
 - ヴェール (ベール) 'veil'
 - ヴォーカル (ボーカー) 'vocal'

Japanese consonants (contemporary)

	Bilabial		Alveolar		Alveolo-palatal		Palatal		Velar		Glottal	
Stop	p (ぱ)	b (ば)	t (た)	d (だ)					k (か)	g (が)		
Affricate			c (ツァ)	z (ざ)	č (チャ)	ǰ (ジャ)						
Fricative	f (ファ)	v (ヴァ)	s (さ)		š (シャ)						h (は)	
Nasal		m (ま)		n (な)								
Tap				r (ら)								
Approximant		w (わ)						y (や)				

Exercise

Vance (2008): p. 94 (3)

- Transcribe each word phonemically (= //) using Vance's system (= Contemporary Japanese).

1. くに（国）‘country’
2. ふうとう（封筒）‘envelope’
3. チェス ‘chess’
4. つじ（辻）‘crossroads’
5. しょうゆ（醤油）‘soy sauce’

Exercise

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1. くに（国）‘country’ /kuni/
2. ふうとう（封筒）‘envelope’ /fuHtoH/
3. チェス ‘chess’ /česu/
4. つじ（辻）‘crossroads’ /cuji/
5. しょうゆ（醤油）‘soy sauce’ /šoHyu/

Syllable-initial glides in Western loanwords

- /yV/ and /wV/ in Western loanwords
 - イェール ‘Yale’ /yeH.ru/ (disyllabic)
 - cf. イエール /i.eH.ru/ (trisyllabic) and エール /eH.ru/ (disyllabic)
 - ウィスコンシン ‘Wisconsin’ /wi.su.../
 - cf. ウイスコンシン /u.i.su.../
 - ウェールズ ‘Wales’ /weH.ru.zu/
 - cf. ウエールズ /u.eH.ru.zu/
 - ウォールがい（街） ‘Wall Street’ /woH.ru/
 - cf. ウォールがい（街） ‘Wall Street’ /u.oH.ru/

Reference

- Frellesvig, Bjarke. 2010. *A history of the Japanese language*. Oxford University Press.