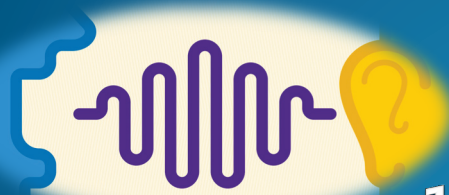


上海外国语大学语言学本科专业核心课程

# 语音学 PHONETICS



## 第10讲 复合发音;音节

10 COMPLEX ARTICULATION; SYLLABLE

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# 10.1 Complex articulation of consonants 辅音复合发音

- **Double articulation 双重发音**

Two strictures of the same degree 两处收窄程度相同

[ɱ]

= [ɸ] + [x]

[w]

= [β] + [ɯ]

[ɥ]

= [β] + [j]

ɱ

Voiceless labial-velar fricative

W

Voiced labial-velar approximant

ɥ

Voiced labial-palatal approximant

## 10.1 Complex articulation of consonants 辅音复合发音

- **Double articulation 双重发音**

Two strictures of the same degree 两处收窄程度相同

[ɧ] = [ʃ] + [x]

【Swedish 瑞典语】

sjok 大块 [ɧu:k]

[kp] = [k] + [p]

【Yoruba 约鲁巴语】

apa 手臂 [apká]

[gb] = [g] + [b]

[ŋm] = [ŋ] + [m]

ɧ Simultaneous ʃ and X

schal 围巾 [ɧal]

kp

## 10.1 Complex articulation of consonants 辅音复合发音

- **Primary and secondary articulations 主要和次要发音**

Two strictures of different degrees 两处收窄程度不同

- ┌ Narrower: primary 通道更窄者为主要发音
- └ Wider: secondary 通道更宽者为次要发音

	Simultaneous 同时的	Transitional 转接的
		pre-; post-
Labialization 唇化		
Palatalization (硬)腭化		
Velarization 软腭化		
Pharyngealization 咽化		

$t^w \quad d^w$   
 $t^j \quad d^j$   
 $t^{\text{v}} \quad d^{\text{v}}$   
 $t^{\text{h}} \quad d^{\text{h}}$  }  $t$

## 10.1 Complex articulation of consonants 辅音复合发音

- **Primary and secondary articulation 主要和次要发音**

### Labialization 唇化

Simultaneous 同时

水 [ɕ<sup>w</sup>ei<sup>21</sup>]

post-labialization 唇化在后

sway ['s<sup>w</sup>wei]

### Palatalization (硬)腭化

key [k<sup>h</sup>i:]

## 【Russian 俄语】

Моей душе покоя нет

[ me'jɛj du'ʂɛ pe'kʷɔji n'jɛt ]

Весь день я жду кого-то

[ v'izʲ dʲɛnʲ ja ʒdu ke'vʷɔtə ]

Без сна встречаю я рассвет

[ bʲis sna fstrʲi' tɕʰajɐ ja ras'v'jɛt ]

И все из-за кого-то

[ i fsʲɔ iz:ə ke'vʷɔtə ]

Со мною нет кого-то

[ se 'mnʷɔjɐ n'jɛt ke'vʷɔtə ]

Ах где найти кого-то

[ ax gdʲɛ naj'tʲi ke'vʷɔtə ]

Могу весь мир я обойти

[ me'gu vjɛzʲ mʲirʲja əbej'tʲi ]

Чтобы найти кого-то

[ 'ʂtʷɔbʲi naj'tʲi ke'vʷɔtə ]

## Russian “soft consonants” 俄语软辅音

О вы хранящие любовь

[ ɔ vʲ xre'nʲaɕʲi lʲɐ'bʷɔfʲ ]

Неведомые силы

[ nʲi'vʲɛdəmʲi 'sʲilʲi ]

Пусть невредим вернется вновь

[ puctʲ nʲi'vrʲɛdʲim vʲir'nʲɔtsə vnʷɔfʲ ]

Ко мне мой кто-то милый

[ ke mnʲɛ mʷɔj 'ktʷɔtə 'milʲij ]

Но нет со мной кого-то

[ nʷɔ n'jɛt se mnʷɔj ke'vʷɔtə ]

Мне грустно от чего-то

[ mnʲɛ 'grusnə ɐt tɕʰi'vʷɔtə ]

Клянусь я все бы отдала

[ klʲi'nusʲ ja fsʲɔ bʲi əde'la ]

На свете для кого-то

[ ne zvʲɛtʲi dlʲa ke'vʷɔtə ]

# 10.1 Complex articulation of consonants 辅音复合发音

- Primary and secondary articulation 主要和次要发音

## Pharyngealization 咽化

【Arabic 阿拉伯语】

	Bilab.	Lab.dent	Dental	Alv.	Postalv.	Retrofl.	Palatal	Velar	Uvular	Pharyng	Glottal
Plosive	b		t d					k	q		ʔ
Nasal	m		n								
Trill			r								
Fricative		f	θ ð	s z	ʃ			x ɣ		ħ ʕ	h
Approximant							j	w			
Lateral			l								

Pharyngealized consonants. tˤ dˤ sˤ ðˤ lˤ

Affricate: **ɟʕ**

# 10.1 Complex articulation of consonants 辅音复合发音

- Primary and secondary articulation 主要和次要发音

## Pharyngealization 咽化

【Arabic 阿拉伯语】

b	balla	'recovered'	t	tijn	'figs'	k	kalb	'dog'
m	malla	'got bored'	d	dijn	'religion'	q	qalb	'heart'
x	xilaaf	'dispute'	n	nadda	'released'	ʔ	saʔala	'asked'
f	dafara	'stank'	y	yilaaf	'cover' (n)	ʃ	saʃala	'coughed'
θ	daθara	'covered'	s	saara	'walked'	ʒ	ʒadda	'doubling mark'
			z	zaara	'visited'	ɣ	ɣadda	'grandmother'
j	jaraqaan	'jaundice'	h	huruwb	'escape' (n)	ħ	ħuruwb	'wars'
s <sup>ʕ</sup>	s <sup>ʕ</sup> arf	'exchange'	r	rawʃa	'splendor'	l	lawʃa	'sorrow'
θ <sup>ʕ</sup>	θ <sup>ʕ</sup> arf	'envelope'	t <sup>ʕ</sup>	xit <sup>ʕ</sup> aab	'letter'	w	was <sup>ʕ</sup> l	'receipt'
			d <sup>ʕ</sup>	xid <sup>ʕ</sup> aab	'henna'	l <sup>ʕ</sup>	al <sup>ʕ</sup> l <sup>ʕ</sup> aa	'god'



Contextual forms				Name	Translit.	Phonemic Value (IPA)
Isolated	End	Middle	Beginning			
ا	ـا	ـا	ا	ʾalif	ʾ / ā	various, including /aː/
ب	ـب	ـب	ب	bāʾ	b	/b/, also /p/ in some loanwords
ت	ـت	ـت	ت	tāʾ	t	/t/
ث	ـث	ـث	ث	ṯāʾ	ṯ	/θ/
ج	ـج	ـج	ج	ǧīm	ǧ (also j, ʒ)	[g~dʒ~ʒ]
ح	ـح	ـح	ح	ḥāʾ	ḥ	/ħ/
خ	ـخ	ـخ	خ	ḫāʾ	ḫ (also kh, x)	/x/

د	ـد	ـد	د	dāl	d	/d/
ذ	ـذ	ـذ	ذ	ḏāl	ḏ (also dh, ð)	/ð/
ر	ـر	ـر	ر	rāʾ	r	/r/
ز	ـز	ـز	ز	zāy	z	/z/
س	ـس	ـس	س	sīn	s	/s/
ش	ـش	ـش	ش	šīn	š (also sh)	/ʃ/
ص	ـص	ـص	ص	ṣād	ṣ	/sˤ/
ض	ـض	ـض	ض	ḍād	ḍ	/dˤ/

ط	ط	ط	ط	ṭāʾ	t	/tˤ/
ظ	ظ	ظ	ظ	ẓāʾ	z	[ðˤ~zˤ]
ع	ع	ع	ع	ʿayn	ʿ	/ʕ/
غ	غ	غ	غ	ġayn	ġ (also gh)	/ɣ/ (/g/ in many loanwords)
ف	ف	ف	ف	fāʾ	f	/f/, also /v/ in some loanwords
ق	ق	ق	ق	qāf	q	/q/
ك	ك	ك	ك	kāf	k	/k/
ل	ل	ل	ل	lām	l	/l/, ([lˤ] in <u>Allah</u> only)

م	م	م	م	mīm	m	/m/
ن	ن	ن	ن	nūn	n	/n/
ه	ه	ه	ه	hāʾ	h	/h/
و	و	و	و	wāw	w / ū / aw	/w/ / /u:/ / /au/, sometimes /u/, /o/ and /o:/ in loanwords
ي	ي	ي	ي	yāʾ	y / ī / ay	/j/ / /i:/ / /ai/, sometimes /i/, /e:/ and /e/ in loanwords

## 10.2 Complex articulation of vowels 元音复合发音

- Overview 总览

		Simultaneous 同时的	Transitional 转接的
Vowel retroflexion 元音卷舌化		ə̃ ã	
Advanced/retracted tongue root 舌根前伸/后缩			ą ɶ
Diphthong 双元音	Falling 前响(降峰)		ai
	Rising 后响(升峰)		ua
Triphthong 三元音			uai

## 10.2 Complex articulation of vowels 元音复合发音

- **Vowel retroflexion 元音卷舌化**

rhoticity 卷舌性

rhotacism 卷舌性

rhotacization 卷舌化

rhotic vowel 卷舌元音

rhotacized vowel 卷舌化元音

【Chinese (Beijing) 汉语(北京)】

腿儿 [t<sup>h</sup>uə<sup>21</sup>]

高跟鞋 [kaʊ<sup>55</sup>kə<sup>55</sup>ɕie<sup>35</sup>]

## 10.2 Complex articulation of vowels 元音复合发音

- **Vowel retroflexion 元音卷舌化**

There can be different ways to rhotacize a vowel  
存在不同的元音卷舌方法



Magnetic resonance imaging (MRI) scans of two American English speakers producing [ɜ̌] (data from Zhou, Espy-Wilson, Tiede, & Boyce, 2007).

## 10.2 Complex articulation of vowels 元音复合发音

- **Advanced/retracted tongue root 舌根前伸/后缩**

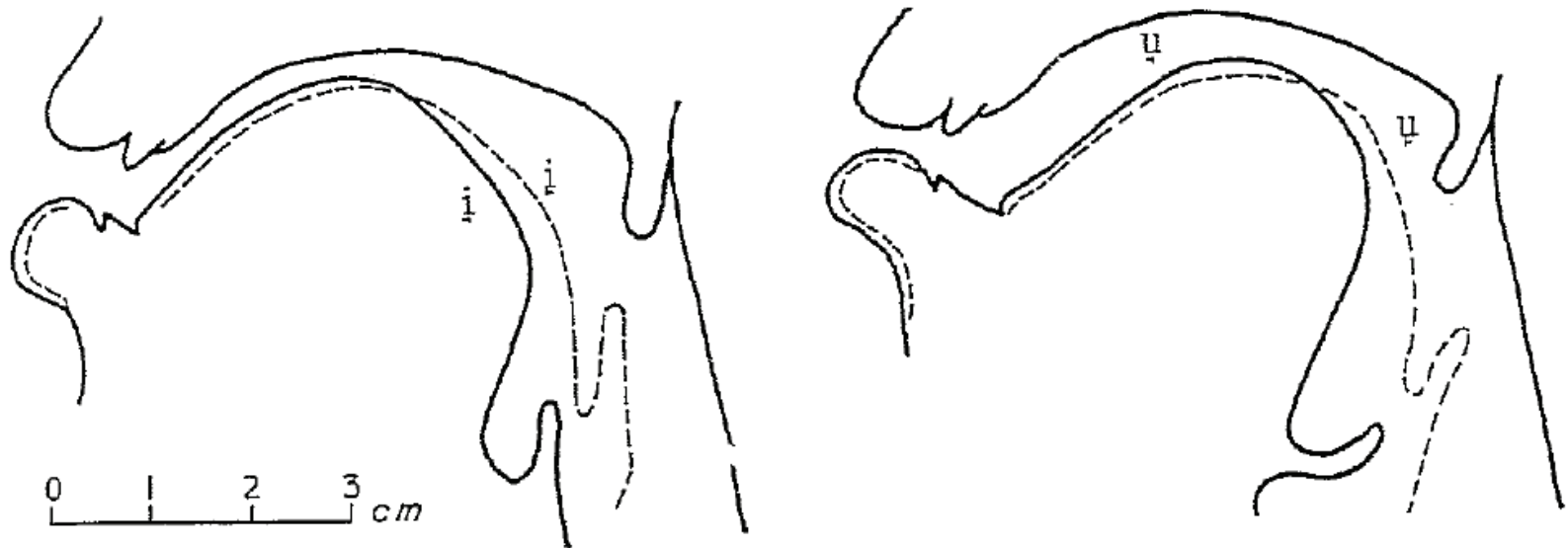


Figure 9.16 Tracings from x-ray cinematography films of Igbo vowels *i* as in ɔbì (òbì in the standard Igbo orthography) 'heart'; *ì* as in ùbì (ùbì) 'poverty of ability'; *u* as in ìbù (íbù) 'weight'; and *ù* as in ɔbù (òbù) 'it is'. In accordance with current IPA usage, *i* and *u* are used to indicate Advanced and Retracted Tongue Root, respectively.

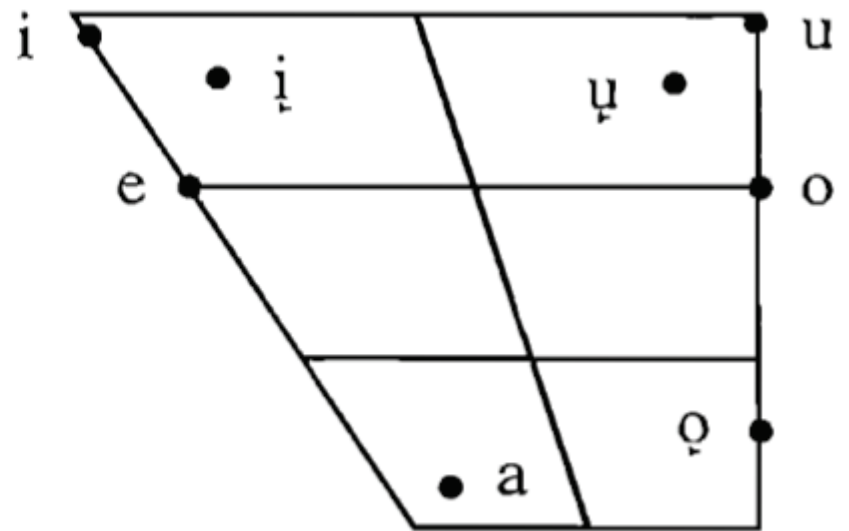
(Ladefoged & Maddieson 1996: 301)

## 10.2 Complex articulation of vowels 元音复合发音

- Advanced/retracted tongue root 舌根前伸/后缩

【Igbo 伊格博语】

i	ísí	ísí	‘head’
ĩ	ĩbò	ĩbò	‘dissect’
u	úmù	úmù	‘children’
u	émù	émù	‘derision’
o	ékò	ékò	‘gizzard’
e	ùkó	ùkó	‘rafter, roof’
ɔ	òmì	òmì	‘marrow’
a	ákú	ákú	‘kernel’



## 10.2 Complex articulation of vowels 元音复合发音

- **Diphthong 双元音**

**Falling vs. rising diphthongs**

前响(降峰)、后响(升峰)双元音

[aɪ] [eɪ] [ɔɪ] [aʊ] [eʊ] [əʊ]

[ia] [ie] [io] [ua] [ue] [uo]

**Opening, closing and centring diphthongs**

趋开、趋闭、趋央双元音

[ia] [ie] [io] [ua] [ue] [uo]

[aɪ] [eɪ] [ɔɪ] [aʊ] [eʊ] [əʊ]

[ɪə] [eə] [aə] [oə] [ʊə]

**a**



**ɪ**

**Difference btw. Languages**

语言间有差异

Cf. English [aɪ] & German [ai]

**prominence 凸显**

**undershoot 达标不足**



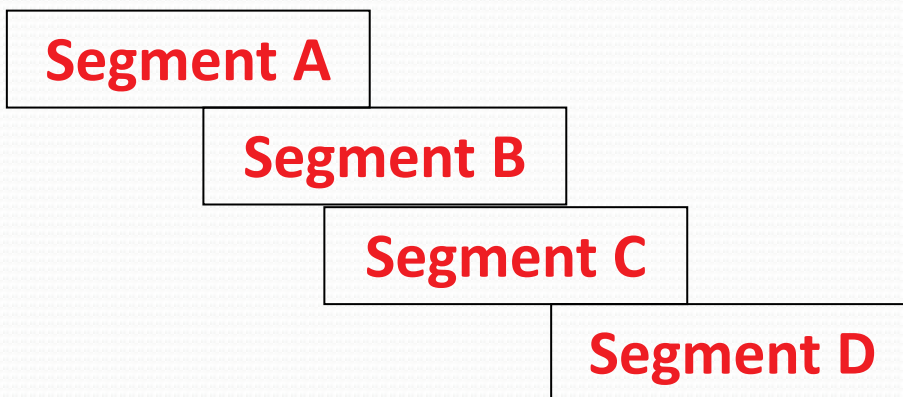
## 10.3 Coarticulation; juncture 协同发音;音渡

- **Coarticulation** 协同发音

Transcription 转写:

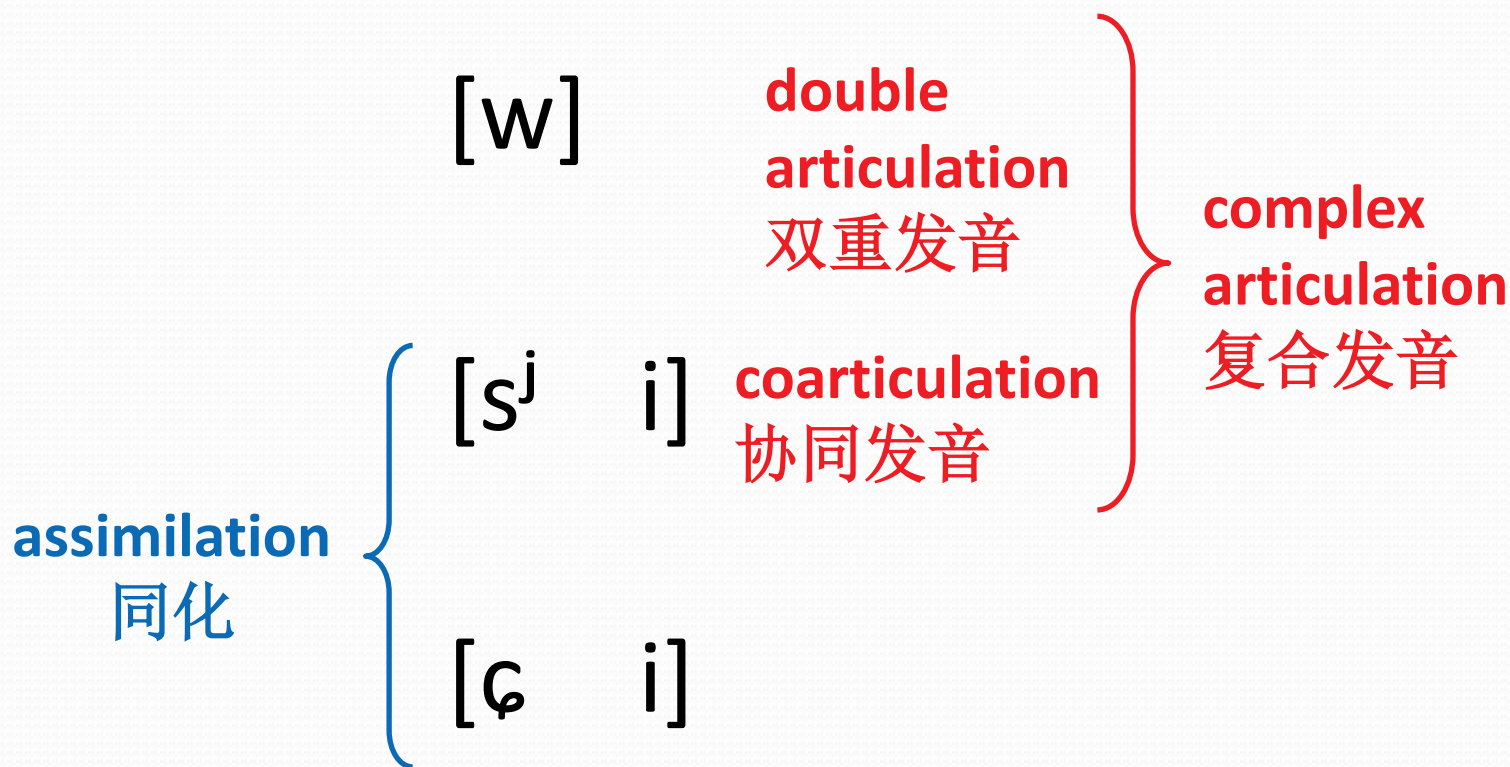


What really happens 实际情况:



## 10.3 Coarticulation; juncture 协同发音;音渡

- **Coarticulation** 协同发音



## 10.3 Coarticulation; juncture 协同发音;音渡

- **Coarticulation** 协同发音

coarticulation 协同发音

- perseverative coarticulation 遗留协同发音  
[pli:z] → [p̚li:z]
- anticipatory coarticulation 先行协同发音  
[si] → [sʲi]

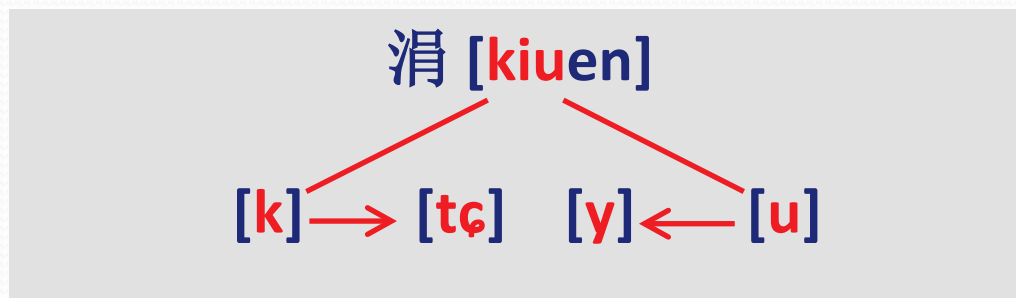
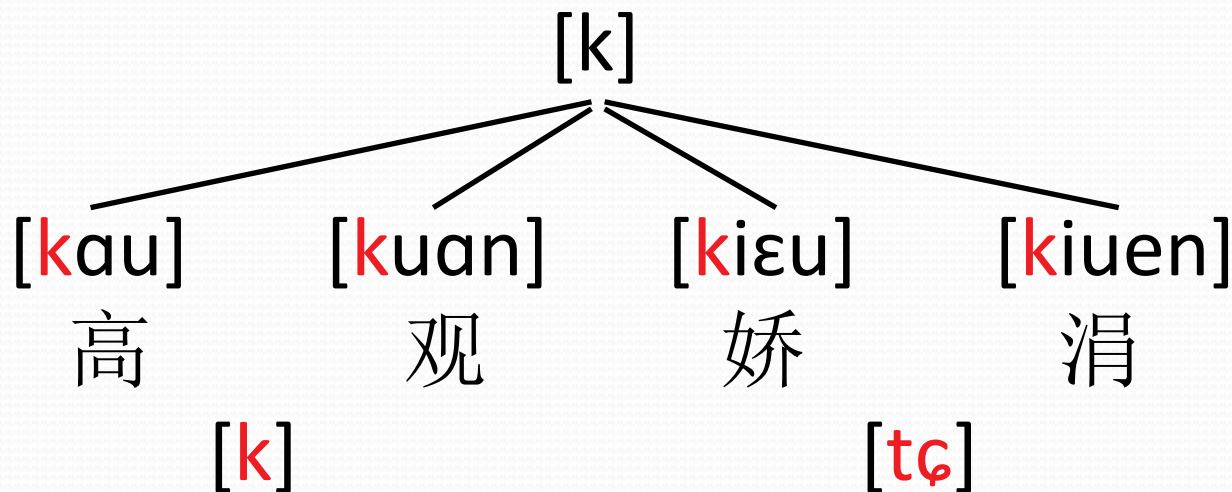
assimilation 同化

- progressive assimilation 顺同化  
[pli:z] → [p̚li:z] → [p̚t̚i:z]
- regressive assimilation 逆同化  
[si] → [sʲi] → [çi]

**Difference btw. Languages**  
语言间有差异  
**Cf. Chinese [çi] & English [ji:]**

## 10.3 Coarticulation; juncture 协同发音;音渡

### 【Middle Chinese 中古汉语】



## 10.3 Coarticulation; juncture 协同发音;音渡

### 【Mandarin Chinese 汉语普通话】

	开口呼 a o e etc.	齐齿呼 i	合口呼 u	撮口呼 ü
j [tɕ] q [tɕʰ] x [ç]		+		+
g [k] k [kʰ] h [x]	+		+	
zh [tʂ] ch [tʂʰ] sh [ʂ]	+		+	
z [ts] c [tsʰ] s [s]	+		+	

## 10.3 Coarticulation; juncture 协同发音;音渡

- **Juncture 音渡**

Assumption 假设:

**Segment A**

**Segment B**

**Segment C**

**Segment D**

What really happens 实际情况:

**Segment A**

**Segment B**

**Segment C**

**Segment D**

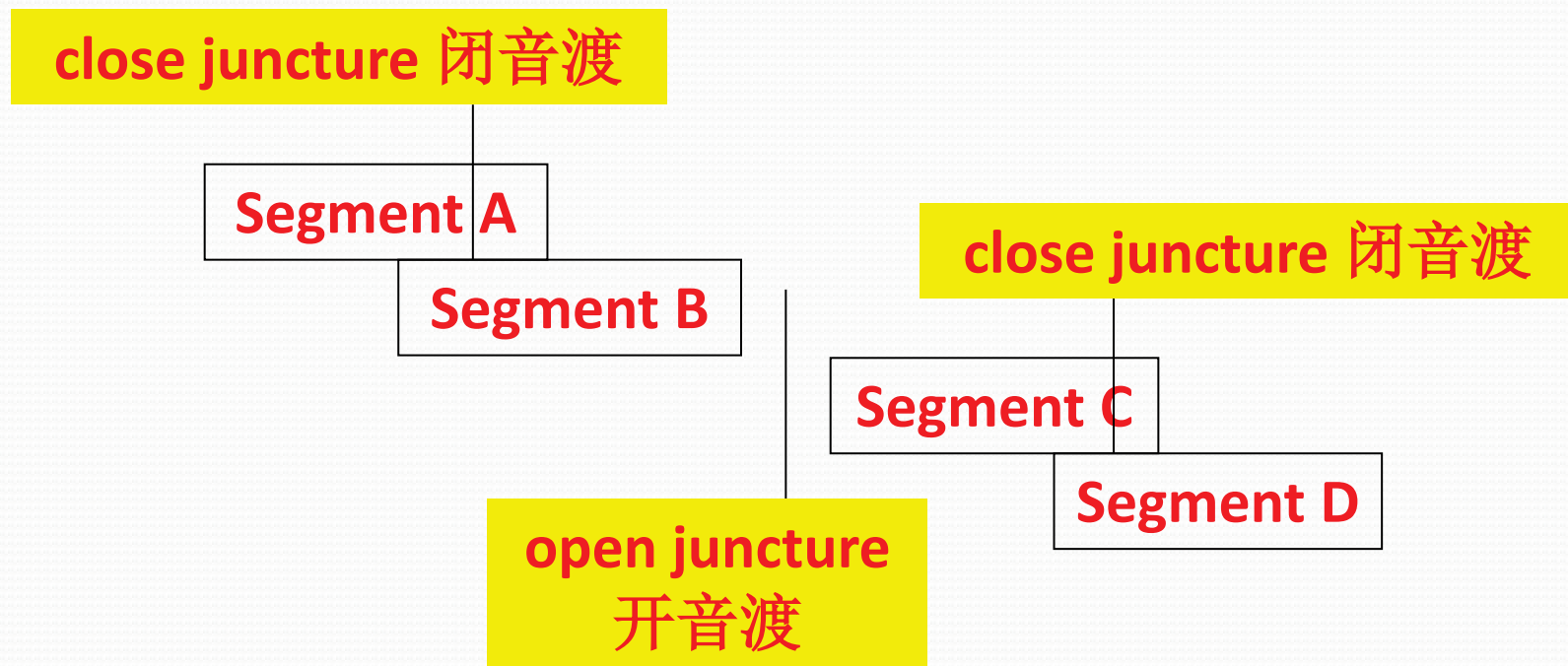
mostly a grammatical boundary  
通常为语法边界

**Juncture  
音渡**

## 10.3 Coarticulation; juncture 协同发音;音渡

- **Juncture 音渡**

In a broad sense, there is a juncture btw. every 2 segments  
广义上，任何两个音段间都有音渡



## 10.3 Coarticulation; juncture 协同发音;音渡

Positional change of juncture 音渡的位置变化

that's tough [ðætʰs + tʰʌf]

that stuff [ðæt + stʌf]

Open vs. close juncture 开音渡与闭音渡

nitrate 硝酸盐 ['naɪtreɪt]

night-rate 夜间费率 ['naɪt + reɪt]

• Syllable break     ʃi.ækt

◡ Linking (absence of a break)



## 10.4 Syllable 音节

- **Criterion 判断标准**

target 目标

peak of acoustic energy 声能峰

sonority 响度

prominence 显著度

phonotactics 语音配列

None is perfect 都有反例

Arguably language-specific  
可能因语言而异(有争议)

- **音节性 (syllabicity)**

音节性辅音 (syllabic consonant)

非音节性元音 (non-syllabic vowel)

【French 法语】 vite 快

[vitə]

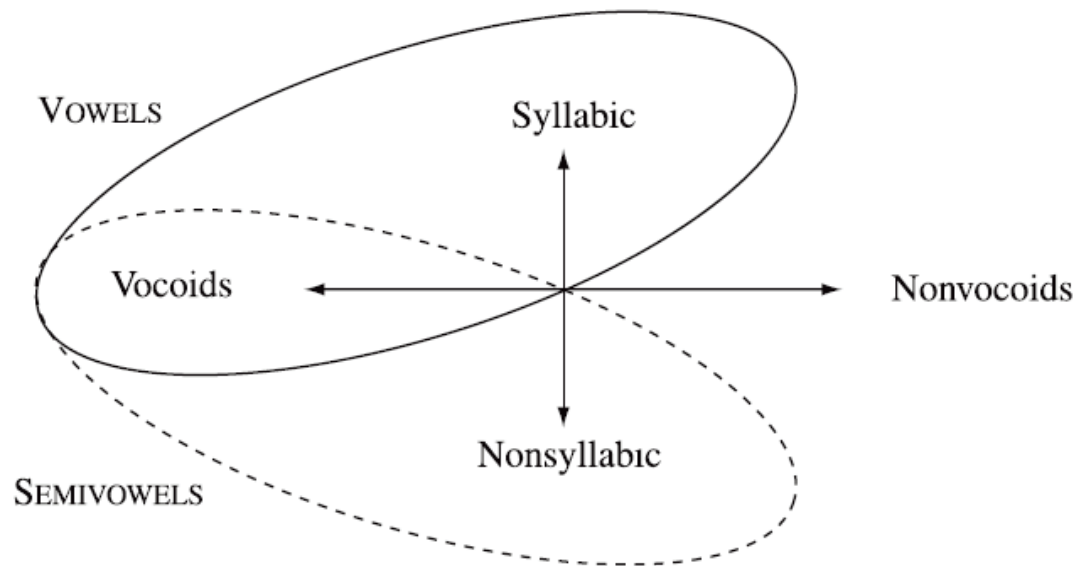
【Russian 俄语】 нравиться 令人喜欢

['nəra.vʲi.tsə]

# 10.4 Syllable 音节

Vowels are syllabic vocoids, semivowels are nonsyllabic vocoids, and nonvocoids, whether syllabic or not, are consonants.

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(Ladefoged & Johnson 2011: 223)

## 10.5 Homework 作业

- Review what you have learnt (including all the English terms in this PowerPoint).

复习所学内容（包括本PPT中的所有英文术语）。

- Watch the video clips on the difference btw. Russian and Ukrainian, then transcribe the Russian and Ukrainian words in the second clip in IPA.

请观看课程网站中关于俄语和乌克兰语区别的视频，然后将第二个视频中的俄语和乌克兰语词转写为国际音标。

- Watch the video clip on some Arabic words with challenging pronunciation, then transcribe the words in IPA. After that, make a recording of your own pronunciation of the words, and send it to your teacher.

请观看课程网站中关于一些较难发音的阿拉伯语词的视频，然后将这些阿拉伯语词转写为国际音标。同时，请练习这些词的发音，并将自己的发音录音发给授课教师。