

[aɪ p<sup>h</sup>iː eɪ]

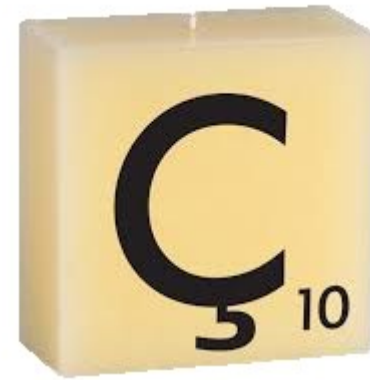
# A Letter a Day

All about IPA and Phonetics

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Sources: wikipedia.org



# Chapter I

Consonant - Fricatives

辅音 —— 擦音



# Voiceless retroflex sibilant

清卷舌擦音

ʂ

*As in:*

Chinese: 射 [ʂɛ̌ ʃɿ ʅ]

Russian: Ш

*Not to be confused with:*

[ʃ]

# Voiced retroflex sibilant

濁卷舌擦音

ㄗ

*As in:*

Chinese: 肉 [zou̯̚ ˥˩]

Russian: Ж

*Not to be confused with:*

[ɹ], [ʀ]

# Voiceless alveolo-palatal sibilant

清 齦 顎 擦 音

ç or ʃ

*As in:*

Chinese: 西 [çi]

Russian: Щ, ч

Japanese: し / シ

*Not to be confused with:*

[s], [ʃ], [tʃ]

# Voiced alveolo-palatal sibilant

浊 龈 腭 擦 音

ʒ or ʒʲ

*As in:*

吴语：徐 [ʒi<sub>22</sub>]

Russian: зж, жж

*Not to be confused with:*

[dʒ], [ʒ]

# Voiceless palatal fricative

清硬顎擦音

Ç

Allophones of [h] or [x]:

English: hue [çu:]    German: nicht [niçt]

Japanese: ㇿ [çi̞to̞]

*Not to be confused with:*

[ h ], [ x ], [ χ ]

# Voiced palatal fricative

浊 硬 顎 擦 音

j

<Very rare>

Greek: γ before ι, ε

e.g. : ἰῶτα(ι) ['jota]



# Voiceless palato-alveolar sibilant

清顎齦擦音

ʃ

*As in:*

Arabic: ش

English: sh

French: ch

Hebrew: שׁ

Hindi: श (also as [ʂ])

Often written as:

š

# Voiced palato-alveolar sibilant

## 浊颚龈擦音

# 3

*As in:*

French: j    Hebrew: י

English: vision ['vɪʒən]

Often written as:

ž

# Voiceless alveolar sibilant

清齒齦擦音

# S

*As in:*

Arabic: س English, Finnish: s Greek: σ

Georgian: ს Hebrew: ס Hindi: स

Japanese: さ/サ [sa] Portuguese: ç

Not to be confused with: [ʃ], [ʒ]

# Voiced alveolar sibilant

濁齒齦擦音

# Z

*As in:*

Arabic: ز English: z, xy-, rose [ɹəʊz]

Hebrew: ז Hindi: ज़

Japanese: ざ / ザ [za]

Not to be confused with: [ʒ], [ʒ]

# Voiceless dental fricative

清 齒 擦 音

θ

*As in:*

Arabic: ث      English: thin [θɪn]

Greek: θ      Icelandic: þ

Burmese: ထုံ (thon) [θòũ]

# Voiced dental fricative

浊齿擦音

ð

*As in:*

Arabic: ð

English: this [ðɪs]

Greek: ð

Icelandic: ð

Allophone of [d], [θ] in:

Danish, Hebrew, Spanish ...

# Voiceless dental sibilant

清齒擦音(有叻)

S

*As in:*

Mandarin: 三[san<sup>1</sup>]

French: ç, s

Russia: c

Polish, Swedish: s

Not to be confused with:

[s], [θ]

# Voiced dental sibilant

## 浊齿擦音(有叻)

ɹ

*As in:*

吴语(上海话): 上 [z̥ᵻ̃<sup>22</sup>]      Russia: з

French, Polish : z

Not to be confused with:

[z], [ʤ]



# Voiceless labiodental fricative

清唇齒擦音

f

*As in:*

Arabic: ف      Mandarin: 飛 [fei1]

Dutch, English, French, German: f

Russia: ф      Greek: φ      Hebrew: פ

Vietnamese: ph

# Voiced labiodental fricative

## 浊唇齿擦音

# V

*As in:*

吴语(上海话): 勿/不 [vəʔ<sup>11</sup>]      German: w

English, French, Portuguese, Swedish,  
Vietnamese... : v

Greek: β      Hebrew: ו      Russia: В

# Voiceless bilabial fricative

清双唇擦音

Φ

*As in:*

Ewe: *éfá* [éφá]    \**f* ≠ *f*

Māori: *whakapapa* [φakapapa]

Allophone of [p] in Italian

Allophone of [f], [b] in some spoken languages

# Voiced bilabial fricative

浊双唇擦音

β

*As in:*

Ewe: Eve (language name) [εβε] \*U≠V

Turkmen: watan/ватан [βatan]

Allophone of [b] in

Portuguese, Spanish, Swedish

# Voiceless velar fricative

清軟顎擦音

**X** [x] ≠ [χ]

*As in:*

Mandarin: 和 [xʉɪ ɪ]

Arabic: خ (also as [χ])

Spanish: j

Georgian: ზ

Greek: χ

Russia: x

Irish: ch

German: Kuchen [ku:xən]

# Voiced velar fricative

浊软颚擦音



[ɣ] ≠ [ʁ]

*As in:*

Arabic: غ

Georgian: ჲ

Greek: γ before α, ο

Vietnamese: gh

Allophone of [g] in:

Japanese, Portuguese,  
Spanish(amigo[a'miɣo]).

# Voiceless uvular fricative

清小舌擦音

χ

*As in:*

Arabic: خ (also as [x]) خبز [χʊbz]

Israeli Hebrew: כּ כּ

Welsh: chwech [ˌmɛːχ]

Allophone of [ʁ] in French: proche [pʁɔʃ]

# Voiced uvular fricative

浊小舌擦音

ʀ

*As in:*

French: r e.g. rester [ʁɛste]

German: Rost [ʁɔst]

Appears in many dialects of:

English, Swedish, Norwegian



# Voiceless pharyngeal fricative

清咽擦音

ħ

*As in:* Arabic: ح

# Voiceless epiglottal fricative

清会厌擦音

H

<very rare>

# Voiced pharyngeal fricative

浊咽擦音



<very rare> Arabic: ض [d<sup>ʁ</sup>], ص [s<sup>ʁ</sup>]

# Voiced epiglottal fricative

浊会厌擦音



<extremely rare>

# Voiceless glottal fricative

## 清声门擦音

h

*As in:*

Arabic: ه

Japanese: は / ハ [ha]

Thai: ห

Korean: ㅎ e.g. 하 [ha]

吴语(上海话): 海 [hɛ]

English, Norwegian, German, Malay ...: h

# Voiced glottal fricative

## 浊声门擦音

h

*As in:*

吴语(上海话): 话 [hʊ]

Czech: h      Dutch: haat [ha:t]

\*English: behind [bɪ'haind]

Not to be confused with: [ɣ]

# Fricatives Review

Voiceless

ɸ

f

θ s̺

ʃ

ʒ

ç

x

χ

ħ

h

Voiced

β

v

ð z̺

ʒ

ʒ

ʒ

ʒ

j

ɣ

ʁ ʕ ʕ ɦ

“Lip”

Labial 1, 2

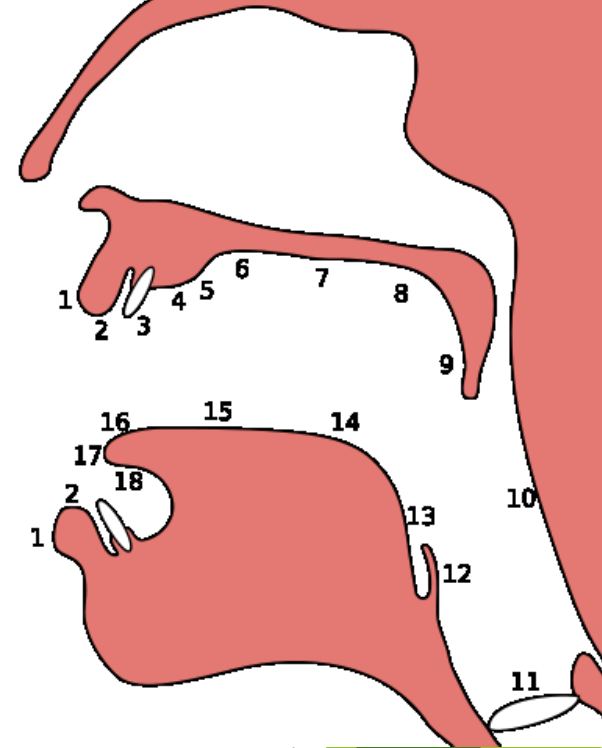
Coronal 3, 4, 5

Dorsal 6, 7, 8, 9

Radical 10, 12, 13

Glottal 11

“Throat”



**\* Sibilants  
are in RED.**



# Chapter II

Consonant - Stops

辅音 —— 塞音

# Voiceless bilabial stop

清双唇塞音

p

*As in:*

Mandarin: 拔 [pa˥ ˧]

French, Spanish: p

Japanese: ぱ / パ

English: tip [tɪp]

吴语(上海话): 百 [pAʔ˧]

Hebrew: פ Greek: π

Russian: плод [pʎotɕ]

# Voiced bilabial stop

浊双唇塞音

b

*As in:*

Greek: μπ

Arabic: ب

Spanish: v

吴语(上海话): 白 [baʔ] ㄅ

Hebrew: ב

Japanese: ば / バ [ba]

Russian: б

French, English, Dutch, German: b



# Voiceless alveolar stop

清齿龈塞音

t

*As in:*

Mandarin: 大 [taɪ ˥]

吴语(上海话): 德 [tAʔɪ]

Thai: ต, ถ

Hebrew: ת Greek: τ

Japanese: た / 夕

Vietnamese: t

English: stop [stop]

# Voiced alveolar stop

浊双唇塞音

d

*As in:*

Thai: ด, ต      Greek: ντ      English: dad [dæd]

German, Malay, Norwegian: d

Japanese: だ / タ      Hebrew: ד

吴语(上海话): 特 [dAʔ] ㄊ

# Voiceless dental stop

清齿塞音

t̪

*As in:*

Indian English: thin [t̪ʰɪn]

Letter t in French, Finnish, Indonesian, Italian, Spanish, Vietnamese...

Russian: т

# Voiced dental stop

浊齿塞音

d

*As in:*

Polish: dom [dɔm]

Letter d in French, Turkish, Spanish

Russian: д

Not to be confused with: [ð]

# Voiceless retroflex stop

清卷舌塞音

ɖ

[ɖ] ≠ [t]

*As in:*

Indian English: time [tʌɪm]

Hindi: क़ (also in other languages of India {*Dravida*})

Norwegian: kort [kɔɖ:]

Swedish: karta ['kʰɑ:ɖa]

# Voiced retroflex stop

浊卷舌塞音

ɖ

*As in:*

Indian English: dine [ɖain]

Hindi: ड (also in other languages of India {*Dravida*})

Norwegian: varde ['vaɖə]

Swedish: nord [nu:ɖ]

# Voiceless palatal stop

清硬顎塞音

# C

*As in:*

Icelandic: gjóla [cou:la]

Czech: čeština ['tʃɛʃcɪna]      Vietnamese: ch

Allophone of [k] in French: qui [ci]

Not to be confused with: [kʲ]

# Voiced palatal stop

浊硬腭塞音

ɟ

*As in:*

Czech: dělám [ɟɛla:m]

Dialects of letter d in:

Portuguese, Norwegian, Vietnamese

Not to be confused with: [gʲ], [dʲ]



# Voiceless velar stop

清软顎塞音

k

*As in:*

Mandarin: 高 [kɑu]

Arabi: ك

English: pick [p<sup>h</sup>ɪk]

Greek: κ

Hebrew: כ

French: cabinet [kabinε]

Esperanto, Czech: k

Spanish, Vietnamese: c

# Voiced velar stop

浊软顎塞音

g **g ≠ ɣ**

*As in:*

Hebrew: ג Tunisian: ق Russian: г

Greek: γκ Georgian: გ Japanese: が / ガ [ga]

English, French, German, Portuguese,  
Norwegian ...: g

# Voiceless uvular stop

清小舌塞音

q

*As in:*

Arabic: القرآن [ʔalqur'ʔa:n]

Inuktitut: ᑭ

Tajik, Kazakh: қ

# Voiced uvular stop

浊小舌塞音

**G** **g** ≠ **G**

<Very rare>

Mongolian: Монгол [mɔŋɣɔ ɮ]

# Epiglottal stop

## 会厌塞音

ʕ

<extremely rare>

# Glottal stop

## 声门塞音

ʔ

*As in:*

Wu(入声): 一 [ʔiɪʔ]

Arabic: ء, ɛ

\*English: button ['bʌʔn]

*Start a vowel:*

Mandarin: 西安 [çiɪɪ ʔanɪɪ]    English: A ... [ʔə]

# Voiceless bilabial stop (Aspirated)

清双唇送气塞音

p<sup>h</sup>

*As in:*

Mandarin: 爬 [p<sup>h</sup>aɪ ˥]      吴语(上海话): 拍 [p<sup>h</sup>Aʔ˥]

English: pack [p<sup>h</sup>æk]      German: Pack [p<sup>h</sup>ak]

Korean: 풀 [p<sup>h</sup>ul]

Not to be confused with: [p], [pʻ]

# Voiceless alveolar stop (Aspirated)

清齿龈送气塞音

t<sup>h</sup>

*As in:*

Mandarin: 他 [t<sup>h</sup>aɪ]

吴语(上海话): 脱 [t<sup>h</sup>Aʔ]

English: tick [t<sup>h</sup>ɪk]

German: Tochter ['t<sup>h</sup>ɔxtɐ]

Thai: ตู, ท, ถ, ถ, ท, ถ

Korean: 텍 [t<sup>h</sup>ʌkʰ]

Norwegian: tann [t<sup>h</sup>ʌn]



# Voiceless velar stop (Aspirated)

清软顎送气塞音

**k<sup>h</sup>**

*As in:*

Mandarin: 咖 [k<sup>h</sup>aɪ]

吴语(上海话): 客 [k<sup>h</sup>Aʔɪ]

English: kiss [k<sup>h</sup>ɪs]

German: Käfig ['k<sup>h</sup>ɛ:fiç]

Swedish: ko [k<sup>h</sup>u:]

Korean: ㅋ

# Stops Review

Voiceless

Voiced

p p<sup>h</sup>

b

t̚

ḃ

t t<sup>h</sup>

d

ʈ

ḍ

c

ɟ

k k<sup>h</sup>

g

q

ʁ

ʔ, ʕ

“Lip”

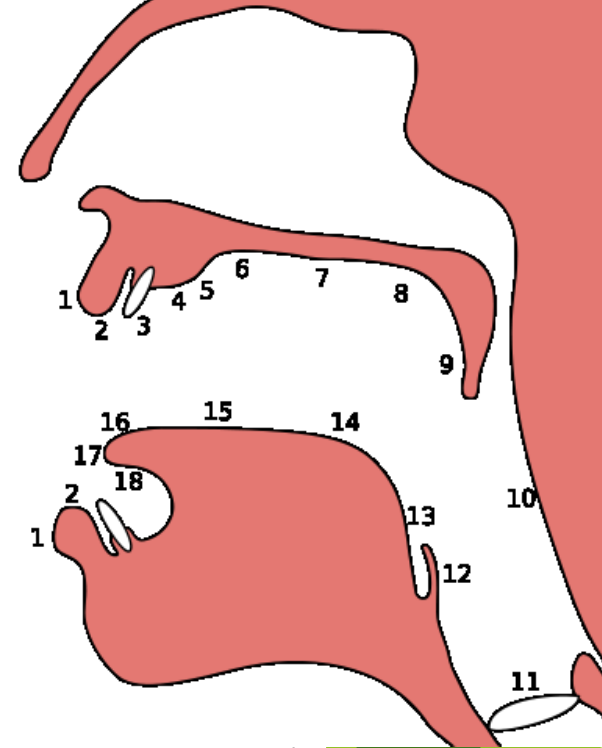
Labial (1, 2)

Coronal  
(3, 4, 5)

Dorsal (6, 7, 8, 9)

Radical (10, 12, 13), Glottal  
(11)

“Throat”





# Chapter III

Consonant - Nasals

辅音 —— 鼻音



# Bilabial nasal

双唇鼻音

Voiced

m

Latin script: m

Mandarin: 母 [mu˥˩ ˨˩˦]

Hebrew: מ

Greek: μ

French: prisme [pʁism<sub>o</sub>]

Kildin Sami: лēm̥м̥ьк [l̥eːm̥j̥ːk]

Voiceless

m̥

Cyrillic script: М

Arabic: م

Japanese: ま / マ [ma]

# Labiodental nasal

唇齿鼻音

m̥

*As in:*

Allophone of [m] before [f] or [v]

English: Symphony ['sɪm̥fəni]

# Alveolar nasal

齒 齦 鼻 音

Voiced

n

Latin script: n

Mandarin: 难 [nan˥ ɿ]

Arabic: ن

Greek: ν

Kildin Sami: чоҥтэ [tʃɔ̃ntɛ]

Welsh: fy nhad [və nəːd]

Voiceless

ṇ

Cyrillic script: н

Georgian: ნ

Hebrew: נ

# Retroflex nasal

卷舌鼻音

ŋ

*As in:*

Norwegian: garn [gɑːŋ]

Hindi: ण

# Alveolo-palatal nasal

齦腭鼻音

ɲ

*As in:*

吴语: 人 [ɲin˨˩ ˧]

Polish: koń [kɔɲ]

Korean: 고니 [koɲi]

Irish: inné [ə'ɲeː]

Not to be confused with: [ɲ]



# Palatal nasal

硬顎鼻音

**n**

*As in:*

French: agneau [a'ɲo]

Czech: kůň [ku:ɲ]

Dutch: oranje [o'rɑɲə]

Spanish: enseñar [ɛ̃nseɲär]

Italian: bagno ['baɲo]

# Velar nasal

## 软腭鼻音

ŋ

*As in:*

Mandarin: 京 [tɕiŋ˥]      吴语: 五[ŋ˥˥ ˥˥]

English, German, Norwegian, Welsh: ng

Thai: ง      Hindi: ङ      Korean: 방 [paŋ]

Spanish: domingo [doŋˈmiŋgo]

# Uvular nasal

小舌鼻音

**N**     $n \neq N$

*As in:*

Japanese: 日本 [n̠ihon]

Allophone of [n] in:

Spanish: enjuto [ẽN'xuto]

Georgian: ზინყი [ziŋq'i]

# Nasals Review

m     $\text{m̥}$     Bilabial (1+1) “Lip”

ɱ    Labio-dental (3+2)

n     $\text{n̥}$     Alveolar (4)

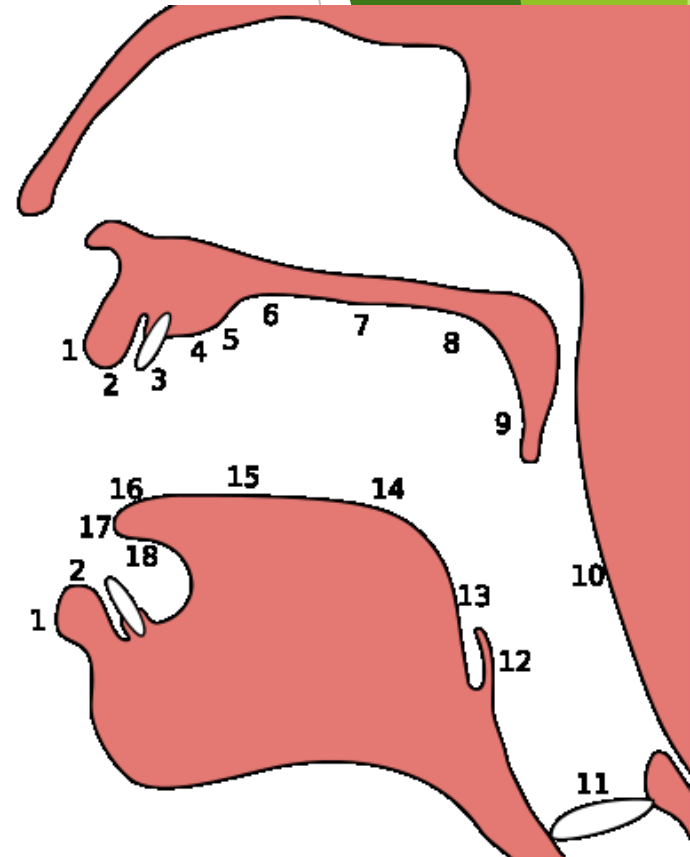
ɳ    Retroflex

ɲ    Alveolo-palatal (5,6)

ɲ̥    Palatal (7)

ŋ    Velar (8)

ɴ    Uvular (9) “Throat”



Why?

R

## Chapter IV

Consonant - Approximants, Flaps/Taps and Trills

辅音 —— 近音、闪音/弹音和颤音

“

# Approximants

## 近音

”

Approximants fall between **fricatives**, which do produce a turbulent airstream, and **vowels**, which produce no turbulence.\*

近音介于擦音与元音之间。

Approximants that have related vowels are called **semivowels**.

半元音指的是有对应元音的近音。

# Labiodental approximant

唇齿近音

— → U → V

*As in:*

Norwegian, Swedish, Danish, Finnish: v

Turkish: ev [eᵛ]

Hindi: व (also as [w])

*Not to be confused with:* [w]

# Alveolar approximant

齿 龈 近 音

— → ɹ → ʒ

*As in:*

English: red [ɹ<sup>w</sup>ɛd] merry [mɛɹi]

Allophone of [r] in:

Greek: μέρα ['mɛɹə]

Swedish: starkest ['st̪äɹ:käst̪]



# Retroflex approximant

## 卷舌近音

ə → ɻ → ʀ

*As in:*

Old Kannada: ಕೊಲೆ [kɔɭe]

Dialects of English, Portuguese: r

For some speakers of Mandarin: pinyin “r”

# Palatal approximant

硬顎近音

i → j → ɨ

*As in:*

Arabic: يوم [jawm]

English, French: y-

Mandarin: 鸭 [ja]

Hebrew: י

German, Danish, Swedish: j-

Russian: я [ja], й

Japanese: や / ヤ [ja]

# Velar approximant

## 软颚近音

ʍ → ɰ → ɤ

*As in:*

Guaraní: gyresia [ɰi'reʃia]

Allophone of g [g] in: Spanish, Swedish

Allophone of [ʍ] before [i] in:

Korean: 의사 [ɰi.sä]

# Labialized palatal approximant

圓唇硬顎近音

(Co-articulated/ 協同發音)

y → ɥ → j<sup>w</sup>

*As in:*

Mandarin: 月 [ɥœ<sup>1</sup> ɿ]

Korean: 귀 [kɥi]

French: nuit [nɥi]

Voiceless labio-velar approximant

清圓唇軟顎近音

(Co-articulated/ 協同發音)

— → **M** → X<sup>W</sup>

*As in:*

English: whine [maɪn]

Cornish: hwath [mæ:θ]

# Voiced labio-velar approximant

浊圆唇软腭近音

(Co-articulated/ 协同发音)

U → W →  $\gamma^w$

*As in:*

Arabic: وَرْد [ward]

English: w

Hebrew: ו

Irish: vóta ['wo:tʲə]

Mandarin: 王 [wɑŋ˥˥]

French: oui [wi]

Polish: ł

“

# Flaps or Taps

## 闪音 / 弹音

”

We articulate a **flap** by quickly throwing the tongue against another articulator.

舌头轻微触及对应部位以发出闪音。

A **flap** is similar to a brief **stop**, but there is no buildup of air pressure behind the place of articulation, and no burst released.

闪音可以看做是短暂的塞音，但没有冲出气流。

# Labiodental flap

唇齿闪音

$v \rightarrow b_{\text{ɸ}}^*$

<Very rare>

Mono(Congo): vwa [v<sub>ɸ</sub>a] '*send*'



# Alveolar flap

齿龈闪音

r → d

*As in:*

Irish: carr [karʲ] tirim [tʲirʲimʲ]

Spanish: caro ['karo̞] Norwegian: Norge ['nɔrgə]

Intervocalic allophone of [t] in English: better  
['beɾə]

Allophone of [r] in Slovene

# Retroflex flap

卷舌闪音

**r** → **ɖ**

*As in:*

Hindi: ढ़ (also in other languages of India)

Appears in many dialects of:

Norwegian, Swedish, Portuguese

“

# Trills 颤音

”

In a **trill**, the airstream causes the articulator to vibrate for usually 2-3 times.

气流使发音器官震动2-3个周期以发出**颤音**。

# Bilabial trill

双唇颤音

# B

<Very rare>

In Papua New Guinea native languages

Horse command “STOP” in Russia: тпру [B]

# Alveolar trill

齿 龈 颤 音

r

*As in:*

Arabic: ر      Greek: ρ      Hindi: र

Esperanto, Malay: r      Thai: ร

German, Spanish, Italian: rr

Russian: р      宣州吴语: 定母

# Uvular trill

小舌颤音

**R** **r** ≠ **R**

*As in:*

Sesotho: moriri [moRiri]

Alternative articulation of [ʁ], [χ], [x] in  
French, German, Dialect of Dutch, Italian.

# Chapter IV Review

B

“Lip”

- > **u** > v    **v** > b<sub>ɹ</sub>

- > **j** > z    **r** > d    r

ə > **ɹ** > z    **r** > d

i > **j** > ɰ

y > **ɥ** > j<sup>w</sup>

ʍ > **ɰ** > ɣ

- > **m** > x<sup>w</sup>

u > **w** > ɣ<sup>w</sup>

Approximants  
(Co-articulated)  
Flaps/Taps  
Trills

vowel

stop

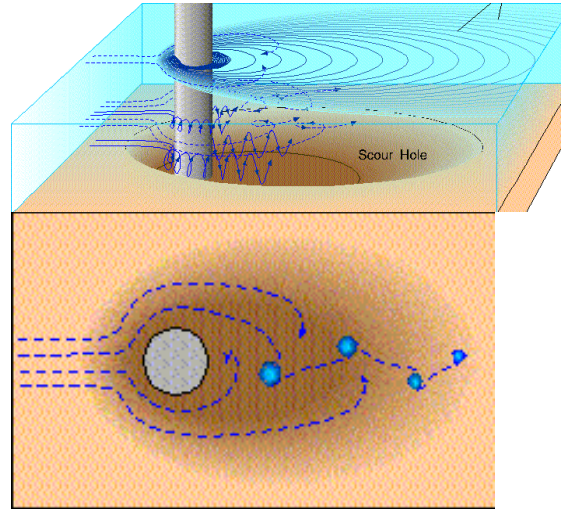
ə > **ɹ** > z

**r** > d

fricative

R

“Throat”



# Chapter V

Consonant - Laterals

辅音 —— 边音



# Alveolar lateral approximant

## 齿龈边近音

# l

*As in:*

Arabic: ل

Hebrew: ל

Cyrillic script: л

Initial letter “l” in English, Dutch, German, Norwegian, French, *Pinyin*

*Not to be confused with:* [ɭ]

# Retroflex lateral approximant 卷舌边近音

ɭ

*As in:*

Swedish, Norwegian: -rl-

Dialects in Chinese: 梨儿 [l̥ɐ̌ + ɿ]

In some languages of India

# Palatal lateral approximant 硬顎边近音

ʎ

*As in:*

Italian: figlio ['fiʎ:ɔ]

Catalan: ll

Slovak: ľúbit' ['ʎu:bɪtʃ]

*Not to be confused with:* [j], [y], [ɨ]

# Velar lateral approximant 软颚边近音

**L** **l** ≠ **L**

<Very rare>

Mid-Wahgi: aglagle [a<sup>h</sup>la<sup>h</sup>le]

For some speakers of English: milk [mɪ<sup>h</sup>l<sup>h</sup>k]

# Velarized alveolar lateral approximant 软腭化齿龈边近音

ɭ [ɭ] ≠ [l]

*As in:*

Arabic: الله [ʔɑɭ'ʔɑ:h]

English: peel [p<sup>hi</sup>i:ɭ]      Irish: lá [tɑ:]

Scottish: loch [tɔx]

Norwegian: ball [bɑɭ]

# Voiceless alveolar lateral fricative

## 清齿龈边擦音

ɬ

*As in:*

Icelandic: siglt [sɪɬt]    Welsh: llall [ɬæɬ]

Avar(Russia): лъабго ['ɬabgo]

粤语(台山): 三 [ɬamɬ]

*Not common in majority languages*

Voiced alveolar lateral fricative

浊齿龈边擦音

ɮ

<Very rare>

Mongolian: доллоо [tɔɮɔ:]

Zulu: indlala [ín'ɮàlà]

# Laterals Review 本章小结

“Lip”

1

l

ʌ

L

ɫ

ɸ-β

ɹ

“Throat”

Approximants

Fricative

\*Flaps/Taps

○l

舌阻隔口腔中部，使气流从两侧通过，  
以发出**边音**。

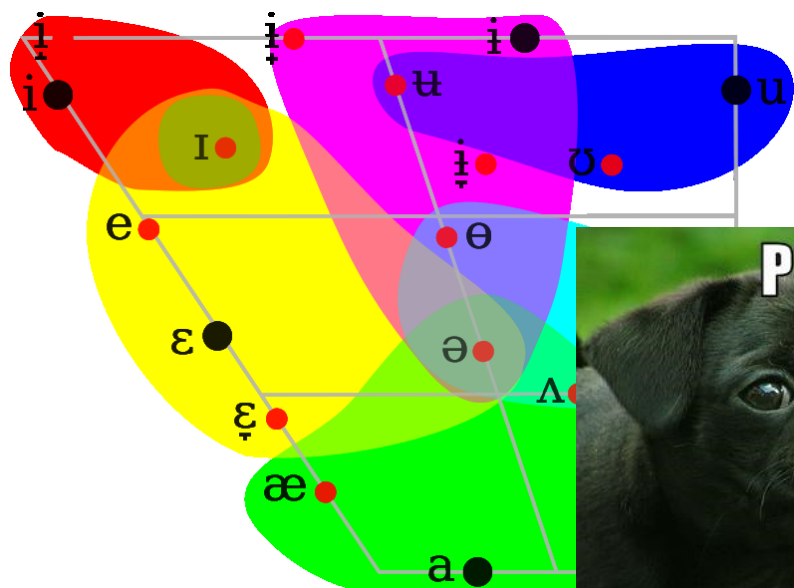
In a **lateral**, airstream proceeds along  
the sides of the tongue.

\*Existence of lateral flaps/taps is controversial.

By Harry Liu 2014



## Hints:



# 别走开，马上回来~

## AFFRICATE LIGATURES

$\text{dz} = \text{dz}$	$\text{ts} = \text{ts}$
$\text{dʒ} = \text{dʒ}$	$\text{tʃ} = \text{tʃ}$
$\text{dʒ} = \text{dʒ}$	$\text{tʃ} = \text{tʃ}$

扎 插  
加 拍  
哂 擦

# Chapter VI

Consonant - Affricates

辅音 —— 塞擦音

# Voiceless alveolar affricate

清齒齦塞擦音

ts

tsʰ

*As in:*

Hebrew: צי [tsi]

Japanese: つ [tsu]

Cantonese: 擠 [tsei]

Georgian: ც

*Not to be confused with:* [t͡s]

# Voiceless dental affricate

清齒塞擦音

ts

tsh

*As in:*

Mandarin: 早餐 [tsʰɑ̃ʊ tshan]

Russian: ц

Czech, Polish: c

German: z

Romanian: ț

Italian: grazia ['grät͡sja]

# Voiced alveolar/dental affricate

浊齿(龈)塞擦音

**dz**

dz

*As in:*

Georgia:  $\text{d}$

Hebrew: תזונה [d̪zuna]

Polish: dz

Italian: zero ['d̪zɛ:ro]

Allophone of [t̪s] before voiced consonants:

Czech, Russian, Slovene

# Voiceless palato-alveolar affricate

清顎齦塞擦音

tʃ

*As in:*

English, Spanish: ch

Czech: č

German: tsch

Esperanto: ĉ

Georgian: Ⴢ

Italian: ciao ['tʃa:ɔ]

*Not to be confused with:* [t͡ʂ]

# Voiced palato-alveolar affricate

浊颚龈塞擦音

dʒ

*As in:*

English, Indonesian: j    Esperanto: ĝ

Arabic: ج

German: -dsch-

Italian: gemma ['dʒɛmma]

Georgian: ჯ

Hebrew: -'ל-

# Voiceless alveolo-palatal affricate

清 齦 顎 塞 擦 音

tʃ

tʃʰ

*As in:*

Mandarin: 京 [tʃiŋ1] 清 [tʃʰiŋ1]

Polish: ć

Vietnamese: ch

Korean: 자 [tʃa] 차 [tʃʰa]

Thai: ฉั่น [tʃʰǎn]



# Voiced alveolo-palatal affricate

## 浊龈腭塞擦音

dʒ

<Very rare>

Polish: dź

吴语(上海话): 全 [dʒʏ] ɿ]

# Voiceless retroflex affricate

清卷舌塞擦音

$\widehat{ts}$

$\widehat{ts}^h$

<Very rare>

Mandarin: 中  $[\widehat{ts}ʊŋ]$  冲  $[\widehat{ts}^hʊŋ]$

\*Russian: лучше  $['\text{tut}\widehat{ts}\text{ɨ}]$

# Voiced retroflex affricate

濁卷舌塞擦音

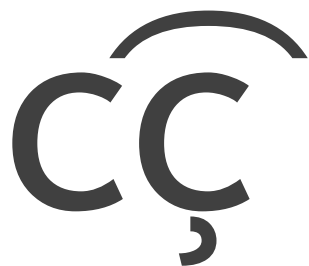
ɖʒ

<Extremely rare>

Polish: -dż-

# Voiceless palatal fricative

清硬顎塞擦音

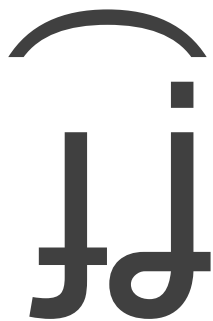


<Very rare>

As in: Hungarian: tyúk [c̟u:k]

# Voiced palatal fricative

浊硬顎塞擦音



<Very rare>

As in: Hungarian: gyár [ɟja:r]

# Affricates Review 本章小结

“Lip”

$\text{ts}$   $\text{ts}^h$

$\text{t}_{\text{ɹ}}\text{s}$   $\text{t}_{\text{ɹ}}\text{s}^h$

$\text{tʃ}$   $\text{t}_{\text{ɕ}}$   $\text{t}_{\text{ɕ}}^h$

$\text{dʒ}$

$\text{d}_{\text{ʒ}}$

$\text{dʒ}$   $\text{d}_{\text{ʒ}}$

“Throat”

$\text{t_s}$   $\text{t_s}^h$   $\text{c}_{\text{ç}}$

$\text{q_z}$   $\text{ɟ_j}$

Other possible (though rare) affricates:

$\text{p_f}$   $\text{b_v}$   $\text{t}_{\text{θ}}$   $\text{d}_{\text{ð}}$   $\text{t}_{\text{ɬ}}$   $\text{d}_{\text{ɮ}}$   $\text{c}_{\text{ç}}$   $\text{k_x}$   $\text{g_y}$   $\text{k}_{\text{ɿ}}$   $\text{g}_{\text{ɿ}}$   $\text{q}_{\text{χ}}$   $\text{g}_{\text{ʁ}}$

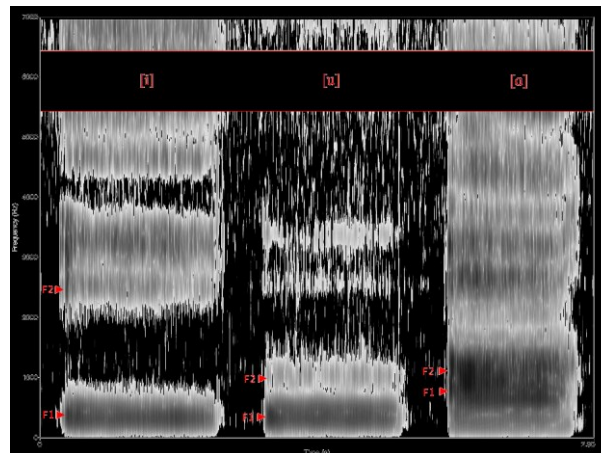
塞擦音以塞音为起始音，而以擦音结束。

Affricates begin as **stops** but release as a **fricative**.

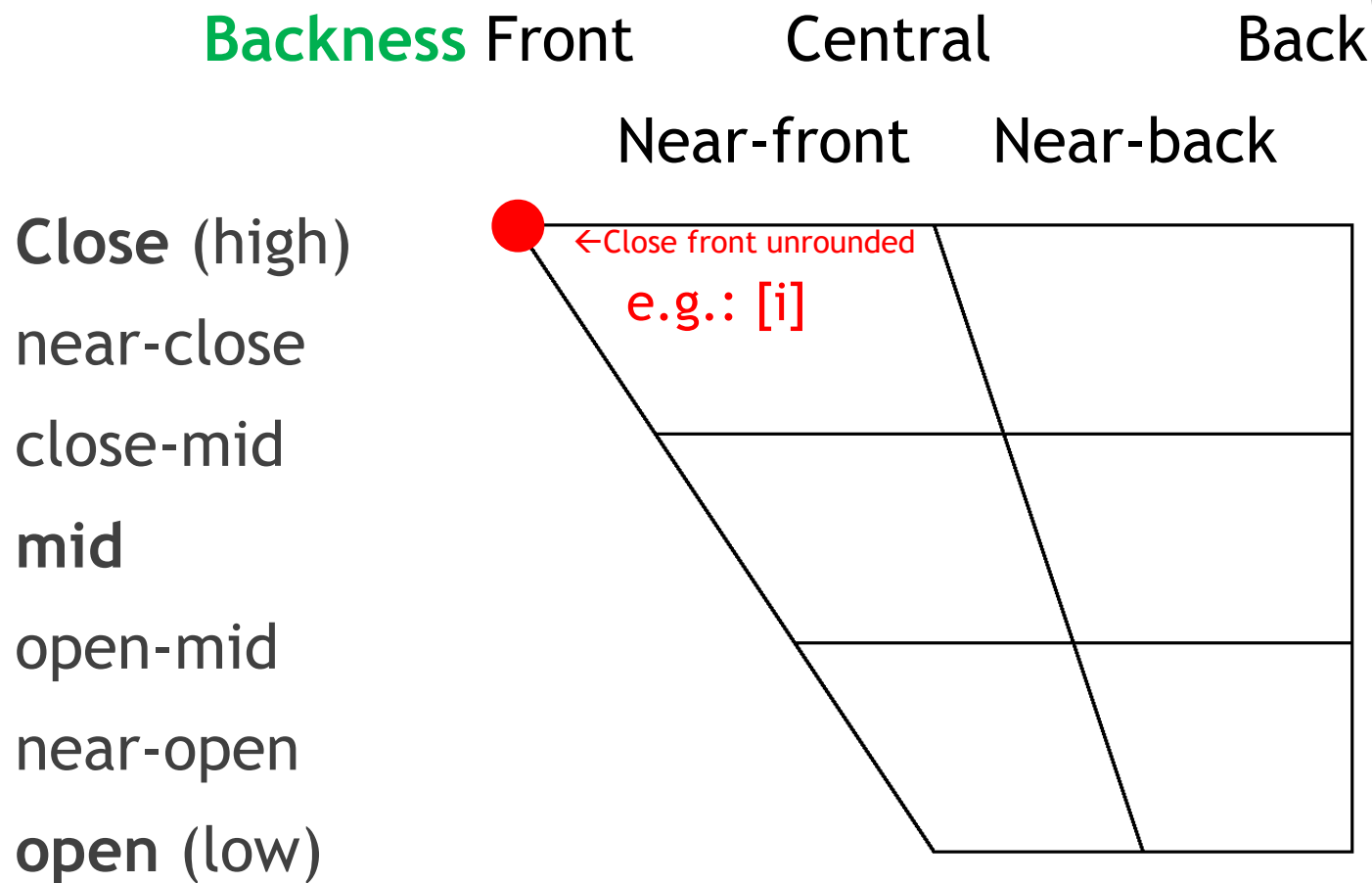
# Chapter VII

Vowels

元音



# Introduction to IPA vowel chart



Height

Roundedness ● unrounded  
○ rounded

# Close front unrounded vowel

## 闭前不圆唇元音

i

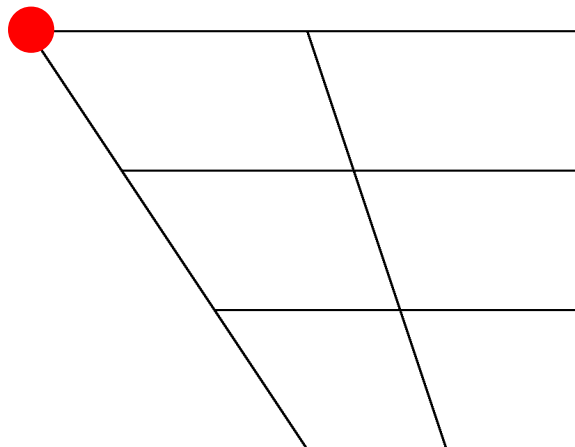
*As in:*

Mandarin: 一 [i]

English: free [fi:]

Russian: лист [liʂt]

Arabic diacritic **Kasrah**: ِ





# Close front rounded vowel

## 闭前圆唇元音

y

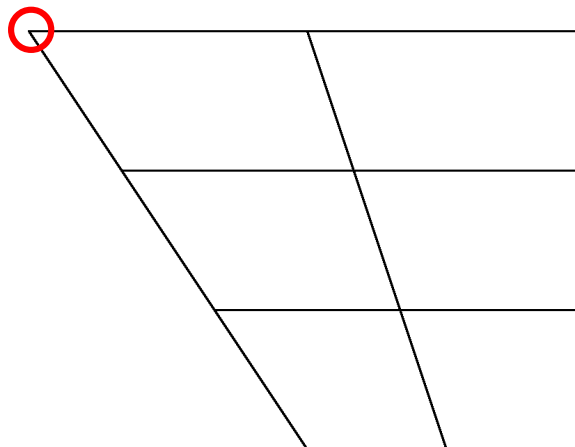
*As in:*

Mandarin: 绿 [ly˥]

French: chute [ʃyt̚]

German: über ['ʔyːbə] (Centralized)

吴语(上海话): 软 [ny˨˩˦]



# Close-mid front unrounded vowel

## 半闭前不圆唇元音

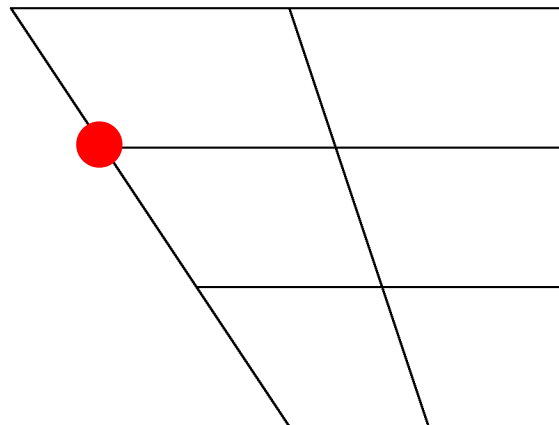
e

*As in:*

Mandarin: 飞 [feɪ̯]

French: beauté [boʧɛ]

German: Seele ['ze:lə]



# Close-mid front rounded vowel

## 半闭前圆唇元音

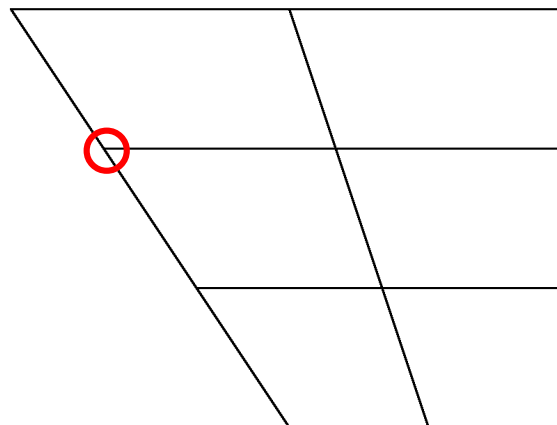
Ø

*As in:*

吴语(上海话): 最 [tsø:]

French: ceux [sø]

German: schön [ʃø:n]



# Open-mid front unrounded vowel

## 半开前不圆唇元音

ɛ

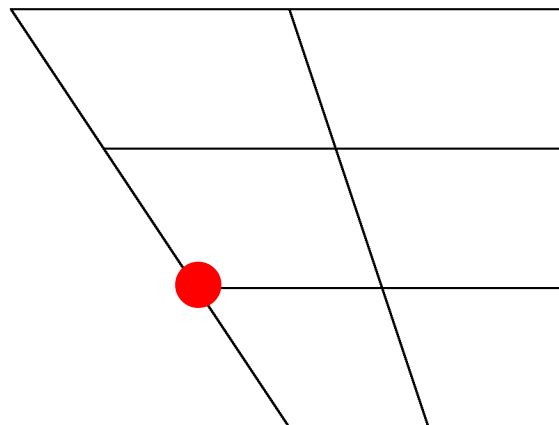
*As in:*

English: bed [bɛd]

Mandarin: 斜 [ɕjɛ¹]

吴语(上海话): 颜 [ŋɛ¹]

French: -ai-, ê



Russian: это ['ɛtə]

# Open-mid front rounded vowel

## 半开前圆唇元音

œ

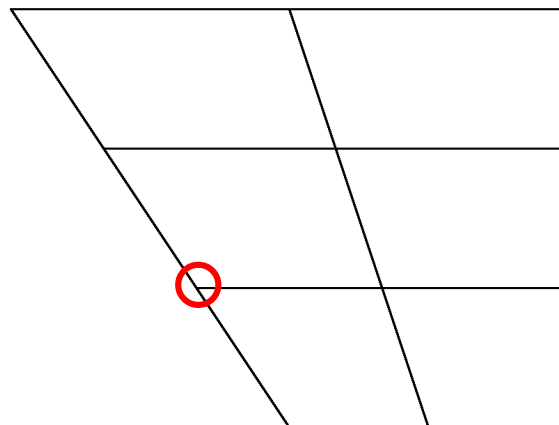
*As in:*

Mandarin: 月 [ɥœʋ]

吴语(上海话): 碗 [ɥœʌ]

French: jeune [ʒœn]

Icelandic: þö [θœ]



# Open front unrounded vowel

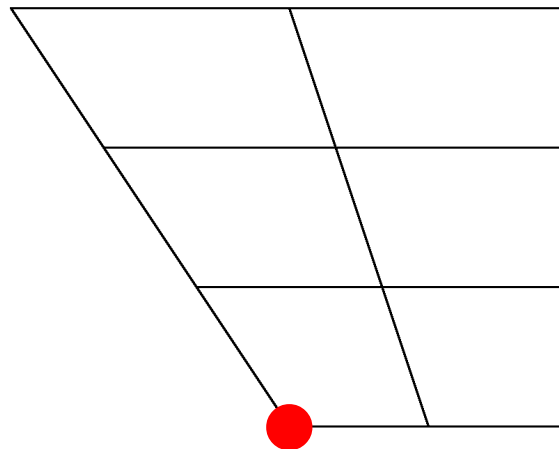
## 开前不圆唇元音

a

<Rare>

Dutch: aas [aːs]

Welsh: mam [mam]



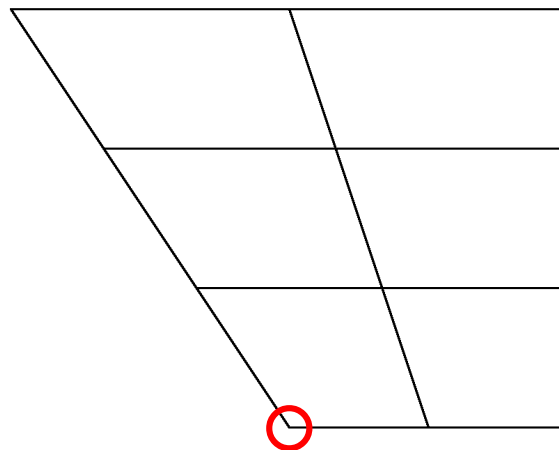
# Open front rounded vowel

## 开前圆唇元音

œ

<Very rare>

Danish: børn [bœ̃n]



# Close central unrounded vowel

## 闭央不圆唇元音

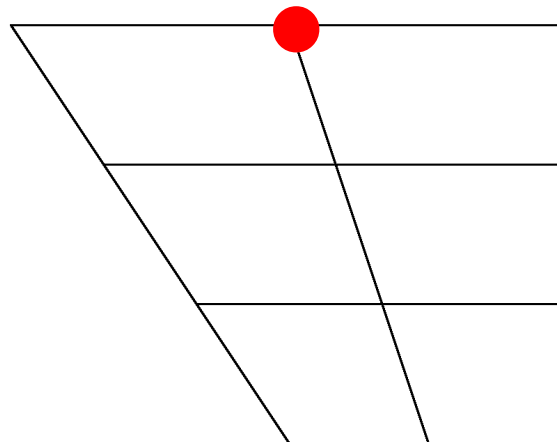
ɨ

*As in:*

Mandarin: 日 [ʐɨ˥˥]

Swedish: bi [biː]

Russian: ты [tɨ]





# Close central rounded vowel

## 闭央圆唇元音

ʊ

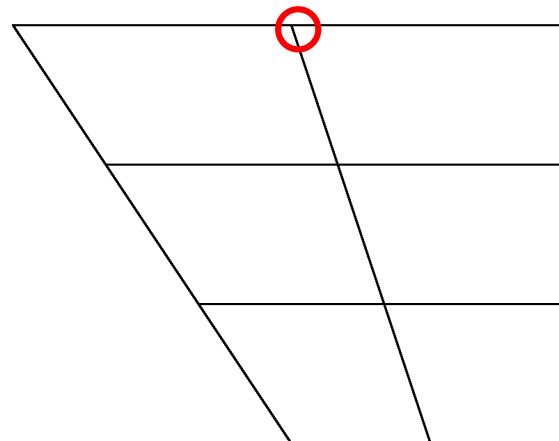
<Rare>

English (Modern Received Pronunciation):

Choose [tʃʊːz]

Allophone of [u] in Irish, Polish, Russian:

Кюри́й ['kʲʊrʲɪj]



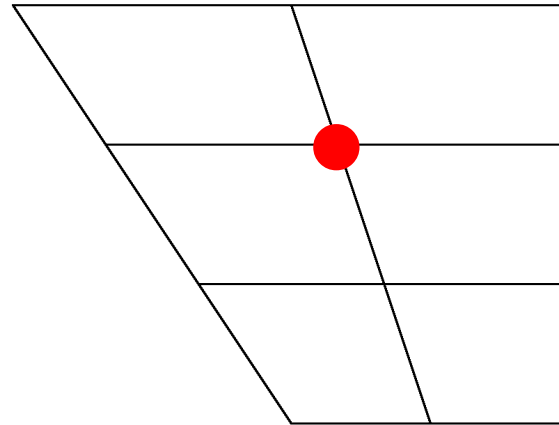
# Close-mid central unrounded vowel

## 半闭央不圆唇元音

ɘ

<Very rare>

Korean: 어 [ɘ:]



# Close-mid central rounded vowel

## 半闭央圆唇元音

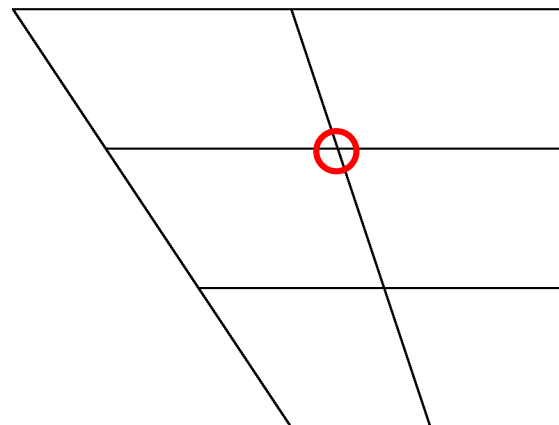
⊖

<rare>

Mongolian: ɛɣɤx [ɛgɤx]

Cantonese: ㄗ [tsʰɤt]

Others pronounce of [ʊ] in English: foot [fɤt]



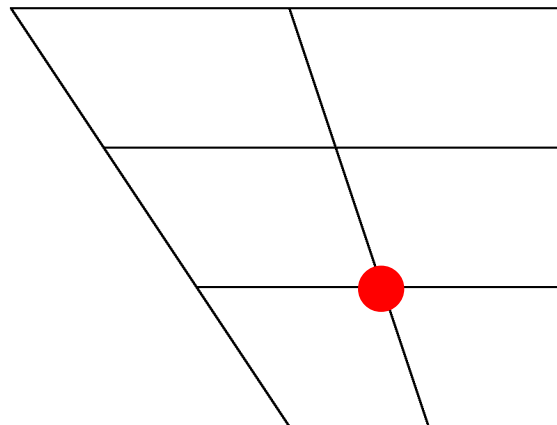
# Open-mid central unrounded vowel

## 半开央不圆唇元音

3 [ɜ] ≠ 3

<Very rare>

English: bird [bɜ:d]



# Open-mid central rounded vowel

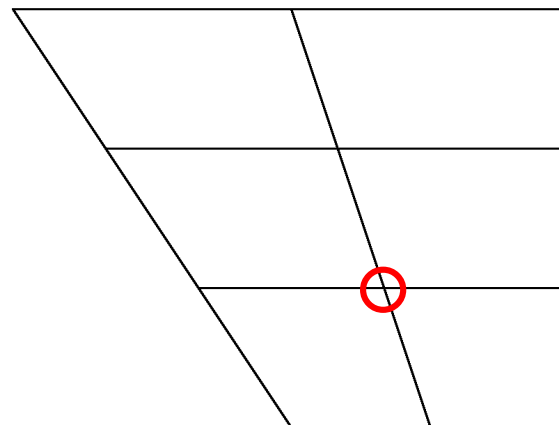
## 半开央圆唇元音

ɜ

<Very rare>

German: Parfum [p<sup>h</sup>äʋ'fɜ:]

Irish: tomhail [tɔ:l̪]



# Open central unrounded vowel

开央不圆唇元音

ä or A

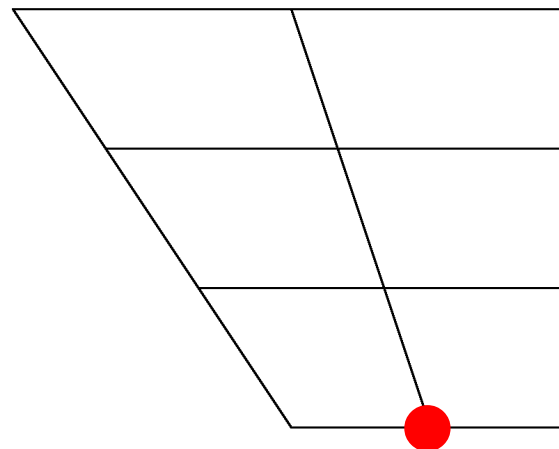
*As in:*

Mandarin: 他 [tʰäɪ]

Dutch: zaal [zäːɫ]

French: patte [pät̥]

German: Katze ['kʰät̪sə]

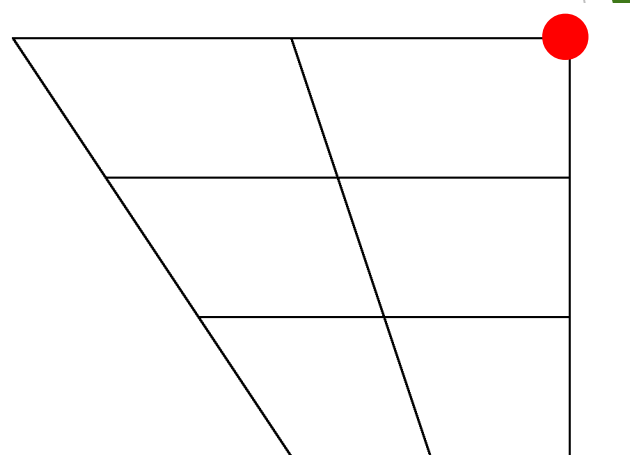


Spanish: rata ['rät̪ä]

# Close back unrounded vowel

## 闭后不圆唇元音

ɯ or ɰ\*



*As in:*

Mandarin: 字 [tɕɯʌ]

吴语(上海话): 父 [fɯʌ]

Korean: —

Thai: -๐

\*: with frication from the preceding consonant.

# Close back rounded vowel

闭后圆唇元音

u

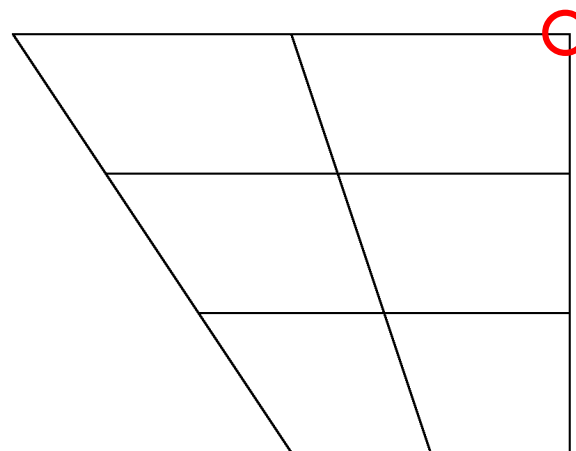
*As in:*

English: boot [buːt]

French: où [u]

Russian: узкий ['uʂkʲɪj]

Mandarin: 度 [tu˨˥]





# Close-mid back unrounded vowel

## 半闭后不圆唇元音



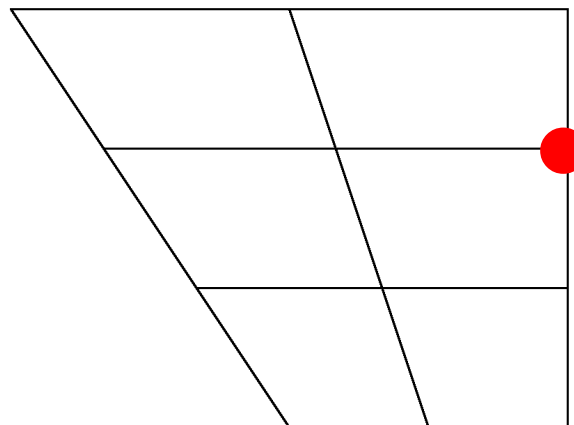
*As in:*

Mandarin: 喝 [xɤ]

吴语(上海话): 欧 [ɤ]

Thai: เ-อ

Irish: Uladh [ɤlɤ]



# Close-mid back rounded vowel

## 半闭后圆唇元音

O

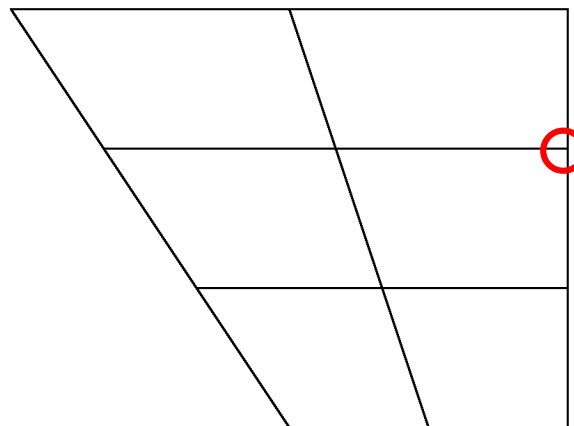
*As in:*

French: eau [o]

Italian: foro ['fo:ro]

German: oder ['ʔo:də]

Vietnamese: tô [to:]



# Open-mid back unrounded vowel

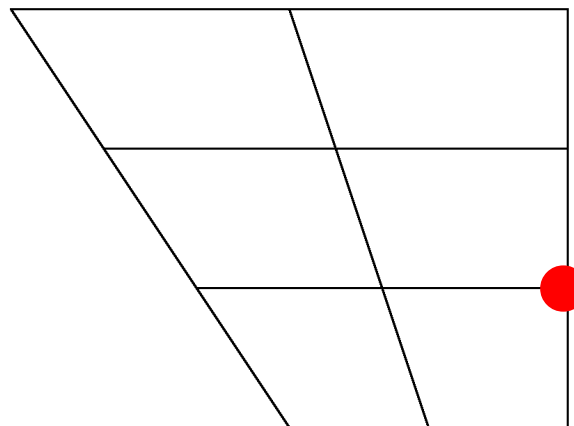
## 半开后不圆唇元音

ʌ

*As in:*

Korean: ㅏ

English (Older Received Pronunciation):  
gut [gʌt]



# Open-mid back rounded vowel

## 半开后圆唇元音

ɔ

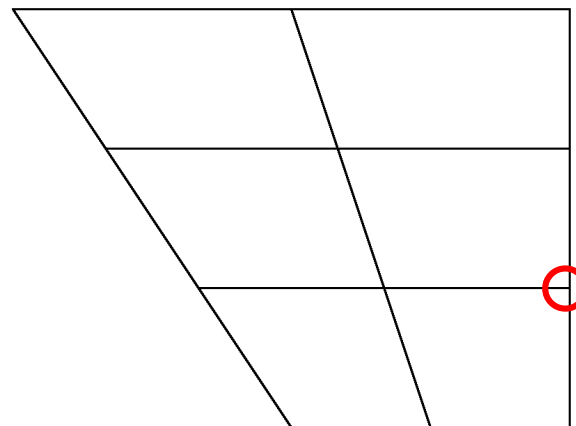
*As in:*

Mandarin: 我 [wɔɿ]

吴语(上海话): 跑 [bɔɿ]

French: sort [sɔʁ]

German: voll [fɔl]



# Open back unrounded vowel

## 开后不圆唇元音

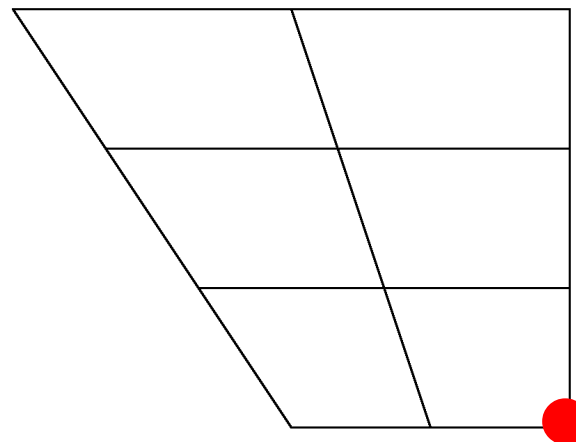
ɑ

*As in:*

English: bath [bɑːθ]

Allophone of [a] before *Emphatic consonant*:

Arabic: طويل [tʰɑˈwiːl]



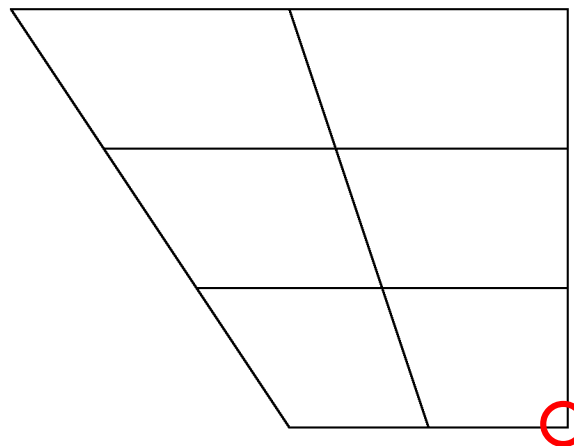
# Open back rounded vowel

开后圆唇元音

ɒ

<very rare>

English: not [nɒt]



# Near-close near-front unrounded vowel

次闭次前不圆唇元音

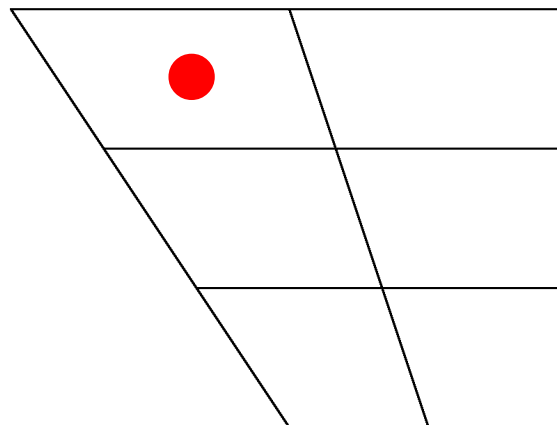
# I

*As in:*

吴语(上海话): 一 [iɪʔ]

English: bit [bɪt]

German: bitte ['bɪtʰə]

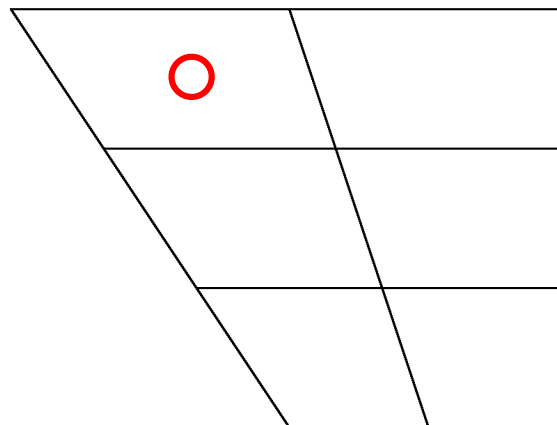


Near-close near-front  
rounded vowel

次闭次前圆唇元音

Y

y ≠ Y



*As in:*

German: schützen ['ʃʏtsn̩]

Icelandic: vinur ['vɪ:nʏr]



# Near-close near-back vowel

## 次闭次后元音

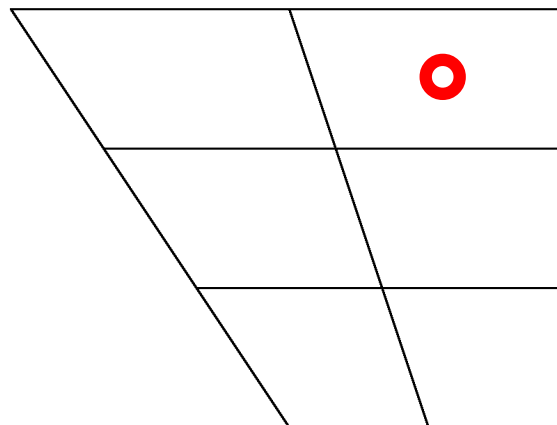
ʊ

*As in:*

吴语(上海话): 花 [hʊ]

Mandarin: 红 [xʊŋ<sup>1</sup>]

German: Schutz [ʃʊts̩]



# Near-open front unrounded vowel

## 次开前不圆唇元音

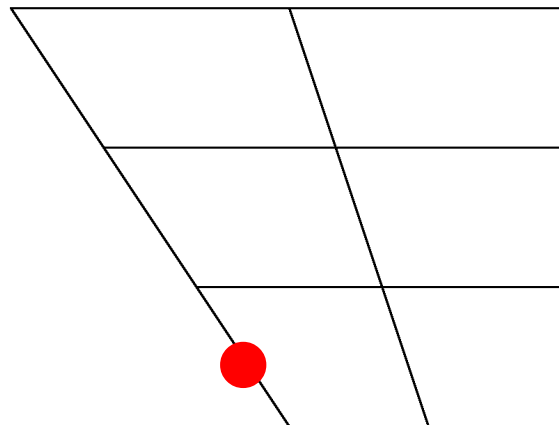
æ

*As in:*

English: cat [k<sup>h</sup>æt]

German: Pointe ['p<sup>h</sup>o̞æ̃:t<sup>h</sup>ə]

Arabic: كتاب [ki'tæ:b]



# Near-open central vowel

次开央元音

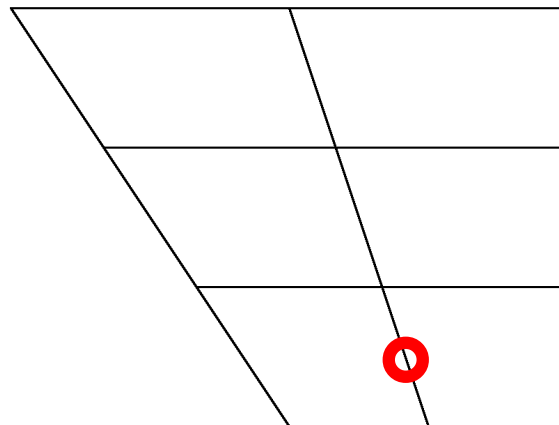
e

*As in:*

Greek: ακακία [ɛkɛ'ci.ɛ]

Vietnamese: ăn [ɛn]

Allophone of [əɾ] in German: oder ['ʔoːdɐ]



# Mid central vowel

## 中央元音

ə

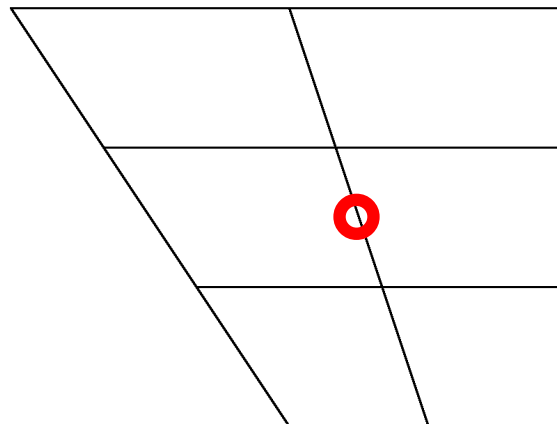
*As in:*

English: of [əv]

French: ce [sə]

Welsh = Cymru ['kəmri]

Russian: это ['etə]



# Nasal vowels

## 鼻化元音



*As in:*

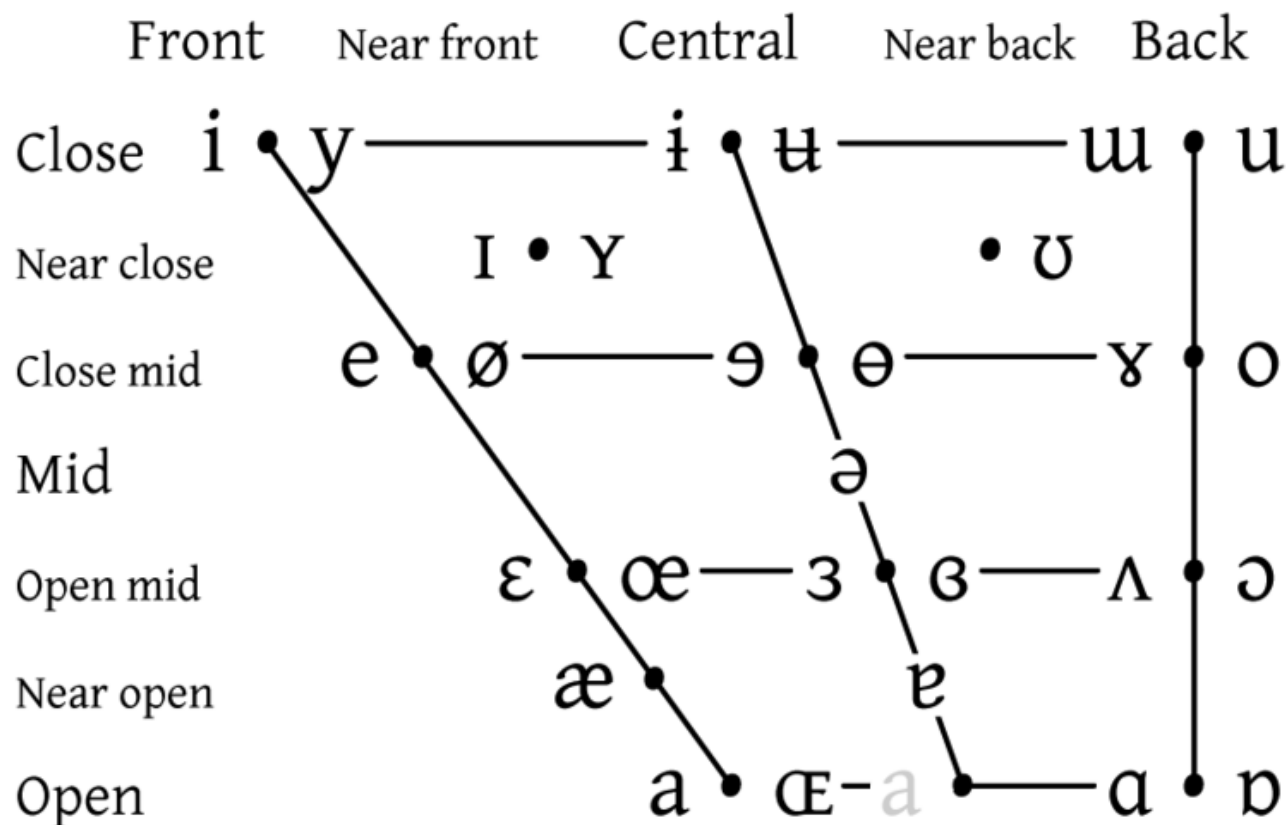
吴语(上海话): 床 [zã<sup>1</sup>] 冷 [lã<sup>1</sup>]

French: brun [bʁœ̃] son [sɔ̃]

Portuguese: cinto [sĩ<sup>n</sup>tʊ]

Polish: -ę- [ɛ̃]

# Vowels Review 本章小结



Vowels at right & left of bullets are rounded & unrounded.



# Chapter VIII

Non-pulmonic Consonants *and* \*Trivia

非肺部气流辅音

\*Optional Material

“

# Clicks

搭嘴音 / 𪗗音<sup>zhōu</sup>

”

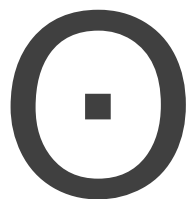
Clicks are articulated with **two** closures in the mouth, one forward and one at the back. The enclosed pocket of air is rarefied by a sucking action of the tongue.\*

口腔中两个位置同时闭塞，之间形成负压，空气被吸进去而发音。



# Bilabial click

双唇搭嘴音



<rare>

Damin: m!i [Ǿi]

Taa: Ǿàa [Ǿàa]

Pronunciation Tip:

<*Onomatopoeia*> Mimic kissing.

# Dental click

齿搭嘴音

↯ or | ≠ | ≠ |

*As in:*

English <Interjection>: tut-tut!/ tsk! tsk! [ɽ]

Mandarin <Interjection>: 啧啧 [ɽ]

Zulu: incwancwa [ĩwá:ĩwa]

Hadza: cinambo [ɽinambo]

# Alveolar click

齒 齦 搭 嘴 音

! or C  $c \neq C$

<rare>

Xhosa: iqanda [i!anda] “egg”

Zulu: iqaqa [i:!á:la]

Pronunciation Tip:

<Onomatopoeia> Mimic a horse trotting.

# Palatal click

硬顎搭嘴音



<very rare>

Taa: ɛnûm [ɲɛûm]

## Pronunciation Tip:

Do dental click without tongue touching teeth.

# Lateral click

边搭嘴音



<rare>

Xhosa: isiXhosa [isi||<sup>h</sup>osa] “Xhosa language”

Zulu: xoxa [||ó:||a] “to converse”

English <Interjection>: tchick! (Horse command)

“

# Implosives

## 内爆音

”

Airstream is controlled by moving the **glottis** downward in addition to expelling air from the lungs.\*

内爆音通过**声门**向下压迫出肺部空气而控制气流。

Implosives are special **stops**.

内爆音属特殊的**塞音**。

# Voiced bilabial implosive

浊双唇内爆音

**ɓ** → **b**

*As in:*

Khmer: បៀ [bəj]

Vietnamese: bạn [bạn<sup>h</sup>˧˨˦˦˧]

Zulu: ubaba [u'baːba]

# Voiced alveolar implosive

浊齿龈内爆音

ɗ → d

<rare>

Khmer: ដប់ [ɗap] “ten”

Vietnamese: đuôi [ɗuəj]

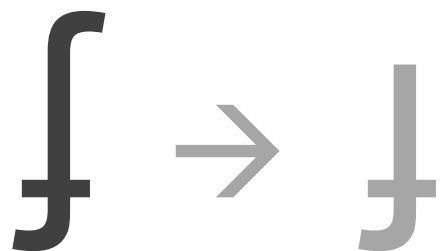


## Voiced palatal implosive

浊硬腭内爆音

<very rare>

*As in:*



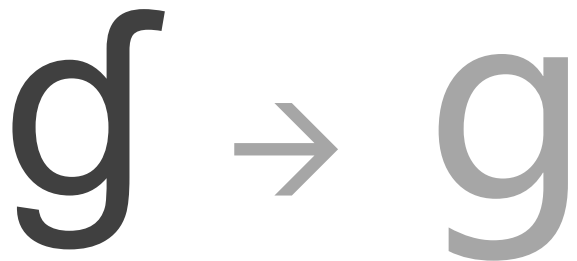
Swahili: jana [ɟana] “yesterday”

## Voiced palatal fricative

浊硬腭塞擦音

<very rare>

*Allophone of [k] in:*



Zulu: ukuza [u'ɟu:za]

“

# Ejectives

## 挤喉音 / 喷音

”

Ejectives originate from voiceless **stops** or **affricates**. They are pronounced with simultaneous closure of the **glottis**.

挤喉音 / 喷音引申于清塞音和清塞擦音，  
发音时同时关闭声门。

# Bilabial ejective

双唇喷音

p'

*As in:*

Georgian letter: ჰ

Quechua: p'acha [p'atʃa]

# Alveolar ejective

齿龈喷音

t'

*As in:*

Georgian letter: ტ

Amharic (Ethiopia): ተፎ [t'əɖʒa]

# Velar ejective

软颚喷音

k'

<rare>

*As in:*

Georgian letter: ჰ

# Uvular ejective

小舌喷音

q'

<rare>

*As in:*

Georgian letter: ყ

# Alveolar ejective affricate

齒 齦 噴 塞 擦 音

ts̥

<rare>

*As in:*

Georgian letter: ჳ

# Palato-alveolar ejective affricate

顎 齦 噴 塞 擦 音

tʃ̥

<rare>

*As in:*

Georgian letter: ჴ

“

# Trivia 这是什么？

”

It's weird but AMAZING!

上面说的很对。



# Linguolabial consonant

舌唇辅音

E.g. Linguolabial trill

$\underset{\cdot}{r}$  /  $\text{B}$



*As in:*

“Blowing a raspberry”



# Sj-sound

Sj - 音

## h

“simultaneous [ʃ] and [x]”

*As in:*

Swedish: sjok [hʊ:k]

# Whistling



*As in:*

Silbo Gomero language

*“Silbo Gomero (Spanish: silbo gomero ['silBo yo'mero], 'Gomeroan whistle'), also known as el silbo ('the whistle'), is a whistled language spoken by inhabitants of La Gomera in the Canary Islands to communicate across the deep ravines and narrow valleys (gullies) that radiate through the island.[1] A speaker of Silbo Gomero is sometimes referred to in Spanish as a silbador ('whistler'). It was declared as a Masterpiece of the Oral and Intangible Heritage of Humanity by UNESCO in 2009.” (Wikipedia)*

# Esophageal speech

## 食管发音语言

*Less formal: "Burped" speech*

*Esophageal speech, also known as esophageal voice, is a method of speech production that involves oscillation of the esophagus. This contrasts with traditional laryngeal speech which involves oscillation of the vocal folds. Instead, air is injected into the upper esophagus and then released in a controlled manner to create sound used to produce speech. Esophageal speech is a learned skill that requires speech training and much practice. Because of the high level of difficulty in learning esophageal speech, some patients (underwent Laryngectomy) are unable to master the skill. (Wikipedia)*

# Non-pulmonic Consonants Review

## 本章小结

	“Lip → Throat”	Lateral
Clicks	⦿ ɀ ! Ɂ	Ɂ
Implosives	ɓ ɗ ɟ ɠ	
Ejectives	p' t' k' q'	
	tʃ' tʃ	

➤ Ejectives affricate

✱: There are other possible clicks, implosives, and ejectives that are not listed, and aren't widely used.

# THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

CONSONANTS (PULMONIC)

© 2005 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b		t d			ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ	n			ɳ	ɲ	ŋ	ɴ		
Trill	ʙ		r						ʀ		
Tap or Flap		ⱱ	ɾ			ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative			ɬ ɮ								
Approximant		ʋ	ɹ			ɻ	j	ɰ			
Lateral approximant			l			ɭ	ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

## Review Questions 自测题

Choose the best option.

选择一个最恰当的答案。



Q1: Vladimir Lenin had difficulties in pronouncing Alveolar trill [r]. What might he use to say instead? Why?

列宁不会齿龈颤音。他会用什么音代替？为什么？

A. Bilabial trill - it's a commonly used trill.

双唇颤音，因为它是常见的颤音。

B. Alveolar approximant - it's also in Russian.

齿龈近音，因为它在俄语里有。

C. Alveolar lateral approximant - it has the same position.

齿龈边近音，因为它有相同的发音位置。

D. Alveolar stop - it won't mix with other consonants.

齿龈塞音，因为它不会和其他辅音混淆。



Q2: If palatal lateral approximant uses the symbol [ʎ], what would palatal lateral affricate look like?

硬顎边音用[ʎ]表示，  
那硬顎边塞擦音会使用什么符号？

A. cʎ

B. tʎ

C. ʎ'

D. dʎ

(Please ignore the possible diacritics. 请忽略可能的变音符号。)



Q3: Hindi has many retroflex consonants. What would a person with a Hindi accent mistakenly pronounce Voiced dental fricative [ð]?

印地语有很多卷舌音。印地口音的人会将浊齿擦音误发成什么？

- A. Voiceless retroflex sibilant 清卷舌擦音 [ʂ]
- B. Retroflex approximant 卷舌近音 [ɻ]
- C. Voiced retroflex stop 浊卷舌塞音 [ɖ]
- D. All of above are equally possible

以上都有可能





Q4: Scholars believe that in ancient Chinese, there was a kind of consonant that was neither voiced nor voiceless. What's it?

有人认为，古汉语中存在一种既不浊也不清的辅音，它可能是？

- A. A nasal consonant      鼻音
- B. A click consonant      搭嘴音
- C. A trill consonant      颤音
- D. An affricate consonant      塞擦音



## Q5: Arabic is hard for many learners simply because?

阿拉伯语对很多人来说很难，这是因为？

- A. There is no vowel in spoken Arabic for they use an *abjad* writing system.

阿拉伯语中没有元音，因为他们使用辅音音素文字。

- B. Learners got the pronunciation from the Quran.

他们是从古兰经中学的发音。

- C. Arabic has voiceless velar fricative, which is rare.

阿拉伯语有罕见的清软顎擦音。

- D. Many consonants are too back (of the throat).

许多辅音发音太靠后。



Q6: The Korean alphabet encodes some phonetic features of the Korean language. 谚文含有一些语音元素。

ㄷ = [t], ㅌ = [t<sup>h</sup>], ㄱ = [k], ㅋ = [k<sup>h</sup>],  
ㅈ = [t͡ɕ], ㅊ = [ ? ]

A. t͡ɕ<sup>h</sup>

B. t<sup>h</sup>͡ɕ

C. t<sup>h</sup>͡ɕ<sup>h</sup>

D. t͡ɕ<sup>h</sup>



Q7: Voiced labiodental fricative [v] doesn't exist in Mandarin. What might some Mandarin speakers pronounce letter V?

普通话中没有浊唇齿擦音，一些人会把字母V读成？

A. [b<sub>ɹ</sub>i]

B. [mi]

C. [vi]

D. [ʊi]



Q8: Diphthongs can be represented by arrows in the IPA Vowel Chart.

What is this diphthong?

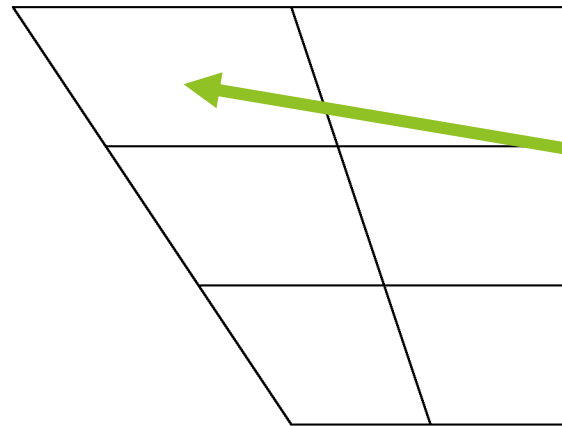
双元音可以用箭头在IPA元音表中标出，  
那这是哪个双元音？

A. [oi]

B. [iu]

C. [oɪ]

D. [uɪ]





Q9: Voiced alveolar lateral fricative is known to be used in Mongolian.

Why does it use the symbol [ɮ]?

在蒙古语中常有浊齿龈边擦音。  
为什么它用 [ɮ] 表示？

- A. [l] stands for “lateral”.  
代表“边音”。
- B. [ɮ] stands for “voiced alveolar” + “fricative”.  
代表“浊齿龈”+“擦音”。
- C. Because [tɬ]-[dɮ] is a voiceless-voiced pair.  
因为 [tɬ]-[dɮ] 清浊对应。
- D. It's just a random symbol that a linguist came up with.  
这只不过是一个语言学家随意想出来的。



## Q10: What's WRONG about the mid-central vowel [ə] ? 关于中央元音，不正确的是？

- A. Its backness is central, and height is mid.  
它的前后位为央，高低位为中。
- B. It's right at the middle of the IPA vowel chart.  
它在IPA元音表的正中。
- C. When the tongue is fully relaxed, we can articulate it.  
在舌头最放松的时候，我们发出的音就是它。
- D. It has a rounded partner - Mid-central rounded vowel.  
它有对应的圆唇音：中央圆唇元音。



Q11: “photograph” comes from ancient Greek words “φῶς+γραφή”, where “ph” has a modern pronunciation of [f]. Why do we use “ph” instead of “f”?  
为什么我们把从古希腊语演变来的单词中的 [f] 拼写成 “ph” 而不是 “f”?

A. Letter **f** had not been invented yet.  
当时字母 **f** 还没发明出来。

B. Ancient Greek pronounce “φ” as **[p<sup>h</sup>]**.  
古希腊“φ”发音为 **[p<sup>h</sup>]**。

C. The vowel that follows “φ” make it sound like **[p]+[h]**.  
跟在“φ”后的元音使它听起来像 **[p]+[h]**。

D. It would mix with other words that use “f”.  
这会和其他用“f”的词混淆。





Q12: In English, [ɹ<sup>w</sup>] should stand for the r-like sound in “red”, but the dictionaries use [r] instead. Why?  
英语中“red”的r发音为[ɹ<sup>w</sup>]，但字典里用[r]表示，为什么？

- A. [r] is an alternative way of writing it.  
就是另一种写法。
- B. [ɹ<sup>w</sup>] is not in conventional fonts.  
在通用字体里不常用。
- C. r has only one phonetic value in English, understandably.  
在英语中只有一种读音，所以用它不错。
- D. There are many dialects of English that aren't spoken this way.  
英语有许多方言不是如题这么发音。



Q13: ° is used to indicate a voiceless consonant, e.g. voiceless alveolar nasal [n̥], Voiceless velar nasal [ŋ̥]. Then, what is voiceless alveolar stop, given voiced alveolar stop as [d]?

° 被用来标注清辅音(清齿龈鼻音 [n̥], 清软腭鼻音 [ŋ̥]), 那哪个是清齿龈塞音(浊齿龈塞音 [d])?

A. [d̥]

B. [t]

C. [d̥̥]

D. Both A and B.

A 和 B 都是。

Q14: Which sound is he probably saying now?  
他可能正在发什么音?



A. [w]

B. [o]

C. [ʌ]

D. All of A B C.

A B C 都对。

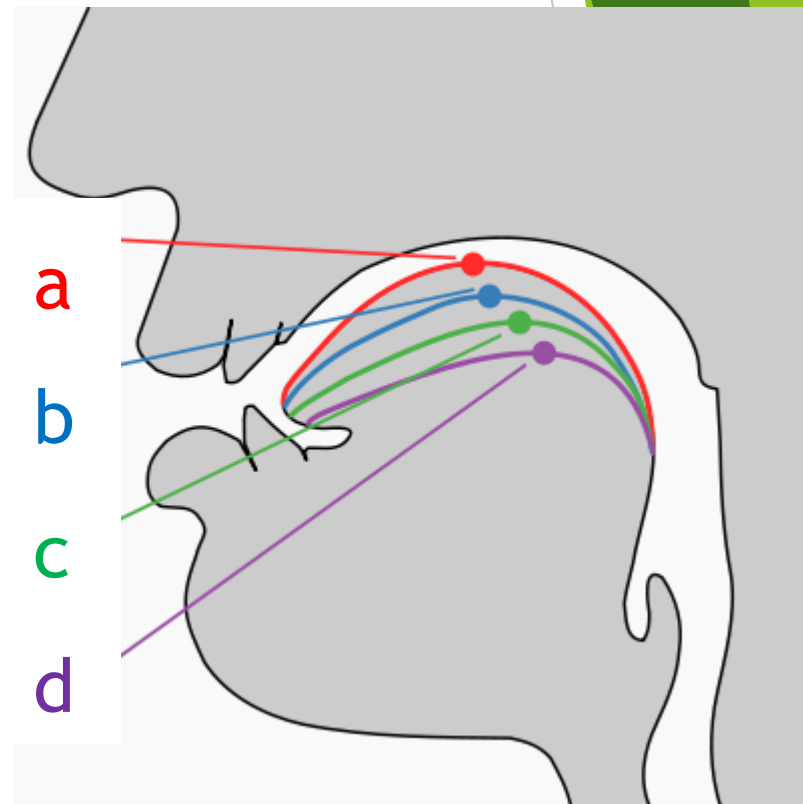


Q15: Which set of rounded vowels has the right position?

哪组圆唇元音对应正确的位置？



A.	B.	C.	D.
[ʈ]	[i]	[ɒ]	[y]
[ə]	[e]	[ɔ]	[ʏ]
[ɐ]	[ɛ]	[o]	[ʊ]
[ä]	[a]	[u]	[u]





## Q16: About voiceless velar fricative [x], which is correct?

关于清软腭擦音，哪项正确？

- A. Russian letter **Х** is this sound.  
俄语字母 **Х** 发的是这个音。
- B. Modern Greek letter **χ** reads it.  
现代希腊字母 **χ** 是这个音。
- C. It involves in English letter **X** .  
它是英语字母 **X** 读音的一部分。
- D. It isn't the Mandarin pinyin **X** , so Mandarin doesn't have it.  
它不是普通话拼音 **X** , 所以普通话里没有它。



## Q17: Which is correct about “Allophone”?

关于“同位异音”，正确的是？

- A. Any phoneme has at least two allophones.  
任何音位都至少有两个同位异音。
- B. It indicates the difference in a phoneme among dialects.  
它指的是不同方言中同一音位的差别。
- C. In English, k in “key” and “sky” serves an example.  
英语中，“key”和“sky”中的k是个例子。
- D. In English, x in “excise” and “example” is an example.  
英语中，“excise”和“example”中的x是个例子。



Q18: A guy on the YouTube claimed that he could pronounce “linguolabial trill”! Which is correct?

YouTube上有人声称他能发“唇舌颤音”！  
下列说法正确的是？


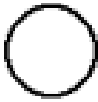



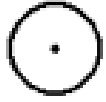
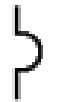
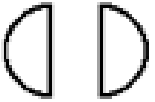
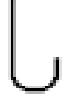

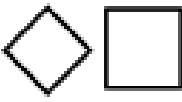

- A. There are other common linguolabial consonants.  
有其他一些唇舌辅音很常见。
- B. Linguolabial trill involves two articulators.  
唇舌颤音牵连两个发音器官。
- C. Linguolabial trill is too special to be a trill consonant.  
唇舌颤音太特殊以至于它不属于颤音。
- D. This man is mad. No such thing as a linguolabial trill.  
是这人脑抽了，根本没有唇舌颤音。



Q19: Brahmi script is an ancient writing system whose letters were arranged according to phonetics. What's the IPA for ḍh?

婆罗米文运用了语音学原理创造了这古代文字，请问ḍh对应的IPA音标是？

- A. [d<sup>h</sup>]      B. [d<sup>h</sup>]
- C. [ḍ<sup>h</sup>]      D. [ḍ<sup>h</sup>]

 ta	 tha	 da	 dha
 ta	 tha	 da	 dha
 pa	 pha	 ba	 bha





Q20: Select a group that has a same articulate manner.

哪一组有着相同的发音方式？

- A. [m], [n], [ɲ], [ŋ]
- B. [t], [d], [s], [z]
- C. [tʰ], [t], [t̚], [t̚̚]
- D. [ɹ], [ɹ̥], [ʊ], [ɪ]

# Keys:

► CACBD ADCAD BBDDA ACBCA

# Are you saying it correctly? 你的舌头听话吗？

► Route=入特？

► Shoot=舒特？

拼音r与英语字母r一个发音？

What about “hasta la vista” in Spanish or  
“gamma(γάμμα)” in Greek?

Let's find the answers in the **International  
Phonetic Alphabet (IPA)**, shall we?