

ceip

vælju

|    | <i>inglic</i> | <i>frenc</i> | <i>dʒærmæn</i>     | <i>æðar læNgwidʒiz</i>             |                            |            |                                   |        |                                              |
|----|---------------|--------------|--------------------|------------------------------------|----------------------------|------------|-----------------------------------|--------|----------------------------------------------|
| p  | az in         | put          | pas                | pferd                              |                            | h          | high                              | (haut) | hoch                                         |
| b  |               | but          | bas                | boot                               |                            | u          | full                              | cou    | nuss                                         |
| t  |               | ten          | tant               | tot                                |                            | o          | soul                              | pot    | soll                                         |
| d  |               | den          | dent               | da                                 |                            | ɔ          | not                               | note   | ital. notte                                  |
| k  |               | kind         | képi               | kuh                                |                            | A          |                                   | pas    | vater                                        |
| g  |               | good         | gai                | gut                                |                            | *a         | father                            |        | swîd. sal                                    |
| m  |               | my           | ma                 | mein                               |                            | a          | eye, how                          | patte  | ital. mano, swîd. mann.                      |
| n  |               | no           | non                | nein                               |                            | æ          | man                               |        |                                              |
| N  |               |              | règne              |                                    | ital. regno.               | ɛ          | air                               | air    | bær                                          |
| *N |               | thing        |                    | ding                               | ital. anche.               | e          | men                               | né     | nett                                         |
| l  |               | lull         | la                 | lang                               |                            | i          | pit                               | ni     | mit                                          |
| *ʌ |               |              | fille (in ðə sauθ) |                                    | sp. llano, ital. gli.      | *æ         | but, fur                          |        |                                              |
| r  | red           | rare         | rot                |                                    | (tœN-pɔint r)              | œ          |                                   | seul   | kænnen                                       |
| R  |               | rare         | rot                |                                    | (bak r). — dan. træ        | *œ         |                                   | peu    | sæhne                                        |
| U  |               |              | quer               |                                    | flem. wrocht, span. bibir. | y          |                                   | nu     | dünn                                         |
| q  |               | buis         |                    |                                    |                            | *ü         |                                   |        | für                                          |
| w  | wel           | oui          |                    | ital. questo                       |                            | ə          | never                             | je     | gabe                                         |
| f  | full          | fou          | voll               |                                    |                            | '          | glotl kætc                        |        |                                              |
| v  | vain          | vin          | wein               |                                    |                            | -u, u-,    | wîk strest u                      |        | } ðîz mɔdɪfɪkɛɪcənz<br>əplai<br>tu ɔl letərz |
| θ  | thin          |              |                    | span. razon                        |                            | ·u, u·, ù, | stroN strest u                    |        |                                              |
| ð  | then          |              |                    | dan. gade                          |                            | u:,        | loN u                             |        |                                              |
| s  | seal          | sel          | weiss              |                                    |                            | œ          | neizl æ (ɔr eni æðar vauəl)       |        |                                              |
| z  | zeal          | zèle         | weise              |                                    |                            | û          | loN ən næro u (ɔr əni æðar vauəl) |        |                                              |
| *c | she           | chat         | fisch              | swed. skæl, dan. sjæl, ital lascia |                            | hl, lh     | voislis l (ɔr eni æðar kɔnsənənt) |        |                                              |
| ʒ  | leisure       | jeu          | genie              |                                    |                            | :          | mark əv lenθ.                     |        |                                              |
| ç  |               |              | ich                |                                    |                            |            |                                   |        |                                              |
| j  | you           | yak          | ja                 | swed. ja, ital. jena.              |                            |            |                                   |        |                                              |
| x  |               |              | ach                | span. jota                         |                            |            |                                   |        |                                              |
| q  |               |              | wagen              |                                    |                            |            |                                   |        |                                              |

ðə letərz markt wið ə star\* ər prɔvɪʒənl ceips, ən wil  
bɪ rɪpleɪst hwɛn sɜrkəmstənsɪz wil əlau

# kernel

res: ip



|           |             | Laryn-<br>gales | Guttu-<br>rales | Uvu-<br>laires | Vélaires                                                            | Palatales | Linguales               | Labiales         |
|-----------|-------------|-----------------|-----------------|----------------|---------------------------------------------------------------------|-----------|-------------------------|------------------|
| CONSONNES | Plosives    | ʔ               |                 | q ɢ            | k ɡ                                                                 | c ɟ       | t d                     | p b              |
|           | Nasales     |                 |                 |                | ŋ                                                                   | ɲ         | n                       | m                |
|           | Latérales   |                 |                 |                | ɭ                                                                   | ʎ         | l                       |                  |
|           | Roulées     |                 | ʀ               | ʁ ʀ            |                                                                     |           | r                       |                  |
|           | Fricatives  | h               | ɦ ɦ             | ʁ ʁ            | (ɯ w) x ɣ                                                           | (ɥ) ç ʝ   | ɬ, θ ð, ʃ ʒ, s z<br>ʂ ʐ | f v ɸ ɸ<br>ɱ w ɸ |
| VOYELLES  | Fermées     |                 |                 |                | u ʊ ü      i̯ y i                                                   |           |                         | (u ü y)          |
|           | Mi-fermées  |                 |                 |                | ʊ                      ʏ ɪ                                          |           |                         | (o ö ø)          |
|           | Moyennes    |                 |                 |                | o ɔ    ʋ    ö    ɵ    ø    e<br>ɔ            ʌ    ɔ̃    ä    œ    ɛ |           |                         | (ɔ ɔ̃ œ)         |
|           | Mi-ouvertes |                 |                 |                | ɐ                      æ                                            |           |                         |                  |
|           | Ouvertes    |                 |                 |                | ɑ                      ʌ                                            |           |                         |                  |

|           |             | Laryn-<br>gales | Guttu-<br>rales | Uvu-<br>laires | Vélaires                   | Palatales | Linguales               | Labiales         |
|-----------|-------------|-----------------|-----------------|----------------|----------------------------|-----------|-------------------------|------------------|
| CONSONNES | Plosives    | ʔ               |                 | q ɢ            | k ɡ                        | c ɟ       | t d                     | p b              |
|           | Nasales     |                 |                 |                | ŋ                          | ɲ         | n                       | m                |
|           | Latérales   |                 |                 |                | ɭ                          | ʎ         | l                       |                  |
|           | Roulées     |                 | ʀ               | ʁ ʀ            |                            |           | r                       |                  |
|           | Fricatives  | h ɦ             | ħ               | ʁ ʁ̥           | (ɯ w) x ɣ                  | (ɥ) ç ʝ   | ɬ, θ ð, ʃ ʒ, s z<br>ʂ ʐ | f v ɸ β<br>ɱ w ɸ |
| VOYELLES  | Fermées     |                 |                 |                | u ʊ ü      i̯ y i          |           |                         | (u ü y)          |
|           | Mi-fermées  |                 |                 |                | ʊ                      ʏ ɪ |           |                         |                  |
|           | Moyennes    |                 |                 |                | o ɔ ɔ̃    ø    e           |           |                         | (o ɔ̃ ø)         |
|           | Mi-ouvertes |                 |                 |                | ɔ̃    ʌ ɔ̃    ä œ ɛ        |           |                         | (ɔ̃ ɔ̃ œ)        |
|           | Ouvertes    |                 |                 |                | ɐ                      æ   |           |                         |                  |
|           |             |                 |                 |                | ɑ                      ʌ   |           |                         |                  |

|            |              | Bronchs | Throat | Uvula | Back                         | Front   | Tongue - point   | Lip               |
|------------|--------------|---------|--------|-------|------------------------------|---------|------------------|-------------------|
| CONSONANTS | Stopped      |         | ʔ      | q ɢ   | k ɡ                          | c ɟ     | t d              | p b               |
|            | Nasal        |         |        |       | ŋ                            | ɲ       | n                | m                 |
|            | Side         |         |        |       | ɭ                            | ʎ       | l                |                   |
|            | Trilled      |         |        | ʀ ʁ   |                              |         | r                |                   |
|            | Squeezed     | h q     | h ɦ    | ʁ ʙ   | (ɯ w) x ɣ                    | (ɥ) ç j | ɬ, θ ð, ʃ ʒ, s z | f v<br>ɱ w<br>ɸ ʋ |
| VOWELS     | Close        |         |        |       | u ʊ ü      i̥ y i            |         |                  | (u ü y)           |
|            | Half - close |         |        |       | ʊ                      ʏ ɪ   |         |                  | (ʊ ʏ)             |
|            | Mid          |         |        |       | o ɔ    ɐ    ɵ    ɞ    ø    e |         |                  | (o ɵ ø)           |
|            |              |         |        |       | ɔ    ʌ    ɔ̃    ä œ    ɛ     |         |                  | (ɔ ɔ̃ œ)          |
|            | Half-open    |         |        |       | ɐ                      æ     |         |                  |                   |
|            | Open         |         |        |       | ɑ                      ʌ     |         |                  |                   |

|           |             | Bron-<br>chiales | Laryn-<br>gales | Uvu-<br>laires | Vélares                                                                                                                                                                                                  | Palatales | Linguales        | Labiales                                                                                                                                                                                     |
|-----------|-------------|------------------|-----------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONSONNES | Plosives    |                  | ʔ               | q ɢ            | k ɡ                                                                                                                                                                                                      | c ɟ       | t d              | p b                                                                                                                                                                                          |
|           | Nasales     |                  |                 |                | ŋ                                                                                                                                                                                                        | ɲ         | n                | m                                                                                                                                                                                            |
|           | Latérales   |                  |                 |                | ɭ                                                                                                                                                                                                        | ʎ         | l                |                                                                                                                                                                                              |
|           | Roulées     |                  |                 | ʀ ʁ            |                                                                                                                                                                                                          |           | r                |                                                                                                                                                                                              |
|           | Fricatives  | h ɣ              | h ɦ             | ʁ ʀ            | (ɯ w) x ɣ                                                                                                                                                                                                | (ç) ʃ ʝ   | ʃ ʒ s z<br>ɬ θ ð | f v F ʋ<br>ɱ w ɸ                                                                                                                                                                             |
| VOYELLES  | Fermées     |                  |                 |                | u ù ʊ ü ĭ ĩ ÿ y ì i                                                                                                                                                                                      |           |                  | (u ù ü ÿ y)                                                                                                                                                                                  |
|           | Mi-fermées  |                  |                 |                | ʊ ʏ ɤ ɘ ɜ ɞ ɞ̃ ɟ̃ ɛ̃ ɛ̄ ɛ̅ ɛ̆ ɛ̇ ɛ̈ ɛ̉ ɛ̊ ɛ̋ ɛ̌ ɛ̍ ɛ̎ ɛ̏ ɛ̐ ɛ̑ ɛ̒ ɛ̓ ɛ̔ ɛ̕ ɛ̖ ɛ̗ ɛ̘ ɛ̙ ɛ̚ ɛ̛ ɛ̜ ɛ̝ ɛ̞ ɛ̟ ɛ̠ ɛ̡ ɛ̢ ɛ̣ ɛ̤ ɛ̥ ɛ̦ ɛ̧ ɛ̨ ɛ̩ ɛ̪ ɛ̫ ɛ̬ ɛ̭ ɛ̮ ɛ̯ ɛ̰ ɛ̱ ɛ̲ ɛ̳ ɛ̴ ɛ̵ ɛ̶ ɛ̷ ɛ̸ ɛ̹ ɛ̺ ɛ̻ ɛ̼ ɛ̽ ɛ̾ ɛ̿ |           |                  | (ʊ ʏ)                                                                                                                                                                                        |
|           | Mi-ouvertes |                  |                 |                | o ò ɔ ɔ̃ ɔ̄ ɔ̅ ɔ̆ ɔ̇ ɔ̈ ɔ̉ ɔ̊ ɔ̋ ɔ̌ ɔ̍ ɔ̎ ɔ̏ ɔ̐ ɔ̑ ɔ̒ ɔ̓ ɔ̔ ɔ̕ ɔ̖ ɔ̗ ɔ̘ ɔ̙ ɔ̚ ɔ̛ ɔ̜ ɔ̝ ɔ̞ ɔ̟ ɔ̠ ɔ̡ ɔ̢ ɔ̣ ɔ̤ ɔ̥ ɔ̦ ɔ̧ ɔ̨ ɔ̩ ɔ̪ ɔ̫ ɔ̬ ɔ̭ ɔ̮ ɔ̯ ɔ̰ ɔ̱ ɔ̲ ɔ̳ ɔ̴ ɔ̵ ɔ̶ ɔ̷ ɔ̸ ɔ̹ ɔ̺ ɔ̻ ɔ̼ ɔ̽ ɔ̾ ɔ̿             |           |                  | (o ò ɔ̃ ɔ̄ ɔ̅ ɔ̆ ɔ̇ ɔ̈ ɔ̉ ɔ̊ ɔ̋ ɔ̌ ɔ̍ ɔ̎ ɔ̏ ɔ̐ ɔ̑ ɔ̒ ɔ̓ ɔ̔ ɔ̕ ɔ̖ ɔ̗ ɔ̘ ɔ̙ ɔ̚ ɔ̛ ɔ̜ ɔ̝ ɔ̞ ɔ̟ ɔ̠ ɔ̡ ɔ̢ ɔ̣ ɔ̤ ɔ̥ ɔ̦ ɔ̧ ɔ̨ ɔ̩ ɔ̪ ɔ̫ ɔ̬ ɔ̭ ɔ̮ ɔ̯ ɔ̰ ɔ̱ ɔ̲ ɔ̳ ɔ̴ ɔ̵ ɔ̶ ɔ̷ ɔ̸ ɔ̹ ɔ̺ ɔ̻ ɔ̼ ɔ̽ ɔ̾ ɔ̿) |
|           | Ouvertes    |                  |                 |                | ɑ ɶ ɶ̃ ɶ̄ ɶ̅ ɶ̆ ɶ̇ ɶ̈ ɶ̉ ɶ̊ ɶ̋ ɶ̌ ɶ̍ ɶ̎ ɶ̏ ɶ̐ ɶ̑ ɶ̒ ɶ̓ ɶ̔ ɶ̕ ɶ̖ ɶ̗ ɶ̘ ɶ̙ ɶ̚ ɶ̛ ɶ̜ ɶ̝ ɶ̞ ɶ̟ ɶ̠ ɶ̡ ɶ̢ ɶ̣ ɶ̤ ɶ̥ ɶ̦ ɶ̧ ɶ̨ ɶ̩ ɶ̪ ɶ̫ ɶ̬ ɶ̭ ɶ̮ ɶ̯ ɶ̰ ɶ̱ ɶ̲ ɶ̳ ɶ̴ ɶ̵ ɶ̶ ɶ̷ ɶ̸ ɶ̹ ɶ̺ ɶ̻ ɶ̼ ɶ̽ ɶ̾ ɶ̿               |           |                  | (ɑ ɶ̃ ɶ̄ ɶ̅ ɶ̆ ɶ̇ ɶ̈ ɶ̉ ɶ̊ ɶ̋ ɶ̌ ɶ̍ ɶ̎ ɶ̏ ɶ̐ ɶ̑ ɶ̒ ɶ̓ ɶ̔ ɶ̕ ɶ̖ ɶ̗ ɶ̘ ɶ̙ ɶ̚ ɶ̛ ɶ̜ ɶ̝ ɶ̞ ɶ̟ ɶ̠ ɶ̡ ɶ̢ ɶ̣ ɶ̤ ɶ̥ ɶ̦ ɶ̧ ɶ̨ ɶ̩ ɶ̪ ɶ̫ ɶ̬ ɶ̭ ɶ̮ ɶ̯ ɶ̰ ɶ̱ ɶ̲ ɶ̳ ɶ̴ ɶ̵ ɶ̶ ɶ̷ ɶ̸ ɶ̹ ɶ̺ ɶ̻ ɶ̼ ɶ̽ ɶ̾ ɶ̿)   |
|           |             |                  |                 |                |                                                                                                                                                                                                          |           |                  |                                                                                                                                                                                              |

|           |                | Bron-<br>chiales | Guttu-<br>rales | Uvu-<br>laires | Vélaires           | Palatales | Gencivales    | Labiales         |
|-----------|----------------|------------------|-----------------|----------------|--------------------|-----------|---------------|------------------|
| VOYELLES  | plus larges    |                  |                 |                | ɑ a                | ã         |               |                  |
|           | larges         |                  |                 |                | ɔ œ ɶ ä æ          | œ         |               | (ɔ œ)            |
|           | moins larges   |                  |                 |                | ɔ ʌ ɔ̃ ɐ ɛ ɛ       | ẽ, ẽ      |               | (ɔ ɔ̃ ɐ)         |
|           | moins étroites |                  |                 |                | o v ö ø ë e        |           |               | (o ö ø)          |
|           | étroites       |                  |                 |                | U Y <sup>ə</sup> I | ĩ         |               | (U Y)            |
|           | plus étroites  |                  |                 |                | u w ü ï y i        |           |               | (u ü y)          |
|           | nasales        |                  |                 |                | ã ɔ̃ œ ẽ ï         |           |               |                  |
| CONSONNES | fricatives     | h q              | h ɦ             | ʁ ʁ            | (ɱ w) x ɣ          | (ɟ)j ç ʝ  | ʃ, θð, ʒʒ, sz | f v F v<br>ɱ w ɰ |
|           | fermées        |                  | ʔ               | q ɢ            | k ɡ                | c ɟ       | t d           | p b              |
|           | nasales        |                  |                 |                | ŋ                  | ɲ         | n             | m                |
|           | latérales      |                  |                 |                | ɬ                  | ʎ         | l             |                  |
|           | roulées        |                  |                 | ʀ R            |                    |           | r             |                  |

|                                                                                                                                               | <i>Lips</i>         | <i>Lip-teeth</i> | <i>Point and Blade</i> | <i>Front</i>                      | <i>Back</i>                                                  | <i>Uvula</i> | <i>Throat</i> |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------|------------------------|-----------------------------------|--------------------------------------------------------------|--------------|---------------|
| <div> <div>CONSONANTS</div> <div> <div>Plosive</div> <div>Nasal</div> <div>Lateral</div> <div>Rolled</div> <div>Fricative</div> </div> </div> | p b                 |                  | t d                    | c ɟ                               | k ɡ                                                          | q ɢ          | ʔ             |
|                                                                                                                                               | m                   |                  | n                      | ɲ                                 | ŋ                                                            | ɴ            |               |
|                                                                                                                                               |                     |                  | l ɭ                    | ʎ                                 | (ɮ)                                                          |              |               |
|                                                                                                                                               |                     |                  | r ʀ                    |                                   |                                                              | ʀ            |               |
|                                                                                                                                               | ɸ β<br>ɱ w ɰ<br>σ ʃ | f v              | θ ð s z<br>ʃ ʒ ʁ       | ç ʝ (ɥ)                           | (ɱ w) x ɣ                                                    | ʁ ʕ          | h ɦ           |
| <div> <div>VOWELS</div> <div> <div>Close</div> <div>Half-close</div> <div>Half-open</div> <div>Open</div> </div> </div>                       | (u ü y)<br>(ʊ ʏ)    |                  |                        | <i>Front</i><br>i y<br>ɪ ʏ<br>e ø | <i>Mixed</i><br>ɨ ʉ<br>̞ ̟<br>ə<br>ɛ œ ̥ ̦ ʌ ɔ<br>æ ɐ<br>a ɑ |              |               |
|                                                                                                                                               | (o ö ø)             |                  |                        |                                   |                                                              |              |               |
|                                                                                                                                               | (ɔ ɔ̃ œ)            |                  |                        |                                   |                                                              |              |               |
|                                                                                                                                               |                     |                  |                        |                                   |                                                              |              |               |

(Sounds appearing twice on the chart have a double articulation, the secondary articulation being shown by the symbol in brackets.)

|           |             | Laryn-<br>gales | Uvu-<br>laires | Vélares          | Palatales  | Linguales        | Labiales           |
|-----------|-------------|-----------------|----------------|------------------|------------|------------------|--------------------|
| CONSONNES | Plosives    | ʔ               | q ɢ            | k ɡ              | c ɟ        | t d              | p b                |
|           | Nasales     |                 | ɴ              | ŋ                | ɲ          | ɳ                | ɱ                  |
|           | Latérales   |                 |                |                  | ʎ          | ɭ                |                    |
|           | Roulées     |                 | ʀ ʁ            |                  |            | ʀ                |                    |
|           | Fricatives  | h               | χ ʁ            | (ħ w) x ɣ        | (ħɥ ɥ) ɕ ʝ | ʃ ʒ s z<br>ɬ θ ð | f v ɸ β<br>ɸ w ɥ ɥ |
| VOYELLES  | Fermées     |                 |                | u ʊ ʉ ɨ y i      |            |                  | (u ʉ y)            |
|           | Mi-fermées  |                 |                | o ɤ ɵ ɐ ø e      |            |                  | (o ɵ ø)            |
|           | Mi-ouvertes |                 |                | ɔ ʌ ɐ ɜ œ ɛ<br>a |            |                  | (ɔ ɐ œ)            |
|           | Ouvertes    |                 |                | ɑ                | a          |                  |                    |

|            | <i>Bi-labial</i> |                   | <i>Labio-Dental</i> | <i>Dental and Alveolar</i> |     | <i>Retroflex</i> | <i>Palato-Alveolar</i> | <i>Alveolo-Palatal.</i> | <i>Palatal</i> |     | <i>Velar</i> |         | <i>Uvular</i>       | <i>Pharyngal</i> | <i>Glottal</i>        |                    |     |     |  |  |  |
|------------|------------------|-------------------|---------------------|----------------------------|-----|------------------|------------------------|-------------------------|----------------|-----|--------------|---------|---------------------|------------------|-----------------------|--------------------|-----|-----|--|--|--|
| CONSONANTS | {                | <i>Plosive</i>    | p b                 |                            |     | t d              |                        | ʈ ɖ                     |                |     |              | c ɟ     |                     | k ɡ              |                       | q ɢ                |     | ʔ   |  |  |  |
|            |                  | <i>Nasal</i>      | m                   |                            | ɱ   |                  | n                      |                         | ɳ              |     |              |         | ɲ                   |                  | ŋ                     |                    | ɴ   |     |  |  |  |
|            |                  | <i>Lateral</i>    |                     |                            |     |                  | ɬ ɭ                    | ɮ                       | ɭ              |     |              |         | ʎ                   |                  | (ɮ)                   |                    |     |     |  |  |  |
|            |                  | <i>Rolled</i>     |                     |                            |     |                  | r                      | ɽ                       |                |     |              |         |                     |                  | ʀ                     |                    |     |     |  |  |  |
|            |                  | <i>Flapped</i>    |                     |                            |     |                  | ɾ                      |                         | ɽ              |     |              |         |                     |                  | ʀ                     |                    |     |     |  |  |  |
|            |                  | <i>Fricative</i>  | f v                 | ɸ β                        | f v | θ ð              | s z                    | ʃ ʒ                     | ʃ ʒ            | ɕ ʝ | ç ʝ          | (x) x ɣ |                     | χ ʁ              | ħ ʕ                   | h ɦ                |     |     |  |  |  |
|            |                  | <i>Semi-vowel</i> | w                   | ɥ                          |     |                  |                        |                         |                |     | j (ɥ)        | (w)     |                     |                  |                       |                    |     |     |  |  |  |
| VOWELS     | {                | <i>Close</i>      | (u ʊ y)             |                            |     |                  |                        |                         |                |     |              |         | <i>Front</i><br>i y |                  | <i>Central</i><br>ɨ ʉ | <i>Back</i><br>ɯ u |     |     |  |  |  |
|            |                  | <i>Half-close</i> | (ʊ ʊ)               |                            |     |                  |                        |                         |                |     |              |         | ɪ ʏ                 |                  |                       |                    | ʊ   |     |  |  |  |
|            |                  |                   | (o ɵ ø)             |                            |     |                  |                        |                         |                |     |              |         | e ø                 |                  |                       | ə ɵ                | ɤ ɐ |     |  |  |  |
|            |                  | <i>Half-open</i>  | (ɔ ɒ œ)             |                            |     |                  |                        |                         |                |     |              |         |                     |                  |                       | ə                  |     |     |  |  |  |
|            |                  | <i>Open</i>       |                     |                            |     |                  |                        |                         |                |     |              |         |                     |                  | ɛ œ                   |                    | ɜ ɞ | ʌ ɔ |  |  |  |

(Sounds appearing twice on the chart have a double articulation, the secondary articulation being shown by the symbol in brackets.)

OTHER SOUNDS.—Palatalized consonants: **ṭ, ḍ**, etc. Velarized or pharyngealized consonants: **ḏ, ẓ**, etc. Ejective consonants (plosives with simultaneous glottal stop): **p', t'**, etc. **ɬ** (fricative l). **σ, ɣ** (labialized **θ, ð**, or **s, z**). **ɮ, ɟ** (labialized **f, ʒ**). **ɕ, ɞ, ɓ** (clicks, Zulu *c, q, x*). **ɹ** (a sound between **r** and **l**).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (ṭṣ, ṭʃ, ḍʒ, etc.), or the marks  $\frown$  or  $\smile$  (ṭṣ or ṭṣ, etc.).

LENGTH, STRESS, PITCH.— : (full length). · (half length). ´ (stress, placed at beginning of the stressed syllable). ¯ (high level pitch); \_ (low level); ´ (high rising); , (low rising); ` (high falling); , (low falling); ^ (rise-fall); ˇ (fall-rise). See *Écriture Phonétique Internationale*, p. 9.

MODIFIERS.—  $\sim$  nasality.  $\text{ᵒ}$  breath ( $\text{ᵒ}$  = breathed  $\text{l}$ ).  $\text{ᶞ}$  voice ( $\text{ᶞ}$  =  $\text{z}$ ).  $\text{ᵘ}$  slight aspiration following  $\text{p}$ ,  $\text{t}$ , etc.  $\text{ᵚ}$  retroflexion (inversion) ( $\text{ᵚa}$  =  $\text{a}$  with curled up tongue;  $\text{ᵚt}$  =  $\text{t}$ ).  $\text{ᵝ}$  palatalization ( $\text{ᵝz}$  =  $\text{z}$ ).  $\text{ᵞ}$  tongue slightly raised.  $\text{ᵟ}$  tongue slightly lowered.  $\text{ᵠ}$  lips more rounded.  $\text{ᵡ}$  lips more spread.  $\text{ᵢ}$  syllabic consonant.  $\text{ᵣ}$  consonantal vowel.



|             | Bilabiale                                        | Labio-<br>dentale | Dentale<br>und<br>alveolare | Zerebrale | Palato-<br>alveolare | Alveolo-<br>palatale | Palatale            | Velare               | Uvulare             | Pha-<br>ryngale |
|-------------|--------------------------------------------------|-------------------|-----------------------------|-----------|----------------------|----------------------|---------------------|----------------------|---------------------|-----------------|
| Konsonanten | explosive .....                                  | p b               | t d                         | t̪ d̪     |                      |                      | c ɟ                 | k g                  | q ɢ                 |                 |
|             | nasale .....                                     | m                 | ɱ                           | n         | ɲ                    |                      | ɲ                   | ŋ                    | ɴ                   |                 |
|             | laterale {frikative .....                        |                   | ɬ ɮ                         |           |                      |                      |                     |                      |                     |                 |
|             | {nichtfrikative .                                |                   | l                           | ɭ         |                      |                      | ʎ                   |                      |                     |                 |
|             | gerollte .....                                   |                   | r                           |           |                      |                      |                     |                      | ʀ                   |                 |
|             | einmal angeschlagene .                           |                   | ɾ                           | ɽ         |                      |                      |                     |                      | ʀ                   |                 |
|             | frikative .....                                  | ɸ β               | f v                         | θ ð       | s z                  | ʃ ʒ                  | ç ʝ                 | x ɣ                  | χ ʁ                 | ħ ʕ             |
| Vokale      | Halbvokale u. reibungs-<br>lose Dauerlaute ..... | w   ɥ             | ʋ                           | ɹ         |                      |                      | j (ɥ)               | (w) ɣ                |                     |                 |
|             | geschlossene .....                               | (y ɥ u)           |                             |           |                      |                      | Vor-<br>dere<br>i y | Zen-<br>trale<br>ɨ ʉ | Hin-<br>tere<br>ɯ u |                 |
|             | halbgeschlossene .....                           | (ø ɔ)             |                             |           |                      |                      | e ø                 |                      | ɤ ɒ                 |                 |
|             | halboffene .....                                 | (œ ɔ̃)            |                             |           |                      |                      | ɛ œ                 | ə<br>ɐ               | ʌ ɔ̃                |                 |
|             | offene .....                                     | (ɒ)               |                             |           |                      |                      | æ<br>a              |                      | ɑ ɒ                 |                 |

Die Nebenartikulation von Lauten, deren Bildung sich gleichzeitig an zwei verschiedenen Artikulationsstellen vollzieht, ist durch Wiederholung der Buchstaben in Klammern ( ) in der betreffenden Spalte der Tabelle gekennzeichnet.

# THE INTERNATIONAL PHONETIC ALPHABET.

|            |                                          | Bi-labial | Labio-dental | Dental and Alveolar | Retroflex | Palato-alveolar | Alveolo-palatal | Palatal                                  | Velar | Uvular | Pharyngeal | Glottal |
|------------|------------------------------------------|-----------|--------------|---------------------|-----------|-----------------|-----------------|------------------------------------------|-------|--------|------------|---------|
| CONSONANTS | Plosive . . . .                          | p b       |              | t d                 | ʈ ɖ       |                 |                 | c ɟ                                      | k ɡ   | q ɢ    |            | ʔ       |
|            | Nasal . . . .                            | m         | ɱ            | n                   | ɳ         |                 |                 | ɲ                                        | ŋ     | ɴ      |            |         |
|            | Lateral Fricative . .                    |           |              | ɬ ɮ                 |           |                 |                 |                                          |       |        |            |         |
|            | Lateral Non-fricative .                  |           |              | l                   | ɭ         |                 |                 | ʎ                                        |       |        |            |         |
|            | Rolled . . . .                           |           |              | r                   |           |                 |                 |                                          |       | ʀ      |            |         |
|            | Flapped . . . .                          |           |              | ɾ                   | ɽ         |                 |                 |                                          |       | ʀ      |            |         |
|            | Fricative . . . .                        | ɸ β       | f v          | θ ð s z ʃ ʒ         | ʂ ʐ       | ʃ ʒ             | ɕ ʑ             | ç ʝ                                      | x ɣ   | χ ʁ    | ħ ʕ        | h ɦ     |
|            | Frictionless Continuants and Semi-vowels | w ɥ       | ʋ            | ɹ                   |           |                 |                 | j (ɥ)                                    | (w)   | ʁ      |            |         |
| VOWELS     | Close . . . .                            | (y ɯ u)   |              |                     |           |                 |                 | Front Central Back<br>i y i ɯ u<br>ɪ ʏ ʊ |       |        |            |         |
|            | Half-close . . . .                       | (ø ɔ)     |              |                     |           |                 |                 | e ø ɐ ɔ                                  |       |        |            |         |
|            | Half-open . . . .                        | (œ ɔ)     |              |                     |           |                 |                 | ɛ œ ɜ ʌ ɔ<br>æ ɐ                         |       |        |            |         |
|            | Open . . . .                             |           |              |                     |           |                 |                 | a ɶ                                      |       |        |            |         |

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants : ɸ, ɟ, etc. Velarized or pharyngealized consonants : ʈ, ɖ, ɟ, etc. Ejective consonants (plosives with simultaneous glottal stop) : pʰ, tʰ, etc. Implosive voiced consonants : ɓ, ɗ, etc. ʀ fricative trill. σ, ɣ (labialized θ, ð, or s, z). ʎ, ʒ (labialized ʃ, ʒ). ɬ, ɮ, ɣ (clicks, Zulu c, q, x). ɹ (a sound between r and l). ʎ (voiceless w). ɐ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (ts, tʃ, dʒ, etc.), or the marks ˆ or ˜ (ts or ts, etc.). c, ɟ may occasionally be used in place of tʃ, dʒ. Aspirated plosives : ph, th, etc.

LENGTH, STRESS, PITCH.— : (full length). ˙ (half length). ˈ (stress, placed at beginning of the stressed syllable). ˊ (secondary stress). ˊ (high level pitch); ˋ (low level); ˊ (high rising); ˋ (low rising); ˋ (high falling); ˋ (low falling); ˊ (rise-fall); ˋ (fall-rise). See *Écriture Phonétique Internationale*, p. 9.

MODIFIERS.— ˜ nasality. ˚ breath (ɭ = breathed l). ˘ voice (ɣ = z). ˙ slight aspiration following p, t, etc. ˙ specially close vowel (ɐ = a very close e). ˙ specially open vowel (ɐ = a rather open e). ˙ labialization ɱ = labialized n). ˙ dental articulation (ɬ = dental t). ˙ palatalization (ʑ = ʒ). ˙ tongue slightly raised. ˙ tongue slightly lowered. ˙ lips more rounded. ˙ lips more spread. ˙ (e.g. ɳ) syllabic consonant. ˙ consonantal vowel. ʃ variety of ʃ resembling s, etc.

# THE INTERNATIONAL PHONETIC ALPHABET.

(Revised to 1932.)

|            |                                                 | <i>Bi-labial</i> | <i>Labio-dental</i> | <i>Dental and Alveolar</i> |     |     | <i>Retroflex</i> | <i>Palato-alveolar</i> | <i>Alveolo-palatal</i> | <i>Palatal</i>      | <i>Velar</i>          | <i>Uvular</i>      | <i>Pharyngeal</i> | <i>Glottal</i> |
|------------|-------------------------------------------------|------------------|---------------------|----------------------------|-----|-----|------------------|------------------------|------------------------|---------------------|-----------------------|--------------------|-------------------|----------------|
| CONSONANTS | <i>Plosive</i> . . .                            | p b              |                     | t d                        | ʈ ɖ |     |                  |                        |                        | c ɟ                 | k ɡ                   | q ɢ                |                   | ʔ              |
|            | <i>Nasal</i> . . .                              | m                | ɱ                   | n                          | ɳ   |     |                  |                        |                        | ɲ                   | ŋ                     | ɴ                  |                   |                |
|            | <i>Lateral Fricative</i> . .                    |                  |                     | ɬ ɮ                        |     |     |                  |                        |                        |                     |                       |                    |                   |                |
|            | <i>Lateral Non-fricative</i> .                  |                  |                     | l                          | ɭ   |     |                  |                        |                        | ʎ                   |                       |                    |                   |                |
|            | <i>Rolled</i> . . .                             |                  |                     | r                          |     |     |                  |                        |                        |                     |                       | ʀ                  |                   |                |
|            | <i>Flapped</i> . . .                            |                  |                     | ɾ                          | ɽ   |     |                  |                        |                        |                     |                       | ʀ                  |                   |                |
|            | <i>Fricative</i> . . .                          | ɸ β              | f v                 | θ ð s z                    | ɬ ɮ | ʃ ʒ | ɕ ʑ              | ç ʝ                    |                        | x ɣ                 | χ ʁ                   | ħ ʕ                |                   | h ɦ            |
|            | <i>Frictionless Continuants and Semi-vowels</i> | w ɥ              | ʋ                   | ɹ                          |     |     |                  |                        | j (ɥ)                  |                     | (w)                   | ʁ                  |                   |                |
| VOWELS     | <i>Close</i> . . . .                            | (y ɯ u)          |                     |                            |     |     |                  |                        |                        | <i>Front</i><br>i y | <i>Central</i><br>ɨ ʉ | <i>Back</i><br>ɯ u |                   |                |
|            | <i>Half-close</i> . . .                         | (ø ɔ)            |                     |                            |     |     |                  |                        |                        | e ø                 |                       | ɤ ɒ                |                   |                |
|            | <i>Half-open</i> . . .                          | (œ ɔ̃)           |                     |                            |     |     |                  |                        |                        | ɛ œ                 | ə                     | ʌ ɔ̃               |                   |                |
|            | <i>Open</i> . . . .                             | (ɒ)              |                     |                            |     |     |                  |                        |                        | æ                   | ɐ                     |                    |                   |                |
|            |                                                 |                  |                     |                            |     |     |                  |                        |                        | a                   |                       | ɑ ɒ                |                   |                |

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants : ɟ̟, ɟ̟̞, etc. Velarized or pharyngealized consonants: ɟ̠, ɟ̠̞, ɟ̠̞̞, etc. Ejective consonants (plosives with simultaneous glottal stop) : p̰, t̰, etc. Implosive voiced consonants : ɓ, ɗ, etc. ʀ fricative trill. σ, ɣ (labialized θ, ð, or s, z). ɟ̟, ʒ̟ (labialized ʃ, ʒ). ɟ̟, ɟ̟̞, ɟ̟̞̞ (clicks, Zulu c, q, x). ɟ̟ (a sound between r and l). ɟ̟ (voiceless w). ɟ̟, ɟ̟̞, ɟ̟̞̞ (lowered varieties of i, y, u). ɟ̟ (a variety of ə). ɟ̟ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (ts, tʃ, dʒ, etc.), or the marks ˆ or ˜ (tʃs or tʃ̟s, etc.). c, ɟ may occasionally be used in place of tʃ, dʒ. Aspirated plosives : ph, th, etc.

LENGTH, STRESS, PITCH.— : (full length). ˙ (half length). ˈ (stress, placed at beginning of the stressed syllable). ˌ (secondary stress). ˊ (high level pitch); ˋ (low level); ˊˊ (high rising); ˊˋ (low rising); ˋˋ (high falling); ˋˊ (low falling); ˊˋˊ (rise-fall); ˋˋˋ (fall-rise). See *Ecriture Phonétique Internationale*, p. 9.

MODIFIERS.—˜ nasality. ˚ breath (ɭ̚ = breathed l). ˙ voice (ɟ̙ = z). ˙ slight aspiration following p, t, etc. ˙ specially close vowel (ɟ̙ = a very close e). ˙ specially open vowel (ɟ̙ = a rather open e). ˙ labialization ɟ̙ = labialized n). ˙ dental articulation (ɟ̙ = dental t). ˙ palatalization (ɟ̙ = ʒ). ˙ tongue slightly raised. ˙ tongue slightly lowered. ˙ lips more rounded. ˙ lips more spread. Central vowels ɨ (= i), ʉ (= u), ɐ (= ə), ɐ̞ (= ɐ), ɐ̞̞, ɐ̞̞̞. ˙ (e.g. ɟ̙) syllabic consonant. ˙ consonantal vowel. ɟ̙ variety of ʃ resembling s, etc.

## THE INTERNATIONAL PHONETIC ALPHABET.

(Revised to 1938.)

|            |                                                 |  |  | <i>Bi-labial</i> |         | <i>Labio-dental</i> |     | <i>Dental and Alveolar</i> |     |  | <i>Retroflex</i> |     | <i>Palato-alveolar</i> |  | <i>Alveolo-palatal</i> |  | <i>Palatal</i> |              | <i>Velar</i> |                | <i>Uvular</i> |             | <i>Pharyngeal</i> |     | <i>Glottal</i> |   |  |  |
|------------|-------------------------------------------------|--|--|------------------|---------|---------------------|-----|----------------------------|-----|--|------------------|-----|------------------------|--|------------------------|--|----------------|--------------|--------------|----------------|---------------|-------------|-------------------|-----|----------------|---|--|--|
| CONSONANTS | <i>Plosive</i> . . . .                          |  |  |                  | p b     |                     |     |                            | t d |  |                  | ʈ ɖ |                        |  |                        |  |                | c ɟ          |              | k ɡ            |               | q ɢ         |                   |     |                | ʔ |  |  |
|            | <i>Nasal</i> . . . .                            |  |  |                  | m       |                     | ɱ   |                            | n   |  |                  | ɳ   |                        |  |                        |  |                | ɲ            |              | ŋ              |               | ɴ           |                   |     |                |   |  |  |
|            | <i>Lateral Fricative</i> . .                    |  |  |                  |         |                     |     |                            | ɬ ɮ |  |                  |     |                        |  |                        |  |                |              |              |                |               |             |                   |     |                |   |  |  |
|            | <i>Lateral Non-fricative</i> .                  |  |  |                  |         |                     |     |                            | l   |  |                  | ɭ   |                        |  |                        |  |                | ʎ            |              |                |               |             |                   |     |                |   |  |  |
|            | <i>Rolled</i> . . . .                           |  |  |                  |         |                     |     |                            | r   |  |                  |     |                        |  |                        |  |                |              |              |                |               | ʀ           |                   |     |                |   |  |  |
|            | <i>Flapped</i> . . . .                          |  |  |                  |         |                     |     |                            | ɾ   |  |                  | ɽ   |                        |  |                        |  |                |              |              |                |               | ʁ           |                   |     |                |   |  |  |
|            | <i>Fricative</i> . . . .                        |  |  |                  | ɸ β     |                     | f v |                            | θ ð |  | s z              |     | ʃ ʒ                    |  | ɕ ʑ                    |  | ç ʝ            |              | x ɣ          |                | χ ʁ           |             | ħ ʕ               |     | h ɦ            |   |  |  |
|            | <i>Frictionless Continuants and Semi-vowels</i> |  |  |                  | w       |                     | ɥ   |                            | ʋ   |  | ɹ                |     |                        |  |                        |  |                |              |              | j (ɥ)          |               | (w)         |                   | ʁ   |                |   |  |  |
| VOWELS     |                                                 |  |  |                  |         |                     |     |                            |     |  |                  |     |                        |  |                        |  |                | <i>Front</i> |              | <i>Central</i> |               | <i>Back</i> |                   |     |                |   |  |  |
|            | <i>Close</i> . . . .                            |  |  |                  | (y ɯ u) |                     |     |                            |     |  |                  |     |                        |  |                        |  |                | i y          |              | ɨ ʉ            |               | ɯ u         |                   |     |                |   |  |  |
|            | <i>Half-close</i> . . . .                       |  |  |                  | (ø ɔ)   |                     |     |                            |     |  |                  |     |                        |  |                        |  |                | e ø          |              |                |               | ɤ ɒ         |                   |     |                |   |  |  |
|            | <i>Half-open</i> . . . .                        |  |  |                  | (œ ɔ)   |                     |     |                            |     |  |                  |     |                        |  |                        |  |                |              |              | ə              |               |             |                   |     |                |   |  |  |
|            | <i>Open</i> . . . .                             |  |  |                  | (ɒ)     |                     |     |                            |     |  |                  |     |                        |  |                        |  |                |              |              | ɛ œ            |               | æ           |                   | ʌ ɔ |                |   |  |  |
|            |                                                 |  |  |                  |         |                     |     |                            |     |  |                  |     |                        |  |                        |  |                |              | ɶ            |                |               |             |                   |     |                |   |  |  |
|            |                                                 |  |  |                  |         |                     |     |                            |     |  |                  |     |                        |  |                        |  |                |              | a            |                |               |             | ɑ ɒ               |     |                |   |  |  |

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants : ʈ, ɖ, etc. Velarized or pharyngalized consonants : ɫ, ɖ̠, ʒ, etc. Ejective consonants (plosives with simultaneous glottal stop) : p', t', etc. Implosive voiced consonants : ɓ, ɗ, etc. ʀ fricative trill. σ, ɣ (labialized θ, ð, or s, z). ʃ, ʒ (labialized f, ʒ). ɰ, ɠ, ʘ (clicks, Zulu *c, q, x*). ɺ (a sound between r and l). ɰ (voiceless w). ɪ, ʏ, ʊ (lowered varieties of i, y, u). ɶ (a variety of ə). ɘ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (tʃ, dʒ, etc.), or the marks  $\frown$  or  $\smile$  (t $\frown$ s or t $\smile$ s, etc.).  $\frown$   $\smile$  also denote synchronic articulation (m $\frown$ ŋ = simultaneous m and ŋ). c, ɟ may occasionally be used in place of tʃ, dʒ. Aspirated plosives : ph, th, etc.

LENGTH, STRESS, PITCH.— : (full length). ˙ (half length). ˈ (stress, placed at beginning of the stressed syllable). ˌ (secondary stress). ˉ (high level pitch); ˘ (low level); ˊ (high rising); ˋ (low rising); ˋˊ (high falling); ˋˋ (low falling); ˊˋ (rise-fall); ˋˊˋ (fall-rise).

MODIFIERS.— $\tilde{\hspace{0.1em}}$  nasality.  $\textcircled{\hspace{0.1em}}$  breath ( $\textcircled{\hspace{0.1em}}$  = breathed l).  $\textcircled{\hspace{0.1em}}$  voice ( $\textcircled{\hspace{0.1em}}$  = z).  $\textcircled{\hspace{0.1em}}$  slight aspiration following p, t, etc.  $\textcircled{\hspace{0.1em}}$  specially close vowel ( $\textcircled{\hspace{0.1em}}$  = a very close e).  $\textcircled{\hspace{0.1em}}$  specially open vowel ( $\textcircled{\hspace{0.1em}}$  = a rather open e).  $\textcircled{\hspace{0.1em}}$  labialization ( $\textcircled{\hspace{0.1em}}$  = labialized n).  $\textcircled{\hspace{0.1em}}$  dental articulation ( $\textcircled{\hspace{0.1em}}$  = dental t).  $\textcircled{\hspace{0.1em}}$  palatalization ( $\textcircled{\hspace{0.1em}}$  =  $\textcircled{\hspace{0.1em}}$ ).  $\textcircled{\hspace{0.1em}}$  tongue slightly raised.  $\textcircled{\hspace{0.1em}}$  tongue slightly lowered.  $\textcircled{\hspace{0.1em}}$  lips more rounded.  $\textcircled{\hspace{0.1em}}$  lips more spread. Central vowels  $\textcircled{\hspace{0.1em}}$  (= i),  $\textcircled{\hspace{0.1em}}$  (= u),  $\textcircled{\hspace{0.1em}}$  (= ə),  $\textcircled{\hspace{0.1em}}$  (= ø),  $\textcircled{\hspace{0.1em}}$ ,  $\textcircled{\hspace{0.1em}}$ . (e.g.  $\textcircled{\hspace{0.1em}}$ ) syllabic consonant.  $\textcircled{\hspace{0.1em}}$  consonantal vowel.  $\textcircled{\hspace{0.1em}}$  variety of  $\textcircled{\hspace{0.1em}}$  resembling s, etc.

|            |                                          |   |   | Bi-labial | Labio-dental | Dental and Alveolar |     | Retroflex | Palato-alveolar | Alveolo-palatal | Palatal   | Velar       | Uvular   | Pharyngeal | Glottal |
|------------|------------------------------------------|---|---|-----------|--------------|---------------------|-----|-----------|-----------------|-----------------|-----------|-------------|----------|------------|---------|
| CONSONANTS | Plosive                                  | . | . | p b       |              | t                   | d   | ʈ ɖ       |                 |                 | c ɟ       | k ɡ         | q ɢ      |            | ʔ       |
|            | Nasal                                    | . | . | m         | ɱ            | n                   | ɳ   |           |                 |                 | ɲ         | ŋ           | ɴ        |            |         |
|            | Lateral Fricative                        | . | . |           |              | ɬ                   | ɮ   |           |                 |                 |           |             |          |            |         |
|            | Lateral Non-fricative                    | . |   |           |              | l                   | ɭ   |           |                 |                 | ʎ         |             |          |            |         |
|            | Rolled                                   | . | . |           |              | r                   |     |           |                 |                 |           |             | ʀ        |            |         |
|            | Flapped                                  | . | . |           |              | ɾ                   | ɽ   |           |                 |                 |           |             | ɽ        |            |         |
|            | Fricative                                | . | . | ɸ β       | f v          | θ ð                 | s z | ɬ ɮ       | ɕ ʑ             | ʃ ʒ             | ç ʝ       | x ɣ         | χ ʁ      | ħ ʕ        | h ɦ     |
|            | Frictionless Continuants and Semi-vowels |   |   | w ɥ       | ʋ            |                     | ɹ   |           |                 |                 | j (ɥ)     | (w)         | ʁ        |            |         |
| VOWELS     | Close                                    | . | . | (y ʉ u)   |              |                     |     |           |                 |                 | Front i y | Central ɨ ʉ | Back ɯ u |            |         |
|            | Half-close                               | . | . | (ø ɔ)     |              |                     |     |           |                 |                 | e ø       |             | ɤ ɒ      |            |         |
|            | Half-open                                | . | . | (œ ɔ̃)    |              |                     |     |           |                 |                 | ɛ œ       | ə           | ʌ ɔ̃     |            |         |
|            | Open                                     | . | . | (ɒ)       |              |                     |     |           |                 |                 | æ         | ɐ           | ɑ ɒ      |            |         |

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants : ɸ, ɟ, etc. ; palatalized ʃ, ʒ : ɕ, ʑ Velarized or pharyngealized consonants : ɬ, ɮ, ʁ, etc. Ejective consonants (with simultaneous glottal stop) : pʰ, tʰ, etc. Implosive voiced consonants : ɓ, ɗ, etc. ɾ fricative trill. σ, ɣ (labialized θ, ð, or s, z). ɭ, ʐ (labialized ʃ, ʒ). ɰ, ɠ, ʘ (clicks, Zulu c, q, x). ɻ (a sound between r and l). ɳ Japanese syllabic nasal. ɧ (combination of x and f). ʍ (voiceless w). ɹ, ʁ, ɻ (lowered varieties of i, y, u). ɜ (a variety of ə). ɐ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (ts, tʃ, dʒ, etc.), or the marks ͡ or ͣ (ts or tʃ, etc.). ͣ͡ also denote synchronic articulation (m͡ɳ = simultaneous m and ɳ). c, ɟ may occasionally be used in place of tʃ, dʒ, and ʃ, ʒ for ts, dz. Aspirated plosives : ph, th, etc. r-coloured vowels : eɹ, aɹ, ɔɹ, etc., or eʳ, aʳ, ɔʳ, etc., or eɻ, aɻ, ɔɻ, etc. ; r-coloured ə : əɹ or əʳ or ɹ or ɻ.

LENGTH, STRESS, PITCH.— : (full length). ˑ (half length). ˈ (stress, placed at beginning of the stressed syllable). ˌ (secondary stress). ˊ (high level pitch) ; ˋ (low level) ; ˊˊ (high rising) ; ˋˋ (low rising) ; ˊˋ (high falling) ; ˋˊ (low falling) ; ˊˋˊ (rise-fall) ; ˋˊˋ (fall-rise).

MODIFIERS.— ̃ nasality. ̤ breath (l̤ = breathed l). ̥ voice (s̥ = z). ʰ slight aspiration following p, t, etc. ̍ labialization (ɱ̍ = labialized n). ̎ dental articulation (t̎ = dental t). ̊ palatalization (z̊ = ʒ). ̞ specially close vowel (e̞ = a very close e). ̠ specially open vowel (e̠ = a rather open e). ̡ tongue raised (e̡ or ẹ = e). ̣ tongue lowered (ẹ or e̤ = e). ̤ tongue advanced (ṳ or u̥ = an advanced u, t̤ = ṭ). ̥ or ̦ tongue retracted (i̥- or i̦ = i̠, t̥ = alveolar t). ̦ lips more rounded. ̧ lips more spread. Central vowels : i̠ (= i), u̠ (= u), e̠ (= ə), o̠ (= ɐ), e̠, ɔ̠. ̨ (e.g. ɳ̨) syllabic consonant. ̩ consonantal vowel. ̪ variety of ʃ resembling s, etc.

| Consonants                               | Bilabial. | Labiodental. | Dental and Alveolar. | Retroflex. | Palato-alveolar. | Alveolo-palatal. | 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       |             |          |
| Lateral                                  |           |              | l                    | ɭ          |                  |                  | ʎ        |        |         |             |          |
| „ fricative                              |           |              | ɬ ɮ                  |            |                  |                  |          |        |         |             |          |
| Rolled                                   |           |              | r                    |            |                  |                  |          |        | ʀ       |             |          |
| Flapped                                  |           |              | ɾ                    | ɽ          |                  |                  |          |        | ɽ       |             |          |
| Rolled fricative                         |           |              | ʀ                    |            |                  |                  |          |        |         |             |          |
| Fricative                                | ɸ β       | f v          | θ ð   s z   ɬ ɮ      | ʂ ʐ        | ʃ ʒ              | ɕ ʑ              | ç ʝ      | x ɣ    | χ ʁ     | ħ ʕ         | h ɦ      |
| Frictionless Continuants and Semi-vowels | w   ɥ     | ʋ            | ɹ                    |            |                  |                  | j (ɥ)    | (w) ɰ  | ʁ       |             |          |
| Vowels                                   | Rounded   |              |                      |            |                  |                  | Front    | Centr. | Back    |             |          |
| Close                                    | (y ɯ u)   |              |                      |            |                  |                  | i y      | ɨ ɯ    | ɯ u     |             |          |
| Half-close                               | (ø ɔ)     |              |                      |            |                  |                  | e ø      |        | ɤ ɒ     |             |          |
| Half-open                                | (œ ɔ̃)    |              |                      |            |                  |                  | ɛ œ      | ə      | ʌ ɔ̃    |             |          |
|                                          |           |              |                      |            |                  |                  | æ        | ɐ      |         |             |          |
| Open                                     | (ɒ)       |              |                      |            |                  |                  | a        |        | ɑ ɒ     |             |          |

|            |                                                 | <i>Bi-labial</i> | <i>Labio-dental</i> | <i>Dental and Alveolar</i> | <i>Retroflex</i> | <i>Palato-alveolar</i> | <i>Alveolo-palatal</i> | <i>Palatal</i>      | <i>Velar</i>          | <i>Uvular</i>      | <i>Pharyngeal</i> | <i>Glottal</i> |
|------------|-------------------------------------------------|------------------|---------------------|----------------------------|------------------|------------------------|------------------------|---------------------|-----------------------|--------------------|-------------------|----------------|
| CONSONANTS | <i>Plosive</i>                                  | p b              |                     | t d                        | ʈ ɖ              |                        |                        | c ɟ                 | k ɡ                   | q ɢ                |                   | ʔ              |
|            | <i>Nasal</i>                                    | m                | ɱ                   | n                          | ɳ                |                        |                        | ɲ                   | ŋ                     | ɴ                  |                   |                |
|            | <i>Lateral Fricative</i>                        |                  |                     | ɬ ɮ                        |                  |                        |                        |                     |                       |                    |                   |                |
|            | <i>Lateral Non-fricative</i>                    |                  |                     | ɭ                          | ɮ̺               |                        |                        | ʎ                   |                       |                    |                   |                |
|            | <i>Rolled</i>                                   |                  |                     | r                          |                  |                        |                        |                     |                       | ʀ                  |                   |                |
|            | <i>Flapped</i>                                  |                  |                     | ɾ                          | ɽ                |                        |                        |                     |                       | ʀ̥                 |                   |                |
|            | <i>Fricative</i>                                | ɸ β              | f v                 | θ ð                        | s z              | ʃ ʒ                    | ʂ ʐ                    | ç ʝ                 | x ɣ                   | χ ʁ                | ħ ʕ               | h ɦ            |
|            | <i>Frictionless Continuants and Semi-vowels</i> | w ɥ              | ʋ                   | ɹ                          |                  |                        |                        | j (ɥ)               | (w)                   | ʁ                  |                   |                |
| VOWELS     | <i>Close</i>                                    | (y ɯ u)          |                     |                            |                  |                        |                        | <i>Front</i><br>i y | <i>Central</i><br>ɨ ʉ | <i>Back</i><br>ɯ u |                   |                |
|            | <i>Half-close</i>                               | (ø ɔ)            |                     |                            |                  |                        |                        | e ø                 |                       | ɤ ɒ                |                   |                |
|            | <i>Half-open</i>                                | (œ ɔ̃)           |                     |                            |                  |                        |                        | ɛ œ                 | ə                     | ʌ ɔ̄               |                   |                |
|            | <i>Open</i>                                     | (ɒ)              |                     |                            |                  |                        |                        | æ                   | ɐ                     | ɑ ɒ̄               |                   |                |

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants: ɸ, ɟ, etc.; palatalized ʃ, ʒ: ʃ̟, ʒ̟ Velarized or pharyngealized consonants: ɬ̠, ɮ̠, ʐ̠, etc. Ejective consonants (with simultaneous glottal stop): pʰ, tʰ, etc. Implosive voiced consonants: ɓ, ɗ, etc. ʀ fricative trill. σ, ɣ (labialized θ, ð, or s, z). ɭ, ʐ (labialized ʃ, ʒ). ɰ, ɠ, ʘ (clicks, Zulu *c*, *q*, *x*). ɻ (a sound between r and l). ɲ Japanese syllabic nasal. ɸɟ (combination of x and f). ʍ (voiceless w). ɹ̥, ɣ̥, ʋ̥ (lowered varieties of i, y, u). ɜ (a variety of ə). ɐ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (ts̺, tʃ̺, dʒ̺, etc.), or the marks ˘ or ˙ (ts̺ or tʃ̺, etc.). ˘ ˙ also denote synchronic articulation (m̺ɲ̺ = simultaneous m and ɲ). c, ɟ may occasionally be used in place of tʃ, dʒ, and ʈ, ɖ for ts, dz. Aspirated plosives: ph, th, etc. r-coloured vowels: eɹ, aɹ, ɔɹ, etc., or eʳ, aʳ, ɔʳ, etc., or e̞, a̞, ɔ̞, etc.; r-coloured ə: əɹ or əʳ or ɹ̥ or ə̞.

LENGTH, STRESS, PITCH.—ː (full length). ˑ (half length). ˈ (stress, placed at beginning of the stressed syllable). ˌ (secondary stress). ˉ (high level pitch); ˘ (low level); ˊ (high rising); ˋ (low rising); ˋˊ (high falling); ˋˋ (low falling); ˊˋ (rise-fall); ˋˊˋ (fall-rise).

MODIFIERS.—˜ nasality. ʰ breath (l̥ = breathed l). ʷ voice (ʃ̺ = z). ʰ slight aspiration following p, t, etc. ˠ labialization (ɲ̠ = labialized n). ˡ dental articulation (t̡ = dental t). ˠ palatalization (ʒ̠ = ʒ). ˠ specially close vowel (e̞ = a very close e). ˠ specially open vowel (e̞ = a rather open e). ˠ tongue raised (e̞ or e̞ = e̞). ˠ tongue lowered (e̞ or e̞ = e̞). ˠ tongue advanced (u̞ or u̞ = an advanced u, t̡ = t̡). ˠ or ˠ tongue retracted (i̞ or i̞ = i̞, t̡ = alveolar t). ˠ lips more rounded. ˠ lips more spread. Central vowels: i̞ (= i), ü̞ (= u), e̞ (= ə), ö̞ (= ø), e̞, ö̞. ˠ (e.g. ɲ̠) syllabic consonant. ˠ consonantal vowel. ʃ̠ variety of ʃ resembling s, etc.

## (Revised to 1979)

| $C$                                    | $O$ | $N$ | $S$ | $O$                             | $N$ | $A$ | $N$ | $T$ |
|----------------------------------------|-----|-----|-----|---------------------------------|-----|-----|-----|-----|
| (non-pulmonic<br>air-stream mechanism) |     |     |     | (pulmonic air-stream mechanism) |     |     |     |     |

## OTHER SYMBOLS

- or ◡ Raised e, ē, ẽ v
- ◡ or ◣ Lowered e, ẽ, ẹ
- + Advanced u+, ụ
- or - Retracted i-, i-
- ~ Centralized ĕ
- ~ Nasalized ā
- ◡, ◣, Ẹ r-coloured α
- ◡ Long α:
- ◡ Half-long α'
- ◡ Non-syllabic ŭ
- ◡ More rounded ɔ
- ◡ Less rounded y

c, ʈ Alveolo-palatal fricatives  
 ɕ, ʑ Palatalized ʃ, ʒ  
 ɹ Alveolar fricative trill  
 ɻ Alveolar lateral flap  
 ɧ Simultaneous ʃ and x  
 ʃʱ Variety of ʃ resembling s,  
 etc.  
 ɿ = ɪ  
 ʊ = ʊ  
 ɜ = Variety of ə  
 ɶ = r-coloured ə

## VOWELS

## STRESS, TONE (PITCH)

- ' stress, placed at beginning of stressed syllable :
- , secondary stress : ^ high level pitch, high tone :
- ^ low level : ' high rising :
- , low rising : ^ high falling :
- , low falling : ^ rise-fall :
- ^ fall-rise.

**AFFRICATES** can be written as digraphs, as ligatures, or with slur marks; thus ts, tf, d<sub>3</sub>:  
ts tf d<sub>3</sub>: tṣ tf̣ d<sub>3</sub>̣.  
c, j may occasionally be used for tf, d<sub>3</sub>.



# The phonetic alphabet of the International Phonetic Association

## CONSONANTS

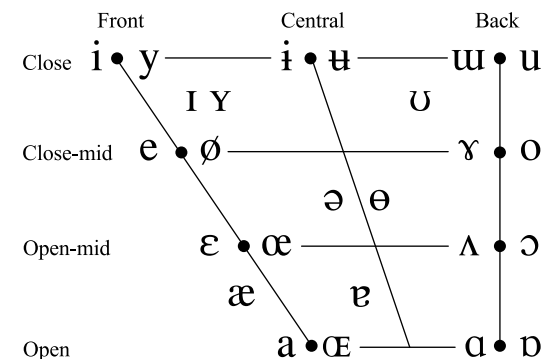
|                     | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|---------|
| Plosive             | 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         |          |             | 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     |        |            |         |
| Ejective stop       | pʼ       |             | tʼ     |          |              | ʈʼ        | cʼ      | kʼ    | qʼ     |            |         |
| Implosive           | ɓ ɗ      |             | ɟ ɗ    |          |              |           | ɕ ɟ     | ʟ ɠ   | ɗ ɠ    |            |         |

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

## DIACRITICS

|                  |                                    |                   |           |                               |                                                    |                      |                      |
|------------------|------------------------------------|-------------------|-----------|-------------------------------|----------------------------------------------------|----------------------|----------------------|
| ◌ Voiceless      | <b>ᵿ ᵿ</b>                         | ◌ More rounded    | <b>ᵿ</b>  | ◌ Labialized                  | <b>t<sup>w</sup> d<sup>w</sup></b>                 | ◌ Nasalized          | <b>ẽ</b>             |
| ◌ Voiced         | <b>ᶑ ᶑ</b>                         | ◌ Less rounded    | <b>ᵿ</b>  | ◌ Palatalized                 | <b>tʲ dʲ</b>                                       | ◌ Nasal release      | <b>d<sup>n</sup></b> |
| ◌ Aspirated      | <b>t<sup>h</sup> d<sup>h</sup></b> | ◌ Advanced        | <b>ᵿ</b>  | ◌ Velarized                   | <b>tˠ dˠ</b>                                       | ◌ Lateral release    | <b>d<sup>l</sup></b> |
| ◌ Breathy voiced | <b>ᵿ ᵿ</b>                         | ◌ Retracted       | <b>ᵿ</b>  | ◌ Pharyngealized              | <b>tˤ dˤ</b>                                       | ◌ No audible release | <b>d<sup>ɹ</sup></b> |
| ◌ Creaky voiced  | <b>ᵿ ᵿ</b>                         | ◌ Centralized     | <b>ᵿ</b>  | ◌ Velarized or pharyngealized |                                                    |                      | <b>ɟ</b>             |
| ◌ Linguolabial   | <b>ᵿ ᵿ</b>                         | ◌ Mid-centralized | <b>ᵿ</b>  | ◌ Raised                      | <b>e</b> ( <b>ɿ</b> = voiced alveolar fricative)   |                      |                      |
| ◌ Dental         | <b>t̪ d̪</b>                       | ◌ Syllabic        | <b>ɿ</b>  | ◌ Lowered                     | <b>e</b> ( <b>ɿ</b> = voiced bilabial approximant) |                      |                      |
| ◌ Apical         | <b>t̪ d̪</b>                       | ◌ Non-syllabic    | <b>e</b>  | ◌ Advanced Tongue Root        | <b>e</b>                                           |                      |                      |
| ◌ Laminal        | <b>t̪ d̪</b>                       | ◌ Rhoticity       | <b>ə̃</b> | ◌ Retracted Tongue Root       | <b>e</b>                                           |                      |                      |

## VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

## OTHER SYMBOLS

|     |                                   |   |                        |
|-----|-----------------------------------|---|------------------------|
| ʌ   | Voiceless labial-velar fricative  | ◉ | Bilabial click         |
| ʋ   | Voiced labial-velar approximant   | ǀ | Dental click           |
| ɥ   | Voiced labial-palatal approximant | ǃ | (Post)alveolar click   |
| ħ   | Voiceless epiglottal fricative    | ǂ | Palatoalveolar click   |
| ʕ   | Voiced epiglottal fricative       | ǁ | Alveolar lateral click |
| ʡ   | Epiglottal plosive                | ɭ | Alveolar lateral flap  |
| ɕ ʑ | Alveolo-palatal fricatives        | ɥ | Simultaneous ɥ and ɣ   |
| ɘ   | Additional mid central vowel      |   |                        |

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

kp   ts

## SUPRASEGMENTALS

|   |                              | TONES & WORD ACCENTS |        |            |        |                     |
|---|------------------------------|----------------------|--------|------------|--------|---------------------|
|   |                              | LEVEL                |        | CONTOUR    |        |                     |
|   | Primary stress               | founə'tɪʃən          |        |            |        |                     |
|   | Secondary stress             |                      |        |            |        |                     |
| ː | Long                         | eː                   | é or ˥ | Extra high | ě or ˧ | Rising              |
| ˑ | Half-long                    | eˑ                   | é      | High       | ê      | Falling             |
| ˘ | Extra-short                  | ě                    | ē      | Mid        | ě      | High rising         |
| · | Syllable break               | ˌi.ækt               | è      | Low        | ě      | Low rising          |
|   | Minor (foot) group           |                      | è      | Extra low  | ě      | Rising-falling etc. |
|   | Major (intonation) group     |                      |        |            |        |                     |
| ˘ | Linking (absence of a break) |                      | ↓      | Downstep   |        |                     |
| ↗ | Global rise                  |                      | ↑      | Upstep     |        |                     |
| ↘ | Global fall                  |                      |        |            |        |                     |

## CONSONANTS (PULMONIC)

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

| Clicks             | Voiced implosives | Ejectives             |
|--------------------|-------------------|-----------------------|
| ◉ Bilabial         | ɓ Bilabial        | ʼ as in:              |
| ǀ Dental           | ɗ Dental/alveolar | pʼ Bilabial           |
| ǃ (Post)alveolar   | ɟ Palatal         | tʼ Dental/alveolar    |
| ǂ Palatoalveolar   | ɠ Velar           | kʼ Velar              |
| ǁ Alveolar lateral | ʄ Uvular          | sʼ Alveolar fricative |

Front Central Back

Close i • y ——— i • ʉ ——— ʊ • u  
I Y U

Close-mid e • ø ——— ɤ • ɵ ——— ɣ • o  
ə

Open-mid ε • œ — ɜ • ɸ — ʌ • ɔ  
æ ɶ

Open a • ɶ ——— ɑ • ɒ

## OTHER SYMBOLS

**ç ʒ** Alveolo-palatal fricatives  
**ɺ** Alveolar lateral flap  
**ɥ** Simultaneous **ɥ** and **X**

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

$\widehat{\text{kp}}$      $\widehat{\text{ts}}$

|   |                              |        |
|---|------------------------------|--------|
|   | Primary stress               | f      |
|   | Secondary stress             | ə      |
| ˌ | Long                         | eː     |
| ˈ | Half-long                    | eʰ     |
| ˘ | Extra-short                  | ɛ̆     |
| . | Syllable break               | ˌi.ækt |
|   | Minor (foot) group           |        |
|   | Major (intonation) group     |        |
| — | Linking (absence of a break) |        |

| LEVEL  |            | CONTOUR |                     |
|--------|------------|---------|---------------------|
| é or ˩ | Extra high | ě or ˩  | Rising              |
| é      | High       | ê       | Falling             |
| ē      | Mid        | ẽ       | High rising         |
| è      | Low        | ẽ       | Low rising          |
| ẽ      | Extra low  | ẽ       | Rising-falling etc. |
| ↓      | Downstep   | ↗       | Global rise         |
| ↑      | Upstep     | ↘       | Global fall         |

Diacritics may be placed above a symbol with a descender, e.g.  $\mathring{\mathfrak{h}}$

© 2018 IPA; SOURCE: *Journal of the International Phonetic Association*, VOL.23, 1, 1993

# THE INTERNATIONAL PHONETIC ALPHABET (revised to 1993, updated 1996)

## CONSONANTS (PULMONIC)

|                     | 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         |          |             |        | 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.

## CONSONANTS (NON-PULMONIC)

| Clicks | Voiced implosives  | Ejectives           |
|--------|--------------------|---------------------|
| ◌ ɸ    | ɓ Bilabial         | ʼ Examples:         |
| ◌ ɗ    | ɗ Dental/alveolar  | ɓ' Bilabial         |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ' Dental/alveolar  |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |
| ◌ ɗ̥   | ɗ̥ Dental/alveolar | ɗ̥' Dental/alveolar |

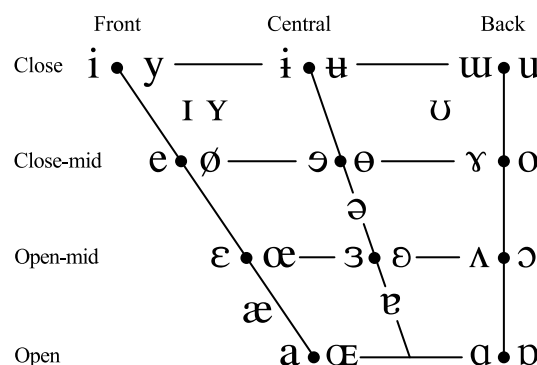
## OTHER SYMBOLS

|   |                                   |     |                                                                                                         |
|---|-----------------------------------|-----|---------------------------------------------------------------------------------------------------------|
| ɱ | Voiceless labial-velar fricative  | ɕ ʑ | Alveolo-palatal fricatives                                                                              |
| ɰ | Voiced labial-velar approximant   | ɭ   | Alveolar lateral flap                                                                                   |
| ɰ | Voiced labial-palatal approximant | ɮ   | Simultaneous ɬ and ɮ                                                                                    |
| ħ | Voiceless epiglottal fricative    |     |                                                                                                         |
| ʕ | Voiced epiglottal fricative       |     | Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary. |
| ʔ | Epiglottal plosive                |     |                                                                                                         |

DIACRITICS Diacritics may be placed above a symbol with a descender, e.g. ɲ̃

|      |                 |      |                             |      |        |      |        |      |         |      |           |
|------|-----------------|------|-----------------------------|------|--------|------|--------|------|---------|------|-----------|
| ◌ ɸ  | Voiceless       | ◌ ɗ̥ | Breathy voiced              | ◌ ɗ̥ | Dental | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Voiced          | ◌ ɗ̥ | Creaky voiced               | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Aspirated       | ◌ ɗ̥ | Linguolabial                | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | More rounded    | ◌ ɗ̥ | Labialized                  | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Less rounded    | ◌ ɗ̥ | Palatalized                 | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Advanced        | ◌ ɗ̥ | Velarized                   | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Retracted       | ◌ ɗ̥ | Pharyngealized              | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Centralized     | ◌ ɗ̥ | Velarized or pharyngealized | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Mid-centralized | ◌ ɗ̥ | Raised                      | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Syllabic        | ◌ ɗ̥ | Lowered                     | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Non-syllabic    | ◌ ɗ̥ | Advanced Tongue Root        | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |
| ◌ ɗ̥ | Rhoticity       | ◌ ɗ̥ | Retracted Tongue Root       | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Apical | ◌ ɗ̥ | Laminal | ◌ ɗ̥ | Nasalized |

## VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

## SUPRASEGMENTALS

|    |                              |
|----|------------------------------|
| ˈ  | Primary stress               |
| ˌ  | Secondary stress             |
| ː  | Long                         |
| ˑ  | Half-long                    |
| ◌̥ | Extra-short                  |
| ◌̥ | Minor (foot) group           |
| ◌̥ | Major (intonation) group     |
| ◌̥ | Syllable break               |
| ◌̥ | Linking (absence of a break) |

## TONES AND WORD ACCENTS

| LEVEL   | CONTOUR        |
|---------|----------------|
| ◌̥ or ˥ | Extra high     |
| ◌̥ or ˥ | High           |
| ◌̥ or ˥ | Mid            |
| ◌̥ or ˥ | Low            |
| ◌̥ or ˥ | Extra low      |
| ◌̥ or ˥ | Downstep       |
| ◌̥ or ˥ | Upstep         |
| ◌̥ or ˥ | Rising         |
| ◌̥ or ˥ | Falling        |
| ◌̥ or ˥ | High rising    |
| ◌̥ or ˥ | Low rising     |
| ◌̥ or ˥ | Rising-falling |
| ◌̥ or ˥ | Global rise    |
| ◌̥ or ˥ | Global fall    |

# THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

## CONSONANTS (PULMONIC)

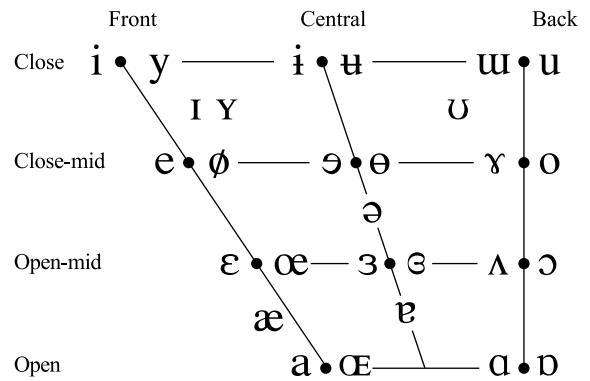
|                     | Bilabial   | Labiodental | Dental     | Alveolar   | Postalveolar | Retroflex  | Palatal    | Velar      | Uvular     | Pharyngeal | Glottal    |
|---------------------|------------|-------------|------------|------------|--------------|------------|------------|------------|------------|------------|------------|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

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

## CONSONANTS (NON-PULMONIC)

| Clicks                    | Voiced implosives        | Ejectives                    |
|---------------------------|--------------------------|------------------------------|
| <b>ɔ</b> Bilabial         | <b>ɓ</b> Bilabial        | <b>ʼ</b> Examples:           |
| <b>ɖ</b> Dental           | <b>ɗ</b> Dental/alveolar | <b>pʼ</b> Bilabial           |
| <b>ɗ</b> (Post)alveolar   | <b>f</b> Palatal         | <b>tʼ</b> Dental/alveolar    |
| <b>ɗ</b> Palatoalveolar   | <b>ɡ</b> Velar           | <b>kʼ</b> Velar              |
| <b>ɗ</b> Alveolar lateral | <b>ɠ</b> Uvular          | <b>sʼ</b> Alveolar fricative |

## VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

## OTHER SYMBOLS

|                                            |                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>ɱ</b> Voiceless labial-velar fricative  | <b>ɕ ʑ</b> Alveolo-palatal fricatives                                                                   |
| <b>w</b> Voiced labial-velar approximant   | <b>ɺ</b> Voiced alveolar lateral flap                                                                   |
| <b>ɥ</b> Voiced labial-palatal approximant | <b>ɺ</b> Simultaneous <b>ʃ</b> and <b>x</b>                                                             |
| <b>ħ</b> Voiceless epiglottal fricative    |                                                                                                         |
| <b>ʕ</b> Voiced epiglottal fricative       | Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary. |
| <b>ʡ</b> Epiglottal plosive                |                                                                                                         |

**k͡p t͡s**

## SUPRASEGMENTALS

|                                        |               |
|----------------------------------------|---------------|
| <b>ˈ</b> Primary stress                | <b>ˈ</b>      |
| <b>ˌ</b> Secondary stress              | <b>ˌ</b>      |
| <b>ː</b> Long                          | <b>eː</b>     |
| <b>ˑ</b> Half-long                     | <b>eˑ</b>     |
| <b>̥</b> Extra-short                   | <b>e̥</b>     |
| <b>̤</b> Minor (foot) group            |               |
| <b>̦</b> Major (intonation) group      |               |
| <b>·</b> Syllable break                | <b>ti.ækt</b> |
| <b>◌̚</b> Linking (absence of a break) |               |

**DIACRITICS** Diacritics may be placed above a symbol with a descender, e.g. **ŋ̥**

|                           |              |                                       |                                                      |                              |              |
|---------------------------|--------------|---------------------------------------|------------------------------------------------------|------------------------------|--------------|
| <b>◌̥</b> Voiceless       | <b>ŋ̥ d̥</b> | <b>◌̤</b> Breathy voiced              | <b>b̤ a̤</b>                                         | <b>◌̪</b> Dental             | <b>t̪ d̪</b> |
| <b>◌̦</b> Voiced          | <b>ș ț</b> | <b>◌̰</b> Creaky voiced               | <b>b̰ a̰</b>                                         | <b>◌̺</b> Apical             | <b>t̺ d̺</b> |
| <b>◌̨</b> Aspirated       | <b>t̨ d̨</b> | <b>◌̱</b> Linguolabial                | <b>ṯ ḏ</b>                                         | <b>◌̻</b> Laminal            | <b>t̻ d̻</b> |
| <b>◌̜</b> More rounded    | <b>ɔ̜</b>    | <b>◌̹</b> Labialized                  | <b>t̹ d̹</b>                                         | <b>◌̼</b> Nasalized          | <b>ẽ̼</b>    |
| <b>◌̽</b> Less rounded    | <b>ɔ̽</b>    | <b>◌̻</b> Palatalized                 | <b>t̻ d̻</b>                                         | <b>◌̽</b> Nasal release      | <b>d̽ⁿ</b>   |
| <b>◌̿</b> Advanced        | <b>u̿</b>    | <b>◌̻</b> Velarized                   | <b>t̻ d̻</b>                                         | <b>◌̽</b> Lateral release    | <b>d̽ˡ</b>   |
| <b>◌̻</b> Retracted       | <b>e̻</b>    | <b>◌̼</b> Pharyngealized              | <b>t̼ d̼</b>                                         | <b>◌̽</b> No audible release | <b>d̽̚</b>   |
| <b>◌̽</b> Centralized     | <b>ẽ̽</b>    | <b>◌̼</b> Velarized or pharyngealized | <b>t̼</b>                                            |                              |              |
| <b>◌̿</b> Mid-centralized | <b>ẽ̿</b>    | <b>◌̽</b> Raised                      | <b>e̽</b> ( <b>ɹ̽</b> = voiced alveolar fricative)   |                              |              |
| <b>◌̽</b> Syllabic        | <b>ŋ̽</b>    | <b>◌̽</b> Lowered                     | <b>e̽</b> ( <b>β̽</b> = voiced bilabial approximant) |                              |              |
| <b>◌̽</b> Non-syllabic    | <b>e̽</b>    | <b>◌̽</b> Advanced Tongue Root        | <b>e̽</b>                                            |                              |              |
| <b>◌̽</b> Rhoticity       | <b>ə̽ a̽</b> | <b>◌̽</b> Retracted Tongue Root       | <b>e̽</b>                                            |                              |              |

## TONES AND WORD ACCENTS

| LEVEL                            | CONTOUR                              |
|----------------------------------|--------------------------------------|
| <b>ẽ̥</b> or <b>˥</b> Extra high | <b>ẽ̥</b> or <b>˥</b> Rising         |
| <b>é</b> or <b>˦</b> High        | <b>ẽ̥</b> or <b>˥</b> Falling        |
| <b>ē</b> or <b>˧</b> Mid         | <b>ẽ̥</b> or <b>˥</b> High rising    |
| <b>è</b> or <b>˨</b> Low         | <b>ẽ̥</b> or <b>˥</b> Low rising     |
| <b>ẽ̥</b> or <b>˩</b> Extra low  | <b>ẽ̥</b> or <b>˥</b> Rising-falling |
| <b>↓</b> Downstep                | <b>↗</b> Global rise                 |
| <b>↑</b> Upstep                  | <b>↘</b> Global fall                 |

## CONSONANTS (PULMONIC)

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

## VOWELS

## OTHER SYMBOLS

$$\underline{\text{ts}} \quad \widehat{\text{kp}}$$

SUPRASEGMENTALS

|   |                              |             |
|---|------------------------------|-------------|
|   | Primary stress               | founə'tɪʃən |
|   | Secondary stress             |             |
| ː | Long                         | eː          |
| ˑ | Half-long                    | eˑ          |
| ◌ | Extra-short                  | ě           |
|   | Minor (foot) group           |             |
|   | Major (intonation) group     |             |
| . | Syllable break               | ˌi.ækt      |
| ◌ | Linking (absence of a break) |             |

## TONES AND WORD ACCENTS

| LEVEL  |            | CONTOUR |                |
|--------|------------|---------|----------------|
| ě or ǃ | Extra high | ě or ǃ  | Rising         |
| é      | High       | ê       | Falling        |
| ē      | Mid        | ẽ       | High rising    |
| è      | Low        | ẽ       | Low rising     |
| ě      | Extra low  | ẽ       | Rising-falling |
| ↓      | Downstep   | ↗       | Global rise    |
| ↑      | Upstep     | ↘       | Global fall    |

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2018)

## CONSONANTS (PULMONIC)

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

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

## CONSONANTS (NON-PULMONIC)

| Clicks                      | Voiced implosives        | Ejectives                    |
|-----------------------------|--------------------------|------------------------------|
| <b>◌ʘ</b> Bilabial          | <b>ɓ</b> Bilabial        | <b>ʼ</b> Examples:           |
| <b>◌ </b> Dental            | <b>ɗ</b> Dental/alveolar | <b>pʼ</b> Bilabial           |
| <b>◌!</b> (Post)alveolar    | <b>f</b> Palatal         | <b>tʼ</b> Dental/alveolar    |
| <b>◌≠</b> Palatoalveolar    | <b>ɡ</b> Velar           | <b>kʼ</b> Velar              |
| <b>◌  </b> Alveolar lateral | <b>ɠ</b> Uvular          | <b>sʼ</b> Alveolar fricative |

## OTHER SYMBOLS

ʌ Voiceless labial-velar fricative

**ʧ ʤ** Alveolo-palatal fricatives

**W** Voiced labial-velar approximant

**J** Voiced alveolar lateral flap

ʋ Voiced labial-palatal approximant

## Simultaneous $\int$ and $\mathbf{X}$

## H Voiceless epiglottal fricative

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

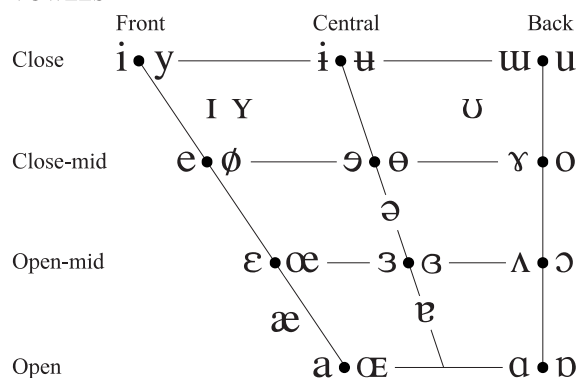
Ƨ Voiced epiglottal fricative

‡ Epiglottal plosive

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g.  $\overset{\circ}{\eta}$

|                             |                                           |                                            |                                                      |                             |                      |
|-----------------------------|-------------------------------------------|--------------------------------------------|------------------------------------------------------|-----------------------------|----------------------|
| ◌ <sup>◌</sup> Voiceless    | <b>ᵿ</b> <b>ᵿ</b>                         | ◌ <sup>◌</sup> Breathy voiced              | <b>ᵿ</b> <b>ᵿ</b>                                    | ◌ <sup>◌</sup> Dental       | <b>ᵿ</b> <b>ᵿ</b>    |
| ◌ <sup>◌</sup> Voiced       | <b>ᵿ</b> <b>ᵿ</b>                         | ◌ <sup>◌</sup> Creaky voiced               | <b>ᵿ</b> <b>ᵿ</b>                                    | ◌ <sup>◌</sup> Apical       | <b>ᵿ</b> <b>ᵿ</b>    |
| <b>ᵿ</b> Aspirated          | <b>ᵿ<sup>h</sup></b> <b>ᵿ<sup>h</sup></b> | ◌ <sup>◌</sup> Linguolabial                | <b>ᵿ</b> <b>ᵿ</b>                                    | ◌ <sup>◌</sup> Laminal      | <b>ᵿ</b> <b>ᵿ</b>    |
| ◌ <sup>◌</sup> More rounded | <b>ᵿ</b>                                  | <b>ᵿ</b> Labialized                        | <b>ᵿ<sup>w</sup></b> <b>ᵿ<sup>w</sup></b>            | ◌ <sup>◌</sup> Nasalized    | <b>ᵿ̃</b>            |
| ◌ <sup>◌</sup> Less rounded | <b>ᵿ</b>                                  | <b>ᵿ</b> Palatalized                       | <b>ᵿ<sup>j</sup></b> <b>ᵿ<sup>j</sup></b>            | <b>ᵿ</b> Nasal release      | <b>ᵿ<sup>n</sup></b> |
| <b>+</b> Advanced           | <b>ᵿ<sup>+</sup></b>                      | <b>ᵿ</b> Velarized                         | <b>ᵿ<sup>ʷ</sup></b> <b>ᵿ<sup>ʷ</sup></b>            | <b>ᵿ</b> Lateral release    | <b>ᵿ<sup>l</sup></b> |
| <b>−</b> Retracted          | <b>ᵿ<sup>−</sup></b>                      | <b>ᵿ</b> Pharyngealized                    | <b>ᵿ<sup>ħ</sup></b> <b>ᵿ<sup>ħ</sup></b>            | <b>ᵿ</b> No audible release | <b>ᵿ<sup>̚</sup></b> |
| <b>◌̥</b> Centralized       | <b>ᵿ̥</b>                                 | ◌ <sup>◌</sup> Velarized or pharyngealized | <b>ᵿ</b>                                             |                             |                      |
| <b>×</b> Mid-centralized    | <b>ᵿ̥</b>                                 | <b>ᵿ</b> Raised                            | <b>ᵿ̥</b> ( <b>ᵿ̥</b> = voiced alveolar fricative)   |                             |                      |
| <b>ᵿ</b> Syllabic           | <b>ᵿ̥</b>                                 | <b>ᵿ</b> Lowered                           | <b>ᵿ̥</b> ( <b>ᵿ̥</b> = voiced bilabial approximant) |                             |                      |
| <b>ᵿ</b> Non-syllabic       | <b>ᵿ̥</b>                                 | <b>ᵿ</b> Advanced Tongue Root              | <b>ᵿ̥</b>                                            |                             |                      |
| <b>ᵿ</b> Rhoticity          | <b>ᵿ̥</b> <b>ᵿ̥</b>                       | <b>ᵿ</b> Retracted Tongue Root             | <b>ᵿ̥</b>                                            |                             |                      |

## VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

## SUPRASEGMENTALS

Primary stress      ,founə'tɪʃən

## Secondary stress

Long e

' Half-long e'

Extra-short €

Minor (foot) group

|| Major (intonation) group

- Syllable break     ɪ.ækt

Linking (absence of a break)

## TONES AND WORD ACCENTS

| LEVEL  |            | CONTOUR |                |
|--------|------------|---------|----------------|
| ẽ or ʘ | Extra high | ẽ or ʘ  | Rising         |
| é      | High       | ê       | Falling        |
| ē      | Mid        | ẽ       | High rising    |
| è      | Low        | ẽ       | Low rising     |
| ẽ      | Extra low  | ẽ       | Rising-falling |
| ↓      | Downstep   | ↗       | Global rise    |
| ↑      | Upstep     | ↘       | Global fall    |

## REFERENCES:

- Maître Phonétique*, vol.3, Aug.–Sept. 1888
- Maître Phonétique*, vol.14, Feb. 1899
- Maître Phonétique*, vol.15, 1900, “Exposé des principes de l’Association Phonétique Internationale”
- Maître Phonétique*, vol.18, May 1903
- Maître Phonétique*, vol.19, 1904, “Aims and principles of the International Phonetic Association”
- Maître Phonétique*, vol.20, Dec. 1905
- Maître Phonétique*, vol.22, May–June 1907
- Maître Phonétique*, vol.27, 1912, “The Principles of the International Phonetic Association”
- L’Écriture Phonétique Internationale*, 2ND ed., 1921, p. 6
- Maître Phonétique*, vol.41, July–Sept. 1926
- Maître Phonétique*, vol.43, 1928, “Lautzeichen und ihre Anwendung in verschiedenen Fachgebieten”
- Maître Phonétique*, vol.45, July–Sept. 1930
- Maître Phonétique*, vol.48, April–June 1933
- Maître Phonétique*, vol.54, July–Sept. 1939
- Maître Phonétique*, vol.59, July–Dec. 1947
- Principles of the International Phonetic Association*, 1949, p. 10
- Maître Phonétique*, vol.67, Jan.–July 1952
- Journal of the International Phonetic Association*, vol.8, 1–2, 1978
- Journal of the International Phonetic Association*, vol.19, 2, 1989
- Journal of the International Phonetic Association*, vol.23, 1, 1993
- Handbook of the International Phonetic Association*, 1999, p. 163
- [WWW.INTERNATIONALPHONETICASSOCIATION.ORG/CONTENT/FULL-IPA-CHART](http://WWW.INTERNATIONALPHONETICASSOCIATION.ORG/CONTENT/FULL-IPA-CHART): PNG image (2005)
- [WWW.INTERNATIONALPHONETICASSOCIATION.ORG/CONTENT/FULL-IPA-CHART](http://WWW.INTERNATIONALPHONETICASSOCIATION.ORG/CONTENT/FULL-IPA-CHART): PDF file (IPA Kiel, 2015)
- [WWW.INTERNATIONALPHONETICASSOCIATION.ORG/NEWS/201805/2018-IPA-CHARTS-NOW-POSTED-ONLINE](http://WWW.INTERNATIONALPHONETICASSOCIATION.ORG/NEWS/201805/2018-IPA-CHARTS-NOW-POSTED-ONLINE): PDF file (IPA Kiel, 2018)

**TYPEFACES:**

Baskerville Old Face

Bodoni MT Regular, *Bodoni MT Italic*

Doulos SIL

ipa kiel, IPA LS Uni

Junicode Regular, **Junicode Bold**

Nimbus Roman No9 L

**Ratio Modern Medium**

Scotch Roman MT Std Regular, *Scotch Roman MT Std Italic*

TEX Gyre Schola Regular, *TEX Gyre Schola Italic*, **TEX Gyre Schola Bold**

Times New Roman Regular, **Times New Roman Bold**

Times Ten LT Std Roman

unitipa

**WITH SPECIAL THANKS TO:**

*Natalie Udomkesmalee* (UCLA), who did most of the hard work gathering the early charts