# Part one: American English Phonetics

**Objectives:** By the end of this course, students will be able to distinguish, pronounce, and apply the full range of American English consonant and vowel sounds with confidence, contributing to clearer, more accurate spoken communication.

# I Introduction

Phonetics is the study of speech sounds: how they are produced (articulation), transmitted (acoustics), and perceived (auditory). In American English phonetics, we focus on the unique characteristics of sounds in American English, examining vowels, consonants, stress, rhythm, and intonation. Understanding phonetics is essential for improving pronunciation, communication, and comprehension skills.

# **II** Consonants

## **II.1** Introduction

Consonants are sounds produced by obstructing airflow in the **vocal tract**. Understanding their articulation is the key to mastering pronunciation.



Figure 1. The vocal tract

# **II.2 Types of Consonants II.2.1 Place of Articulation**

## II.2.1.1 Bilabial

- Produced with both lips.
- **Examples**: /p/ (pat), /b/ (bat), /m/ (mat)

#### II.2.1.2 Labiodental

- Produced with the bottom lip against the upper teeth.
- **Examples**: /f/ (fan), /v/ (van)

#### II.2.1.3 Dental

- Produced with the tongue against the teeth.
- Examples: /θ ثٰ (think), /ð ' (this)

#### II.2.1.4 Alveolar

- Tongue against the alveolar ridge.
- **Examples**: /t/ (tap), /d/ (dog), /s/ (sip), /z/ (zoo), /n/ (nap)

#### II.2.1.5 Postalveolar

- Tongue near the back of the alveolar ridge.
- Examples: /∫ ش (shoe), /ح τ/ (measure)

## II.2.1.6 Palato-Alveolar

- Tongue between the alveolar ridge and the hard palate.
- Examples: /tʃ / نتشا (chip), /dʒ /دجا (judge)

## II.2.1.7 Palatal

- Produced with the body of the tongue against the hard palate.
- Examples: /j / (yes)

#### II.2.1.8 Velar

- Back of the tongue against the soft palate.
- Examples: /k/ (cat), /g/ (go), /ŋ لنيا (sing)

#### II.2.1.9 Glottal

- Produced with the glottis (vocal cords).
- **Examples**: /h/ (hat), glottal stop as in "uh-oh"

# **II.2.2 Manner of Articulation**

#### **II.2.2.1** Plosive (Stop) Consonants

Plosives are sounds produced by blocking and then releasing airflow.

- /p/: voiceless bilabial plosive
  Example: pin, stop
- /b/: voiced bilabial plosive
  Example: bin, rub
- /t/: voiceless alveolar plosive
  Example: tin, cat
- /d/: voiced alveolar plosive
  Example: din, bad

- /k/: voiceless velar plosive
  Example: kin, lock
- /g/: voiced velar plosive
  Example: gin, bag

# II.2.2.2 Fricative Consonants

Fricatives are sounds produced by forcing air through a narrow space, creating friction.

- /f/: voiceless labiodental fricative
  Example: fan, leaf
- /v/: voiced labiodental fricative
  Example: van, leave
- /θ/: voiceless dental fricative (as in "thin")
  Example: thin, bath
- /ð/: voiced dental fricative (as in "this")
  Example: this, mother
- /s/: voiceless alveolar fricative
  Example: sin, hiss
- /z/: voiced alveolar fricative
  Example: zoo, buzz
- /ʃ/: voiceless postalveolar fricative (as in "sh")
  Example: sheep, wish
- /ʒ/: voiced postalveolar fricative (as in "measure")
  Example: measure, garage
- /h/: voiceless glottal fricative
  Example: hat, ahead

# II.2.2.3 Affricate Consonants

Affricates are a combination of a stop and a fricative.

/tʃ/: voiceless postalveolar affricate (as in "ch")
 Example: check, watch

/dʒ/: voiced postalveolar affricate (as in "j")
 Example: jam, bridge

## II.2.2.4 Nasal Consonants

Nasals are sounds produced by letting air flow through the nose.

- /m/: bilabial nasal
  Example: mat, room
- /n/: alveolar nasal
  Example: nap, run
- /ŋ/: velar nasal (as in "ng")
  Example: sing, long

# II.2.2.5 Lateral Approximant Consonant

 /I/: alveolar lateral approximant Example: light, hell

# II.2.2.6 Approximant Consonants

Approximants are produced when articulators approach each other but do not create a complete closure.

- /r/: alveolar approximant
  Example: run, car
- /j/: palatal approximant (as in "y")
  Example: yes, yellow
- /w/: bilabial approximant
  Example: win, water

# **II.2.3** Forcing of articulation (voiced/voiceless)

In phonetics, **forcing of articulation** refers to the way the vocal cords are used to produce sound, which leads to the distinction between **voiced** and **voiceless** sounds.

#### **II.2.3.1** Voiced Sounds

- **Definition**: Voiced sounds are produced when the vocal cords vibrate during the articulation of a sound.
- **Mechanism**: When you produce a voiced sound, your vocal cords come together and vibrate as air passes through them.

**Example**: Place your hand on your throat and say "zzzz" (as in zebra). You will feel the vibration.

#### • Voiced Consonants in English:

- $\circ$  /**b**/ as in **b**at
- $\circ$  /d/ as in dog
- $\circ$  /g/ as in go
- $\circ$  /v/ as in van
- $\circ$  /ð/ as in this
- $\circ$  /z/ as in zebra
- $\circ$  /3/ as in measure
- $\circ$  /dʒ/ as in jam
- $\circ$  /m/ as in mat
- $\circ$  /**n**/ as in **n**ap
- $\circ$  /ŋ/ as in sing
- $\circ$  /l/ as in light
- $\circ$  /**r**/ as in **r**un
- $\circ$  /w/ as in water
- $\circ$  /j/ as in yes

#### **II.2.3.2** Voiceless Sounds

- **Definition**: Voiceless sounds are produced without the vibration of the vocal cords. The sound is made by controlling the airflow, but the vocal cords remain apart.
- Mechanism: When you produce a voiceless sound, your vocal cords remain open, and air flows through the vocal tract without causing the vocal cords to vibrate.

**Example**: Place your hand on your throat and say "ssss" (as in snake). You will not feel any vibration.

## • Voiceless Consonants in English:

- $\circ$  /**p**/ as in **p**at
- $\circ$  /t/ as in top
- $\circ$  /k/ as in kite
- $\circ$  /f/ as in fun
- $\circ$  / $\theta$ / as in think
- $\circ$  /s/ as in snake
- $\circ$  /**f**/ as in **sheep**
- $\circ$  /tf/ as in check
- $\circ$  /**h**/ as in **h**at

#### II.2.3.3 How to Distinguish Voiced and Voiceless Sounds

- Vibration Test: Place your fingers lightly on your throat. When you say a voiced sound, you will feel vibrations, but when you say a voiceless sound, there will be no vibration.
- **Duration of Sound**: Voiced consonants tend to be slightly longer in duration than voiceless consonants.
- **Pairs of Voiced/Voiceless Consonants**: In English, many consonants come in pairs, where one is voiced and the other is voiceless. These pairs are produced with the same articulation, but differ in whether the vocal cords vibrate or not.

Voiced	/b/	/d/	/g/	/v/	/ð/	/z/	/ج اج/	/d3 دجا/
Voiceless	/p/	/t/	/k/	/ <b>f</b> /	/0/	/s/	/شا∫/	/t∫ اتشا/

- Examples of Voiced and Voiceless Pairs in Words
- /b/ /p/: bat pat
- /d/ /t/: do to
- /g/ /k/: go cat
- /v/ /f/: vet fat
- $/\delta/ /\theta/$ : this think
- /z/ /s/: zoo sue

- /3/ /ʃ/: measure wish
- /dʒ/ /tʃ/: jam chat

## II.2.3.4 Importance in Language

- Meaning Change: In English, changing a voiced sound to a voiceless one (or vice versa) can change the meaning of a word. For example, changing bat (/b/) to pat (/p/) alters the word entirely.
- Accent and Pronunciation: The distinction between voiced and voiceless sounds can also play a role in accent differences. For example, speakers of some dialects may devoice certain sounds.

This basic understanding of voiced and voiceless sounds is essential for improving pronunciation in English and mastering the articulation of consonants!

## **Practice Tips**

- Minimal Pairs: Focus on pairs like "pat" and "bat" to hear voicing differences.
- Articulation Exercises: Practice placing your tongue and lips correctly using a mirror.
- Listening Practice: Use audio clips to differentiate between sounds.

# **II.3 Conclusion**

Understanding how consonants are formed through place, manner, and voicing helps improve pronunciation and comprehension in American English. Regular practice and awareness of articulation will enhance your skills.

The following practice exercises will help understand American English consonants articulation, voicing, and its classification.

# **Exercise 1: Identify the Voicing**

For each consonant sound, state whether it is voiced or voiceless.

- 1. /b/
- 2. /p/
- 3. /z/
- 4. /s/
- 5. /g/
- 6. /k/

#### Solutions:

- 1.  $/b/ \rightarrow Voiced$
- 2.  $/p/ \rightarrow$  Voiceless
- 3.  $/z / \rightarrow$  Voiced
- 4.  $/s/ \rightarrow$  Voiceless
- 5.  $/g/ \rightarrow$  Voiced
- 6.  $/k/ \rightarrow$ Voiceless

# **Exercise 2: Categorize Consonants by Place of Articulation**

Match the following consonants to their place of articulation:

Consonants: /t/, /m/, /k/, /f/, /ʃ/

Places:

- a) Alveolar
- b) Bilabial
- c) Velar
- d) Labiodental
- e) Postalveolar

#### Solutions:

- $/t/ \rightarrow$  Alveolar
- $/m/ \rightarrow Bilabial$
- $/k/ \rightarrow Velar$
- $/f/ \rightarrow Labiodental$

•  $/J \rightarrow Postalveolar$ 

# **Exercise 3: Voiced-Voiceless Pairs**

Write the **voiced counterpart** for each voiceless consonant:

- 1. /p/
- 2. /t/
- 3. /k/
- 4. /f/
- 5. /s/
- 6. /ʃ/

## Solutions:

- 1.  $/\mathbf{p}/ \rightarrow /\mathbf{b}/$
- 2.  $/t/ \rightarrow /d/$
- 3.  $/\mathbf{k}/ \rightarrow /\mathbf{g}/$
- 4.  $/\mathbf{f}/ \rightarrow /\mathbf{v}/$
- 5.  $/s/ \rightarrow /z/$
- 6.  $/\mathbf{J}/ \rightarrow /\mathbf{J}/$

# **Exercise 4: Distinguish Between Consonant Sounds in Words**

Identify the consonant sounds in the following words and classify them as **plosive**, **fricative**, **nasal**, **or affricate**:

- 1. *cat*
- 2. fish
- 3. *jam*
- 4. *man*
- 5. ship

#### Solutions:

- 1. *cat*: /k/,  $/t/ \rightarrow$  **Plosive**
- 2. *fish*: /f/,  $/f/ \rightarrow$  **Fricative**
- 3. *jam*: /dʒ/, /m/  $\rightarrow$  Affricate (dʒ), Nasal (m)
- 4. man: /m/,  $/n/ \rightarrow Nasal$
- 5. *ship*: /f/,  $/p/ \rightarrow$  **Fricative** (f), **Plosive** (p)

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