

COURSE TITLE: BASIC PHONETICS AND ENGLISH PHONOLOGY

TOPIC:

CONSONANTS: PRODUCTION AND DESCRIPTION OF CONSONANTS

PRODUCTION OF CONSONANTS

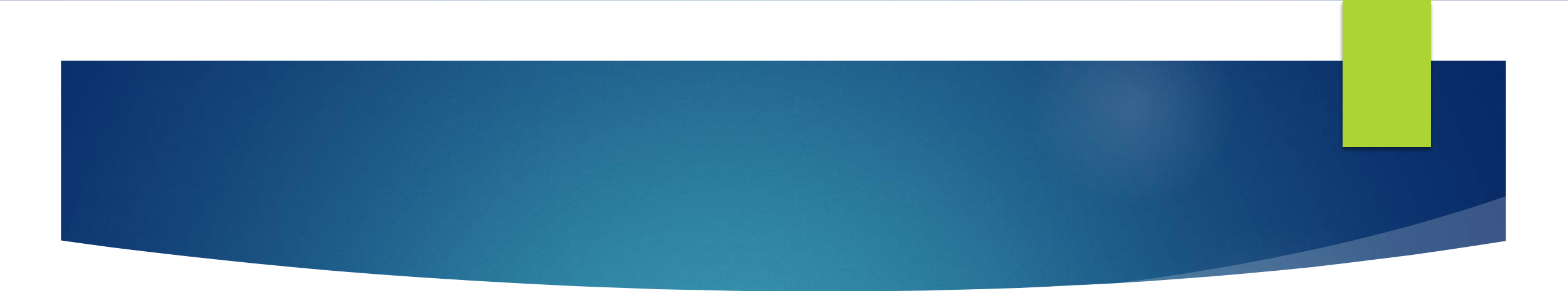
- ▶ Consonants are produced by obstructing in some way the flow of air through the vocal tract.

DESCRIPTION OF SOUNDS

- ▶ Practical activity.
- ▶ *As we explore the inventory of sounds, use your vocal tract to produce the sounds that are described. Pronounce them aloud noting the shape of your mouth and the position of the tongue as each sound is produced. Such firsthand experience will familiarize you with the reference points of phonetics and give you the ability to master articulatory phonetics.*

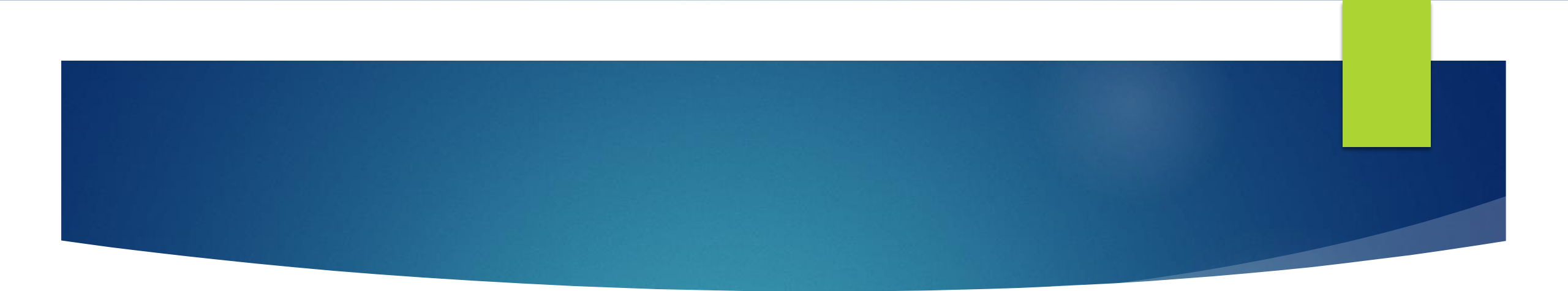
PARAMETERS USED IN DESCRIPTION OF SOUNDS

- ▶ Three parameters are used to describe sounds:
- ▶ Different speech sounds can be identified in terms of their articulatory properties-that is:
- ▶ by where in the mouth and how they are produced.
- ▶ All consonants are described in terms of three properties:

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- ▶ **Voicing** (whether the vocal cords are together and vibrating or open and not vibrating / the state of the glottis, whether open or closed).
 - ▶ **Place of articulation** (where the airstream is most obstructed/blocked)
 - ▶ **Manner of articulation** (the particular way the airstream is obstructed)

VOICING

- ▶ distinguish between /s/ in *bus* or *sip* and /z/ in *buzz* or *zip*.
- ▶ When you pronounce a long, continuous [zzzzzzzz] and alternate it with a long, continuous [sssssss], you will notice that the position of your lips and the position of the tongue within your mouth remain the same for /s/ and /z/, even though these sounds are different.

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- ▶ The vibration that you feel from your larynx utter [zzzzzz] but not [ssssss] is called **voicing**.
 - ▶ It is the result of air being forced through a narrow aperture (called the glottis) between two folds of muscle (the vocal cords) in the larynx.
 - ▶ When the vocal cords are held together, the air forced through them from the lungs causes them to vibrate.
 - ▶ It is precisely this vibration or voicing that distinguishes /z/ (voiced) from /s/ (voiceless) and enables speakers to differentiate between two otherwise identical sounds.



▶ PHONATION

▶ Two types are relevant in speech production:

▶ Voiceless –

▶ Here, the vocal folds and the arytenoid cartilages are held wide apart as in relaxed breathing.

▶ Voiceless –

▶ Here, the vocal folds vibrate at high speed in the airstream produced by the lungs.

Other phonation modes

- ▶ Creak
- ▶ Whisper
- ▶ Breathy voice
- ▶ Note: They are not used in sound description.

Practical exercise

- ▶ Hence sounds are described using the three main features: voicing, place or articulation and manner of articulation:
- ▶ /k/ - Voiceless velar stop
- ▶ /g/ voiced velar stop
- ▶ /b/ voiced bilabial stop
- ▶ /p/ voiceless bilabial stop.
- ▶ /s/ voiceless alveolar fricative



▶ Describe the following sounds using three main parameters:

▶ /m/

▶ /r/

▶ /l/

▶ /m/ voiced bilabial stop

▶ /r/ voiced alveolar approximant

▶ /l/ voiced alveolar lateral

CONSONANT SOUNDS

- ▶ Consonants are produced by partially or completely blocking air as it passes from the lungs through the vocal tract.
- ▶ They are produced by various articulatory organs.
- ▶ Their production also involves stricture (i.e narrowing of the vocal tract which affects the airstream).
- ▶ Three types of structure: complete closure, close approximation, and open approximation.

SOUND	
p	Pick, caper, top
b	Bear, labour, tab
t	Tick, meter, bat
d	Dog, medal, pad
k	Car, sick, kick
g	Get, dagger, bag
f	Fit, soft, chief
v	Vest, fervent, save
θ	Thought, author, breath
ð	Them, leather, breathe
s	Sit, sister, bless
z	Zeal, posit, buzz

sound	
ʃ	Chef, fellowship, mash
ʒ	G enre, decision, rouge
tʃ	Check, kitchen, teach
dʒ	Jet, bludgeon, judge
m	Met, smack, broom
n	Net, snap, spoon
ŋ	----, singer, sing
h	Hit, ahoy, ----
j	Yes, beyond, ----
r	Rest, broom
l	Last, slam, mill
w	Wet, away, ----

/p/ /b/

Voiced /b/

- ▶ Voiced bilabial plosive
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream.
- ▶ Produced by both lips.

Voiceless /p/

- ▶ Voiceless bilabial plosive
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream
- ▶ Produced by both lips

/t/ /d/

Voiced /d/

- ▶ /d/ voiced alveolar stop
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream.
- ▶ Produced when the tongue tip or blade is in contact or near contact with the upper alveolar ridge..

Voiceless /t/

- ▶ /t/ voiceless alveolar stop
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream.
- ▶ Produced when the tongue tip or blade is in contact or near contact with the upper alveolar ridge

/k/ /g/

Voiced /g/ /ŋ/

- ▶ /g/ voiced velar stop
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream
- ▶ Sounds are made with the back of the tongue against the soft palate,

Voiceless /k/

- ▶ /k/ voiceless velar
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream.
- ▶ The sound is made with the back of the tongue against the soft palate,

/f/ /v/

Voiced

- ▶ Voiced labiodental fricative /v/
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream.
- ▶ The lower lip is held close to the upper lip.

Voiceless

- ▶ Voiceless labiodental fricative /f/
- ▶ The stricture has a complete closure in the vocal tract which blocks the airstream.
- ▶ The lower lip is held close to the upper lip.

/ ð / / ð̃ /

Voiced

- ▶ Voiced dental fricative / ð̃ /
- ▶ There, these, them
- ▶ The term dental implies a sound made by the tongue tip against or close to the front teeth.
- ▶ In terms of manner, the teeth and tongue tip are close to each other but don't make a complete closure. Air passes making an audible hiss like sound.

Voiceless

- ▶ Voiceless dental fricative / θ /
- ▶ Thermometer, Through
- ▶ The term dental implies a sound made by the tongue tip against or close to the front teeth.
- ▶ In terms of manner, the teeth and tongue tip are close to each other but don't make a complete closure. Air passes making an audible hiss like sound

/s/ /z/

Voiced

- ▶ Voiced alveolar fricative /z/
- ▶ Produced at the alveolar region
- ▶ In terms of manner, the tongue tip is close to alveolar ridge but don't make a complete closure. Air passes making an audible hiss like sound

Voiceless

- ▶ Voiceless alveolar fricative /s/
- ▶ Produced at the alveolar region.
- ▶ In terms of manner, the tongue tip is close to alveolar ridge but don't make a complete closure. Air passes making an audible hiss like sound

/ʃ/ /ʒ/

Voiced

- ▶ Voiced palato-alveolar fricative /ʒ /
- ▶ Or voiced post-alveolar sound.
- ▶ A large portion of the tongue rises to articulate with the alveolar ridge and the front of the hard palate.

Voiceless

- ▶ voiceless palato-alveolar fricative /ʃ/
- ▶ Also, voiceless post alveolar fricative.
- ▶ A large portion of the tongue rises to articulate with the alveolar ridge and the front of the hard palate

/h/

voiced

- ▶ No voiced counterpart

voiceless

- ▶ Voiceless glottal fricative /h/
- ▶ Horse
- ▶ Home

/tʃ/ /dʒ/

Voiced

- ▶ Voiced palato-alveolar affricate

▶ /dʒ/

▶ Gem

▶ janitor

Voiceless

- ▶ Voiceless palato-alveolar affricate /tʃ/

▶ Church

▶ chin

/m/n/ /ŋ/

Voiced

- ▶ /ŋ/ - voiced velar nasal
- ▶ /m/ voiced bilabial nasal
- ▶ /n/ voiced alveolar nasal

Voiceless

- ▶ No voiceless nasals

Lateral

voiced

- ▶ Voiced alveolar lateral (approximant)
- ▶ Generally called a liquid /l/

production

- ▶ Lateral consonants are made with centre of the tongue forming a closure with the roof of the mouth but the sides lowered.
- ▶ The airstream escapes without friction

Trill

/r/

- ▶ Voiced alveolar trill
- ▶ Generally called a liquid.

Note: This liquid is realized rhotic with various realizations such as the tap and retroflex.

Production

- ▶ The active articulator strikes the passive articulator with a rapid percussive action (Collins & Mees, 2013).

/j/

Glide

- ▶ Palatal glide
- ▶ Sometimes called a palatal approximant
- ▶ Yam

transcription

- ▶ /j/

/w/

- ▶ Labio-velar glide/approximant
- ▶ Wet
- ▶ /w/

Description

- ▶ Approximants have a stricture of open approximation.
- ▶ The space between articulators is wide enough to allow the airstream through with no audible friction,

SUMMARY OF MANNER OF ARTICULATION

OBSTRUENTS

- ▶ STOPS
- ▶ AFFRICATES
- ▶ FRICATIVES

SONORANTS

- ▶ NASALS
- ▶ APPROXIMANTS-
- ▶ LIQUIDS
- ▶ GLIDES

PLACE OF ARTICULATION

- ▶ BILABIAL
- ▶ DENTAL
- ▶ ALVEOLAR
- ▶ PALATO-ALVEOLAR
- ▶ PALATAL
- ▶ VELAR
- ▶ UVULAR
- ▶ GLOTTAL

VOICE

- ▶ VOICED- Closed glottis
- ▶ VOICELESS-OPEN GLOTTIS

EXERCISE

- ▶ Describe the following sounds using the order of voice, place and manner of articulation:
- ▶ /t/
- ▶ /s/
- ▶ /g/
- ▶ /f/
- ▶ /dʒ/

INTERNATIONAL PHONETIC ALPHABET (IPA) CHART

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			

From Roach, P. 2009. English phonetics and phonology.
Cambridge University Press.

References

- Roach, P. 2009. *English phonetics and phonology*. Cambridge University Press.
- Collins, B. & Mees, I.M. *Practical phonetics and phonology: A resource book for students*. London: Routledge.