

The Consonant Inventory of English

- the consonant inventory of E: 24 phonemes
- 6 of them with restricted occurrence /h, r, ʒ, ŋ; w, j/

The Distinctive Consonants

- a process of **commutation** = the discovery of minimal pairs
- 24 distinctive units consonantal both wrt: their position in syllables + their phonetic nature

(a) obstruents

- a total closure or stricture causing friction
- a noise component
- a distinctive opposition btw voiceless x voiced types
- incl. plosives, affricates, fricatives

(b) sonorants

- a partial closure or an unimpeded oral or nasal escape of air
 - no noise component
 - typically voiced, sharing many phonetic characteristics with vowels
 - incl. nasals, approximants
- + glottal stop [ʔ]: not phonemically distinctive in RP => excluded from the chart below

The Distinctive Consonants of English

	plosive	affricate	fricative	nasal	approximant
bilabial	p, b			m	(w)
labiodental			f, v		
dental			θ, ð		
alveolar	t, d		s, z	n	l
post-alveolar					r
palato-alveolar		tʃ, dʒ	ʃ, ʒ		
palatal					j
velar	k, g			ŋ	w
glottal			h		

Contrastive groups wrt the place of articulation

- plosives, nasals: bilabial, alveolar, velar
- affricates, /l/, /r/: alveolar
- fricatives: labiodental, dental, alveolar, palato-alveolar, glottal
- + various allophonic realisations x but: the number of oppositions wrt the place of articulation remains unchanged

Plosives (or, Stops)

Articulatory Phonetics

- place of articulation: /p, b/ bilabial; /t, k/ alveolar; /k, g/ velar
- articulation stages:
 - the closing stage = the articulating organs move together to form the obstruction
 - the compression stage = lung action compresses the air behind the closure
 - the release stage = the organs forming the obstruction part rapidly to allow the compressed air to escape abruptly
- the release stage:
 - (a) no audible release in stop clusters
 - a cluster of two stops = plosive + plosive, plosive + affricate
 - the 1st stop with no audible release (/p/ + /t/ in 'dropped', /b/ + /d/ in 'rubbed', /b/ + /dʒ/ in 'object')
 - NO intervening [h] with voiceless plosives, NO obscure vowel of the [ə] type with voiced plosives
 - **gemination** = a sequence of identical stops > one closing stage and one release stage involved together with about a double-length compression stage ('top post, good deal, big girl')
 - (b) nasal release

- a plosive before the homorganic nasal consonant > the escape of the compressed air through the nasal passage (/p/ + syllabic /m/ in 'topmost', /p/ + syllabic /m/ in 'happen', /d/ + syllabic /ŋ/ in 'sudden')
- (c) lateral release:
 - a plosive before the homorganic lateral consonant > one or both sides of the tongue lowered to allow the air to escape (/t/ + /l/ in 'cattle', /d/ + /t/ in 'regardless')
 - NO aspiration, NO obscure vowel ('little' *[lɪtʰl̩], 'middle' *[mɪdʰl̩])

Auditory Phonetics

- **aspiration** = a voiceless interval consisting of strongly expelled breath btw the release of the plosive and the onset of the following vowel
- aspiration of /p, t, k/ initial in an accented syllable ('pip' [pʰɪp], 'test' [tʰɛst], 'kick' [kʰɪk])
- **neutralisation** of the distinction btw the voiceless /p, t, k/ x voiced /b, d, g/ followed by /s/ within the same syllable > the resulting plosives unaspirated and voiceless ('spin' [spɪn], 'stop' [stɒp], 'score' [skɔː])
- **devoicing** of /l, ɹ, w, j/ after initial /p, t, k/ in an accented syllable ('play' [pʰleɪ], 'twin' [twɪn], 'cue' [k̚ju])
- full voicing of /b, d, g/ only btw voiced sounds ('labour, leader, to be')
- partial voicing or complete devoicing of initial or final /b, d, g/, i.e. following or preceding silence ('bill, done, game' [b̚, d̚, g̚])
- length of preceding sounds: syllables closed by voiceless consonants shorter than syllables open or closed by voiced consonants
- a complex of quantitative and qualitative contrasts ('rope x robe' /rəʊp x rəʊb/)

The Plosive Sounds

(a) bilabial plosives /p, b/

- description: bilabial plosives before the labiodental /f/ or /v/ > labiodental rather than bilabial closure in anticipation of the following fricative articulation ('cup-full' [kʌpfʊl], 'obvious' [ɒbviəs])
- variants: partial voicing or complete devoicing of the initial or final /b/

(b) alveolar plosives /t, d/

- description: /t, d/ + /n/ = nasal plosion, /t, d/ + /l/ = lateral plosion; /t, d/ + /r/ = post-alveolar contact ('try, dry'), /t, d/ + /θ, ð/ = dental contact ('eighth; not that')
- variants: syllable-final /t/ NOT followed by a vowel or syllabic /n/ or /l/ > reinforced or replaced by a glottal closure
- GA: unaccented intervocalic /t/ > replaced by tap [ɾ] ('butter, latter, put it')

(c) velar plosives /k, g/

(d) glottal plosive [ʔ]

- the obstruction formed by the closure of the vocal folds
- the compression stage consists of silence auditorily perceived by a sudden cessation of the preceding sound or sudden onset of the following sound
- neither voiced nor voiceless
- RP: syllable boundary marker before vowel initial 2nd syllable ('cooperate' [kəʊ'ʔɒpəreɪt], 'geometry' [dʒi'ʔɒmətri], 'reaction' [ri'ʔækʃən])
- some RP: reinforcement of the voiceless plosives /p, t, k/ when syllable-final and after a vowel, nasal or lateral and before a pause or consonant ('reap, limp, help')
- some: RP replacement of /p, t, k/ when syllable-final and before a homorganic consonant (/t/ + /t/ in 'that table', /t/ + /d/ in 'get down', /t/ + /dʒ/ in 'great joke')
- CockE: reinforcement and replacement when utterance-final ('mind your feet' ['maɪʔ dʒɒ: 'fi:ʔ]; 'have a look' ['æv ə 'lʊʔ]; 'get that' [geʔ 'ðæʔ])

Affricates

- = compound sounds
- considered either single phonemic entities x sequences of two phonemes

(a) palato-alveolar affricates /tʃ, dʒ/

- former label for affricates: 'palato-alveolar', new: 'post-alveolar' x former label for /ɹ/: 'post-alveolar', new: 'alveolar'
- the voiced /dʒ/ <> plosives, fricatives: devoiced when syllable-initial or final

- the voiceless /tʃ/ <> /p, t, k/: reduced length of preceding sounds when syllable-final

(b) **sequences /tr, dr/**

- NO affricates x but: sequences of special importance esp. for foreign learners
- retractions of /t, d/ before /r/ ([t̠, d̠])
- devoicing of [r] after /t/
- minimal pairs /tʃ/ x /tr/ in 'cheese' x 'trees', /dʒ/ x /dr/ in 'jaw' x 'draw'

Fricatives

- two organs held close together to produce local air turbulence with a noise component
- place of articulation: /f, v/ labiodental; /θ, ð/ dental; /s, z/ alveolar; /ʃ, ʒ/ palato-alveolar; /h/ glottal
- full voicing of /v, ð, z, ʒ/ only btw voiced sounds ('cover, other, easy, leisure')
- devoicing of initial or final /v, ð, z, ʒ/ ('van, that, zoo; leave, breathe, peas, rouge')
- syllable-final /f, θ, s, ʃ/ reduce length of the preceding sounds ('fife, loath, place, leash')

(a) **labiodental fricatives /f, v/**

- variants: word-final /v/ before a word-initial voiceless consonant > /f/ ('have to; some: 'love to, have some')

(b) **dental fricatives /θ, ð/**

- variants: elision of /θ, ð/ before /s, z/ ('clothes' /kləʊz/, 'months' /mʌns/)
- CockE: labiodental rather than dental articulation ('throw it' /'frəʊ ɪt/; 'breathe in' /'bri:v 'ɪn/)

(c) **alveolar fricatives /s, z/**

- lisp = a speech defect substituting /s, z/ for /θ, ð/
- variants: regional **plosive epenthesis** = the insertion of /t/ btw /n/ and /s/ (no distinction btw /ns/ x /nts/ in 'mince x mints; tense x tents; assistance x assistants')

(d) **palato-alveolar fricatives /ʃ, ʒ/**

- variants: sometimes /ʃ, ʒ/ medially before /u:/ > /s, z/ + /j/ ('issue, sexual, seizure')
- lack of minimal pairs distinguishable by /ʃ/ x /ʒ/ > possible alternations btw them ('Asia, transition, version')

(e) **glottal fricative /h/**

- = a strong voiceless onset of the following vowel, only syllable-initial and pre-vocalic
- no distinctive voiced x voiceless opposition
- function: /h/ as a voiceless syllable-initial phoneme <> /ŋ/ as a syllable-final phoneme
- variants: elision of /h/ in unaccented non-initial positions in connected speech with function words 'have, has, had', pronouns and pronominal adjectives ('he pushed him on his back' /hi: 'pʊʃt ɪm ɒn ɪz 'bæk/; 'I could have hit her' /aɪ kəd əv 'hɪt ə/)
- regional loss of /h/ (no distinction btw RP minimal pairs 'hill x ill; high x eye; hair x air')

(f) **velar fricative [x]**

- voiceless
- exceptionally in some speaker's pronunciation of Scott. words ('loch')

Nasals

- a total closure within the mouth, the soft palate lowered to allow the air to escape into the nasal cavity
- no audible friction
- no voiced x voiceless opposition
- resemble vowel-type sounds
- place of articulation: /m/ bilabial; /n/ alveolar; /ŋ/ velar
- syllabic (<> vowels) syllabic /ŋ/ in 'mutton' [mʌtŋ], syllabic /m/ in 'rhythm' [rɪðm], syllabic /ŋ/ in 'bacon' [beɪkŋ]
- devoicing of /m,n/ after voiceless consonants ('smoke, snake')

(a) **bilabial nasal /m/**

- word-final /n/ before bilabials in connected speech > /m/ ('one mile' /'wʌm 'maɪl/; 'gone back' /'gɒm 'bæk/)
- word-final /ən/ or /ŋ/ after /p/ or /b/ > [m] ('happen' [hæpm], 'ribbon' [ɹɪbm])

(b) **alveolar nasal /n/**

- /n/ before the labiodental /f, v/ > /m/ ('infant; in voice; in vain')
- /n/ before dental /θ, ð/ => /ŋ/ ('tenth')
- /n/ word-final before bilabials or velars > /m/ ('ten people') or /ŋ/ ('ten cups')

(c) velar nasal /ŋ/

- normally voiced x devoiced when syllabic ('bacon, thicken')
- variants: regionally retained earlier [ŋg] instead of RP /ŋ/ ('singing' [sɪŋgɪŋg] instead of RP /sɪŋɪŋ/ => [ŋ] as allophone of /n/, NOT separate phoneme)

Oral Approximants

- the airstream escapes through a relatively narrow aperture in the mouth
- no friction

(a) lateral approximant /l/

- clear [l] = the front of the tongue raised toward the hard palate, the tip contact ensures a front vowel resonance
- dark [ɫ] = the front of the tongue depressed, the back raised toward the soft palate, ensures a back vowel resonance (= **velarized**)
- before a vowel or /j/ > clear [l]; all other positions > dark [ɫ]
- word-final after a consonant > syllabic dark [ɫ] ('fiddle, final, parcel')
- GA, SE, ANE, NortE: dark [ɫ] in all positions
- Irish E => clear [l] in all positions
- GA => syllabic [ɫ] instead of RP [-aɪɫ] ('fertile, futile, missile, reptile')

(b) post-alveolar approximant /r/

- the voiced [ɹ] = the most common allophone of RP /r/
- phonetically vowel-like x but: consonantal wrt function
- devoicing of [ɹ] after accented /p, t, k/ (price, try, cream'), after unaccented voiceless syllable-initial plosives ('upright, apron, acrobat') and in the syllable-initial sequences /spr-, str-, skr-/ ('spring, string, scream')
- SE and some NortE: replacement of RP [ɹ] by an alveolar **tap** [r] in intervocalic positions ('very, sorry, marry') and after /θ, ð/ ('three; forthright; with respect')
- /d/ x [r]: the contact for the tap of shorter duration and less complete, with a typical central hollowing of the tongue (the distinction btw [r] in 'carry' x /d/ in 'caddy')
- SE and RP declamatory verse-speaking: the RP [ɹ] replaced by a lingual **trill** (or, roll) [r] = a rapid succession of taps by the tip of the tongue on the alveolar ridge
- some NortE and SE: uvular trill [ʀ] or uvular fricative [ʁ]
- some GA: the retroflexed [ɻ] anticipates the consonant and colours the preceding vowel > **r-coloured** vowels ('bird, farm, lord')

(c) palatal and labial-velar approximants (or, semi-vowels) /j, w/

- semi-vowel = a rapid vocalic glide onto a syllabic sound of greater steady duration
- the palatal /j/ glides from the position of /i:/ ('year')
- the labial-velar /w/ glides from the position of /u:/ ('west')
- vocalic in phonetic terms x but: consonantal wrt function (marginal rather than central in the syllable)
- articles in their pre-consonantal forms before /j/ and /w/ ('the yard' /ðəj/; 'a yacht' /əw/)
- variation btw /jə/ and /ɪə/ in unaccented syllables ('immediate, idiot, hideous')
- devoicing of /j/ after accented /p, t, k/ ('cue' [kju:])
- partial devoicing of /w/ after voiceless consonants, complete devoicing of /w/ after accented /t, k/ > /ʍ/ = voiceless labial-velar approximant
- GA: /ju:/ esp. after /t, d/ > /u:/ ('tune, dune, duty')
- SE: words spelled <wh> > [ʍ] with a phonemic status (opposition btw 'wine' x 'whine')

Voiced and Voiceless as Phonological Categories

- voiceless /p, t, k, f, θ, s, ʃ, tʃ/
- voiced /b, d, g, v, ð, z, ʒ, dʒ/
- distinction in voice x but: realisation of the distinction varies according to position
 - voiced sounds fully voiced only when word-medial btw voiced sounds
 - voiced sounds devoiced when word-initial and word-final
 - voiceless /p, t, k/ aspirated when syllable-initial
 - voiceless sounds reduce length of preceding vowels, nasals and laterals