Introduction to English Phonology and Phonetics

Dr. Nadja Nesselhauf

Semester Outline

1. Phonetics and phonology: basics (& introducing transcription)
2. English consonants
3. English vowels
4. Beyond the phoneme (connected speech, suprasegmentals etc.)
5. Accents of English

English Consonants: Outline

1. Preliminaries (vowels & cons., fortis & lenis)
2. Plosives
3. Fricatives
4. Affricates
5. Lateral and approximants
6. Nasals

Vowels vs. Consonants

Phonetic distinction:
Consonants: obstruction of airstream in the vocal tract
Vowels: no obstruction of airstream in the vocal tract
BUT: matter of degree (hardly any obstruction in the articulation of approximants /w/ /h/ /j/)

Phonological distinction:
Consonants: sounds that typically occur at the margins (onsets and codas) of syllables
Vowels: sounds that are typically central in a syllable (occurring at the peak or nucleus)
The Syllable

- Syllable
  - Onset
  - Rhyme
  - Nucleus or Peak
  - Coda

E.g.: PIN

DRUNK

Vowels vs. Consonants

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Phonological distinction:
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- Vowels: sounds that are typically central in a syllable (occurring at the peak or nucleus)

English Consonants: Classification

<table>
<thead>
<tr>
<th>Point of Articulation</th>
<th>Manner of Articulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosive</td>
<td>Palatal</td>
</tr>
<tr>
<td>Velar</td>
<td>Labio-Dental</td>
</tr>
<tr>
<td>Fricative</td>
<td>Dental</td>
</tr>
<tr>
<td>Affricate</td>
<td>Alveolar</td>
</tr>
<tr>
<td>Nasal</td>
<td>Post-Alveolar</td>
</tr>
<tr>
<td>Lateral</td>
<td>Palatal</td>
</tr>
<tr>
<td>Approximant/Semi-Vowel</td>
<td>Velar</td>
</tr>
</tbody>
</table>

English Consonants: Fortis vs. Lenis

<table>
<thead>
<tr>
<th>Fortis Sounds</th>
<th>Lenis Sounds</th>
</tr>
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<tbody>
<tr>
<td>Articulation with more muscular effort and greater breath force</td>
<td>With less muscular effort and less breath force</td>
</tr>
<tr>
<td>Voiceless in all positions</td>
<td>May be voiced</td>
</tr>
<tr>
<td>Fortis plosives are aspirated in syllable-initial position</td>
<td>Are unaspirated</td>
</tr>
<tr>
<td>Vowels are shortened before a fortis consonant</td>
<td>Vowels have full length before a final lenis consonant</td>
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</tbody>
</table>
English Consonants: Outline

1. Preliminaries (vowels & cons., fortis & lenis)
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English Consonants: Plosives

Stages in the articulation of a plosive:

1. **the approach stage**: the articulators come together and form the closure
2. **the hold stage**: air is compressed behind the closure
3. **the release stage**: the articulators part and the compressed air is released rapidly

Source: Collins/Mees 2003, 79

English /p/ and /b/ (hold stage)

Source: Cañas/Mees 2003, 79
English Consonants: Plosives

Question: What sounds are produced here?

Plosives: Allophonic Variation

1. types of release
2. degrees of devoicing
3. degrees of aspiration
4. places of articulation

Notation of contexts (Sauer)

/ in the context of space for symbol
V vowel
C consonant
FC fortis consonant
LC lenis consonant
# word boundary
. stressed syllable
~ usually
v voiced sound
**Plosives: Allophonic Variation**

Allophones of **release** (all plosives):

- oral / __ ~ (put)
- nasal / __ homorganic nasal (button)
- lateral / __ lateral (middle)
- none / __ plosive, affricate (wept)

**Plosives: Allophonic Variation**

Allophones of **voice** (lenis plosives):

- fully voiced / v __ v (lobby)
- part. devoiced / # __ (bus)
- devoiced / __ # (cab)

Phonetic notation for devoicing: [ʰ]

**Contrasting German and English**

**Lenis plosives / __ #**

- English: devoiced, but still lenis
- German: devoiced and fortis

→ “Auslautverhärtung”

**Contrasting German and English**

Auslautverhärtung (“final devoicing”) in German:

Lenis obstruents (i.e. plosives, fricatives, affricates) regularly become fortis in a syllable-final position in German (but not in English)

e.g. Rad (vs. Räder):
final plosive fortis [ʁast]

Los (vs. Lose)
final fricative fortis [ʂ]

Rad – Rat, Bund – bunt
BUT: bud vs. but, had vs. hat
Contrasting German and English

Hermann the German and his English landlady Meg (adapted from: Eckert & Barry 2005, The Phonetics and Phonology of English Pronunciation, 50f.)

H: I would like a cup of tea. Is this your muck?
M: I beg your pardon?
H: Is it ok if I use yours? I can't find my muck just now.
M: Well, it's all over the place... oh sorry, Herman, you mean mug, don't you?
H: Do I? Eh, could you pass me the slice of cheese that I put in your paperback?
M: What?? Listen, if you need a bookmark I'd be really grateful if you'd use a piece of paper and not a slice of cheese. Not in my books anyway.

Plosives: Allophonic Variation

Aspiration = delayed voice onset time (VOT)

Task: Say the following words holding your hand in front of your mouth:

sting
pain
rapper
discussion

Do you feel a puff of air coming out of your mouth (yes, no, a slight one)? / Should you feel one?
**Plosives: Allophonic Variation**

**Place of articulation – ex: phonemes /t, d/:**
- dental / __ Occurred, 0/ (eighth, width)
- postalveolar / __ r/ (tray, drive)

(cf. "Assimilation", Part IV)

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**Plosives: Allophonic Variation**

**T-flapping** in General American [1]:

- /t/ → flap / V __ .V (better)
- / r __ .V (party)
- / __ l, r, m (bottle, shutter, bottom)
- flap → Ø / n __ .V (winter)

---

**Plosives: Allophonic Variation**

D-flapping in GA in the same contexts as t-flapping

(cf. ladder, weirdo, saddle)

- ➔ NEUTRALISATION of the contrast /t-d/ in the relevant contexts
- ➔ homophones such as

  shutter – shudder, writing - riding etc.
English Consonants: Plosives

The pronunciation of the (regular) past tense / past participle morpheme:

\[ /\text{id}/ \quad /d,t \quad \text{(ended)} \]
\[ \{\text{p.t.}\}, \{\text{p.p.}\} /\text{i}/ \quad /\text{FC} \quad \text{(laughed)} \]
\[ /\text{id}/ \quad /\text{~} \quad \text{(sobbed)} \]

Source: Fromkin/Rodman 1998, 295

Transcription Practice

Please transcribe the following past tense forms:

looked
decided
kissed
allowed
hummed
dreamt

Plosives: Glottal Stop

Glottal stop [\text{?]]: articulation

Source: Collins/Mees 2003, 19
Plosives: Glottal Stop

Glottal Stop [ʔ]:
- not a phoneme in RP or GA
- serves to reinforce fortis plosives: (lap)

Some British accents replace /t/ with [ʔ] in medial and final positions (‘a bit of butter’)

Contrasting German and English

German: glottal onset (= glottal stop before vowels) much more frequent than in English; cf. Alle Autos ärgern mich

In English glottal onset mainly reserved for emphasised words (I’m ALWAYS angry at Ann)

-> Tendency of German-speaking learners of English to insert a glottal stop at the beginning of all words which begin with a vowel (cf. also phrasal verbs: go in, put off)

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English Consonants: Fricatives

English fricative phonemes:
- labio-dental /f,v/
- dental /θ,ð/
- alveolar /s,z/
- palato-alveolar /ʃ,ʒ/
- glottal /h/

English Consonants: Fortis vs. Lenis

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Contrasting English and German

German: <v>, <w> → /v/  (Vase, Wind)

English: <v> → /v/  (vase)
<w> → /w/  (wind)

→ both a general use of /v/ and hypercorrective use of /w/ occur among German learners
**/v/ vs. /w/**

Task: Read the following sentences aloud to your neighbour and have her/him check whether all the <v>s are pronounced as /v/ and all the <w>s as /w/.

*This is the worst university building I've ever walked into. But at least in winter, it's very warm.*

---

**Fricatives**

*Question: which fricatives are produced here?*

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**Pronouncing the Grapheme <th>**

**I word-initially:**

/θ/ in lexical words (think, theatre, thunder)

/ð/ in function words (they, the, that, their)

**II word-medially:**

/θ/ usu. in words from Greek/Latin (author, method, lethal)

/ð/ usu. in Germanic words (father, leather, mother, other; BUT: rhythm)

**III word-finally:**

/θ/ often if spelled <th> (both, path, mouth, breath)

/ð/ often if spelled <the> (breathe, clothe; BUT: smooth)
Task: Read the following sentence and indicate how the grapheme <th> is pronounced in each instance:

Then, the eldest brother thought they were both trying to attract their father’s sympathy.

---

Fricatives /s, z/

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English Consonants: Fricatives

- /θ, ʒ/ slit fricatives (tongue is relatively flat)
- /θ, ð/ relatively flat)
- /s, z/ groove fricatives / sibilants
- /ʃ, ʒ/ (groove in tongue; air passes down the middle -> hiss-sound)

Pronouncing the Grapheme <s>

I word-initially:
/s/ almost always (otherwise <z>) (sing, sand)
exceptions: sure, sugar

II word-medially:
/z/ mostly, esp. between vowels & esp. in Germanic words (busy, husband)
/s/ sometimes; esp. in words of Greek/Latin origin (absent, crisis)

III word-finally:
/s/ mostly (yes, us, house n., use n.)
/z/ sometimes (e.g. function words: as, was; to house, to use)

after: Trim English Pronunciation Illustrated
Pronouncing the Graphemes <c, z>

<c> is NEVER /z/ (but /k,s,ʃ/)
  computer, nice, ocean

<z> is NEVER /s/ (but /z,ʒ/)
  zoo, seizure

English Consonants: Fricatives

The pronunciation of the plural / genitive / 3rd person sg. morpheme:

/s/ /s,ʃ,ʒ,ʒi,ʒʉ,ʒi/ (kisses, rises, Jaz’s)

/pl., ...⟩ /s/ /ʃʃ ⟨fc ⟩ (puffs, takes, Pete’s)

/z/ /ʃʃ,ʃʃ ⟨lc,v⟩ (bars, lives, Ed’s)

**Sound frequency**

**Question:** Which consonant phonemes do you think are most frequent in RP?

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**Sound frequency**


- Total: consonants: 60.8%
- Most frequent consonants: /n/ (7.6%), /t/, /d/
- Least frequent consonants: /ʃ/, /ʊ/, /ʒ/ (0.1%)

/ʒ/ particularly restricted in its distribution: occurs mainly in medial position (*usual, pleasure*); in initial and final position only found in more recent French loanwords (*genre, beige, garage*) & often alternative pronunciations with /ʃʃ/

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**Fricatives: Allophonic Variation**

Allophones of voice (all lenis fricatives):

- fully voiced: /v v/ (heavy)
- part. devoiced: /# / (valley)
- devoiced: /__ #/ (leave)

---

**Contrasting English and German**

Beware of Auslautverhärtung!

- e.g. *Los-Lose* vs. *lose-losing*:
  - /z/ in *lose* only devoiced but not fortis
  - *lose* – *loose* and *leave* – *leaf* etc. are NOT homophonous!
Fricative /h/

- no cross-section diagram of /h/: articulators are always in place for the following vowel
- narrowing / friction at the glottis (and friction throughout the vocal tract)
- can only occur at the onset of a syllable

Fricative /h/

h-dropping:
some British (and Australian) accents have no phoneme /h/

Source: Collins/Mees 2003, 145

“In Hartford, Hereford and Hampshire, hurricanes hardly ever happen...”

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English Consonants: Affricates

- **English affricates**: /ʃ/ and /ʒ/
- affricates = plosive + fricative

Approach hold release: friction

Affricates: Allophonic Variation

Allophones of voice (lenis affricate):

- fully voiced /v __ v/ (magic)
- part. devoiced /# __/ (German)
- devoiced /__#/ (luggage)

Again: Beware of Auslautverhärtung (edge vs. etch, ridge vs. rich, age vs. aitch etc.)

English Consonants: Affricates

/ʃ/ or /ʒ/? Watch the spelling!

<table>
<thead>
<tr>
<th>/ʃ/</th>
<th>/ʒ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;ch&gt; choose</td>
<td>&lt;j&gt; jam</td>
</tr>
<tr>
<td>&lt;tch&gt; watch</td>
<td>&lt;g&gt; magic, German(y)</td>
</tr>
<tr>
<td>&lt;ti&gt; question</td>
<td>&lt;gg&gt; suggest</td>
</tr>
<tr>
<td>&lt;tu&gt; nature</td>
<td>&lt;dj&gt; adjective</td>
</tr>
<tr>
<td>also: righteous, cello</td>
<td>&lt;dg&gt; edge</td>
</tr>
<tr>
<td>N.B. Chicago: /ʃ/</td>
<td>also: soldier, arduous</td>
</tr>
</tbody>
</table>


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English Consonants: Approximants

Two types of approximants:

- lateral (approximant) /l/
- (central) approximants /w, r, j/

Lateral /l/:

- Arrow indicates passage of airstream

Cross-section of the mouth from the front

Lateral /l/: Allophonic Variation

Allophones of resonance in RP:

- clear [l] / __ V,j  (land, billion, will you)
- dark [l] / __ C,#  (silk, ball)

dark [l] = velarized
GA: dark [l] only
Lateral /l/: Allophonic Variation

Source: Collins/Mees 2008: 90

Allophones of *voice* in both RP and GA:

- **Devoiced** /p, k __ 'V* (play, clay)
  - except *sp__, sk__
- **Voiced** /__ ~ (silk, splash)

---

| Allophone combinations in RP: | / __ C, # | /p, k __ 'V | / __ V, j |
|-------------------------------|----------------|-----------------|
| **Clear + Voiced**            | -              | -               | + (land) |
| **Clear + Devoiced**          | -              | + (play)        | -       |
| **Dark + Voiced**             | + (silk)       | -               | -       |
| **Dark + Devoiced**           | -              | -               | -       |

---

Lateral /l/

- **Word-final dark [t]** is often vocalized by younger speakers in the South-East: people *[pi:pù]*, bottle *[bu?u]*
- Often, word-final /l/ is syllabic, i.e. it takes over the function as nucleus of a syllable, as in */te:p-bl/ (table) [l]*
The Syllable

Approximants /w,r,j/

- phonetically, the central approximants may be classified as vowels (almost no obstruction to the airstream)
- however, approximants are consonants from a functional point of view:
  - pronunciation of articles (*an room, *an wall, *an year)
  - function in the syllable (onset / coda only)

Approximants /w,r,j/

- /w/: bilabial approximant
- [w]: (bi)labial-velar approximant
- /r/: post-alveolar approximant
- [z]: retroflex approximant
- /l/: palatal approximant
- [j]: palatal approximant

Approximant /r/ [ɻ]

Source: Collins/Mees 2003, 47
Approximant /r/ [ɻ]

Source: Collins/Mees 2003, 47

Approximant /r/

Pronouncing /r/ in RP:
- /r/ / __ V (Cara)
- /r/ / __ # V (car engine) = linking /r/
- Ø / __ C,# (car, cart)

→ not having /r/ in the last two contexts, RP is non-rhotic; GA is rhotic (r-full)

Rhoticity in the British Isles

Source: Collins/Mees 2003, 145

Non-Rhoticity in the USA

Source: http://en.wikipedia.org/wiki/American_English#Phonology
**Linking r and Intrusive r**

Linking r (only in non-rhotic accents): `<r>` which is present in spelling is pronounced if the following word begins with a vowel *(far off, answer it, near it, …)*

Intrusive r (mainly in non-rhotic accents): `/r/` is inserted before a word beginning with a vowel, although no `<r>` is present in the spelling:

esp. after schwa-endings:

*Russia `/r/` and China, idea `/r/` of it*

less frequently after final `/ə, ə/`: *I saw `/r/` it*

generally considered incorrect

**Approximant /w/**

Glide from `/w/` to `/n/` as in *what*

**Approximant /j/**

Glide from `/j/` to `/æ/` as in *yam*

**Approximant /j/: Yod-Dropping Before /u:/**

<table>
<thead>
<tr>
<th>Context</th>
<th>Example</th>
<th>RP</th>
<th>GA</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>/m</code></td>
<td>mule</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/f</code></td>
<td>few</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/p</code></td>
<td>pure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/t</code></td>
<td>Tuesday</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/d</code></td>
<td>duke</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/n</code></td>
<td>new</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/s</code></td>
<td>assume</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/z</code></td>
<td>resume</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/θ</code></td>
<td>enthusiasm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>/s</code></td>
<td>revolution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task: indicate for the variety of your choice whether the words in the table are pronounced with `/u:/` or `/ju:/`
Approximants: Allophonic Variation

Allophones of *voice* for /w,r,j/:

- **Devoiced** / p,t,k */ ′V* (proud)
  (except sp,st,sk */ ′V*, e.g. spring)

- **Voiced** / _ _ ~ (road)

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Nasals: Absence of Velic Closure

**Velar closure:**
refers to the *place of articulation*: the tongue touches the velum (*all velar sounds*)

**Velic closure:**
refers to *manner of articulation*: the velum closes off the nasal cavity (*all oral sounds*)

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Nasals: Absence of Velic Closure

Source: Collins/Mees 2003, 37

/ŋ/ versus /ŋ/
(1 = velar closure, 2 = velic closure)

---

Nasals

Source: Collins/Mees 2003, 33, 84

/n/ /m/
Nasals: Pronouncing <ng>

1. Words that do not derive from another word have /ŋ/ word-medially.

2. Words that end in /ŋ/ produce derivations and inflectional variants that are spoken with /ŋ/ word-medially.
   Examples: sing ⇒ singer, singing, sings

3. An exception to rule number 2 are derivations with the comparative and superlative suffixes -er and -est.
   Here, /ŋ/ is spoken.
   Examples: longer, longest, stronger, strongest

Nasals: Syllabic /n/?

- /n/ or /ɔn/ (syllabic or non-syllabic)
  / ∼ person, nation, sudden

- /ɔn/ (non-syllabic)
  / nas. __ cannon, German
  / nas.+plos. __ London(!), Washington

Revision Part II (Consonants)

- vowels vs. consonants
- fortis vs. lenis
- places and manner of articulation of consonants
- allophones of consonants (plosives: voice, release, aspiration, place of articulation; fricatives/affricates/approximants: voice; lateral: resonance, voice)
- German-English consonant contrasts: Auslautverhärtung, glottal onset, glottal reinforcement, hypercorrective /w/)
- RP-GA consonant contrasts: t/d-flapping, rhoticity, pronunciation of /r/
- morphophonology: -ed ending; 3rd person/plural/genitive -s
- spelling-sound relationship (esp. <th>, <s>, <z>, <ng>)
Revision Part II

1) Please give all phonemic and relevant allophonic features of the first [k] in *skunk* and the [d] in *bad*.

2) In what respects do the RP and the GA pronunciation of the consonants in *better* differ? In which exact contexts do these differences generally occur?

Revision Part II

1) Which phoneme(s) could the speaker in the picture be realizing?

2) Name the articulators marked in the picture.

Revision Part II

Are the following statements true or false?
1) Phonologically, vowels can be defined as sounds which typically occur at the peak of a syllable in English.
2) Fortis plosives are unaspirated in syllable-initial position.
3) The velum is raised to block off the passage to the nose for the sounds /k,g/ but not for /t,d/.
4) Lenis plosives are usually devoiced at the end of a word.
5) Because of German Auslautverhärtung, German-speaking learners of English tend to use fortis consonants at the end of words.
6) In function words, <th> is usually /Ø/.
7) Glottal reinforcement occurs more often in German than in English.
8) In RP, dark [i] occurs only before consonants and at the end of words.
9) Yod-dropping occurs in more contexts in GA than in RP.