

Speech Science

WiSe 2024/2025

Exercise 2: Transcription

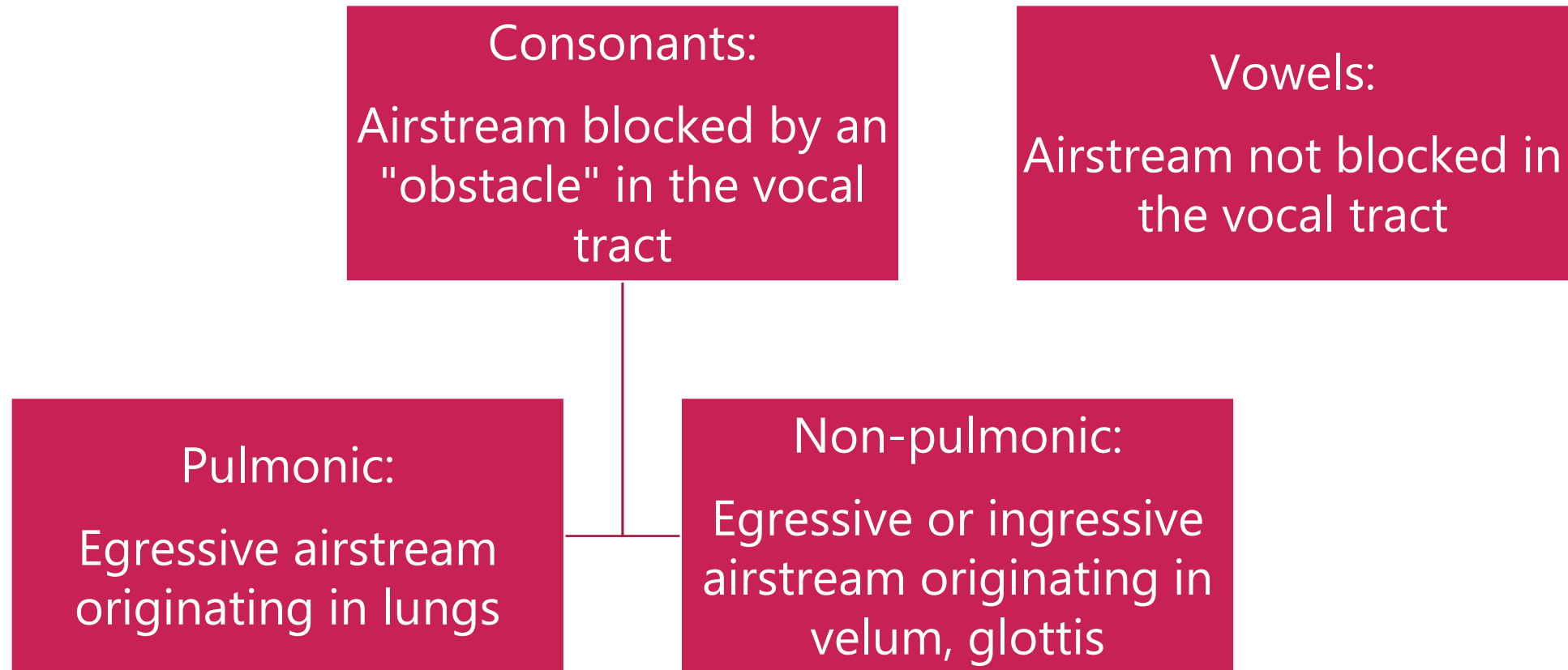
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Bernd Möbius & Valentin Kany

Language Science and Technology
Saarland University



Quick recap: Classification of speech sounds



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Assignment 1

Find the IPA symbol and an example word for the sounds described below.

1) bilabial nasal

2) voiceless labiodental fricative

3) velar nasal

4) voiced alveolar fricative

5) voiceless velar plosive

6) palatal approximant

7) voiced postalveolar fricative

8) voiced bilabial plosive

9) voiceless postalveolar fricative

10) voiceless dental fricative

Assignment 1

Find the IPA symbol and an example word for the sounds described below.

1) bilabial nasal [m]

2) voiceless labiodental fricative [f]

3) velar nasal [ŋ]

4) voiced alveolar fricative [z]

5) voiceless velar plosive [k]

6) palatal approximant [j]

7) voiced postalveolar fricative [ʒ]

8) voiced bilabial plosive [b]

9) voiceless postalveolar fricative [ʃ]

10) voiceless dental fricative [θ]

Assignment 1

Find the IPA symbol and an example word for the sounds described below.

- | | |
|---|--|
| 1) bilabial nasal [m] <mother> | 6) palatal approximant [j] <yell> |
| 2) voiceless labiodental fricative [f] <father> | 7) voiced postalveolar fricative [ʒ] <genious> |
| 3) velar nasal [ŋ] <lungs> | 8) voiced bilabial plosive [b] <ball> |
| 4) voiced alveolar fricative [z] <zoo> | 9) voiceless postalveolar fricative [ʃ] <shy> |
| 5) voiceless velar plosive [k] <king> | 10) voiceless dental fricative [θ] <breath> |

Assignment 1

Find the IPA symbol and an example word for the sounds described below.

11) unrounded open back vowel

12) rounded close-mid back vowel

13) unrounded close-mid front vowel

14) unrounded open-mid front vowel

15) rounded near-close back vowel

Assignment 1

Find the IPA symbol and an example word for the sounds described below.

11) unrounded open back vowel [ɑ]

12) rounded close-mid back vowel [o]

13) unrounded close-mid front vowel [e]

14) unrounded open-mid front vowel [ɛ]

15) rounded near-close back vowel [ʊ]

Assignment 1

Find the IPA symbol and an example word for the sounds described below.

- | | |
|---|--------|
| 11) unrounded open back vowel [ɑ] | <card> |
| 12) rounded close-mid back vowel [o] | <know> |
| 13) unrounded close-mid front vowel [e] | <play> |
| 14) unrounded open-mid front vowel [ɛ] | <bet> |
| 15) rounded near-close back vowel [ʊ] | <foot> |

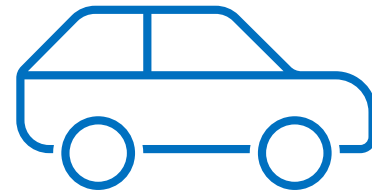
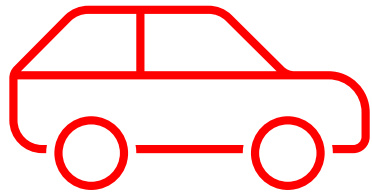
Transcription

Usecases of transcription

- Description of the sound system of a language
- Description of dialectal variation
- Language teaching (pronunciation training)
- Clinical linguistics
- Forensic phonetics
- Computational linguistics (automatic speech recognition, speech synthesis)

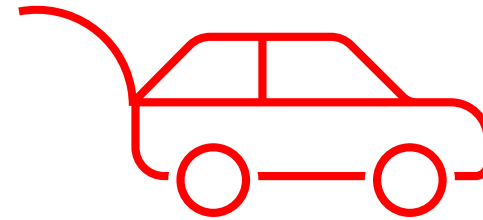
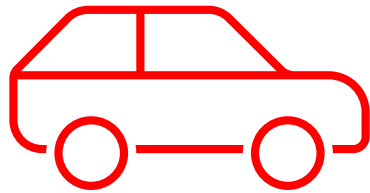
Broad vs. narrow transcription

- Broad transcription: only necessary information to identify utterance
i.e. <Paul> /pɔ:l/ versus /pu:l/



Broad vs. narrow transcription

- Narrow transcription: includes details to describe a specific pronunciation of an utterance
i.e. <Paul> [p^hɔːt̚] vs. <Paul> [pɔːt̚]



Broad vs. narrow transcription

- Broad transcription: only necessary information to identify utterance
i.e. <Paul> /pɔ:l/ vs. <pool> /pu:l/
- Narrow transcription: includes details to describe a specific pronunciation of an utterance
i.e. <Paul> [p^hɔ:l̥] vs. <Paul> [pɔ:l̥]

Exercise 1: Broad transcription

Please transcribe the following words:

- 1) <bell>
- 2) <couple>
- 3) <fantasy>
- 4) <sudden>
- 5) Your name

Exercise 1: Broad transcription

Please transcribe the following words:

- 1) <bell> /bɛl/
- 2) <couple> /'kʌpəl/
- 3) <fantasy> /'fæntəsi/
- 4) <sudden> /'sʌdən/
- 5) Your name /'valɛnti:n/

Exercise 2: Transcription challenges

- Find and transcribe a word with three consecutive consonants
- Find and transcribe a word with only vowels
- Find and transcribe a word with more sounds than letters
- Find and transcribe a word(pair) that exists in English and in your native language (and mark the differences)

Narrow transcription: diacritics

DIACRITICS

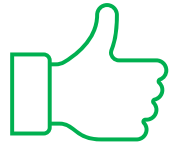
◦ Voiceless	<u>n</u> <u>d</u>	.. Breathy voiced	<u>b</u> <u>a</u>	ˀ Dental	<u>t</u> <u>d</u>
✓ Voiced	<u>s</u> <u>t</u>	˜ Creaky voiced	<u>b</u> <u>a</u>	ˁ Apical	<u>t</u> <u>d</u>
h Aspirated	<u>t</u> ^h <u>d</u> ^h	˘ Linguolabial	<u>t</u> <u>d</u>	ˁˁ Laminar	<u>t</u> <u>d</u>
◌ More rounded	◌	ˠ Labialized	<u>t</u> ^w <u>d</u> ^w	˜ Nasalized	<u>e</u>
◌ Less rounded	◌	ˡ Palatalized	<u>t</u> ^j <u>d</u> ^j	ˠ Nasal release	<u>d</u> ⁿ
+ Advanced	<u>u</u>	ˠ Velarized	<u>t</u> ^ˠ <u>d</u> ^ˠ	ˡ Lateral release	<u>d</u> ^l
- Retracted	<u>e</u>	ˠ Pharyngealized	<u>t</u> ^ˠ <u>d</u> ^ˠ	ˠ No audible release	<u>d</u> ^ˠ
˙ Centralized	<u>e</u>	˜ Velarized or pharyngealized	<u>t</u>		
˥ Mid-centralized	<u>e</u>	˥ Raised	<u>e</u> (˥ = voiced alveolar fricative)		
˩ Syllabic	<u>n</u>	˩ Lowered	<u>e</u> (˩ = voiced bilabial approximant)		
˩ Non-syllabic	<u>e</u>	˩ Advanced Tongue Root	<u>e</u>		
˩ Rhoticity	<u>a</u> <u>a</u>	˩ Retracted Tongue Root	<u>e</u>		

Some diacritics may be placed above a symbol with a descender, e.g. ŋ

- Please take the following (typical) examples with a grain of salt
- Especially with narrow transcription:
 - Individual speakers
 - Individual "standard" variants of English
 - Individual contexts
 - We can only assume pronunciation if we do not have recordings

Diacritics: aspiration

◌^h
t^h



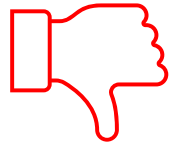
- Voiceless plosives at beginning of a word
- Voiceless plosives at beginning of a stressed syllable

Aspiration

Example:

<tea>

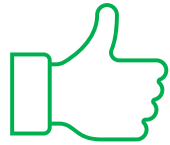
[t^hi:]



- Voiceless plosives at end of a syllable or word
- Voiceless plosives at beginning of an unstressed syllable
- Voiceless plosives following [s]

Diacritics: devoicing

◌̥
d



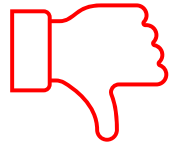
- After pauses
- After voiceless sounds
- At the end of an utterance / sentence

Devoicing

Example:

<did>

[d̥ɪd]



- After voiced sounds

Diacritics: nasal release

◌ⁿ
dⁿ

Nasal release

Example:

<sudden>

['sʌdⁿn]

vs. ['sʌdəpən]

- Plosive is followed by a nasal
- Plosive releases into a nasal
- Coarticulation: velopharyngeal port is opened a bit in advance

Diacritics: nasalization

◌̃

◌̃

- Vowel is followed by a nasal
- Coarticulation: velopharyngeal port is opened a bit in advance

Nasalization

Example:

<golem>

['gɔʊl̃m]

Diacritics: lateral release

◌^l

d^l

Lateral release

Example:

<middle>

['mɪd^l]

vs. ['mɪdəl]

- Plosive is followed by a lateral
- Plosive releases into a lateral
- Coarticulation: sides of the tongue are drawn in in advance

Diacritics: dental



n

Dental

Example:

<in the>

[ĩn̪ðə]

vs. [ĩn ðə]

- Alveolar sound is followed by a dental sound
- Coarticulation: tongue moves towards dental position in advance

Diacritics: velarized or pharyngealized



- "Dark" [ɫ]: in the coda of a syllable (either word-finally or preceding another consonant).
- "Light" [l]: before vowels

Example:

<light> <seal>

['laɪt] vs. ['si:ɫ]

Diacritics: syllabic and non-syllabic



ŋ̩

Syllabic

Example:

<sudden>

['sʌd̩n̩]

vs. ['sʌdəp̩n̩]

- Usually: A consonant cannot form a syllable on its own
- If it does, it is marked with this diacritic
- In case of schwa-elision: Consonant forms a syllable on its own

Diacritics: syllabic and non-syllabic



Non-syllabic

Example:

<my>

[^h'maɪ]

vs. [^h'ma.i]

- Usually: A vowel must form a syllable
- If it does not, it is marked with this diacritic
- In case of diphthongs: Vowel does not form a "new" syllable

Suprasegmental: stress

- Primary stress: the most prominent syllable in the word: [']
- Secondary stress: syllables which are not completely unstressed but not as prominent as the primary stress: [,]
- Unstressed syllables: syllables with no stress at all, in English, almost all have schwa [ə] as vowel

[ɪn'kʌɪ:s] vs. ['ɪnkʌɪ:s]

[ʊm'fɑ:ʊən] vs. ['ʊmfa:ʊən]



<https://www.youtube.com/watch?app=desktop&v=UaWb5jwfeFk>

Exercise 3: Narrow transcription of text

Please create a narrow transcription of the following text:

I was thinking of two people I met last time I was in England.

Exercise 3: Narrow transcription of text

Please create a narrow transcription of the following text:

I was thinking of two people I met last time I was in England.

[æ wəz θɪŋkɪŋ əv tʰuː pʰiːpəl æ met leɪs tʰæm æ wəz ɪn ɪŋɡlənd]

Exercise 4: Narrow transcription of audio

Please create a narrow transcription of the following audio:



<https://www.mq.edu.au/about/about-the-university/our-faculties/medicine-and-health-sciences/departments-and-centres/department-of-linguistics/our-research/phonetics-and-phonology/speech/phonetics-and-phonology/transcription/transcription-exercises>

Exercise 4: Narrow transcription of audio

Please create a narrow transcription of the following audio:



[nɪəli: evɪ: pʰɔt ən pʰæ̃n hi: pəzest sɪ:mɔ tʰɘ: ə bɪ:n jɘ:zɔ]

<https://www.mq.edu.au/about/about-the-university/our-faculties/medicine-and-health-sciences/departments-and-centres/department-of-linguistics/our-research/phonetics-and-phonology/speech/phonetics-and-phonology/transcription/transcription-exercises>

Excuse: (semi-)automatic transcription

WebMAUS - Munich AUtomatic Segmentation

[Show service sidebar >](#)**BAS Web Services**
Version 3.12 • [History of changes](#)

Pipeline without ASR

Files

Please drag & drop the input files to the pipe here (allowed formats are: aiff, au, avi, flac, flv, mpg, mpeg, mp3, mp4, nis, nist, ogg, snd, sph, wav, bpf, csv, doc, docx, eaf, odt, par, pdf, rtf, textgrid, txt, xml) or multiple signals all to be paired with the same annotation file _TEMPLATE_FILE_. [bpf|csv|doc|docx|eaf|odt|par|pdf|rtf|textgrid|txt|xml].

Service options

Pipeline name (required)	<input type="text" value="G2P→MAUS→PHO2SYL"/>	?
Language (required)	<input type="text" value="German (DE)"/>	?
Output format (required)	<input type="text" value="Praat (TextGrid)"/>	?
"Keep everything"	<input type="text" value="false"/>	?

Expert Options *(click to show)*

When selecting 'emuDB' (EMU-SDMS) as output format, the service will pack the resulting EMU-SDMS database into a ZIP file, which can be retrieved by clicking on the 'Download as ZIP-File' button.

<https://clarin.phonetik.uni-muenchen.de/BASWebServices/interface/WebMAUSBasic>

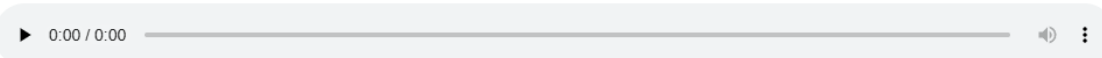
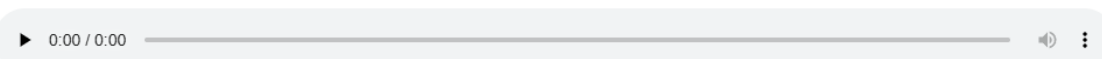
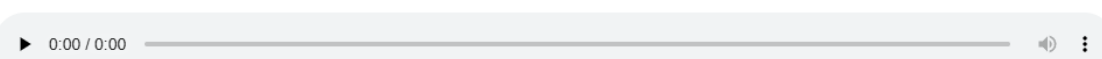
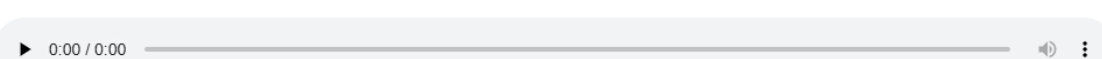
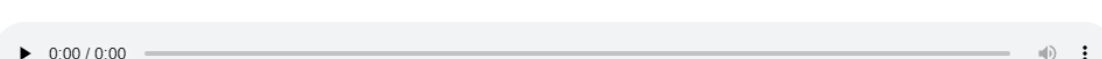
Assignment 2

Please write a broad transcription of the first five sentences in exercise 5.

Please also write a narrow transcription of the first sentence (cats and dogs)

EXERCISE 5.

Make both a phonemic (broad) and a phonetic (narrow) transcription of the following sentences.

1. 
Cats and dogs need to be loved and walked every day.
2. 
I lugged the suitcases all the way from the polished vestibule to the flats' antiquated old lift.
3. 
The atmosphere of the cosy studio was not at all conducive to the sort of thing the Armenian teenager had in mind.
4. 
The special vision which ocean birds have enables them to inspect chasms which we would miss.
5. 
The little nurse drew a deep breath,

<https://www.mq.edu.au/about/about-the-university/our-faculties/medicine-and-health-sciences/departments-and-centres/departments-of-linguistics/our-research/phonetics-and-phonology/speech/phonetics-and-phonology/transcription/transcription-exercises>

Thank you for your participation!

