BBN–ANG–242 Phonology

10. Morpho-phonological alternations:
    allomorphs of -s and -ed,
    palatalization, velar softening, spirantization

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The suffixes -s and -ed
The pronunciation of -s
(plural/possessive/3rd person singular morpheme, contracted form of is/has)

-\( -s \)
  \(-z/-\)
  \(-/s/-\)
  \(-/iz/-\)

\[
\begin{array}{llll}
dads & cats & buses
\end{array}
\]
\[
\begin{array}{ll}
ribs & tips
\end{array}
\]
\[
\begin{array}{ll}
doves & months
\end{array}
\]
\[
\begin{array}{ll}
guns & wishes
\end{array}
\]
\[
\begin{array}{l}
\textit{!}
\textit{\} guns \}
\textit{!}
\end{array}
\]
\[
\begin{array}{llll}
wars & seas & garages
\end{array}
\]
\[
\begin{array}{l}
days
\end{array}
\]
The pronunciation of -ed
(past tense/past participle morpheme)

- ed
  /d/  /t/  /ɪd/

logged disturbed loved needed
banned stopped guessed hunted
bored
played

/kúkt, stópt, gɛst/
/kúgd, stóbd, gɛzd/
The pronunciation of -s and -ed

-allomorphs of the same morpheme

progressive voicing assimilation
Pre-fortis clipping

(We’ve seen that in English the contrast between underlyingly voiced and voiceless (i.e. lenis and fortis) obstruents isn’t necessarily realized as the voicing vs. voicelessness of the consonant. Fortis obstruents (e.g. /p, t, k, f, s/) are always voiceless, but lenis obstruents (e.g. /b, d, g, v, z/) might also become (partially or completely) devoiced if they are not between vowels or sonorant consonants – e.g. the /b/ of Cuba is voiced ([kjúwba]), but Bob [ˈbɒb] might sound like Hun. pap ‘priest’ [pɒp].

So in the case of plosives in word-initial position or before stressed vowels, it is the presence vs. lack of aspiration (and not voicing) that is contrasting in aspirating languages like English – e.g. Ben [bɛn ~ ˈbɛn ~ ˈpɛn] vs. pen [pʰɛn].)

Word-final obstruents might also be devoiced; however, the length of the preceding vowel(+sonorant sequence) does show whether it is lenis or fortis: before fortis obstruents the vowel(+sonorant) is clipped, i.e. shorter:

- rays vs. race – /rejz/ vs. /rejs/ → [rejz ~ rejɬ ~ rejs] vs. [rɛjs];
- spend vs. spent /spend/ vs. /spent/ → [spend ~ spenɬ ~ spent] vs. [spɛnt].

This is called pre-fortis clipping/shortening.
Pre-fortis clipping

feed

feet
Palatalization
# Palatalization

<table>
<thead>
<tr>
<th>Manner of articulation</th>
<th>Place of articulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bilab.</td>
</tr>
<tr>
<td>obstr.</td>
<td></td>
</tr>
<tr>
<td>stops/plosives</td>
<td>p</td>
</tr>
<tr>
<td>fricatives</td>
<td>f</td>
</tr>
<tr>
<td>affricates</td>
<td></td>
</tr>
<tr>
<td>nasals</td>
<td>m</td>
</tr>
<tr>
<td>son.</td>
<td></td>
</tr>
<tr>
<td>approx.</td>
<td></td>
</tr>
<tr>
<td>liquids</td>
<td></td>
</tr>
<tr>
<td>glides</td>
<td>(w)</td>
</tr>
</tbody>
</table>
Post-lexical palatalization (1)

What you see is what you get.

UR /wɔ́t juw síj iz wɔ́t juw gét/

SR [wɔ́t juw síj iz wɔ́t juw gét]
[ʔɔ́tʃ juw síj iz wɔ́tʃ juw gét]

t → tʃ / ___#j
Post-lexical palatalization (1)

Did you send your friend your old YouTube video?

UR /did jʉw sᵉⁿd jə frᵉⁿd jər ɻwld jʉwtjʉwb vⁱᵈⁱjᵉw/

SR [did jʉw sᵉⁿd jə frᵉⁿd jər ɻwld jʉwtjʉwb vⁱᵈⁱjᵉw]
   [didʒ jʉw sᵉⁿdʒ jə frᵉⁿdʒ jər ɻwldʒ jʉwtjʉwb vⁱᵈⁱjᵉw]

\[d \rightarrow dʒ / _#j\]
Post-lexical palatalization (1)

Bless you.

UR \(/\text{bl\'{e}s juw}/\)

SR $[\text{bl\'{e}s juw}]$

$[\text{bl\'{e}\text{ʃ} juw}]$

$s \rightarrow \text{ʃ} / \_\#j$
Post-lexical palatalization (1)

Use your head.

UR /júwz jə héd/
SR [júwz jə héd]
   [júwʒ jə héd]

z → ʒ / __#j
Post-lexical palatalization (1)

- applies across word boundaries
- optional
**Post-lexical palatalization (2)**

Other instances of post-lexical palatalization:

<table>
<thead>
<tr>
<th></th>
<th>RP</th>
<th>CUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>YouTube</td>
<td>ʃўtuw ʃib</td>
<td>ʃўtuw ʃib</td>
</tr>
<tr>
<td>Tuesday</td>
<td>tjʉzwzdɛj</td>
<td>tjʉzwzdɛj</td>
</tr>
<tr>
<td>duty</td>
<td>djʉwtiʃ</td>
<td>dʒʉwtiʃ</td>
</tr>
<tr>
<td>reduce</td>
<td>ridjʉws</td>
<td>ridʒʉws</td>
</tr>
</tbody>
</table>
Post-lexical palatalization (2)

\[
\begin{align*}
\{ t_j & \rightarrow t\_f \\ d_j & \rightarrow d\_3 \}
\end{align*}
\]

- applies within words
- optional in RP, obligatory in CUBE
**Lexical palatalization**

\[
\begin{align*}
/t/ & \sim /tʃ/ \\
/d/ & \sim /dʒ/ \\
/s/ & \sim /ʃ/ \\
/z/ & \sim /ʒ/
\end{align*}
\]

suggest ~ suggestion grade ~ gradual express ~ expression revise ~ revision

\[
\left\{ 
\begin{array}{c}
t \rightarrow tʃ \\
d \rightarrow dʒ \\
s \rightarrow ʃ \\
z \rightarrow ʒ \\
\end{array}
\right. 
\text{/ before certain suffixes}
\]

typical suffixes: -ion, -ian, -ial, -ious, -ual

- applies within words
- obligatory
Lexical palatalization

Is there palatalization in the following cases?

\textit{discussion} \quad /\text{disk}\ddagger \text{jn}/

morpheme alternation: \textit{discussion} /\text{disk}\ddagger \text{s}/ \sim /\text{disk}\ddagger \text{j}/ \to \text{yes}

\textit{mission} \quad /\text{mi}\ddagger \text{jn}/

no alternation, no recoverability \to \text{no}

\textit{Persia} \quad /\text{p}\ddagger \text{e\text{"a}}\ddagger \text{a}/

no alternation, no recoverability \to \text{no}
Velar softening
## Velar softening

**typical suffixes:** -ise/-ize, -ity, -ic(al), -ian, -y\_N

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Suffix</th>
<th>Resulting Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>critic</td>
<td>/krítɪk/</td>
<td>-ize</td>
<td>/krítɪsəjz/</td>
</tr>
<tr>
<td>romantic</td>
<td>/rəwmántɪk/</td>
<td>-ize</td>
<td>/rəwmántɪsəjz/</td>
</tr>
<tr>
<td>italic</td>
<td>/ɪt álɪk/</td>
<td>-ize</td>
<td>/ɪt álɪsəjz/</td>
</tr>
<tr>
<td>metric</td>
<td>/mɛtrɪk/</td>
<td>-ize</td>
<td>/mɛtrɪsəjz/</td>
</tr>
<tr>
<td>electric</td>
<td>/ɪlɛktrɪk/</td>
<td>-ity</td>
<td>/ɪlɛktrɪsətɪʃ/</td>
</tr>
<tr>
<td>ethnic</td>
<td>/ɛθnɪk/</td>
<td>-ity</td>
<td>/ɛθnɪsətɪʃ/</td>
</tr>
<tr>
<td>egocentric</td>
<td>/ɪjɡəwsɛntrɪk/</td>
<td>-ity</td>
<td>/ɪjɡəwsɛntrɪsətɪʃ/</td>
</tr>
<tr>
<td>syllabic</td>
<td>/sɪlábɪk/</td>
<td>-ity</td>
<td>/sɪlabɪsətɪʃ/</td>
</tr>
</tbody>
</table>
Velar softening

typical suffixes: -ise/-ize, -ity, -ic(al), -ian, -y\textsubscript{N}

pedagogue $/\text{p\'{e}d\'{e}g\text{c}g}/$ + -y $\rightarrow$ $/\text{p\'{e}d\'{e}g\text{d}d3\text{j}}/$

analogous $/\text{\'{e}n\'{a}l\'{a}g\text{g}e}\text{s}/$ + -y $\rightarrow$ $/\text{\'{e}n\'{a}l\'{e}d3\text{j}}/$
## Velar softening

**Manner of articulation**

<table>
<thead>
<tr>
<th>Obstr.</th>
<th>Stops/plosives</th>
<th>Fricatives</th>
<th>Affricates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab.</td>
<td>p b</td>
<td>f v</td>
<td></td>
</tr>
<tr>
<td>Bilab.</td>
<td>p b</td>
<td>f v</td>
<td></td>
</tr>
<tr>
<td>Labio-dent.</td>
<td></td>
<td></td>
<td>t θ k h</td>
</tr>
<tr>
<td>Dent.</td>
<td>t d</td>
<td>θ δ</td>
<td></td>
</tr>
<tr>
<td>Alv.</td>
<td>s z</td>
<td>s z</td>
<td></td>
</tr>
<tr>
<td>Post-alv.</td>
<td></td>
<td></td>
<td>s z</td>
</tr>
<tr>
<td>Pal.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vel.</td>
<td></td>
<td></td>
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<tr>
<td>Glot.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Place of articulation**

<table>
<thead>
<tr>
<th>Nasals</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilab.</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Labio-dent.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dent.</td>
<td>n</td>
<td></td>
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<tr>
<td>Glot.</td>
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<td></td>
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</table>

**Liquid Approx. Glides**

<table>
<thead>
<tr>
<th>Liquids</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Bilab.</td>
<td>l</td>
</tr>
<tr>
<td>Labio-dent.</td>
<td></td>
</tr>
<tr>
<td>Dent.</td>
<td>r</td>
</tr>
<tr>
<td>Alv.</td>
<td></td>
</tr>
<tr>
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<tr>
<td>Pal.</td>
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<tr>
<td>Vel.</td>
<td></td>
</tr>
<tr>
<td>Glot.</td>
<td></td>
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</table>

**Glides**

<table>
<thead>
<tr>
<th>Bilab.</th>
<th>(w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labio-dent.</td>
<td></td>
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<tr>
<td>Dent.</td>
<td></td>
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<tr>
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<tr>
<td>Vel.</td>
<td></td>
</tr>
<tr>
<td>Glot.</td>
<td></td>
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</table>

\[
\{ \begin{array}{c}
  k \rightarrow s \\
  g \rightarrow dʒ
\end{array} \} \text{ / before certain suffixes}
\]

**Typical suffixes:** -ise/-ize, -ity, -ic(al), -ian, -yₙ

[k] and [g]: “hard” sounds
sibilants (e.g. [s] and [dʒ]): “soft” sounds → velar softening
Velar softening

Is there velar softening in the following cases?

**ethnicity** /εθνίσσετίj/

morpheme alternation: /εθνίκ/ ~ /εθνίς/ → yes

**Tracy** /trέjsίj/

no alternation, no recoverability → no

**city** /sίτίj/

no alternation, no recoverability → no
Spirantization
Spirantization

typical suffixes: -ion, -ian, -ial, -ious, -y

president /prɛzɪdənt/ + -y → /prɛzɪdənsɪj/
democrat /dɛməkræt/ + -y → /dɪməkrəsɪj/
aristocrat /áristəkræt/ + -y → /árɪstókrəsɪj/
divide /dɪvájd/ + -ible → /dɪvɪzəbəl/
Spirantization

### Table: Place of Articulation

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>obstr. stops/plosives</td>
<td>p b</td>
<td></td>
<td>t d</td>
<td></td>
<td></td>
<td>k g</td>
<td>[?]</td>
<td></td>
</tr>
<tr>
<td>fricatives</td>
<td>f v</td>
<td></td>
<td>θ δ</td>
<td>s z</td>
<td></td>
<td></td>
<td>h</td>
<td></td>
</tr>
<tr>
<td>affricates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t f d z</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>son. nasals</td>
<td>m</td>
<td></td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td>η</td>
<td></td>
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<tr>
<td>approx. liquids</td>
<td></td>
<td></td>
<td>l</td>
<td>r</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>glides</td>
<td>(w)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>j</td>
<td>w</td>
</tr>
</tbody>
</table>

\[
\begin{array}{c}
\{ t \rightarrow s \} \\
\{ d \rightarrow z \}
\end{array}
\]

/ before certain suffixes

typical suffixes: -ion, -ian, -ial, -ious, -y_N

fricatives (i.e. [s] and [z]) = spirants → spirantization
Spirantization

Is there spirantization in the following cases?

**Urgency**  /éːdʒənsɪj/  
  morpheme alternation: /éːdʒənt/ ~ /éːdʒəns/ → yes

**Fancy**  /fánσɪj/  
  no alternation, no recoverability → no
In sum…

Morpho-phonological alternations
phonemic difference – morpheme alternations

1. suggest /sədʒɛ́st/ – suggestion /sədʒɛ́stʃ|ɛn/
2. critic /krɪ́tɪk/ – criticize /krɪ́tɪs|ajz/
3. president /prɛ́zɪdənt/ – presidency /prɛ́zɪdəns|ɪj/

1. palatalization
2. velar softening
3. spirantization
Finally, combining what we’ve learned...

Morpho-phonological alternations
Which sound changes can you identify in the following case?

presidential /prɛzɪdɛnfəl/

spiralization  palatalization

\[
\begin{array}{ccc}
t & \rightarrow & s & \rightarrow & \text{j}
\end{array}
\]
Finally, combining what we’ve learned...

Morpho-phonological alternations
Which sound changes can you identify in the following case?

decision /dɪsɪʒən/

spirantization   palatalization

\[d \rightarrow z \rightarrow ʒ\]
Finally, combining what we’ve learned...

Morpho-phonological alternations
Which sound changes can you identify in the following case?

electrician /ɪlektrɪʃn/

velar softening  palatalization

k → s → ñ
# Strong (#) vs. weak (+) boundary suffixes

How can we justify the classification of suffixes into the following categories?

**typical strong boundary suffixes:**
- #able, #(e)d, #ful, #ing, #less, #ment, #ness, #(e)s, etc.

**typical weak boundary suffixes:**
- +ic, +ian, +ion, +ible, +ify, +ity, +ual, etc.

<table>
<thead>
<tr>
<th>#</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>stupid</td>
<td>stupid#ness</td>
</tr>
<tr>
<td>/stjúwpíd/</td>
<td>/stjúwpíd#nəs/</td>
</tr>
<tr>
<td>discuss</td>
<td>discuss#ing</td>
</tr>
<tr>
<td>/dɪskáʃs/</td>
<td>/dɪskáʃs#ɪŋ/</td>
</tr>
<tr>
<td>grade</td>
<td>grad#able</td>
</tr>
<tr>
<td>/gréjd/</td>
<td>/gréjd#əbəl/</td>
</tr>
</tbody>
</table>
Different types of mistakes

The following cases exemplify words pronounced/transcribed incorrectly. These mistakes are, in fact, quite different from each other. Try to explain simply what the differences lie in. Which of the mistakes do you think is/are more serious? Which one(s) has/have to do with phonology?

- *that* pronounced [dɛ̃t]
- *that* transcribed as /dɛ̃t/
- *a pint* /pɪ̃nt/ of beer
- *climb* /klájmb/
Terms to check

morphemes (morféma, szóelem) – allomorph (allomorf, alakváltozat)
morpho-phonological alternations (morfofonológiai alternációk/váltakozások)
suffix (szuffixum, toldalék)
strong vs. weak morpheme boundary (erős vs. gyenge morfémahatár)
palatalization (palatalizáció, jésülés)
post-lexical and lexical palatalization (posztlexikális és lexikális palatalizáció)
velar softening (veláris puhulás)
spirant = fricative (spiráns = frikatíva, réshang)
spirantization (spirantizálódás, réshangúsodás)
Recommended reading

Ádám Nádasdy: *Background to English Pronunciation (Phonetics, Phonology, Spelling)*, pp. 62–70