Phonological processes and constraints
Processes turn something into something else (dynamic, alternations)

Constraints are bans prohibiting certain combinations (static, phonotactics)
types of phonological rules:
- **assimilation** rules: *dogs* – *cats*, *loves* – *hates*, *loved* – *laughed*
- **dissimilation** rules: *modal, rural, feudal* but *lunar, muscular*
- feature addition rules e.g. aspiration
- segment deletion e.g. vowel-zero alternation (*syncope*): *camera*
- segment addition (*insertion*): *bushes, buzzes, butted*
- movement (*metathesis*) rules: Hu *teher~terhek, terhet* ‘burden nom.sg.~pl., acc.sg.’, *terhel* ‘to burden’
Assimilation rules

regressive place assimilations, e.g.:
- dentalisation of /t d n l/ when followed by /θ/: e.g. quite thick
- labial assimilation of /t d/: hot pudding [-p p-], Hyde Park [-b p-]
- velar assimilation of /t d/: that car [-k k-], bad composition [-g k-]
- nasal place assimilation: green peas, raincoat, ink, hunger
## Assimilation rules: voicing

<table>
<thead>
<tr>
<th>English</th>
<th>Hungarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>(c)</td>
<td>(e)</td>
</tr>
<tr>
<td>obtain</td>
<td>matchbox</td>
</tr>
<tr>
<td>&quot;obtain&quot;</td>
<td>&quot;mætʃboks&quot;</td>
</tr>
<tr>
<td>cheesecake</td>
<td>baseball</td>
</tr>
<tr>
<td>&quot;cheesecake&quot;</td>
<td>&quot;breɪsbɔːl&quot;</td>
</tr>
<tr>
<td>bigfoot</td>
<td>cookbook</td>
</tr>
<tr>
<td>&quot;bigfoot&quot;</td>
<td>&quot;kʰʌkʰʌk&quot;</td>
</tr>
<tr>
<td>egghead</td>
<td>life gear</td>
</tr>
<tr>
<td>&quot;egghead&quot;</td>
<td>&quot;lɑːfrɪə(r)&quot;</td>
</tr>
<tr>
<td>roadster</td>
<td>Shoot back!</td>
</tr>
<tr>
<td>&quot;roadster&quot;</td>
<td>&quot;ʃuːt ˈhæk&quot;</td>
</tr>
<tr>
<td>Matchbox</td>
<td>Matchbox</td>
</tr>
<tr>
<td>&quot;Matchbox&quot;</td>
<td>&quot;mætʃboks&quot;</td>
</tr>
<tr>
<td>baseball</td>
<td>afgan</td>
</tr>
<tr>
<td>&quot;baseball&quot;</td>
<td>&quot;beːzboːl&quot;</td>
</tr>
<tr>
<td>Hangfal</td>
<td>Kertből</td>
</tr>
<tr>
<td>&quot;Hangfal&quot;</td>
<td>&quot;kɛɾdbɔːl&quot;</td>
</tr>
</tbody>
</table>
Assimilation rules: voicing

<table>
<thead>
<tr>
<th>English</th>
<th>Hungarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>(c)</td>
<td>(d)</td>
</tr>
<tr>
<td>Egghead ['eɡhɛd]</td>
<td>Life gear ['laɪfɡɪə(r)]</td>
</tr>
<tr>
<td>Roadster ['rɔʊdstə(r)]</td>
<td>Shoot back! ['ʃuːt ˈbæk]</td>
</tr>
</tbody>
</table>

Note: The symbols [()] represent the phonetic transcription of the words.
Assimilation rules: voicing

<table>
<thead>
<tr>
<th>English</th>
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</tr>
</thead>
<tbody>
<tr>
<td>► optional</td>
<td>► obligatory</td>
</tr>
<tr>
<td>► partial or complete</td>
<td>► complete</td>
</tr>
<tr>
<td>► its result is always devoicing</td>
<td>► its result may be devoicing or voicing</td>
</tr>
<tr>
<td>► may be regressive or progressive</td>
<td>► always regressive</td>
</tr>
<tr>
<td>► initial or final devoicing may apply</td>
<td>► no initial or final devoicing</td>
</tr>
</tbody>
</table>

Hungarian: neutralisation
## Assimilation rules

<table>
<thead>
<tr>
<th>/z/</th>
<th>/s/</th>
<th>/ɪz/</th>
</tr>
</thead>
<tbody>
<tr>
<td>legs</td>
<td>kicks</td>
<td>churches</td>
</tr>
<tr>
<td>tabs</td>
<td>blokes</td>
<td>judges</td>
</tr>
<tr>
<td>heads</td>
<td>taps</td>
<td>bushes</td>
</tr>
<tr>
<td>means</td>
<td>turnips</td>
<td>garages</td>
</tr>
<tr>
<td>girls</td>
<td>hats</td>
<td>kisses</td>
</tr>
<tr>
<td>ways</td>
<td>laughs</td>
<td>buzzes</td>
</tr>
<tr>
<td>shows</td>
<td>baths</td>
<td>stretches</td>
</tr>
</tbody>
</table>
### Assimilation rules

<table>
<thead>
<tr>
<th>/d/</th>
<th>/t/</th>
<th>/\d/</th>
</tr>
</thead>
<tbody>
<tr>
<td>begged /ˈbɛgd/</td>
<td>clicked /ˈklikt/</td>
<td>wanted /ˈwɒntɪd/</td>
</tr>
<tr>
<td>robbed /ˈrəbd/</td>
<td>ripped /ˈrɪpt/</td>
<td>mended /ˈmendɪd/</td>
</tr>
<tr>
<td>advised /ədˈvɑːzd/</td>
<td>laughed /ˈlaːft/</td>
<td>protected /prəˈtektd/</td>
</tr>
<tr>
<td>deprived /drɪˈpɛrvd/</td>
<td>passed /ˈpaːst/</td>
<td>beheaded /brˈhedɪd/</td>
</tr>
<tr>
<td>damaged /ˈdæmɪdʒd/</td>
<td>kissed /ˈkɪst/</td>
<td>located /ˈləʊkərtɪd/</td>
</tr>
<tr>
<td>contained /kənˈtɛmd/</td>
<td>hushed /ˈhʌst/</td>
<td>paraded /pəˈreɪdɪd/</td>
</tr>
<tr>
<td>filled /ˈfɪld/</td>
<td>stretched /ˈstretʃt/</td>
<td>navigated /ˈnævɪgətɪd/</td>
</tr>
<tr>
<td>followed /ˈfɒləud/</td>
<td>attached /əˈtætʃt/</td>
<td>vaccinated /ˈvæksmərtɪd/</td>
</tr>
</tbody>
</table>
Assimilation rules

Fricative Devoicing

have turned
cause to die
breathe slowly
garage to let

Neutralisation vs. e.g., aspiration
Lexical (underlying) representation:

Phonemic representations:

Surface (phonetic) representations:
Deletion rules

Syncope
(post-stress) syncope

possible in: every family camera Brittany Barbara battery
not possible in: phonology venison Melanie benefit vanity pelican
Deletion rules

Syncope
(pre-stress) syncope

<table>
<thead>
<tr>
<th>a. Deletion possible</th>
<th>b. No deletion possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>potato</td>
<td>reduction</td>
</tr>
<tr>
<td>syringe</td>
<td>retire</td>
</tr>
<tr>
<td>career</td>
<td>mature</td>
</tr>
<tr>
<td>commotion</td>
<td>promotion</td>
</tr>
<tr>
<td>phonetic</td>
<td>laconic</td>
</tr>
<tr>
<td>pathetic</td>
<td>platonic</td>
</tr>
</tbody>
</table>
Deletion rules

/u:/
rude, blue, sure, juice, chew

RP /(j)u:/
lúkewarm, illusion, süper, süit, resúme (cf. válue, insulate, Jésuit)

GA /u:/
lúkewarm, illusion, süper, süit, resúme (cf. válue, insulate, Jésuit)
enthusiasm, tube, during, new, dude

/ju:/
puke, beauty, cute, mule, cure
## Deletion rules

<table>
<thead>
<tr>
<th>h pronounced</th>
<th>h not pronounced</th>
</tr>
</thead>
<tbody>
<tr>
<td>hill</td>
<td>ah</td>
</tr>
<tr>
<td>Hawaii</td>
<td>oh</td>
</tr>
<tr>
<td>holiday</td>
<td>Allah</td>
</tr>
<tr>
<td>horizon</td>
<td>shah</td>
</tr>
<tr>
<td>hello</td>
<td>Sarah</td>
</tr>
<tr>
<td>habitual</td>
<td>John</td>
</tr>
<tr>
<td>Fahrenheit</td>
<td>Fahrenheit</td>
</tr>
<tr>
<td>vehicular</td>
<td>vehicle</td>
</tr>
<tr>
<td>herd</td>
<td>vehement</td>
</tr>
<tr>
<td></td>
<td>shepherd</td>
</tr>
<tr>
<td></td>
<td>Buddha</td>
</tr>
<tr>
<td></td>
<td>Graham</td>
</tr>
<tr>
<td></td>
<td>Birmingham</td>
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</table>
# Deletion rules

<table>
<thead>
<tr>
<th></th>
<th>no /r/</th>
<th>pronounced /r/</th>
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<tbody>
<tr>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
</tr>
<tr>
<td>York</td>
<td>tired</td>
<td>your</td>
</tr>
<tr>
<td>party</td>
<td>iron</td>
<td>car</td>
</tr>
<tr>
<td>bird</td>
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<tr>
<td>allergy</td>
<td>feared</td>
<td>refer</td>
</tr>
<tr>
<td>leopard</td>
<td>retirement</td>
<td>teacher</td>
</tr>
<tr>
<td>particular</td>
<td>fires</td>
<td>particular</td>
</tr>
<tr>
<td>bears</td>
<td>rarely</td>
<td>bear</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>(f)</td>
<td>(g)</td>
</tr>
<tr>
<td>ring</td>
<td>crow</td>
<td>tiring</td>
</tr>
<tr>
<td>routine</td>
<td>pray</td>
<td>boring</td>
</tr>
<tr>
<td>rhyme</td>
<td>tribute</td>
<td>error</td>
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<tr>
<td>refer</td>
<td>shrimp</td>
<td>referee</td>
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<tr>
<td>restore</td>
<td>Africa</td>
<td>fiery</td>
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<tr>
<td>retire-</td>
<td>poetry</td>
<td>furry</td>
</tr>
<tr>
<td>rarely</td>
<td>arrive</td>
<td>rarest</td>
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</tbody>
</table>
Aspiration

<table>
<thead>
<tr>
<th></th>
<th>Time</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>closure</td>
<td>release</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bay</td>
<td>voiced</td>
<td>b</td>
<td>e</td>
<td>i</td>
</tr>
<tr>
<td>spay</td>
<td>voiceless unaspirated</td>
<td>s</td>
<td>p</td>
<td>e</td>
</tr>
<tr>
<td>spray</td>
<td>s</td>
<td>p</td>
<td>r</td>
<td>e</td>
</tr>
<tr>
<td>pay</td>
<td>voiceless aspirated</td>
<td>p</td>
<td>e</td>
<td>i</td>
</tr>
<tr>
<td>pray</td>
<td>p</td>
<td>r</td>
<td>e</td>
<td>i</td>
</tr>
<tr>
<td>Word</td>
<td>Category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>tén</em> (emphatically stressed)</td>
<td>aspirated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>tén</em> (normal stress)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>retorno</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>tomato</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>latter</em></td>
<td>unaspirated 1 (other allophones also possible in free variation – see below)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>sit</em></td>
<td>unaspirated 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>stand</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Certain processes only apply across (certain) morphological boundaries:

a. **Velar Softening** (but cf. e.g. *king*)
   - electric
   - critic
   - mystic
   - legal
   - Magus

b. **Spirantisation** (but cf. e.g. *tea*, *deem*)
   - pirate
   - president
   - permit
   - conclude
   - corrode
   - deride
   - comprehend

Also cf. e.g. *kicking*, *betting*
Lexical rules: within words only
Post-lexical rules: within words and across word boundaries in the same way

The domain of application of lexical rules is the word, that of post-lexical rules is the utterance (a stretch of language between two pauses).

Post-lexical rules are insensitive to morphological and syntactic boundaries.
Hungarian voicing assimilation?
L-darkening?
R-dropping?
Aspiration?
Tapping/flapping?
English palatalisation
English palatalisation

Within words

- **sensual**: sens + juəl → 'sensjuəl
- **sexual**: seks + juəl → 'seksjuəl
- **gradual**: græd + juəl → 'grædzjuəl
- **ritual**: rit + juəl → 'ritjuəl

Cf. sense
Cf. sex
Cf. grade
Cf. rite
English palatalisation

Across words

hit you  hit ju:  Or:  hitʃu:
lead you  liːd juː  Or:  liːdʒuː:
this year  ðɪs jɪə  Or:  ðɪʃɪə
praise you  praiз juː  Or:  praiʒuː
English palatalisation

That is, palatalisation in English is optional as a post-lexical process, but obligatory as a lexical one.
## Rule ordering

<table>
<thead>
<tr>
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<td>particular</td>
</tr>
<tr>
<td>bears</td>
<td>rarely</td>
<td>bear</td>
</tr>
<tr>
<td>Plain-Tense</td>
<td>Broken-Tense</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>bead [iː]</td>
<td>beard [ɪə]</td>
<td></td>
</tr>
<tr>
<td>tea [iː]</td>
<td>tear (n) [ɪə]</td>
<td></td>
</tr>
<tr>
<td>cohesion [iː]</td>
<td>adherence [ɪə]</td>
<td></td>
</tr>
<tr>
<td>cute [juː]</td>
<td>curious [juə]</td>
<td></td>
</tr>
<tr>
<td>futile [juː]</td>
<td>furious [juə]</td>
<td></td>
</tr>
<tr>
<td>unity [juː]</td>
<td>Europe [juə]</td>
<td></td>
</tr>
<tr>
<td>baby [eɪ]</td>
<td>bare [eə]</td>
<td></td>
</tr>
<tr>
<td>staple [eɪ]</td>
<td>staring [eə]</td>
<td></td>
</tr>
<tr>
<td>Rumanian [eɪ]</td>
<td>Hungarian [eə]</td>
<td></td>
</tr>
<tr>
<td>stone [əu]</td>
<td>story [ɔː]</td>
<td></td>
</tr>
<tr>
<td>cloakroom [əu]</td>
<td>roaring [ɔː]</td>
<td></td>
</tr>
<tr>
<td>broken [əu]</td>
<td>glorious [ɔː]</td>
<td></td>
</tr>
</tbody>
</table>
Btw, is Breaking lexical or post-lexical?
(Broadening)

<table>
<thead>
<tr>
<th>Plain-Lax</th>
<th>Broad-Lax</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>cat</em> [æ]</td>
<td><em>car</em> [ɑː]</td>
</tr>
<tr>
<td><em>fan</em> [æ]</td>
<td><em>far</em> [ɑː]</td>
</tr>
<tr>
<td><em>bad</em> [æ]</td>
<td><em>bar</em> [ɑː]</td>
</tr>
<tr>
<td><em>fond</em> [ɒ]</td>
<td><em>for</em> [ɔː]²</td>
</tr>
<tr>
<td><em>bond</em> [ɒ]</td>
<td><em>abort</em> [ɔː]²</td>
</tr>
<tr>
<td><em>clock</em> [ɒ]</td>
<td><em>lord</em> [ɔː]²</td>
</tr>
<tr>
<td><em>stem</em> [ɛ]</td>
<td><em>stern</em> [ɔː]</td>
</tr>
<tr>
<td><em>send</em> [ɛ]</td>
<td><em>serve</em> [ɔː]</td>
</tr>
<tr>
<td><em>head</em> [ɛ]</td>
<td><em>heard</em> [ɔː]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plain-Lax</th>
<th>Broad-Lax</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>fit</em> [ɪ]</td>
<td><em>firm</em> [ɜː]</td>
</tr>
<tr>
<td><em>bingo</em> [ɪ]</td>
<td><em>bird</em> [ɜː]</td>
</tr>
<tr>
<td><em>stick</em> [ɪ]</td>
<td><em>stir</em> [ɜː]</td>
</tr>
<tr>
<td><em>hut</em> [ʌ]</td>
<td><em>hurt</em> [ɜː]</td>
</tr>
<tr>
<td><em>cutlery</em> [ʌ]</td>
<td><em>curl</em> [ɜː]</td>
</tr>
<tr>
<td><em>spun</em> [ʌ]</td>
<td><em>spur</em> [ɜː]</td>
</tr>
<tr>
<td><em>put</em> [ʊ]</td>
<td><em>purr</em> [ɜː]</td>
</tr>
<tr>
<td><em>bush</em> [ʊ]</td>
<td><em>burst</em> [ɜː]</td>
</tr>
<tr>
<td><em>buffet</em> [ʊ]</td>
<td><em>burp</em> [ɜː]</td>
</tr>
</tbody>
</table>
(Broadening)

Is Broadening lexical or post-lexical?
<table>
<thead>
<tr>
<th>syllable-final</th>
<th>followed by productive suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>occur</em></td>
<td>/əˈk3ː(r)/</td>
</tr>
<tr>
<td><em>blur</em></td>
<td>/bl3ː(r)/</td>
</tr>
<tr>
<td><em>refer</em></td>
<td>/rɪˈf3ː(r)/</td>
</tr>
<tr>
<td><em>fur</em></td>
<td>/f3ː(r)/</td>
</tr>
<tr>
<td><em>bar</em></td>
<td>/baː(r)/</td>
</tr>
<tr>
<td><em>star</em></td>
<td>/staː(r)/</td>
</tr>
</tbody>
</table>
(Broadening)

<table>
<thead>
<tr>
<th>syllable-final</th>
<th>followed by non-productive suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>occur</td>
<td>/əˈkɜː(r)/</td>
</tr>
<tr>
<td>bar</td>
<td>/bɑː(r)/</td>
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<tr>
<td>err</td>
<td>/ɜː(r)/</td>
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<tr>
<td>clergy</td>
<td>/ˈklɜːdʒi/</td>
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Rule ordering
## Rule ordering

(3)

<table>
<thead>
<tr>
<th>Vowel phoneme</th>
<th>Fully long</th>
<th>Shortened</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i:/</td>
<td>[i:] be, been, easy, bead, siege, feel</td>
<td>[i] beat, week, piece, beat, teach</td>
</tr>
<tr>
<td>/au/</td>
<td>[a:u] now, town, round, house (v), loud</td>
<td>[au] out, mouse, counting, house (n)</td>
</tr>
</tbody>
</table>

(4)

**T-Voicing and T/D-tapping/flapping**

\[
t \rightarrow d \rightarrow r \\

\[
d \rightarrow r
\]

e.g. *matter*, *butterfly*, *nobody*, *little*

but *militate* *

*right away, not a jôke, get úp*
Figure 1
Mean durations of vowels preceding flaps from underlying /t/ and /d/.

6

Syllable structure and phonotactics
phonotactics
Twas brillig, and the slithy toves;
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

"Beware the Jabberwock, my son!
The jaws that bite, the claws that catch;
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"

He took his vorpal sword in hand:
Long time the manxome foe he sought—
So rested he by the Tumtum tree,
And stood awhile in thought.

And, as in uffish thought he stood,
The Jabberwock, with eyes of flame,
Came whiffling through the tulgey wood,
And burbled as it came!

One, two! One, two! And through and through
The vorpal blade smote snicker-snap!
He left it dead, and with its head
He went galumphing back.

"And hast thou slain the Jabberwock?
Come to my arms, my beamish boy!
O frabjous day! Callooh! Callay!"
He.chortled in his joy.

'Twas brillig, and the slithy toves;
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

"It seems very pretty," she said when she had finished it, "but it's rather hard to understand!" (You see she didn't like to confess, even to herself, that she couldn't make it out at all.) "Somehow it seems to fill my head with ideas – only I don't exactly know what they are! However, somebody killed something: that's clear, at any rate—"

"But oh!" thought Alice, suddenly jumping up, "if I don't make
Cross-linguistic observations
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Consonant-only languages (e.g., German, Czech)
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Consonant-only languages (e.g., German, Czech)
Vowel-only languages??
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Consonant-only languages (e.g., German, Czech)
Vowel-only languages??
End of the word
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Consonant-only languages (e.g., German, Czech)
Vowel-only languages??
End of the world :-(
Cross-linguistic observations

Beginning of the word: consonant/vowel?

Consonant-only languages (e.g., German, Czech)

Vowel-only languages??

End of the word: consonant/vowel?
Cross-linguistic observations

Beginning of the word: consonant/vowel?

Consonant-only languages (e.g., German, Czech)

Vowel-only languages??

End of the word: consonant/vowel?

Vowel-only languages (e.g., Italian)
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Consonant-only languages (e.g., German, Czech)
Vowel-only languages??
End of the word: consonant/vowel?
Vowel-only languages (e.g., Italian)
Consonant-only languages??
Cross-linguistic observations

Beginning of the word: consonant/vowel?
Consonant-only languages (e.g., German, Czech)
Vowel-only languages??
End of the word: consonant/vowel?
Vowel-only languages (e.g., Italian)
Consonant-only languages??
Mirror-image situation!
Cross-linguistic observations

Consonant clusters at word edges
Cross-linguistic observations

Consonant clusters at word edges:
Similar mirror-image situation
English vowel length and phonotactics
English vowel length and phonotactics

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<td>*fiː</td>
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<td>push</td>
<td>*pʊ</td>
<td>*tuː</td>
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<td>set</td>
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<td>*skɛːs</td>
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<td>læk</td>
<td>*læɛ</td>
<td>*skæːs</td>
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<td>lev</td>
<td>*lɛ</td>
<td>*fɜːm</td>
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<td>cod</td>
<td>kod</td>
<td>*kɒ</td>
<td>*fɑːm</td>
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Open vs. closed syllable
English vowel length and phonotactics

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<tr>
<td>house</td>
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<td>made</td>
<td>meɪd</td>
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<td>tɔɪl</td>
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<td>təʊd</td>
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<td>pierce</td>
<td>ˈpaɪs</td>
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<tr>
<td>cured</td>
<td>ˈkjuːd</td>
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<tr>
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<td>saɪ</td>
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<td>how</td>
<td>hau</td>
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<td>meɪ</td>
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<td>toy</td>
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<td>toe</td>
<td>təʊ</td>
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<tr>
<td>peer</td>
<td>ˈpaɪr</td>
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<tr>
<td>cure</td>
<td>ˈkjuə</td>
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English vowel length and phonotactics

In English, the vowel of a stressed open ult may not be short.
Stress placement in English nouns
### Stress placement in English nouns

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<tr>
<td>'teɪ.bɛl</td>
<td>'ɛɹə.mə</td>
<td>'ɛmə.rɪ.kə</td>
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<tr>
<td>'sɜɪ.vɛr</td>
<td>'teɪ.mə.təv</td>
<td>'sɪ.nə.mə</td>
</tr>
<tr>
<td>'faɪ.nəns</td>
<td>'hɛrə.zən</td>
<td>'kæ.ˈpɪ.təl</td>
</tr>
<tr>
<td>'wɛ.ðə</td>
<td>'pəˈtɛr.təv</td>
<td>'eɪ.ˈbre.hæm</td>
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<tr>
<td>'sɪ.tɪ:</td>
<td>'vəˈræn.də</td>
<td>'dɪ.ˈsɪ.plɪn</td>
</tr>
<tr>
<td>'hæ.ˈbit</td>
<td>'juə.tɛn.səl</td>
<td>'rɛ.ˈmə.diː</td>
</tr>
</tbody>
</table>
Stress placement in English nouns

\[ V_1 = V_1V_2 = VC \]
Stress placement in English nouns

The stress placement procedure in English nouns

a) Start scanning the noun from the end. Neglect the ult (because the ult of nouns is not stressable).

b) Check the penult. If it ends a (i) long monophthong, or (ii) diphthong, or (iii) a short vowel plus a consonant, stress it.

c) If the penult ends in a short vowel, stress the antepenult.
Conclusions

(a) The stressed ult of an English word must be either (i) an open syllable containing a long monophthong or a diphthong, or (ii) a closed syllable. It may not be an open syllable with a short vowel.

(b) The penult of English nouns is stressed if it is either (i) an open syllable containing a long monophthong or a diphthong, or (ii) a closed syllable. It is not stressed if it is an open syllable with a short vowel.
(8)

Short monophthong: \[ V_1 \varepsilon \]

Long monophthong: \[ \begin{array}{cc} V_1 & V_2 \\ \varepsilon & \varepsilon \end{array} \]

Diphthong: \[ \begin{array}{cc} V_1 & V_2 \\ a & i \end{array} \]

Short monophthong + C: \[ \begin{array}{cc} V & C \\ \varepsilon & n \end{array} \]
The rhyme

| Short monophthong: | V  |
|                  | ε  |

| Long monophthong: | V₁ | V₂ |
|                  | ε  | ε  |

| Diphthong:        | V₁ | V₂ |
|                  | a  | i  |

| VC sequence:      | V  | C  |
|                  | ε  | n  |
The penult of English nouns is stressed if its rhyme contains what is equal to at least two short segments. If not, the antepenult is stressed.

Heavy vs. light rhyme
The stress placement procedure in English nouns

   (d) Start scanning the noun from the end. Neglect the ult: it’s not stressable.
         (e) Check the penult. If it is heavy, stress it.
         (f) If the penult is light, stress the antepenult.
The stressed ult of an English word must be heavy.
Timing, timing slots, timing tier (vs. melodic tier)
Heavy/light syllable/rhyme, open/closed syllable
(a) N
   | X
   | ε

(b) N
   | X
   | X
   | ε

(c) N   N
       | X
       | ε
(a) \[ N \]
\[ X \]
\[ \varepsilon \]

(b) \[ N \]
\[ X \]
\[ X \]
\[ \varepsilon \]

(c) \[ N \]
\[ N \]
\[ X \]
\[ X \]
\[ \varepsilon \]

hiatus
Affricates?
Affricates?
Hungarian

<table>
<thead>
<tr>
<th>standard</th>
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<tbody>
<tr>
<td>volt</td>
<td>vo:t</td>
</tr>
<tr>
<td>bolt</td>
<td>bo:t</td>
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<td>hold</td>
<td>ho:d</td>
</tr>
<tr>
<td>zőld</td>
<td>ző:d</td>
</tr>
<tr>
<td>alfőld</td>
<td>a:fő:d</td>
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## Hungarian

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<td>ző:d</td>
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<tr>
<td>alföld</td>
<td>a:fő:d</td>
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**Compensatory Lengthening**
Possible associations between timing and melody
Autosegmentalism
Autosegmentalism

Liaison = linking

French:

Ex. 1: liaison

<table>
<thead>
<tr>
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<th>English</th>
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<tr>
<td>les</td>
<td>les amis</td>
</tr>
<tr>
<td>les enfants</td>
<td>the children</td>
</tr>
<tr>
<td>grand</td>
<td>grand homme</td>
</tr>
<tr>
<td>tout</td>
<td>tout homme</td>
</tr>
<tr>
<td>faux</td>
<td>faux amis</td>
</tr>
<tr>
<td></td>
<td>'the friends'</td>
</tr>
<tr>
<td></td>
<td>'the children'</td>
</tr>
<tr>
<td></td>
<td>'great man'</td>
</tr>
<tr>
<td></td>
<td>'every man'</td>
</tr>
<tr>
<td></td>
<td>'false friends'</td>
</tr>
</tbody>
</table>

(non-rhotic) English:

English: car is
more ice
Sir Allen
The English onset
The English onset

any English consonant can begin a word if immediately followed by a vowel, e.g., bin, pin, zeal, sit, have, key, node, ray, yet, way, etc.

one exception: the velar nasal, which never occurs in initial position
The English onset

<table>
<thead>
<tr>
<th></th>
<th>sp</th>
<th>st</th>
<th>sk</th>
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<tr>
<td>r</td>
<td>spray sprei</td>
<td>strand strænd</td>
<td>scribe skraɪb</td>
</tr>
<tr>
<td>l</td>
<td>split split</td>
<td>—</td>
<td>sclaff sklæf</td>
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<tr>
<td>j</td>
<td>spew spjuː</td>
<td>stew stjuː</td>
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<td>scribe skraɪb</td>
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<td>stew stjuː</td>
<td>skew skjuː</td>
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<td>w</td>
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The English onset

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<td>w</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
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</table>

/crw-l/: accidental gap
The English onset

2-member onsets
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<td></td>
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<td>shrain</td>
<td>ſlep</td>
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</table>
Generalisations
Generalisations

Sonority, sonority scale

plosives < fricatives < nasals < liquids < glides < vowels
Generalisations

Sonority, sonority scale
Sonority Sequencing Principle (SSP)

plosives < fricatives < nasals < liquids < glides < vowels
Generalisations

Sonority, sonority scale
Sonority Sequencing Principle (SSP)
Ban on homorganic clusters
SC clusters
1) Observe that ST clusters — i.e., sp, st, sk — contradict the SSP: each has a falling sonority profile: 21. No other initial cluster does. Note also that no other fricative can stand before a T initially, so there is no word-initial *ft, fk, fp, θp, θk, etc. Therefore, all other fricatives are perfectly well-behaved with regard to the SSP: we find ST clusters but no FT clusters initially.

2) Only S is possible as the first member of the cluster if the second one is a nasal consononant, so that SN is fine, but FN or TN isn’t. It seems, then, that nasals in general cannot function as the second member of an initial cluster; again, the “bad guys” here are s and ŋ.

3) As mentioned above, SC sequences can be homorganic ones: sl/sn/st (alveolars) and ŋr (both palato-alveolar). No other initial cluster can be homorganic.

4) In three-member initial clusters, the first C is always s, followed by a well-formed combination of the TR type. There is no 3-member initial cluster of any other type.
SC clusters

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They are NOT onsets!
(29) English Onsets
a) Any single C save η can function as an Onset.
b) The maximum number of consonants in an Onset is 2. In a 2-member Onset, the following conditions hold:
   i) The cluster exhibits a rising sonority profile.
   ii) The second member of the Onset is an approximant.
   iii) The Onset cluster is not homorganic.

(30) Possible English 2-member Onsets
\begin{align*}
\text{pr} & \quad \text{pl} & \quad \text{pj} & \quad \text{tw} & \quad \text{tr} & \quad \text{tj} & \quad \text{kw} & \quad \text{kr} & \quad \text{kl} & \quad \text{kj} \\
\text{br} & \quad \text{bl} & \quad \text{bj} & \quad \text{dw} & \quad \text{dr} & \quad \text{dj} & \quad \text{gw} & \quad \text{gr} & \quad \text{gl} & \quad \text{gj} \\
\text{fr} & \quad \text{fl} & \quad \text{fj} & \quad \text{θr} & \quad (\text{θj}) & \quad \text{sw} & \quad (\text{sj}) & \quad (\text{lj}) & \quad \text{mj} & \quad \text{nj} \\
(\text{vr}) & \quad (\text{vl}) & \quad \text{vj} & \quad (\text{zj}) & & & & & & \\
\end{align*}
(29) English Onsets

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b) The maximum number of consonants in an Onset is 2. In a 2-member Onset, the following conditions hold:
   i) The cluster exhibits a rising sonority profile.
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\text{br} & \quad \text{bl} & \quad \text{bj} & \quad \text{dw} & \quad \text{dr} & \quad \text{dj} & \quad \text{gw} & \quad \text{gr} & \quad \text{gl} & \quad \text{gj} \\
\text{fr} & \quad \text{fl} & \quad \text{fj} & \quad \theta r & \quad (\theta j) & \quad \text{sw} & \quad (s j) & \quad (l j) & \quad \text{mj} & \quad \text{n j} \\
(v r) & \quad (v l) & \quad v j & \quad \theta r & \quad (\theta j) & \quad (s j) & \quad (l j) & \quad (m j) & \quad (n j)
\end{align*}
The nucleus

Simplex or complex

Complex nuclei in open syllables only

Syllabic consonants
Binarity
Binarity

Each syllabic constituent may dominate a maximum of two timing positions
Binarity

Each syllabic constituent may dominate a maximum of two timing positions
Binarity

Each syllabic constituent may dominate a maximum of two timing positions
Binarity

Each syllabic constituent may dominate a maximum of two timing positions.

The nucleus is obligatory: it must dominate a minimum of one X.
Binarity

Each syllabic constituent may dominate a maximum of two timing positions.

The nucleus is obligatory: it must dominate a minimum of one X.

The coda may dominate a maximum of one X.
Binarity

(a) \( \sigma \)

\[
\begin{array}{c}
\text{R} \\
\text{N} \\
\text{X X}
\end{array}
\]

(b) \( \sigma \)

\[
\begin{array}{c}
\text{R} \\
\text{N} \\
\text{C} \\
\text{X X}
\end{array}
\]
Superheavy rhymes?
(37) Superheavy (VVC) Rhymes

(i) In ults (= VVC(C)#)
   (a) pain(t), fin(d), bol(t) (ɔu), fiel(d), laun(ch) (ɔː), chan(ge), oun(ce) (au)
   (b) eas(t), pos(t) (əu), pas(te) (ɛt), boos(t), ous(t) (au), etc.
   (c) (In RP only, all with ɑː — GenAm has short æ): las(t), draf(t), tas(k), gras(p), etc.

(ii) In non-ults (= VVC.C)
   (a) saunter (ɔː), laun.dry (ɔː), poul.try (əu), shoul.der (əu), an.cient (n.ʃ!), coun.cil,
       dan.ger (n.dʒ!)
   (b) eas.ter, oys.ter, pas.try (ɛt), roos.ter, etc.
   (c) (In RP only, all with ɑː — GenAm has short æ): mas.ter, laugh.ter, bas.ket,
       exam.ple, etc.
Superheavy rhymes?

A long Nucleus is possible in a closed syllable if it is followed by:

a homorganic coronal cluster consisting of a sonorant and an obstruent, or

/st/
Syllabification
Syllabification

=/= word division in spelling!
Syllabification

Of intervocalic consonants: animal
Syllabification

Of intervocalic consonants: *animal*

Onset Maximisation Principle
Syllabification

Of intervocalic consonants: *animal*

Onset Maximisation Principle: *agenda, algebra; attractive vs. Atlantic*
Syllabification: problems

athlete, lovely, Bentley
Syllabification: problems

athlete, lovely, Bentley: bogus clusters

Empty nucleus: nucleus present structurally, but not phonetically
Typology of consonant clusters
Typology of consonant clusters

Onset clusters
Typology of consonant clusters

Onset clusters: TR, rising sonority profile, homorganicity ban, found initially and medially (but marked finally – cf. French), usually represented as branching onset
Typology of consonant clusters

Onset clusters: TR, rising sonority profile, homorganicity ban, found initially and medially (but marked finally – cf. French), usually represented as branching onset

Coda-onset clusters
Typology of consonant clusters

Onset clusters: TR, rising sonority profile, homorganicity ban, found initially and medially (but marked finally – cf. French), usually represented as branching onset.

Coda-onset clusters: RT, falling sonority profile, typically homorganic (least marked: ND – the universally least marked cluster!), found medially and finally (but marked initially – cf. SC – Magic Licensing), usually represented as heterosyllabic sequence.
Typology of consonant clusters

Onset clusters: TR, rising sonority profile, homorganicity ban, found initially and medially (but marked finally – cf. French), usually represented as branching onset.

Coda-onset clusters: RT, falling sonority profile, typically homorganic (least marked: ND – the universally least marked cluster!), found medially and finally (but marked initially – cf. SC – Magic Licensing), usually represented as heterosyllabic sequence.

Implication: onset cluster > coda-onset cl.
Typology of consonant clusters

Onset clusters
Coda-onset clusters
Typology of consonant clusters

Onset clusters

Coda-onset clusters

Bogus clusters: found medially only, traditionally not distinguished from coda-onset clusters, in models operating with empty positions: CVC with no
Syllabification: problems

Of course, nuclei are preferably filled
(43) The phonological Empty Category Principle
A Nucleus may remain empty if
(a) it dominates only one X position,
(b) it is unstressed,
(c) it is separated from the following Nucleus by a single consonant,
(d) the following Nucleus is not empty,
(e) the Onset before the empty Nucleus is simplex (it dominates one X).
Syllabification: problems

Back to problematic onsets: stay?
Syllabification: problems

Back to problematic onsets: stay?

\[
\begin{array}{cccccc}
\sigma & | & R & | & N & | X \\
| & | & | & | & | \\
| & | & | & | & | \\
C & | & O & | & X & | X \\
| & | & | & | & | \\
| & | & | & | & | \\
\sigma & | & R & | & N & | \\
\end{array}
\]
Syllabification: problems

\[
\begin{align*}
\sigma & \quad R \\
O & \quad N \\
X & \quad X \\
\varepsilon & \\
\sigma & \quad R \\
O & \quad N \\
X & \quad X \\
\sigma & \quad R \\
O & \quad N \\
X & \quad X \\
X & \quad X \\
\end{align*}
\]
Syllabification: problems

A simplex Nucleus may remain empty when followed by a Coda S (S = s/ʃ).
Syllabification: problems

athlete, lovely, Bentley
stay
extra
Syllabification: problems

athlete, lovely, Bentley
stay
extra
word-final consonants
Word-final consonants

Do not behave like codas (stress, superheavy rhymes)…

+ Any cluster which is found word-finally is also possible inside the word!

Fact, lent, belt, since… versus
Factor, plenty, filter, cancer…
Word-final consonants

Verb stress

(a) delay  
    allow  
    maintain  
    insist  
    protect

(b) answer  
    discover  
    deliver

(c) edit  
    polish  
    cancel  
    abandon

\[\begin{array}{llll}
di'leɪ & 'ə.laʊ & 'mɛn'tɛrn & 'ɪnsɪst \\
drə'vɛkt & 'a.n.sə & di'skɑr.ə & ɪn'sɪst \\
di'li.və & 'pɑ.lɪʃ & 'kæn.səl & ə'bæn.dən
\end{array}\]
Word-final consonants are NOT codas (do NOT make their syllables heavy/closed)
Word-final consonants

are NOT codas (do NOT make their syllables heavy/closed)

Instead: they are onsets
Word-final consonants

are NOT codas (do NOT make their syllables heavy/closed)
Instead: they are onsets
There are no onsets without nuclei :-)}
Word-final consonants

are NOT codas (do NOT make their syllables heavy/closed)

Instead: they are onsets

There are no onsets without nuclei :-) 

Words end in Final Empty Nuclei (FEN)
The ECP
The ECP

(51) The phonological Empty Category Principle
A Nucleus may remain empty if
(a) it dominates only one X position,
(b) it is unstressed,
(c) it is separated from the following Nucleus by a single consonant,
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The ECP

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(d) the following Nucleus is not empty,
(e) the Onset before the empty Nucleus is simplex (it dominates one X).

(52) A simplex Nucleus may remain empty when followed by a Coda $S$ ($S = s/\emptyset$).
The ECP

(51) The phonological Empty Category Principle
A Nucleus may remain empty if
   (a) it dominates only one X position,
   (b) it is unstressed,
   (c) it is separated from the following Nucleus by a single consonant,
   (d) the following Nucleus is not empty,
   (e) the Onset before the empty Nucleus is simplex (it dominates one X).

(52) A simplex Nucleus may remain empty when followed by a Coda S (S = sʃ).

(53) A simplex Nucleus may remain empty if it is word-final.
Non-rhoticity
Non-rhoticity

An r must be supported by a following filled Nucleus.
Non-rhoticity

An \textit{r} must be supported by a following filled Nucleus.
Non-rhoticity

An r must be supported by a following filled Nucleus.
# Hiatus breaking

<table>
<thead>
<tr>
<th>English:</th>
<th>/j/</th>
<th>/w/</th>
</tr>
</thead>
<tbody>
<tr>
<td>ski_ing</td>
<td>Woody_Allen</td>
<td>so_exciting</td>
</tr>
<tr>
<td>tea_and</td>
<td>very_old</td>
<td>allow_ing</td>
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<tr>
<td>see_us</td>
<td>many_eyes</td>
<td>Jew_ish</td>
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<tr>
<td></td>
<td></td>
<td>too_old</td>
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<td></td>
<td></td>
<td>go_away</td>
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<tr>
<td></td>
<td></td>
<td>New_England</td>
</tr>
</tbody>
</table>

**Hungarian:** /j/

- hi[j]átus
- di[j]ó
- te[j]a
- Józsi[j]é

„Hány j-vel írják, hogy Siófok?” :-)

20 milliJó!
Practice
Practice

slow
Practice

slow

\[ \sigma \]

\[ R \]

\[ N \quad C \]

\[ X \quad X \quad X \]

\[ s \quad l \quad \sigma \quad u \]
Practice

swine
Practice

swine
Practice

sprint
Practice

sprint

\[
\begin{array}{c}
\sigma \\
R \\
N \\
X \\
| \\
s \\
\end{array}
\quad
\begin{array}{c}
\sigma \\
R \\
O \\
X \\
| \\
s \\
\end{array}
\quad
\begin{array}{c}
\sigma \\
R \\
N \\
X \\
| \\
s \\
\end{array}
\]
Practice

Lea
Practice

Lea

\[
\begin{array}{c}
\sigma \\
R \\
O \\
X \\
i \\
\end{array} \\
\begin{array}{c}
\sigma \\
R \\
O \\
X \\
e \\
\end{array}
\]
Practice

source
Practice

source

\[
\sigma \quad \sigma
\]

\[
\begin{array}{c}
O \\
R \\
N \\
X \\
X \\
X \\
X \\
X \\
X \\
X \\
X
\end{array}
\]
Practice

an act
Practice

an act
Practice

one act
Practice

one act
English Phonology and Morphology

- the last bits -
The two final topics

stress
The two final topics

stress: (Kristó Ch.7; on Wednesday)
The two final topics

stress: (Kristó Ch.7; on Wednesday)

Words and meanings (Kristó "Ch.8"): the nature of lexical storage in the mind
Arbitrariness
Arbitrariness

Saussure

Pinker (1994): the sound string *dog* does not resemble the animal it denotes: it does not have four legs, it isn’t furry, it doesn’t bark or wag its tail, and so on. The sole reason why English speakers think of *Canis familiaris* when hearing the string *dog* is that in their childhood, they learnt to associate the concept with that string
Arbitrariness

Saussure

Pinker (1994): the sound string *dog*

different languages have different signs for the same concept
Arbitrariness

Saussure

Pinker (1994): the sound string *dog*

different languages have different signs for the same concept

the denoted concepts are conventional, too: *asztal, get*
Arbitrariness

Saussure

Pinker (1994): the sound string *dog*

different languages have different signs for the same concept

the denoted concepts are conventional, too: *asztal, get*

Signs: symbols
Arbitrariness

Saussure

Pinker (1994): the sound string *dog*

different languages have different signs for the same concept

the denoted concepts are conventional, too: *asztal, get*

Signs: symbols and icons: *catlike*
Arbitrariness

Saussure

Pinker (1994): the sound string *dog*

different languages have different signs for the same concept

the denoted concepts are conventional, too: *asztal, get*

Signs: symbols and icons: *catlike* – polymorphemic, semantically transparent
Transparent vs. opaque

Dog vs. catlike
Transparent vs. opaque

Dog vs. catlike

Curiosity: I entered a shop which turned out to be full of old curiosities
Transparent vs. opaque

Dog vs. catlike

Curiosity : I entered a shop which turned out to be full of old curiosities

Personalness vs. personality
Transparent vs. opaque

Dog vs. catlike

Curiosity: I entered a shop which turned out to be full of old curiosities

Personalness vs. personality

Hu. *macskaszerű* 'catlike' vs. *népszerű* 'popular'

Opaque polymorphemic words
+ meaningless morphemes
+ meaningless morphemes

"huckles and ceives"
+ meaningless morphemes

"huckles and ceives"

Hu. kérd-ez 'ask', folt-oz 'patch', etc. vs. üld-öz 'chase'
Words
Words

Radford et al. (1999:146):

Of all linguistic constructs, the word is probably closest to familiar physical objects, but, as the history of physical science has shown, beneath these everyday objects lies a world (...) which is organised in ways which few of us can readily understand.
Words

Radford et al. (1999:146):

Of all linguistic constructs, the word is probably closest to familiar physical objects, but, as the history of physical science has shown, beneath these everyday objects lies a world (...) which is organised in ways which few of us can readily understand.

our intuitive, everyday notion of the word corresponds to several linguistically significant entities
Words

the orthographical word
Words

the orthographical word

word forms
Words

the orthographical word

word forms

lexeme
Words

the orthographical word
word forms
lexeme
paradigm
Words

the orthographical word
word forms
lexeme
paradigm
grammatical words
(a) The children always buy chocolate in Mr Evans’ shop.
(b) Jane often buys books on early English history.
(c) I bought a new watch yesterday.
(d) Mother was buying some fruits when it started to rain.
Words

(a) I usually cut the bread on the table.
(b) Yesterday I cut the bread in the sink.
(c) The boy has cut his finger and it’s bleeding badly.

(a) I usually drink coffee in the morning.
(b) Jake often drank milk when he was a boy.
(c) I think you have drunk too much, let’s go home.
Words

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Words

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(b) Yesterday I cut the bread in the sink.
(c) The boy has cut his finger and it’s bleeding badly.

**syncretism**

(a) I usually drink coffee in the morning.
(b) Jake often drank milk when he was a boy.
(c) I think you have drunk too much, let’s go home.
Inflection vs. word-formation
Sources of words
Sources of words

lexicon: storage (and retrieval)
Sources of words

lexicon: storage

no ready-made item is available?
Sources of words

lexicon: storage

no ready-made item is available? - nonce forms
Sources of words

lexicon: storage

no ready-made item is available? - nonce forms

My son adores Tarzanlike heroes
Sources of words

lexicon: storage

no ready-made item is available? - nonce forms

My son adores Tarzanlike heroes

Oh, my son loves Jabbalike ones
Sources of words

lexicon: storage

no ready-made item is available? - nonce forms

My son adores Tarzanlike heroes

Oh, my son loves Jabbalike ones

$$[[X]_N \text{ like}]_{\text{Adj}} = \text{‘looking like X’}$$

English speakers can form an adjective from a noun X using the suffix –like, and the meaning of Xlike is ‘looking like X’.
Sources of words

**lexicon**: storage

no ready-made item is available? - nonce forms

*My son adores Tarzanlike heroes*

*Oh, my son loves Jabbalike ones*

\[ [[X]_N \ like]_{Adj} = \text{‘looking like X’} \]

English speakers can form an adjective from a noun \( X \) using the suffix \(-like\), and the meaning of \( X\text{like} \) is ‘looking like \( X \’.

(online) **word-formation** (grammar)
Listing and arbitrariness
Listing and arbitrariness

classical Generative Grammar: "minimize storage, maximize mileage": the lexicon is the storehouse of arbitrary information, and the rest — whatever is predictable — is provided by the grammar (the phonology, the morphology, and the syntax)
Listing and arbitrariness

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recent psycholinguistic research: the memory can easily cope with a much larger amount of stored information than assumed before
Listing and arbitrariness

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recent psycholinguistic research: the memory can easily cope with a much larger amount of stored information than assumed before

plus: lexicalisation
Lexicalisation
Lexicalisation

a form is lexicalised if it could not be produced by the application of regular morphological processes
Lexicalisation

a form is lexicalised if it could not be produced by the application of regular morphological processes

how do lexicalised forms arise? (i.e., how do originally transparent forms get lexicalised?)
Lexicalisation

a form is lexicalised if it could not be produced by the application of regular morphological processes

how do lexicalised forms arise? (i.e., how do originally transparent forms get lexicalised?)

compounds and derived words which were at some point transparent can lose their transparency and become arbitrary signs (*cupboard, playwright, Hu. egyház; building, Hu. tojás*)
Lexicalisation

why?
Lexicalisation

why?

consequence of the arbitrariness of the linguistic sign
Lexicalisation

why?

consequence of the arbitrariness of the linguistic sign: If the relationship between form and meaning is a matter of mere convention, there is no reason why this relationship ought to be constant — in other words, arbitrariness implies the possibility of change, either in the form, — or the meaning. It is arbitrariness that sanctions linguistic change.
Lexicalisation

why?

consequence of the arbitrariness of the linguistic sign

Once listed, words “pERSIST and change”
Lexicalisation

why?

consequence of the arbitrariness of the linguistic sign

Once listed, words “persist and change”

but then: why do non-arbitrary items change (i.e., become lexicalised)? are only arbitrary items listed?
Lexicalisation

why?

consequence of the arbitrariness of the linguistic sign

Once listed, words “persist and change”

but then: why do non-arbitrary items change (i.e., become lexicalised)? are only arbitrary items listed?

non-arbitrary (regular) forms need not be listed: if something is listed, it will sooner or later become lexicalised, no matter if it’s arbitrary or not at the point when it’s listed.
Lexicalisation

But what is, then, listed, from the set of non-arbitrary forms?
Lexicalisation

But what is, then, listed, from the set of non-arbitrary forms? memory and the role of frequency
Lexicalisation

But what is, then, listed, from the set of non-arbitrary forms?

memory and the role of frequency

cf. irregular inflection
Lexicalisation

But what is, then, listed, from the set of non-arbitrary forms?
memory and the role of frequency
cf. irregular inflection
what are the ten most frequent verbs in English?
Lexicalisation

But what is, then, listed, from the set of non-arbitrary forms?

memory and the role of frequency

cf. irregular inflection

what are the ten most frequent verbs in English?

the “top ten” (with decreasing frequency): be, have, do, say, make, go, take, come, see, get
Sources of words - summary

LEXICON

Conventional words
Irregular inflection

MORPHOLOGY

Nonce words
Regular inflection
Phonology – morphology interface in English
éducate – éducating – éducation
adápt – adapted – àadaptation
diagnose – diagnoses – diagnostíc
jóurnal – jórnalist – jórnalése
áutumn – áutumn-like – autúmna
(a) inexcusable, ineligible, inoperative
(b) inflammable, intrepid, insouciant
(c) impossible, implicit, imbued
(d) illegal, irregular, irresponsible
(e) innocuous, immaterial, immature
unnerved, unnecessary, unnatural
English morphology

(a) **Root-level morphology:**
    Affixation: \(<\text{in-}, \text{-ity}, \text{-ic}, \text{-al}, \text{-ory}, \text{-ate}, \text{-ion}, \text{-ant}, \text{-th}, \ldots>\>
    `Strong' verbs/nouns: \(<\text{blew, brought, sang, feet, mice, \ldots}>\>

(b) **Word-level morphology:**
    Affixation: \(<\text{un-}, \text{-ed}, -(e)s, \text{-ing}, \text{-ness}, \text{-ly}, \text{-ful}, \text{-ship}, \text{-hood}, \text{-ment}, \ldots>\>
    Compounds, e.g. \(<\text{cart horse, seagull, blackboard, \ldots}>\>
(a) nation-al-ity
(b) nation-al-s
(c) nation-hood-s
(d) *nation-hood-al, *nation-s-ity
(a) Degemination
i[n]-effectual
tel=gous
i[m]-probable

(b) Closed-syllable shortening
Long VVC
perceive
describe
reduce
thieve

Short VCC
perceptive
descriptive
reduction
theft
(a) **Velar Softening**

<table>
<thead>
<tr>
<th>Original</th>
<th>Softening</th>
</tr>
</thead>
<tbody>
<tr>
<td>electri[k]</td>
<td>electri[s]-ity</td>
</tr>
<tr>
<td>criti[k]</td>
<td>criti[s]-ism</td>
</tr>
<tr>
<td>mysti[k]</td>
<td>mysti[s]-ism</td>
</tr>
</tbody>
</table>

(b) **Spirantization**

<table>
<thead>
<tr>
<th>Original</th>
<th>Spirantization</th>
</tr>
</thead>
<tbody>
<tr>
<td>pirate</td>
<td>pira[s]-y</td>
</tr>
<tr>
<td>president</td>
<td>presiden[s]-y</td>
</tr>
<tr>
<td>permit</td>
<td>permiss-ive</td>
</tr>
<tr>
<td>conclude</td>
<td>conclus-ive</td>
</tr>
<tr>
<td>corrode</td>
<td>corros-ive</td>
</tr>
<tr>
<td>deride</td>
<td>deris-ive</td>
</tr>
</tbody>
</table>

(c) **Vowel Shift and Trisyllabic Laxing**

<table>
<thead>
<tr>
<th>Original</th>
<th>Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>veyn</em> vain</td>
<td>væniti van-ity</td>
</tr>
<tr>
<td><em>sørin</em> serene</td>
<td>særënti seren-ity</td>
</tr>
<tr>
<td><em>dïvayn</em> divine</td>
<td>dëvinënti divin-ity</td>
</tr>
</tbody>
</table>
(a) panick-ing *pani[s]-ing
(b) flight[t]-y *fligh[s]-y
(c) might-i-ly *m[ɪ]t-i-ly
   teeter-ing *t[ɛ]ter-ing
<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
<th>(a) Compound</th>
<th>(b) Phrase/sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-m</td>
<td>lap marker</td>
<td></td>
<td>stop me</td>
</tr>
<tr>
<td>v-t</td>
<td>dove tail</td>
<td></td>
<td>live to</td>
</tr>
<tr>
<td>θ-b</td>
<td>moth ball</td>
<td></td>
<td>path belongs</td>
</tr>
</tbody>
</table>
(a) \( nn \) keen-ness, brown-ness
(b) \( ll \) cool-ly, tail-less
    \( ff \) trough-ful
(c) night time, sack cloth, tail light
(d) good day, take care, pass slowly
(a) Word-affix

- \( t-h \) parent-hood
- \( f-n \) stiff-ness
- \( m-l \) harm-less

(b) Cross-word

- parent who
- if none
- come late
<table>
<thead>
<tr>
<th></th>
<th>Root-affix</th>
<th>Word-final</th>
<th>Word-affix</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>gn</td>
<td>si[gn]ature</td>
<td>sign</td>
</tr>
<tr>
<td></td>
<td></td>
<td>resi[gn]ation</td>
<td>resign</td>
</tr>
<tr>
<td>(b)</td>
<td>mn</td>
<td>da[mn]ation</td>
<td>damŋ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>conde[mn]ation</td>
<td>condemŋ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>hy[mn]al</td>
<td>hymŋ</td>
</tr>
<tr>
<td>(c)</td>
<td>mb</td>
<td>bo[mb]ard</td>
<td>bombŋ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cru[mb]le</td>
<td>crumbŋ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>crumbŋy</td>
</tr>
</tbody>
</table>
(a)  fi[ŋ]er, a[ŋ]er
(b)  *fi[ŋ]er, *a[ŋ]er
(c)  lo[ŋ]-er, stro[ŋ]-er
     (*lo[ŋ]-er, *stro[ŋ]-er)
(d)  si[ŋ]-er, ba[ŋ]-er
(e)  lo[ŋ]g, stro[ŋ]g, si[ŋ]g