Week 2: Sound change

1. Two types of sound change
   - sporadic
   - regular

2. Sporadic change will not be talked about as much in this course, since there is relatively little to say about it
   
   Old English spræc > Modern English speech
   
   [Notice use of > to indicate change from one stage of language to another stage]

3. Regular sound change is the focus of most historical linguists

4. Regular sound change occurs whenever (or close to whenever) the environment for the change is satisfied

5. Fijian lost final consonants of proto-Austronesian
   
   *ŋiur > Fijian niu ‘coconut’
   *taŋis > Fijian taŋi ‘cry’
   *ikan > Fijian ika ‘fish’
   *ikan > Fijian vula ‘moon’
   *tansik > Fijian taði ‘sea’
   
   [Note that the asterisk * is used to indicate a reconstructed ancestor or proto-language]

6. The discovery that most sound changes are regular was an important discovery made at the end of the 19th century: Regularity principle or Neogrammarians Hypothesis

7. One can distinguish between conditioned and unconditioned changes

8. Conditioned sound changes are limited to a particular context or set of contexts

9. The Fijian example above is a conditioned one, as not all consonants were lost

10. An unconditioned sound changes affects sounds regardless of environment

11. In Kara, a language of Papua New Guinea, all [p] changed to [f]
   
   *tapine > tefin ‘woman’
   *punti > fut ‘banana’
   *topu > tuf ‘sugarcane’
12. It is common to classify changes along two dimensions:

- how they effect the structure of the phonological system, i.e. do they reduce the number of phonemes, change the environments in which certain contrasts occur, etc.
- what type of change, i.e. is it loss of a vowel, addition of a consonant, weakening of a consonant, etc.

13. Types of changes classified according to effect on sound system

14. **Merger**

15. A merger occurs when two or more sounds are collapsed into one sound, which may either be one of the original sounds or a different sound

16. An example of two sounds merging into one of the original two

Latin American Spanish: \( /l/, j > j \)

In many varieties of Latin American Spanish, \(/l/\) and \(/j/\) have merged into \(/j/\)
\(/kal\ell e/ > \l/ka\l e/ ‘street’, /\l/am\l ar/ >/jamar/ ‘to call’

This merger results in **neutralization** of an original contrast: haja ‘have (subj)’ and halla ‘find’ are both pronounced /aja/

Uradhi: \( p, w > w \) in initial position

*pa\l ta > Uradhi wa\l ta ‘bite’
*pinta > Uradhi winta ‘arm
*wapun > Uradhi wapun ‘head’
*wujpu > Uradhi wujpu ‘old man’

17. The Uradhi change is a **partial merger**, since it occurs only in initial position

18. The Latin American Spanish change is a **complete merger**, since it’s not context dependent

19. Another type of merger: two or more sounds merge to form a new sound

Fijian: \( p, b > v \)

*tuba > Fijian tuva ‘fish poison’
*batu > Fijian vatu ‘stone’
*ubi > Fijian uvi ‘yam’
*pitu > Fijian vitu ‘seven’
*p\p\nu > Fijian vonu ‘turtle’
20. *Split*

21. A split occurs when a new allophone arises in a certain context and then the conditioning factoring giving rise to the allophone is eliminated.

22. A case from English

**Stage 1:** Proto-Germanic

*mus* > ‘mouse’ vs. *mus-iz* ‘mice’
*foxt > ‘foot’ vs. *foxt-iz* ‘feet’

**Stage 2:** Umlaut triggers fronting of back vowels when high front vocoid occurs in following syllable

mus: ‘mouse’ vs. my:s-iz ‘mice’
foxt ‘foot’ vs. foxt-iz ‘feet’

**Stage 3:** Vowel triggering umlaut was lost

mus: ‘mouse’ vs. my:s ‘mice’
foxt ‘foot’ vs. fot ‘feet’

The result is a new contrast between front rounded and unrounded vowels: /e/ vs. /ø/ and /i/ vs. /y/.

*To complete the picture in Modern English, there were two additional stages*

**Stage 4:** Unrounding of front vowels

mus: ‘mouse’ vs. mis ‘mice’
foxt ‘foot’ vs. feet ‘feet’

**Stage 5:** Great vowel shift (Mid vowels > High vowels, High vowels > Diphthongs)

maus ‘mouse’ vs. mais ‘mice’
fut ‘foot’ vs. fit ‘feet’

23. Another split from French

Vulgar Latin k > French s before e, i
French j before a
Latin kentum > French sen
Latin kanta:re > French jante
(compare Latin kor > French kør)

Subsequently, both enC and anC vowels became å (itself a split), resulting in a new phoneme /ʃ/ and new minimal pairs: så ‘100’ vs. fä ‘song’
In fact, unrounding of /k/ gave rise to minimal triplets: Latin kʷando: > French kā
sā ‘100’ vs. jā ‘song’ vs. kā ‘when’

**24. Types of sound changes**

**25. Assimilation**

26. Assimilation is a broad cover terms for any type of change in which one sound becomes more like another neighboring sound.

27. There are various classes of assimilation.

28. One relevant distinction is between *partial assimilation* and *total assimilation*.

29. In total assimilation, one sound becomes identical to a neighboring/nearby sound.
   - Latin okto > Italian otto ‘eight, Latin noktem > Italian notte ‘night’
   - Icelandic *findan > finna ‘find’, *gulθ > gull ‘gold’, *munθ > munn ‘mouth’
   - Finnish teek # C > teeC ⟨ # C⟩: teem minulle ‘do for me’, teet taas ‘do again’, tees se ‘do it’
   - Finnish kuul-nut > kuullut ‘heard’, nous-nut > noussut ‘risen’

30. In partial assimilation, a sound becomes identical to a neighboring/nearby sound with respect to some but not all features.

*Place assimilation*
   - English (synchronically): [i]n tolerant, [m]possible, [m]fidelity, [m]compatible
   - Notice total assimilation before liquids: illegal, irreducible

*Voicing assimilation*
   - Spanish: mismo > mizmo ‘same’, desde > dezde ‘since’

*Manner assimilations*
   - Proto-Indo-European: *swep-no > Latin somnus ‘sleep’

31. Assimilation differs in the direction of the process.

32. In *regressive assimilation*, a feature or group of features spreads backward onto a preceding sound.

   All of the assimilations discussed thus far with the exception of the Icelandic one and the second Finnish one have been regressive.
33. In *progressive assimilation*, a feature or group of features spreads forward onto a following sound (cf. Icelandic and 2nd Finnish example earlier)

34. Assimilation is usually a *local* phenomenon, meaning that the undergoer or target of assimilation is usually adjacent to the trigger of assimilation (*contact assimilation*)

35. Assimilation can be *non-local*, meaning that the target and trigger are not adjacent (*distant assimilation*)

36. Distant consonant assimilation (consonant harmony)

   Sámi: **mæbmá → mæmma** ‘leaven’ (cf. **biebmó** ‘food’)

   *Nasal harmony:*

   Enggano (Indonesia; Austronesia) [voiced stops]
   *honabu > Enggano honämû ‘your wife’
   *eū?ada?a > Enggano eū?änää ‘food’
   *ehēkua > Enggano ehēkūä ‘seat’

   *Vowel harmony*

   Umlaut is a kind of fronting vowel harmony (see English examples earlier)

   There are other types of vowel harmony

   U-umlaut: Old Norse: *handus > hond ‘hand’

   *Front-back vowel* harmony occurs in many languages
   Finnish talo-ssa ‘in the house’ vs. piele-ssae ‘at the post’
37. Dissimilation

38. Dissimilation involves the process of a sound or sounds becoming unlike neighboring/nearby sounds

39. Afrikaans

*sxon > Afrikaans skon ‘clean’
*sxoudar > Afrikaans skouar ‘shoulder’
*sxœlt > Afrikaans skœlt ‘debt’

40. Grassman’s Law in Greek and Sanskrit: In roots with two aspirated stops, the first dissimilates to an unaspirate stop

Sanskrit: *bʰab⁹uva > bab⁹uva ‘became’
Greek: *pʰep⁹uka > pep⁹uka ‘converted’
*tʰrikh-os > trikʰos ‘hair’ gen.sg.
*tʰreph-ō > trepʰō ‘I rear’

41. Dahl’s Law in Bantu languages: Stem initial voiceless consonants become voiced when following consonant voiceless

Logooli: *ma-tako > amadako ‘buttocks’
*ma-kuta > amaguta ‘oil, fat’

42. Subclasses of sound changes

43. Deletions

44. Syncope: Loss of vowel from middle of word, not beginning or end, though syncope is often used as a more general term for loss of any sound in any position

45. Old Norse

Syncope of second vowel in sequence CVCV(C)
*himini > himni ‘heaven (dat.sg.)’
*lifiði > lifiði ‘lived’
*likliðari > likliðri ‘more likely’

46. Consonant syncope

47. Cluster reduction in English

*bamb > bam
*sŋg > snŋ
48. Intervocalic consonant loss in Finnish
   *jænæ > Finnish jæ: ‘ice’

49. Apocope: Loss of word-final sound, usually a vowel

50. Estonian:

   *jalka > Est. jalk ‘leg’
   *kolme > Est. kolm ‘three’
   *viisi > viis ‘five’
   *leemi > leem ‘broth’

   but, not in *kala > kala ‘fish’

51. Aphaeresis: Loss of word-initial sound (this term is not commonly used)

52. Angkamuthi (Australia)

   *maji > Ang. aji ‘food’
   *nani > Ang. ani ‘ground’
   *ŋampu > Ang. ampu ‘tooth’
   *wapun > Ang. apun ‘head’

53. Haplology: Loss of an entire syllable (relatively uncommon and typically sporadic)


55. Insertions or epentheses

56. Prothesis: addition of sound at beginning of word

57. Romance: Insertion of vowel before word-initial s+stop clusters

   Latin skutu > OF esku > Mod.French eky ‘shield’
   > Spanish eskudo

   Latin skɔla > OF eskɔle > Mod French ekɔl ‘school’
   > Spanish eskuela

58. Motu (Papua New Guinea): Insertion of /l/ before word-initial /a/

   *api > Motu lahi ‘fire’
   *asan > Motu lada ‘gills of fish’
   *au > lau ‘I, me’
59. Yurak (Samoyedic branch of Uralic): Insertion of initial nasal before word-initial back vowel

  *alna > ṅalna > ṅylna ‘under’

60. Anaptyxis: Insertion of vowel between two consonants


62. Eastern Finnish dialects

  *neljæ > nelejæ ‘four’
  *kolme > kolome ‘three’
  *jalka > jalaka ‘leg’

63. [Paragoge: Addition of sound (usually a vowel) to end of word]

64. English words borrowed into Maori

  [koti] ‘court’
  [kuki] ‘cook’
  [mapi] ‘map’

65. Excrecence: insertion of a consonant adjacent to another consonant

66. OE θy:mel > θymle > Mod.Eng. thimble
    OE θunrian > Mod.Eng. thunder

67. Sámi

  *ruma > robme ‘ugly’
  *soːne > suodnA ‘vein’
  *pone > buogNA ‘bosom’

68. Changes in sounds/sequences of sounds

69. Compensatory lengthening: Loss of one sound with lengthening of a remaining sound to compensate for loss

70. Proto-Germanic to Old English

  *tonθ > OE toθ ‘tooth’
  *fimf > OE fif ‘five’
71. Old Hungarian to Modern Hungarian

\[\begin{align*}
\text{vizi} & > \text{v}i:z \ 'water' \\
\text{uru} & > \text{ur} \ 'man' \\
\text{kezi} & > \text{ke}z \ 'hand'
\end{align*}\]

72. Ilokano (Philippines)

\[\begin{align*}
\text{luto-en} & \rightarrow \text{luttwen} \ 'cook\text{-}goal\text{ }focus' \\
\text{bagi-en} & \rightarrow \text{baggyen} \ 'to\ have\ as\ one's\ own' \\
\text{damo-en} & \rightarrow \text{dammwen} \ 'something'
\end{align*}\]

73. Rhotacism: An /s/ or /z/ becomes /r/

74. Latin: /s/ > /r/ /V__V

\*hono:\text{sis} > Classical Latin honor\text{is}

75. West, North Germanic /z/ > /r/

\PGm{c} *\text{hauzjan} > \text{OHG} ho\text{\textemdash}ren \ 'hear' \ (modern German hö\text{\textemdash}ren)

\OE{} hieran

\ON{} heyra

\textit{But}, Gothic hausjan

76. Metathesis: Two sounds exchange positions in a word

77. Spanish: /dl/ > /ld/ (after intervening vowel loss)

\Latin{} modulus > Spanish molde \ 'mold, pattern'
\Latin{} titulus > Spanish tilde

78. Breaking: the diphthongization of monophthongs (usually used with Germanic lgs.)

79. Old English: *i > io, *e > eo, *a > æa / __{l, r}C, __h

\*warθ > wearθ \ 'cold'
\*erðe > eorðe \ 'earth'
\* feohta > fehta \ 'battle'

80. Final devoicing: Many languages devoice sounds at the end of prosodic domains

81. Syllable-final devoicing of obstruents in German

\textit{ba\textemdash}d > \textit{b}a\textit{t} \ 'bath', \textit{ta\textemdash}g > \textit{ta\textemdash}k \ 'day', \textit{hund} > \textit{hunt} \ 'dog'
82. Word-final sonorant devoicing in Kaqchikel (Mayan)

aːɬ > aːɬ ‘child’, kar > kar ‘fish

83. Hierarchy of devoicing

<table>
<thead>
<tr>
<th>Most likely to devoice</th>
<th>Least likely to devoice</th>
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</thead>
<tbody>
<tr>
<td>Consonants:</td>
<td></td>
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<tr>
<td>Stops</td>
<td>Fricatives</td>
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<tr>
<td>Vowels:</td>
<td></td>
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<td>Short high V</td>
<td>Short non-high V</td>
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<td>Boundary:</td>
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<tr>
<td>Utterance-final</td>
<td>Phrase-final</td>
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<tr>
<td></td>
<td>Syllable final</td>
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</table>

84. Voicing: Many languages voice sounds in the environment of other voiced sounds (a type of assimilation)

85. Latin > Spanish: Intervocalic voicing of stops

lupu > lobo ‘wolf’, viuta > vida ‘life’, fiːku > higo ‘fig’

86. Banoni (Papua New Guinea): intervocalic stops become voiced fricatives

*pekas > be Commons ‘feces’
*pekas > be Commons ‘root’
*tipi > tsivi ‘traditional dance’

87. Voicing is very common after nasals

88. Palatalization: sounds often become palatalized or become palato-alveolar adjacent to the
high front vocoids /i,j/ or even the mid front vowel /e/

89. Spanish: kt > it > tf

lakte > laite > leite > leitʃe > letʃe ‘milk’
okto > oito > oitʃo > oʃo ‘eight’

90. Estonian: Alveolars palatalized before front vowels (many vowels then lost)

}*laadi > laadʃi > laadʃi ‘nature’
*paati > paatʃi > paatʃi ‘boat’
*talːi > talːi > talːi ‘ready’
*kasi > kashːi > kasʃi ‘cat’
*panːi > panːi > panːi ‘pan’

91. Diphthongization: Monophthongs become diphthongs (breaking is a kind of diphthongization)
92. English Great Vowel Shift:
\[ \text{mis} \rightarrow \text{mais} \text{ `mice'} \]
\[ \text{mus} \rightarrow \text{maus} \text{ `mouse'} \]

93. Vowel raising

94. Great vowel shift

\[ \text{be}:\text{t} \rightarrow \text{bi} \text{ `beet'} \]
\[ \text{bo}:\text{t} \rightarrow \text{bu} \text{ `boot'} \]

95. Wogul (Uralic)

\*\text{xaan} \rightarrow \text{xoon} \text{ `prince'}
\*\text{s}:\text{am} \rightarrow \text{s}:\text{om} \text{ `strength'}
\*\text{pop} \rightarrow \text{pu}:\text{p} \text{ `priest'} \text{ (loan from Old Russian)}

96. Vowel lowering

97. Old Hungarian > Middle Hungarian

\[ \text{hi}:\text{t} \rightarrow \text{he}:\text{t} \text{ `mountain'} \]
\[ \text{turuk} \rightarrow \text{torok} \text{ `throat'} \]
\[ \text{hodu} \rightarrow \text{h}:\text{d} \text{ `army'} \]

98. Nasalization: vowels often become nasalized in nasal contexts

99. French

\[ \text{bon} \rightarrow \text{b}:\text{b} \text{ `good'} \]

100. Lenition is any type of change involving articulatory weakening, i.e. reduction in either degree or duration of constriction

101. There are several subtypes of lenition

102. Degemination/shortening: Geminates/long sounds become short

103. Latin > Spanish: mittere > meter `put’, pekka:tu > pekado ‘sin, misfortune’

104. Latvian: *zeme: > zeme `earth’, *ruoka: > ruoka ‘hand’

105. Spirantization (fricativization): Affricates or stops lenite to fricatives

106. Dravidian

\*\text{tapu} > Kannada tavu `to decrease’
107. Old Irish
*tewtə: > tuəθ ‘people’
*bhewdi > boːði ‘victory’

108. Finnish: t > s / __i
    veti > vesi ‘water’

109. Deaffrication

110. Chiltiupán Pipil (Uto-Aztecan, El Salvador): ts > s
    tsutsukul > susukul

111. Voicing may also be regarded as a type of lenition; also complete loss of a sound, or shortening of a sound

112. Fortition: Fortition is the opposite of lenition and involves strengthening of a sound, i.e. increase in degree of constriction or duration of constriction

113. There are several subtypes of fortition

114. Approximants > Fricatives, Stops
    Fricatives > Stops (Oclusivization)

115. Argentinian Spanish: lejes > ležes ‘laws’

116. K’ekchi (Mayan): winq > kʷiːnq ‘person’, ijax > itʰax ‘seed’

117. Southern Ostyak (Uralic): liil > tiit ‘soul’, luunt > tuunt ‘goose’

118. Affrication: Stops become affricates

119. Lengthening/gemination

120. Old English: vowels lengthen before sonorant + another single consonant
    OE tʃiːld > tʃiːld ‘child’

121. Very common to have vowel lengthening in open syllables
    OE nama > naːme ‘name’
    OE mete > meːte ‘meat’

122. Ingrian Finnish: Consonants lengthen before long vowels
    osaa > ossaa ‘s/he knows’
123. **Relative chronology**

124. Sound changes occur at particularly points in time, though they occur gradually.

125. This means that sound changes can be ordered chronologically.

126. Umlaut involved a series of changes which occurred in a particular order:

   1. Umlaut (vowel fronting) occurred
   2. Trigger of umlaut was lost

127. To assume the opposite order would not make sense, as we could not predict which words display umlaut and which ones don’t.

128. **Chain Shifts**

129. Some sound changes involve a combination of sound changes, such that there is a progression of changes.

130. Latin to Spanish: intervocalic stops

   1. Alveolar/velar voiced stops > ∅: cade:re > caer ‘to fall’, re:gi:na > reina ‘queen’

131. Notice the chronology of changes is important: If we changed the order, then we would make incorrect predictions.

   • If single voiceless stops > voiced stops before alveolar/velar voiced stops > ∅, then we would expect ami:ka > amiga > ✗ amia
   • If geminates > single voiceless before single voiceless > voiced, then we would expect gut:a > gota > ✗ goda ‘drop’

132. This type of chain shift can be called a **pull chain or drag chain** shift, since one sound moves only to drag another sound into its place.

133. In fact, there is often another alternative analysis involving a **push chain**, where one sound starts to encroach on another sound, thereby forcing it to move in order to preserve a distinction.

134. The push chain analysis of the Latin to Spanish chain shift:

   1. Geminates > single voiceless stops
   2. Single voiceless stops > voiced stops
   3. Alveolar/velar voiced stops > ∅
135. Under this analysis, it is the case that before the first change is complete, the second change is initiated.

136. Another famous chain shift: Grimm’s Law in Germanic

137. Grimm’s Law occurred in the development of proto-Germanic from proto-Indo-European

- First, voiceless stops > fricatives: *p, *t, *k > *f, *θ, *h (but not when 2nd member of voiceless cluster)
- Second, voiced stops > voiceless stops: *b, *d, *g > *p, *t, *k (Also *z > *s)
- Third, voiced aspirated stops > plain voiced stops: *bʰ, *dʰ, *gʰ > *b, *d, *g

<table>
<thead>
<tr>
<th>Sound change</th>
<th>English (Germanic)</th>
<th>Spanish (Romance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p &gt; *f</td>
<td>foot</td>
<td>pie</td>
</tr>
<tr>
<td>*t &gt; *θ</td>
<td>three</td>
<td>tres</td>
</tr>
<tr>
<td>*k &gt; *h</td>
<td>heart</td>
<td>corazón ([k])</td>
</tr>
<tr>
<td>But no change</td>
<td>stand</td>
<td>Latin sta:re</td>
</tr>
<tr>
<td></td>
<td>eight (German axt)</td>
<td>Latin okto</td>
</tr>
<tr>
<td>*b &gt; *p</td>
<td>deep</td>
<td>dubus (Lithuanian)</td>
</tr>
<tr>
<td>*d &gt; *t</td>
<td>tooth</td>
<td>diente</td>
</tr>
<tr>
<td>*g &gt; *k</td>
<td>corn</td>
<td>grano</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Sound change</th>
<th>English (Germanic)</th>
<th>Sanskrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*bʰ &gt; *b</td>
<td>brother</td>
<td>bʰrá:tar</td>
</tr>
<tr>
<td>*dʰ &gt; *d</td>
<td>do, did</td>
<td>dʰaľ</td>
</tr>
<tr>
<td>*gʰ &gt; *g</td>
<td>goose</td>
<td>kʰé:n (Greek) (&lt;gʰ)</td>
</tr>
</tbody>
</table>

138. In fact, however, there are instances where we would expect voiceless fricatives but wind up with voiced ones instead.

139. Verner’s Law: Non-initial voiceless fricatives (including /s/) are realized as voiced when original IE accent did not occur on immediately preceding syllable.

140. Subsequently, accent shifted to the initial syllable in Germanic, obscuring the original context which gave rise to the alternation

IE *népo:t > Old Norse (Germanic) néfi ‘nephew’
IE *uþé:r > *uþé:r > Old High German (Germanic) úbar ‘over’
IE *bhá:ra:se: > Gothic (Germanic) bėra:za ‘are borne’