Week 4: Phonology and Morphology

1. Morphology = study of structure of words

   morpheme = smallest unit of meaning

   ‘unidentifiability’
   un + ident + ify + able + ity

2. Some kinds of morphemes

   • root = Core morpheme which serves as base for morpheme addition
     e.g. ‘ident’ in the above example

   • free root can stand alone
   • bound root requires additional morpheme
     ‘ident’ = bound root
     unidentifiable

     ‘happy’ = free root
     unhappiness

   • affixes = morpheme attached to root

   3 kinds of affixes

   i) prefix is attached to the left edge of a root, e.g. reattach
   ii) suffix is attached to the right edge of a root, e.g. attachable
   iii) infix is inserted into the middle of the root,
     e.g. Bontoc (Philippines)
       [fikas] ‘strong’ [fumikas] ‘he is becoming strong’
       [kilad] ‘red’ [kumilad] ‘it is becoming red’

   • Reduplication is a copy of a morpheme
     e.g. Yidiny (Australia)
       [madʲindan] ‘walk up’
       [madʲinmadʲindan] ‘keep walking up’

       [dʲadʲaman] ‘jump’
       [dʲadʲadʲadʲaman] ‘jump a lot’
e.g. Bella Coola
   [jalk] ‘do too much’
   [jaljalk] ‘keep doing too much’

e.g. Samoan
   [matua] ‘he is old’
   [matutua] ‘they are old’
   [pese] ‘he sings’
   [pepese] ‘they sing’

• **Compound** = word consisting of more than one root
e.g.
   blackbird
   pancake
   birdbath
   football
   pie plate
   stop sign
   tap dancer

*Compound or phrase-- How do you know?*

i) Adjective insertion
   good sign
   good clear sign

   stop sign
   *stop clear sign

ii) Stress assignment: Compounds have stress on left member, phrase has stress on right member

   ’stop sign
   ’pie plate
   ’blackbird

   good ’sign
   green ’bird

3. Morpheme boundaries are often indicated by hyphens

   [mad’in-mad’indan]
   [f-um-ikas]
   [jal-jalk]
   un-happi-ness
   black-bird
4. Functions of morphology

**Derivation**: forms new words with different meanings
- e.g. identify → identifiable → unidentifiable → unidentifiability

**Inflectional**: grammatical morphology
- Tense: I jump vs. I jumped
- Number: cow vs. cows, She jumps vs. They jump
- Comparison: tall vs. taller vs. tallest

5. Morphological Analysis= Break words down into their component morphemes

Swahili verbs

1. atanipenda ‘he will like me’
2. atakupenda ‘he will like you’
3. atampenda ‘he will like him’
4. atatupenda ‘he will like us’
5. atawapenda ‘he will like them’
6. nitakupenda ‘I will like you’
7. nitampenda ‘I will like him’
8. utanipenda ‘you will like me’
9. utampenda ‘you will like him’
10. atanipiga ‘he will beat me’
11. atakupiga ‘he will beat you’
12. atampiga ‘he will beat him’
13. ananipiga ‘he is beating me’
14. ananipiga ‘he is beating you’
15. anampiga ‘he is beating him’
16. amenipiga ‘he has beaten me’
17. amekupiga ‘he has beaten you’
18. amempiga ‘he has beaten him’

6. Minimal pairs in morphology: Words which differ in terms of a single morpheme

1. atanipenda ‘He will like me’
2. atakupenda ‘He will like you’

ni ‘me-object’
ku ‘you-object’

2. atakupenda ‘He will like you’
6. nitakupenda ‘I will like you’

a ‘he-subject’
ni ‘I-subject’
11. aftarupiga ‘He will beat you’
14. anakupiga ‘He is beating you’

ta ‘future’
na ‘present’

7. Template for Swahili verbs

Subject--Tense--Object--Root

8. The relationship between phonology and morphology

**Alternation:** A change in phonological shape of morpheme conditioned by context

9. Three rules of English

• Preglottalization

\[
\begin{align*}
\text{[ -continuant ]} & \rightarrow \text{[ +constricted glottis ] / __ } \text{word} \\
\text{[ -voice ]}
\end{align*}
\]

e.g. ‘cat’ /kæt/ [kʰæʔt]

• Flapping

\[
/t/ \rightarrow [r] / [-consonantal] \quad \begin{cases} \text{[ +syllabic ]} \\
\text{[ -stress ]} \end{cases}
\]

e.g. ‘city’ /sti/ [stri]

• Aspiration

\[
\begin{align*}
\text{[ -continuant ]} & \rightarrow \text{[ +spread glottis ] / X } \quad \begin{cases} \text{[ +syllabic ]} \\
\text{[ +stress ]} \end{cases} \quad X \neq s \\
\text{[ -voice ]}
\end{align*}
\]

e.g. ‘Tom’ /tɒm/ [tʰɒm]
‘attest’ /ætəst/ [ətʰəst]

10. Three allomorphs of ‘note’ /noukt/

‘note’ /noukt/ /noutəbəl/ /noutetʃən/
‘notable’ [nouktəbl] [noutəbəl] [noutetʃən]
The same root has different /t/ depending on the context
‘note’  ['nou[t]'] vs. ['nour'] vs. ['noot']

11. **Allomorph** = different forms of a morpheme

12. Rhythmic Lengthening in Chickasaw/Choctaw

1. [pisa]  ‘see’
2. [pisa:li]  ‘I see’
3. [pisat:i]  ‘cause (someone) to see’
4. [pisat:ili]  ‘I cause (someone) to see’
5. [tji:pi:sa[t]i]  ‘cause (someone) to see you’
6. [tji:pi:sa[t]i:li]  ‘I cause (someone) to see you’

Template
Object--Root--Causative--Subject

pisa  ‘see’
li  ‘I (subj)’
tji  ‘you (obj)’
tji causative

13. Allomorphy of root

[pisa] in 1
[pisa:] in 2, 3, 4
[pi:sa] in 5, 6

14. The basis for the allomorphy

[p i s a]
[p i s a: l i]
[p i s a: tji]
[p i s a: tji l i]
[tji pi: s a tji]
[tji pi: s a tji l i]

15. Rhythmic Lengthening

*Lengthen non-final vowels in even-numbered syllables*

[tji:pi:sa[t]i:li]  ‘I cause (someone) to see you’

Base  /pisa/
Morphology:  [tji + pisa+ tji+li]
Phonology:  [tji:pi:sa[t]i:li]
16. **Neutralization**: The identical phonetic realization of distinct phonemic forms

17. Stop nasalization in Korean

\[
\begin{align*}
\text{[ot\textsuperscript{]iŋa]\textsuperscript{]ot]} & \quad \text{‘squid pickle’} \\
\text{[ot\textsuperscript{]iŋa]\textsuperscript{]on]} & \quad \text{‘squid pancake’}
\end{align*}
\]

\[
\begin{align*}
\text{[nurin\textsuperscript{]a}]p} & \quad \text{‘scorched rice’} \\
\text{[nurin\textsuperscript{]a}]m} & \quad \text{‘scorched chestnut’}
\end{align*}
\]

18. Korean stop nasalization

\[
\begin{align*}
\text{[-continuant_{articulatory}]} & \quad \begin{cases} +\text{nasal} & / \quad +\text{nasal} \\
+\text{voice} & / \quad \end{cases}
\end{align*}
\]

\[
\begin{align*}
\text{[ot\textsuperscript{]iŋa-t]\textsuperscript{]ot]} & \quad \text{‘squid pickle’} & \quad \text{[ot\textsuperscript{]iŋa-t}\textsuperscript{]on} \text{nemse-ka}] & \quad \text{‘smell of squid pickle’} \\
\text{[ot\textsuperscript{]iŋa-t]\textsuperscript{]on]} & \quad \text{‘squid pancake’} & \quad \text{[ot\textsuperscript{]iŋa-t}\textsuperscript{]on} \text{nemse-ka}] & \quad \text{‘smell of squid pancake’}
\end{align*}
\]

\[
\begin{align*}
\text{[nurin-pa}]p & \quad \text{‘scorched rice’} & \quad \text{[n\nuurin-pa]m m\textsuperscript{]a\textsuperscript{k}pwani-ni]} & \quad \text{‘Have you tried scorched rice?’} \\
\text{[nurin-pa}]m & \quad \text{‘scorched chestnut’} & \quad \text{[n\nuurin-pa]m m\textsuperscript{]a\textsuperscript{k}pwani-ni]} & \quad \text{‘Have you tried scorched chestnut?’}
\end{align*}
\]

Have you tried scorched rice? Have you tried scorched chestnuts?

19. Sample derivations

\begin{align*}
\text{/n\nuurin-pa}m \text{ m\textsuperscript{]a\textsuperscript{k}pwani/} & \quad \text{/n\nuurin-pa}m \text{ m\textsuperscript{]a\textsuperscript{k}pwani/} & \quad \text{Phonemic} \\
\text{m} & \quad \text{--------} & \quad \text{Obstruent-Nasaliz.} \\
\text{[n\nuurin-pa}m \text{ m\textsuperscript{]a\textsuperscript{k}pwani]} & \quad \text{[n\nuurin-pa}m \text{ m\textsuperscript{]a\textsuperscript{k}pwani]} & \quad \text{Phonetic}
\end{align*}

The two questions are identical because the underlying contrast between /p/ and /m/ is lost.

20. Neutralization in English

*Postnasal /t/ deletion*

Words which differ only in terms of whether they end in /t/ or just /n/

‘plant’ [plænt] vs. ‘plan’ [plæn]
‘bent’ [bent] vs. ‘Ben’ [bɛn]
‘punt’ [pænt] vs. ‘pun’ [pʌn]
It is possible to add a suffix to many of these words; notice that the /t/ is lost resulting in neutralization

- ‘plant’ [plænt] → ‘planter’ [plæŋt]
- ‘plan’ [plæn] → ‘planner’ [plæŋŋ]
- ‘punt’ [pænt] → ‘punting’ [pæŋŋ]
- ‘pun’ [pæn] → ‘punning’ [pæŋŋ]

Not all suffixes trigger loss of the /t/

- ‘planner’ [plæŋŋ] → ‘plantation’ [plæŋtʃən]
- ‘mental’ [mænəl] → ‘mentality’ [mæntələtɪ]

The generalization is that /t/ is lost between [n] and a stressless syllabic sound

\[
t \rightarrow \emptyset / n \quad +\text{syllabic} \quad \frac{\_}{\text{-stress}}
\]

Because of neutralization, an utterance like [ðeɪ οʊ plæŋŋ æ ɡædəŋ] is ambiguous between ‘They are planning a garden’ and ‘They are planting a garden’

21. Near neutralization

Some rules almost but not quite lead to neutralization

e.g. English flapping is near neutralizing
- ‘rider’ [raɪər] vs. ‘writer’ [raɪər]

For a pair like this, the only difference for many speakers is in the duration of the vowel preceding the flap; longer vowel occurs in ‘rider’

It can be very difficult for human ears to tell difference between true neutralization and near neutralization; often instrumental measurements necessary