Structural Linguistics
The Study of Grammar in Human Language

Basic Components of Language Structure
- **Phonetics**: production, perception of speech sounds
- **Phonology**: how sounds pattern in languages
- **Morphology**: the structure of words and their parts
- **Syntax**: the structure of phrases and sentences
- **Discourse**: the structure of texts
- **Semantics**: word and sentence meanings

See Glossary, pp 420-440 of Crystal throughout semester

Morphology: Words & Their Parts
- fair
- unfair (add prefix un- 'not')
- fairness (add suffix –ness ‘noun’)
- fanblinkin’tastic (add infix blinkin’ ‘?’)

Words are made up of **morphemes**, which are most simply defined as *minimal units of meaning*. For example, there is no meaning unit inside of ‘fair,’ so it is a single morpheme, but ‘unfair’ has two indivisible units, un- and fair.
- The study of the parts of words is called morphology.
Derivation and Inflection

- An important distinction in morphological studies is that of inflectional morphemes versus derivational morphemes.
- Morphemes that are used to form new (different) words are said to be derivational.
  - *-ness* is attached to an adjective to make a noun
    - happy (adjective) becomes happiness (noun)
  - *-ize* is attached to an adjective to make a verb
    - final (adjective) becomes finalize

Derivation & New Words

- Derivation is important because of the need for languages to be constantly adding to their vocabularies, as new cultural objects and situations are invented or imported.
- English commonly invents new terms by “borrowing” components from classical (Greek and Latin) words
  - astronaut andropause audiophile sarcastrophe
- English also uses compounding extensively
  - disorient express earwitness road rage

Derivation: wewebidiyeshimo

we+web diye shimo

shake rearend dance

Ojibwe makes neologisms by compounding bound morphemes in novel combinations. This is a highly valued form of verbal art.
Inflection

- Morphemes that add a component of grammatical information, but do not (usually) create a new word are said to be inflectional.
- Consider English...
  - s is attached to nouns to produce a plural
    - cat (noun, singular) becomes cats (noun, plural)
  - s is attached to verbs to produce third person singular
    - expect (verb) becomes expects (3rd singular present tense)

Inflectional Categories

- These categories occur widely in languages
- person: first, second, third, (fourth)
- number: singular, plural, dual, trial
- gender: masculine/feminine, animate/inanimate
- case: nominative, accusative, dative, genitive
- tense: present, past, future, non-past, etc.
- aspect: completed, incompletive
- mood: indicative, subjunctive, optative

Ojibwe

we (but not you) had been doing a dance involving repeatedly shaking our backsides'

ningi-wewebidiyeshimo minaaban

first person past tense plural number completive aspect
Morphological Typology

- Languages vary considerably in the number of morphemes their words customarily have.
- Some languages are morphologically very simple, such as the languages of southeast Asia, where words commonly consist of a single morpheme.
- Other languages may put many morphemes together in a single word, such as the indigenous languages of North America, where a single word may have a dozen morphemes.

English Morphology

- English has complex derivational morphology, especially in learned vocabulary:
  - pneumonoultramicroscopicsilicovolcanoconiosis
  - pneumo-
  - ultra-
  - etc.

- English has very simple inflection
  - cook, cooks, cooked, cooking

Compare Ojibwe with several thousand inflectional combinations for some verbs

Languages differ in inflection...

- Languages vary as to which categories they represent inflectionally.
  - Ojibwe has two ways to say "we": it makes a distinction between first person plural inclusive (which includes the person addressed) and first person exclusive (which excludes the person addressed). nimaajimin'we (excluding you) are leaving, vs. gimaajaamin'we (including you) are leaving.
  - Because this distinction is part of the inflectional system (grammatical) it must be made—there is no way to say "we" with ambiguity as to whether the person you’re talking to is included or excluded—not this is the only grammatical choice in English (though note that you can use extra words to communicate the same idea).
Syntax

- Syntax is the study of how words group together to form phrases and sentences.
- Syntax is especially concerned with:
  - Identifying the word class (part of speech) of each word in a sentence.
  - Identifying phrasal groupings of words within a sentence.
  - Specifying hierarchical relations within phrases and among phrases in a sentence.
  - Specifying the linear order of words & phrases in a sentence.
  - Determining basic grammatical functions such as subject, direct object, indirect object, etc.

Syntax

- Parts of Speech (aka word classes)
  - Noun [book, tugboat]
  - Verb [erase, attend]
  - Adjective [green, happy]
  - Adverb [quickly, yesterday]
  - Pronoun [I, me, my]
  - Adposition (preposition, postposition) [to, on]
  - Conjunction [and, but]

Phrase Structure Rules

- S \rightarrow NP + VP
- NP \rightarrow Det + N
- VP \rightarrow V + NP
- Subject = NP/S
- Object = NP/VP
Transformational Rules

- Transformational rules take the “output” of phrase structure rules and move elements around, sometimes with other adjustments.

- My mother likes her cats.

- Her cats, my mother likes.
- My mother likes her cats, doesn’t she?!!
- What does my mother like __?

How do languages differ?

- In their parts of speech...
  - All languages have nouns and verbs, but not all languages have adjectives...
    - miskwaabikozi, ‘animate organic solid is red’

- In their phrase structure
  - English is basically SVO [subject - verb – object]
  - Ojibwe is basically VOS [verb – object – subject]

- In their transformations
  - English forms tag-questions, Ojibwe doesn’t
  - Ojibwe “floats” quantifiers: Three I saw moose.

How languages differ...

- English uses word order (syntax) to identify subject and object:
  - The man saw two moose.
  - Two moose saw the man.

- Ojibwe uses inflectional morphemes (morphology), so has much freer word order:
  - Ogii-waabamaan niizh moozoon inini.
  - Inini ogii-waabamaan niizh moozoon.
  - Niizh moozoon ogii-waabamaan inini.
  - Niizh ogii-waabamaan inini moozoon.
  - Niizh ogii-waabamaan moozoon inini.
Semantics

- Semantics is the study of meaning
  - Word meaning
  - Sentence meaning

- Contemporary linguistic semantics is especially concerned with relationships of meaning among words in a single language, and across languages.

Semantic Fields

- Different languages parcel up the same referents in the world differently.
- Words form semantic fields, which provide terms to distinguish members within a semantically coherent set.
- We will look at two systems briefly, to see how this works, kinship and color terms.

Kinship
Kinship (Ojibwe)

- **nisayenh**: my older brother; my older male parallel cousin (daughter of mother’s sister or father’s brother)
- **nimisenh**: my older sister; my older female parallel cousin (daughter of mother’s sister or father’s brother)
- **nishiimenh**: my younger sibling; my younger parallel cousin
- **niininoshenh**: my cross-cousin of opposite sex; my sweetheart

Color Terms (English and Welsh)

- Berlin & Kay 1969
  - Examined 98 languages, determined a universal inventory of only 11 basic color terms.
  - A single morpheme (e.g., reject light brown); in common use (e.g., reject indigo); applied to many objects (e.g., reject blond); were not contained in another color (e.g., reject scarlet)
Lexical Relations

- **Synonymy**: two words mean the same thing (child, youth, kid)
- **Antonymy**: two words stand in a relationship of contrast (young and old)
- **Hyponymy**: one word represents a kind of another word: a tiger is a kind of animal
- **Meronymy**: one word represents a part of another word: foot is part of the body

Polysemy and Homonomy

- A single word can have multiple meanings, that is, be polysemous:
  1. bank: A piled-up mass, as of snow or clouds. See synonyms at heap.
  2. A steep natural incline.
  3. An artificial embankment.
  4. The slope of land adjoining a body of water, especially adjoining a river, lake, or channel. Often used in the plural.
  5. A large elevated area of a sea floor. Often used in the plural.
  6. Games The cushion of a billiard or pool table.
  7. The lateral inward tilting, as of a motor vehicle or an aircraft, in turning or negotiating a curve.
- Two words with different meanings can have the same pronunciation, that is, be homonymous: two, too, and to.

Metaphor

- Describing one thing in terms of another:
- Love in English: out of control...
  1. love is magic: I was bewitched the moment I saw you. I was totally entranced.
  2. love is insanity: I'm crazy about her. He drives me out of my mind.
  3. love is a fire: Come on baby, light my fire.
How do languages differ?

- Languages carve up the world into words (lexicalize) in different ways.
- Different languages have different resources of synonymy, antonymy, hyponymy, polysemy, homonymy, etc.
- Different languages use different metaphorical systems to express abstract concepts such as love, anger, and death.

Phonetics & Phonology

- Most human languages relate sound to meaning. Don’t forget sign languages, though!
- The study of the sounds found in the world’s languages is called phonetics.
  - Articulatory phonetics: how sounds are made in the vocal tract
  - Acoustic phonetics: the auditory properties of sounds
- Phonology: the study of how sounds function as systems in languages

Human Vocal Tract

- Diagram showing the human vocal tract parts such as the nasal cavity, uvula, soft palate, hard palate, etc.
Articulatory Phonetics

- Articulatory phonetics examines how sounds are produced in the vocal tract.
- **Consonants**: produced by a significant degree of obstruction somewhere in the vocal tract.
- **Vowels**: made by positioning the tongue, jaw and lips in different configurations.

Consonant Parameters

- **Place of articulation**: where they are made
  - Labial, interdental, dental, alveolar, velar, uvular, pharyngeal, laryngeal
- **Manner of articulation**: how they are made
  - Stops, fricatives, affricates, glides, liquids
- **State of the glottis**
  - Voiced: vocal cord vibration
  - Voiceless: no vocal cord vibration
- **Nasality**: whether air escapes through the nasal cavity
  - Oral: no air through nasal cavity
  - Nasal: air through nasal cavity

International Phonetic Association (IPA)

- In the late 1800’s, a special alphabet for representing the sounds of the world’s languages was devised by the International Phonetic Association, which sought to have a distinct symbol for each sound found in the world’s languages, which could then be consistently used to represent that sound in any language. This alphabet is called the International Phonetic Alphabet, or IPA for short (see Crystal, pp. 160-161).
IPA Consonants

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<thead>
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<th>Consonants (Pinyin)</th>
<th>Labial</th>
<th>Lingual</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Palatal</th>
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Phonetic Transcription

- We can use the IPA to produce a phonetic transcription (written representation) of the speech of any language.

[ðís ɪ z ə fɔnɛzik trænzkrɪpʃən]  
"This is a phonetic transcription."

[bəɾʒə ɡidǐmim gi ˈnawə]  
"I say hello to all of you."

Phonetic transcriptions are placed in square brackets to distinguish them from regular writing.

Vowel Parameters

- Height of tongue: high, mid, low
- Backness of tongue: front, central, back
- Tenseness: tense, lax
- Lip Rounding: round, unround
- Nasality: oral, nasal
IPA Vowels

Languages differ considerably in terms of the inventories of consonants and vowels that they have.

E.g., Hawaiian
- Consonants: p k h l m n w ?
- Vowels: a e i o u

E.g., many indigenous languages of the northwest coast of North America have dozens of consonants.

How Languages Differ

Languages differ considerably in terms of the inventories of consonants and vowels that they have.

E.g., Hawaiian
- Consonants: p k h l m n w ?
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E.g., many indigenous languages of the northwest coast of North America have dozens of consonants.

Syllables

A syllable is a grouping of consonants and vowels into a phonetic unit.

Languages vary in terms of what consonants and consonant clusters may begin and end syllables.

E.g., English has extremely complex syllables:
- glimpsed CCVCCC
- streets CCCVCC
- E.g., Hawaiian has only V and CV syllables.
Syllable Structure & Verbal Art

- The syllable patterns of a given language may dispose it to certain types of verbal art.
- In English, for example, the richness of potential syllables and the frequency of mono-syllabic words permits verbal art based on rhyming.

Sylvia Plath: Daddy

You do not do, you do not do
Any more, black shoe
In which I have lived like a foot
For thirty years, poor and white,
Barely daring to breathe or Achoo.

Daddy, I have had to kill you.

Writing Systems

Cherokee Syllabary

Simple syllable structure allows for syllabic writing.
Tone

- Some languages use pitch to distinguish words. Such languages are called **tone** languages. The majority of languages in the world do this.

Chinese Tone

<table>
<thead>
<tr>
<th>Chinese Character</th>
<th>Tone symbol</th>
<th>Tone description</th>
<th>English gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>媽</td>
<td>˥</td>
<td>high level</td>
<td>mother</td>
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<td>麻</td>
<td>˧</td>
<td>high rising</td>
<td>hemp</td>
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<td>馬</td>
<td>˨˦</td>
<td>falling rising</td>
<td>horse</td>
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<td>罵</td>
<td>˨</td>
<td>high falling</td>
<td>cold</td>
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</table>

Phonology

- Phonology is closely related to phonetics. Whereas phonetics studies the physical properties of sound, phonology examines how particular languages group and use sounds to distinguish meanings.

Let's look at one example of what I mean...
Cree and English

- Both English and Cree (an indigenous language of North America) have the sounds [p] and [b]. Here are a few words from Cree:
  - [naabew] ‘in the store’
  - [taabwe] ‘truly’
  - [peyak] ‘one’
- Compare English
  - [best]
  - [pest]

Note that English uses the contrast between [b] and [p] to distinguish words with different meanings.
But Cree never does this. In Cree, the form [b] is always found between vowels, and [p] at the beginning or end of a word. We can say that they are function as the “same” sound in Cree.

Phonemes

- The two phonetic sounds [b] and [p] thus pattern quite differently in English and Cree.
- In Cree, [p] and [b] function as variants of the same sound, with their distribution specifiable in terms of their phonetic environment:
  - [b] occurs between vowels, [p] occurs at the beginning and end of a word
- In English the sounds [b] and [p] are used contrastively. Contrastive sounds in a language are called phonemes. By comparison, [p] and [b] are not contrastive in Cree, but are predictable variants of each other.

How languages can differ...

- So another way that languages can differ is in how phonetic sounds pattern within them. Two languages may have the same phonetic sounds, but organize them differently, for example, in one case grouping two sounds together as functionally the “same” sound, whereas in another treating the two sounds are functionally different, and using them to distinguish words.
Summary...

- Language is a richly articulated system of systems:
  - Morphology: structure of words
  - Syntax: structure of phrases and sentences
  - Semantics: structure of meaning
  - Phonetics: speech sounds
  - Phonology: how sounds pattern