Midterm exam

- Exam covers chapters 1–7 of Haspelmath and class notes
- Homework problems + essays
- In class part: Wednesday, March 16
- Take home part: due Monday, March 21
- Both parts are open book, but:
  - You still need to study
  - Don’t work in groups
Morphology

- Morphology is the study of the systematic covariation in the form and meaning of words.
- Morphology as battleground
- Morphology as rain forest
- What is a word?
  - Orthographic words
  - Phonological words
  - Syntactic words
  - Semantic words
We can also distinguish between notions of ‘word’ by the level of abstraction.

- A **lexeme** is a ‘dictionary word’, an abstract entity (emic category), written in SMALL CAPS.

- A **word form** is a concrete orthographic or phonological (or ...) entity.

- A **morphosyntactic word** is a particular combination of morphosyntactic features.

- A **paradigm** is a set of word forms that belong to a particular lexeme.
Meaning relations

- Two main types: inflection and derivation
- Inflectional morphology relates word forms that belong to a single lexeme
- Inflectional categories vary a lot by language, but typically include
  - inherent properties, e.g., tense, mood, or number
  - government properties, e.g., case, agreement
  - concord properties
Derivational morphology

- Derivational morphology relates lexemes
- Functional derivation
  - *act-or*
- Featural derivation
  - *actr-ess*
- Category-changing derivation
  - *new*  *new-ness*
  - *budget*  *budget-ary*
- Valence changing derivation
Morpheme

- Many kinds of form/form and meaning/meaning relations
- Where does this leave morphemes as “the smallest meaningful constituent”?
- Three approaches
  - Morphemes as things, sometimes very abstract
  - Morphemes as rules, usually affixation
  - No morphemes, just relations among words
Allomorphy

- The shape of a morpheme varies (often in complex ways) with its context.
- Phonological rules may have different effects, depending on the morphological environment (German final devoicing).
- Some variation is phonologically conditioned, but not purely phonological (English plurals).
- Allomorphy may also be morphologically conditioned.
Morphemes

- Allomorphy raises problems for morphemes as minimal signs
- Other problems
  - Cumulative exponence: mont-em ‘mountain-ACC.SG’
  - ‘Cranberry’ morphs: re-ceiv-er
  - Overlapping morphs: vom Faß = von dem Faß
  - Portmanteau morphs: go-ed = went
  - Empty morphs: baker’s dozen
Morphophonology

- Item and Arrangement = morphemes + tactics
  - This obscures phonological relationships (knife / knives)
  - One solution: morphophonemes (internal reconstruction)

- Item and Process = morphemes + rules

- Both models have their strengths:
  - IA is simple, but treats all variation as suppletion
  - IP is general, but treats all variation as phonology

- A third model, Word and Paradigm, takes the notion of an inflectional paradigm as central
Post-structuralist linguistics

- Structuralist model
  
  phonetics : phonology : morphophonology : morphology : syntax

- Chomsky and Halle adopt an IP-like model which merges phonology and derivational morphology into one module

- ‘Affix hopping’ incorporates inflectional morphology into syntax

- Early generative model
  
  phonetics : phonology : syntax
“Remarks”

• In early generative grammar, syntactic variation arose through the application of *transformations*

  *Pat criticizes the book*  →  *The book was criticized by Pat*

• Transformations are (almost) completely regular, with consistent changes in form and meaning

• *Gerundive nominalizations*, like passives, are very predictable

  *Pat criticizes the book*  →  *Pat’s criticizing the book*

• *Derived nominalizations* are like gerunds in many respects:

  *Pat criticizes the book*  →  *Pat’s criticism of the book*
“Remarks”

- We have a distinction between:
  - transformations, which are completely predictable, and
  - lexical entries, which are listed
- Derived nominalizations seem to be somewhere in between
- Chomsky’s proposal was that derived nominalizations be formed in the lexicon, but that any regularities could be captured by *lexical redundancy rules*
- Strong vs. Weak Lexicalist Hypothesis
Halle’s “Prolegomena to a theory of word formation” takes up Chomsky’s challenge.

IA model, with a list of morphs feeding into a set of tactic rules.

Non-occurring forms (*arrivation) removed by filter.

Dictionary lists occurring and non-occurring forms.

Halle’s final model.
Word-based morphology

- Halle’s model suffers from a number of problems
- Aronoff (1976) proposed a “word-based” alternative for derivational morphology

**Word Based Hypothesis**: All regular word-formation processes are word-based. A new word is formed by applying a regular rule to a single already existing word. Both the new word and the existing one are members of major lexical categories.

- Inflection and compounding are (for Aronoff) in the syntax
Word-based morphology

- No list of morphs: only free forms are listed
- WFRs are schemata for producing new words out of old words
  \[X_V \text{-er}]_N \text{ ‘one who } X\text{s habitually, professionally, etc.’}\]
- The output of a WFR can be stored in the dictionary
- Once listed in the dictionary, a word is able to pick up unique properties
- Completely predictable words formed by wholly productive WFRs don’t have to be listed (e.g., -ly)
Word-based morphology

- WFRs put various syntactic, semantic, phonological, and morphological constraints on the base.
- Adjustment rules modify the phonological form of a word, conditioned by the presence of certain morphemes.
- WFRs can be applied in reverse to get at the ‘root’ of words like *tangible* and *fungible*.
- Knowledge of WFRs can be used to produce back-formations like *babysit*.
- Some forms are *predicted*, others are *motivated*.
Morphological change

- Back-formations, et al. are not really the result of WFRs, but of things we do with WFRs
- Similar processes (both conscious and unconscious) lead to morphological changes in language
- Haspelmath distinguishes four types:
  - Pattern loss
  - Coalescence
  - Analogical Change
  - Reanalysis
Productivity

• Word-based Morphology has no Filter, so WFRs need to be carefully restricted

• Aronoff compared the de-adjectival noun suffixes -\textit{ness} and -\textit{ity} as they combine with -\textit{ous}

• Phonological
  
  \begin{verbatim}
  sérious  sériousness  
cúrious  curiósity  
várious  varíety  
  \end{verbatim}

• Lexical
  
  \begin{verbatim}
  nebulous  nebulosity  
credulous  credulity  
  \end{verbatim}
Blocking

- For some words, we can predict that -ity won’t apply

  | glorious | *gloriosity | gloriousness |
  | furious  | *furiosity   | furiousness |
  | gracious | *graciosity  | graciousness|
  | fallacious| *fallaciousity| fallaciousness|
  | acrimonious| *acrimoniosity| acrimoniousness|

- The existence of a noun (glory, fury, ...) blocks the formation of a synonym

- Panini’s Principle (aka Elsewhere Condition): A more specific rule trumps a more general rule

- Completely predictable forms aren’t listed in the dictionary, so aren’t subject to blocking effects
Inflection

• We’ve been making a distinction between derivation and inflection, but what’s the difference?

• Linguists have identified a number of criteria, but none are definitional

• Inflectional morphology relates word forms of a lexeme, derivational morphology relates word forms

• Inflection is relevant to the syntax, derivation is not

• Derivational morphology (unlike inflectional morphology) can change the major category of a word

• Inflection is obligatory, while derivation is optional
Inflection

- Derived forms (unlike inflected forms) can be replaced by a monomorphemic form
- Derived forms (unlike inflected forms) express a ‘new concept’
- Derivational morphology has a more concrete meaning than inflectional
- Inflectional morphology (unlike derivational morphology) applies without arbitrary restrictions
- Inflection is semantically regular, derivation is often irregular
- Derivation tends to induce more base allomorphy than inflection
Inflection

- Paraphasias can affect the ability of speakers to inflect or derive words differently
- Inflection and derivation may trigger different phonological readjustment rules
- Derivational rules are recursive, but not inflectional rules
- Derivational rules can apply in more than one order, inflectional rules have a fixed order
- Order varies between languages, but there are strong cross-linguistic tendencies
- Derivational morphology applies before inflectional morphology
Inflection

• Two general approaches
  • Split morphology: inflection and derivation belong to different modules
  • Continuum: inflection and derivation are descriptive categories, but all morphology is combined into a single module
Split Morphology

• The “split morphology” hypothesis divides morphology between two grammatical components

• Lexicon produces morphosyntactic words (lexemes plus features):

  IMPERATOR$_{3sg}$  SALUTARE$_{perf}$  POPULUS$_{3sg}$
  ‘emperor’         ‘greet’           ‘people’

• Syntax organizes these into a structure which determines which features are assigned:

  IMPERATOR$_{nom/3sg}$  SALUTARE$_{3sg/perf}$  POPULUS$_{acc/3sg}$
  ‘emperor’         ‘greet’           ‘people’

• Spell-out rules select the correct word forms

  Imperator salutavit populum.
Compounds

- **Root compounds** are formed by joining more than one word
- **Synthetic compounds** combine a verb with an argument
- **Endocentric compounds** have a semantic head
- **Exocentric compounds** don’t have a semantic head (metonymy)
- **Appositional compounds** conjoin elements
Stress

• How do we know we’re looking at a compound?

• Compound stress falls on the first element (usually)

  bláckbird  blàck bírd
  whitehouse  white house

• In three-part compounds, stress falls on the first element or the second element:

  [student [film committee]]
  [[film committee] chairman]

• Stress can disambiguate complex compounds:

  [government [[páy review] policy]]
  [[gòvernment pay] [reviéw policy]]
Synthetic compounds

- In synthetic compounds, the left daughter fills a semantic role in the meaning of the right daughter
  
  *truck driver, fast acting, pan fried, moth eaten*
  
- In some languages, noun-verb compounds seem more syntactic
  
- Mohawk

  \[\text{Wa’-k-hnínú-’ ne ka-nákt-a’}\]
  FACT-1sS-buy-PUNC NE NsS-bed-NSF
  ‘I bought a/the bed.’

  \[\text{Wa’-ke-nakt-a-hnínú-’}\]
  FACT-1sS-bed-E-buy-PUNC
  ‘I bought a/the bed.’
Incorporation

- But, in many ways these do act like English compounds
- Lexical idiosyncrasies

  *te-k-HT-ólalak-s*
  DUP-1sS-object-press-ASP
  ‘I am pressing it.’

  *u-k-YA’T-ólalak-e’*
  FACT-1sS-body-press-ASP
  ‘I had a nightmare.’ (lit: it pressed on me)

  *te-ke-list-ólalak-s*
  DUP-1sS-metal-press-ASP
  ‘I am typing; I am a typist.’ (lit: I press on metal)
Morphology

• Most generative theories of morphology work best for agglutinative derivational morphology: each morph corresponds to an atomic meaning.

• Deviations from this ideal can be handled via process morphology, suppletion, etc.

• In contrast, descriptive traditions don’t treat all morphology as agglutination:
  - Template morphology
  - Paradigm-based morphology
Position classes

- Pre-Hockett morphological descriptions relied heavily on ‘position classes’
- Najavo (Young and Morgan 1980)

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Template morphology

- Simpson and Withgott (1986) contrast *layered* and *template* morphology
- Zero morphemes are very common in template morphology, less so in layered morphology
- Layered morphology gives rise to headed structures, template morphology doesn’t
- Layered morphology is limited by adjacency constraints
- Layered morphology doesn’t allow selection of an ‘inner’ allomorph to be constrained by the occurrence of an ‘outer’ morph, but this is common for template morphology
Paradigm functions

- **Incremental** theories of morphology build up form and meaning in parallel
  
  \[ \text{walk} / \text{WALK} + \text{s} / \text{PL} = \text{walks} / \text{WALK+PL} \]

- **Realizational** theories associate words forms with morphosyntactic words
  
  \[ \text{WALK+PL} \iff \text{walks} \]

- Realizational theories use rules like:
  
  “If +PL, add -s to stem”

- Rules and stems organized into an inheritance hierarchy
Inheritance

- Inheritance is an important organizing principle for many levels of linguistic structure (e.g., HPSG syntax)
- Inheritance relations are often expressed using an “is-a” hierarchy
- *Default* inheritance allows more specific constraints to override more general ones
- Defaults also play a role via the Elsewhere Principle
Inheritance

• Especially prominent in inflectional systems

- s 3sg pres
- ing pres part
- ed past/past part
- Ø elsewhere

walks 3sg pres
walking pres part
walked past/past part
walk elsewhere
Inheritance

- By the Elsewhere Condition, we use the most specific realization rule that’s applicable

- **s**  
  3sg pres

- **-ing**  
  pres part

- **-ed**  
  past/past part

- **-Ø**  
  elsewhere

- **saw**  
  see past

- **-en**  
  see past part

- **sees**  
  3sg pres

- **seeing**  
  pres part

- **saw**  
  past

- **seen**  
  past part

- **see**  
  elsewhere
Inheritance

- Defaults and inheritance lets us capture arbitrarily complicated irregularities

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**Inflection classes**

- Paradigms are often sensitive to *inflection classes* (e.g., verb conjugations, noun declensions)

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Inflectional classes

- We can relate the whole paradigm using a set of word-based WFRs
  \{ [ /Xus/ NOM.SG ], [ /Xī/ GEN.SG ], [ /Xō/ DAT.SG ],
  [ /Xum/ ACC.SG ], ... \}

- But, we still can’t describe the similarities among inflection classes

- Default inheritance also lets us express relationships among inflection classes (e.g., Modern Greek)
Inheritance

- XV
  - XV
  - XV?
  - XV?
  - XV?
  - XVs
  - XV
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  - XV
  - XV?
Paradigm economy

- Creating paradigms as objects in our theory lets us represent the fact that not all combinations of morphemes are possible.

- Paradigm Economy Principle (Carstairs 1987)
  The number of inflectional classes is less than or equal to the number of allomorphs in the most varied category.

- Not quite literally true, but inflectional class systems are much less complicated than they could be.
Syncretism

- Inflectional paradigms are often show syncretism
- Syncretism is not the same as homonomy
- We can use *underspecification* to represent natural syncretisms in the grammar
- For non-natural syncretism, we can use *rules of referral*