Today’s topics

- inflection vs derivation
- why do linguists make this distinction?
- arguments and evidence for and against the distinction
- larger implications of the (non)distinction
Inflection vs Derivation

from Goldberg 2005

- **Inflection**: outfits lexemes with the features they need to occupy their designated position in a syntactic construction (e.g., case, agreement features, tense, mood)
  - derive, derives, deriving
  - derivation, derivations

- **Derivation**: relates lexemes to each other (category changing, argument-structure changing morphology)
  - derive, derivation, derivational, derivationally, derivable, derivability
  - govern, government, governor
  - social, socialist, socialism, socialize
  - work, worker, workable
  - sleep, sleepy, sleepiness

[Derivation example]
- Anderson 1982, 1992: Inflection is the morphology that is relevant to the syntax.
  - relevant to the syntax = things like structural syntactic case, or subject-verb agreement
- The boundary between these can be fuzzy:
  - Is sleepier (the comparative of sleep) an inflected form of sleep or a different lexeme?
  - Is writing an inflected form of write (the one called for in the syntactic construction “I am ___”) or is it a separate lexeme?
  - How about number of NPs in languages where there is no number agreement, e.g., English “I opened the box/boxes”?

Yet the categories are still commonly invoked, because of some general correlations:

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Classic differences

from Goldberg 2005

<table>
<thead>
<tr>
<th>Inflection</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t change word class</td>
<td>Changes WC</td>
</tr>
<tr>
<td>Peripheral</td>
<td>Central</td>
</tr>
<tr>
<td>Productive (but Chechen agr in only 30% of vbs)</td>
<td>Less productive; frequent gaps in family</td>
</tr>
<tr>
<td>Paradigmatic</td>
<td>Not paradigmatic</td>
</tr>
<tr>
<td>Semantically transparent</td>
<td>Not semantically transparent</td>
</tr>
<tr>
<td>Connected to syntax</td>
<td>Not connected to syntax</td>
</tr>
<tr>
<td>Not replaceable by single word</td>
<td>Replaceable by single word</td>
</tr>
<tr>
<td>Can be syncratic (3sg pres -s)</td>
<td>Generally not syncratic (un-talk-ative)</td>
</tr>
</tbody>
</table>

Generalisations:
- Inflection adds information to a word; derivation changes information.
- Within any given part of speech, those properties required by syntax (case on nominals; subject or object agreement on nominals and/or verbs; tense on verbs) are always classified as inflection.
Possible I-D differences

Semantic transparency
from Goldberg 2005

- Inflection tends to be more semantically regular than derivation:
  - The “meaning” or function of e.g. dative case is consistent across all nouns it combines with.
  - By contrast, derivational affixation is often subject to semantic irregularity.

<table>
<thead>
<tr>
<th>dress</th>
<th>dresser</th>
<th>one who dresses, or specific type of furniture</th>
</tr>
</thead>
<tbody>
<tr>
<td>poke</td>
<td>poker</td>
<td>one who pokes, or specific fireplace tool</td>
</tr>
<tr>
<td>discern</td>
<td>discernment</td>
<td>property of being discerning</td>
</tr>
<tr>
<td>deport</td>
<td>deportment</td>
<td>behavior, not property of being deported</td>
</tr>
<tr>
<td>govern</td>
<td>government</td>
<td>an institution that governs, not the property of being governing</td>
</tr>
</tbody>
</table>
**Affix ordering**

- In agglutinating languages, derivation is generally closer to the root than inflection:
  - dogg-ie-s, *dog-s-ie
- Problem 1: depantsing, etc.
- [Problem 2: Rice on Slave]
  - xazeyr-im-l-əx 'little pigs' : demb-l-əx 'little oaks'
  - diminutive only follows plural when the pl is irregular
  - Perlmutter 1988: irregular plurals stored in lexicon, so no ordering dilemma
  - Bobaljik 2003: Itelmen shows same pattern, but with regular plurals
- Do we really need the ordering generalisation, or the I-D distinction for that matter?
  - e.g. is the ordering generalisation just a product of history?
    - potential problem: Harris and Faarlund on inflection trapping

**Acquisition**

- Robust finding for many languages: knowledge of inflectional morphology is acquired before knowledge of derivational morphology and the morphology of compounds
  - Levin et al. 2001 on Hebrew
    - 40 children tested twice (5;11 and 6;5) on two oral tasks – inflecting nouns for possession and deriving denominal adjectives.
    - D was found to be harder than I, both on the stem and the suffix level, attributable to its higher semantic opacity.
  - Green et al. 2003 on English
    - I and D forms within narratives written by 247 3rd and 4th graders
    - majority of such students use I consistently and accurately
    - fewer used derived forms, and significantly more 4th graders than 3rd graders used them accurately
    - generalisation for both speaking and writing: I mastered by 9-10, but D continues to develop into middle childhood
### Aphasia

- Evidence for I and D as autonomous subcomponents (Miceli and Caramazza 1988)
- Badecker and Caramazza 1989
- Marangolo et al. 2003
  - Much documentation of selective deficits in I
  - No prior evidence for selective deficits in D
  - Report on 2 patients with R-hemisphere lesions and selective D deficits
    - Specific deficit: producing nouns derived from verbs
      - One produced past participles, the other gerunds
        - *spostato* ‘displaced’ instead of *spostamento* ‘displacement’
        - *digerendo* ‘digesting’ instead of *digestione* ‘digestion’
  - Problem: observed differences can be explained without recourse to differences within the grammar
    - R brain accesses broader range of related meanings

### Eye tracking

- Niswander, Pollatsek, and Rayner 2000
  - Encoding of suffixed words (both I and D) assessed by monitoring eye movements during reading English sentences
  - Scheme: lower frequency, longer fixation
  - Root frequency (R) and whole-word frequency (W) independently manipulated in target words
  - D words: R affected processing earlier than W
  - Regular I words:
    - W affected processing beginning with first fixation
    - R affected processing beginning with first fixation for plural nouns but not for inflected verbs
  - Potentially interesting results:
    - Evidence for morphological decomposition
    - Counter to prediction of theory that D = stored, I = rule-based
  - Problem: I and D stimuli not controlled for word length
Signed languages

Aronoff, Meir, and Sandler 2005

- morphology is generally simultaneous
- the few cases of sequential morphology are all derivational

(rest state)  
\[\text{WHO} \rightarrow \text{ARRIVE}\]

(From Conlin, Hagstrom, and Neidle 2003)

Arguments for suffixhood rather than wordhood

- It must occur after, never before, its stem. This is significant in light of the fact that word order in ASL is relatively free, and that the related independent word can indeed occur before or after verbs.
- Two of the five consultants who use the suffix attach it to a limited set of verbs (including SEE, HEAR, LEARN, FEEL, SAY, EAT, TOUCH, SMELL, UNDERSTAND, USE, SLEEP, TASTE). For these consultants, the verb and suffix tend to fuse phonologically in the following ways: nonmanual markers such as facial expressions or head positions tend to span both the verb and the suffix; the path movements of both the verb and the suffix either are shortened or coalesce, depending on the underlying form of the stem; some of the meanings of the suffixed words are idiosyncratic. Examples of the last characteristic are SAME-ZERO 'can’t find one like yours', SAY-ZERO 'not mention', and TOUCH-ZERO 'not use'.
- There is a phonological constraint on the occurrence of the suffix: it can occur only with one-handed stems.

ASL words are either one-handed or two-handed throughout. The few athematic monomorphemic words that exist in the language are two-handed in both syllables. Furthermore, lexicalized compounds tend to spread two-handedness from one member of the compound to the other (Sandler 1989, 1993c, van der Hulst 1996). If there is a constraint on number of hands within a word, it is not surprising that the one-handed negative element under discussion occurs only with other one-handed forms: it is a suffix, and the resulting word must satisfy the constraint on handedness, whose domain is the word. The way in which negative suffixed forms satisfy this constraint is different from the way compounds do. The suffix avoids two-handed stems, while the compounds involve spreading of two-handedness to the one-handed member.
Larger implications of the I-D (non-) distinction

Traditional approaches to I-D

- **brute force**
  - morphemes pre-classified as D or I; properties are predetermined
- **stratification** (e.g. Anderson, LPM)
  - derivation done in the lexicon
  - inflection done in the syntax
- **syntactic** (Lieber, Selkirk, Travis, DM)
  - single domain of word-formation where both I and D apply
  - properties of morphemes derived from structural configuration and relative position
Problems 1

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>participle</td>
<td>productive, compositional</td>
<td>class-changing when used as Adj</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(broken string)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>can be non-compositional (drunken)</td>
</tr>
<tr>
<td>diminutives</td>
<td>Yiddish/Itelmen order</td>
<td>change base meaning</td>
</tr>
<tr>
<td></td>
<td>R adds -ša (f declension) to stressed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>syll (Pavel -&gt; Paša, Natāľa -&gt; Taša)</td>
<td>R adjectives agree with gender of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>base, not -ša (ruskij/ruskaja Saša</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘Russian Alexander/Alexandra’)</td>
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<tr>
<td>aspect</td>
<td>R (im)perfective aspect marked by</td>
<td></td>
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<tr>
<td></td>
<td>presence or absence of prefix for</td>
<td></td>
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<tr>
<td></td>
<td>many verbs</td>
<td></td>
</tr>
<tr>
<td>cpv &amp; suprlv</td>
<td>E -er &amp; -est functionally</td>
<td>can be suppletive (worse...)</td>
</tr>
<tr>
<td></td>
<td>inflectional</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Sp constructions are derivational or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lexical</td>
</tr>
<tr>
<td>gender</td>
<td>Sp gallo negro ‘black rooster’ vs.</td>
<td>Sp gallo negro ‘black rooster’ vs.</td>
</tr>
<tr>
<td></td>
<td>gallina negra ‘black hen’</td>
<td>gallina negra ‘black hen’</td>
</tr>
</tbody>
</table>

Problems 2

- **Raveh and Rueckl 2000**
  - Previous studies of long-term morphological priming have obtained a mixed pattern of results: Although some studies have found larger effects of inflected primes than of derived primes, others have found that inflections and derivations have equivalent effects.
  - We reexamined this issue in four experiments in which the inflected and derived primes were paired with the same target words (e.g., believe, believed, believer) and were equated in terms of their orthographic similarity to the targets. Across these experiments, inflections and derivations consistently produced equivalent levels of priming.
Larger implications of the I-D (non-)distinction

- relevant to theories that organise inflection (but not derivation) in terms of paradigms
  - Beard
  - McCarthy, Optimal Paradigms
    - traditional generalisations:
      - inflection is paradigmatic, derivation isn’t
      - derivatives have obvious bases, inflected forms don’t
    - McCarthy: derivational paradigms always refer to privileged bases, but inflectional paradigms never do
    - Albright argues that inflectional paradigms also have bases
    - BV: all such cases may involve opportunistic selection, not derivational architecture
- relevant to “syntactic” theories of morphology
  - Distributed Morphology
  - Selkirk

Conclusions

- Problems with observed I-D differences:
  - may have historical rather than synchronic causes
  - may have extra-linguistic causes


