Historical linguistics
Other mechanisms of morphological change
http://www.ling.cam.ac.uk/li11/

• not all analogy is morphological
• not all morphological change is analogical
• other processes of morphological change: morphologisation,

1 MORPHOLOGISATION (GRAMMATICALISATION)
• the fusing of once independent elements with each other
• a subcase of grammaticalisation
• derivational suffixes often derive from independent words e.g. Latin clara mente 'with a clear mind', hence French clairement 'clearly' (any sense), Spanish fácilmente 'easily', Italian rapidamente 'quickly'.
• emergence of inflection is often associated with morphologisation:

  case inflection e.g. Estonian comitative case ending -ga is cognate with the Finnish postposition kanssa 'with';
  person-number agreement on verbs e.g. Buryat bi jaba-na-b 'I am going', where -b < bi 'I';
  English not > -n't.

1.1 Phonological concomitants of morphologisation
1. unreduced and reduced forms undergo independent phonological changes e.g. because [bi-] ≠ by [ba]
2. quantitative reduction
3. qualitative reduction: move to unmarked phonological segments [n] [t] [s] etc.

1.2 The end of grammaticalisation: loss (demorphologisation)
Old English sold-um, dat. of sold ‘rare, strange’ > Modern English seldom

Old Irish fo-ad-gab- ‘under-toward-take’ > Modern Irish fog- ‘leave’
  ad-ro-ber- ‘towards-for-bear’ > Modern Irish abair- ‘say’

1.3 Morphologisation and reconstruction (Comrie 1980)
If morphologisation 'freezes' syntax, as Givón suggested ('Today's morphology is yesterday's syntax', see Givón 1971) then it should be possible to reconstruct earlier syntax from the order of morphemes today. There are two ways to interpret this:

Hypothesis 1. The order of morphemes in a word reflects ... the order of those separate words at the time they started being fused together into a single word.

Hypothesis 2. The order of morphemes in a word reflects ... the basic word order of the language concerned at the time those separate words started being fused together into a single word.

1.3.1 Buryat person-number affixes
Buryat (Mongolian) has subject-object-verb and possessor-noun word order.

bi jaba-na-b 'I am going'
min? axa or axa-m(ni) 'my elder brother'

Subject agreement and possessor agreement are transparently derived from earlier pronouns.
1.4 After morphologisation: externalisation (Haspelmath 1993)

- after morphologisation, inflectional morphemes may end up closer to the head than derivational morphemes
- externalisation = the inflectional morpheme (case endings on nouns or number-person marking on verbs) moves to a more peripheral position

1.4.1 Georgian indefinite pronouns

Georgian indefinite pronoun rame ‘anything’ (< ra ‘what’ + -me ‘indefiniteness marker’) now inflects in three ways, reflecting its historical development:

<table>
<thead>
<tr>
<th></th>
<th>OLD</th>
<th>INTERMEDIATE</th>
<th>NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>ra-me</td>
<td></td>
<td>ra-me</td>
</tr>
<tr>
<td>acc.</td>
<td>ra-s-me</td>
<td>ra-s-me-s</td>
<td>ra-me-s</td>
</tr>
<tr>
<td>adv.</td>
<td>ra-d-me</td>
<td>ra-d-me-d</td>
<td>ra-me-d</td>
</tr>
<tr>
<td>gen.</td>
<td>r-is-me</td>
<td></td>
<td>ra-me</td>
</tr>
<tr>
<td>inst.</td>
<td>r-iti-me</td>
<td></td>
<td>ra-me-ti</td>
</tr>
</tbody>
</table>

1.4.2 Old Icelandic indefinite pronouns (messier)

In Old Icelandic, the indefinite pronoun huerge ‘whichever’ was formed from huer ‘which’ plus -ge ‘indefinite particle, -ever’:

<table>
<thead>
<tr>
<th></th>
<th>OLD</th>
<th>FEM.</th>
<th>NEUTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>huer-r</td>
<td>huer-ø</td>
<td>huer-t</td>
</tr>
<tr>
<td>gen.</td>
<td>huer-s</td>
<td>huer-rar</td>
<td>huer-s</td>
</tr>
<tr>
<td>dat.</td>
<td>hueri-om</td>
<td>huer-re</td>
<td>hueri-om</td>
</tr>
<tr>
<td>acc.</td>
<td>huer-n, hueri-an</td>
<td>hueri-a</td>
<td>huer-t</td>
</tr>
</tbody>
</table>

huerge ‘whichever’ (innovative forms in bold, hybrid form underlined)

<table>
<thead>
<tr>
<th></th>
<th>OLD</th>
<th>FEM.</th>
<th>NEUTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>huerskes, huerges</td>
<td>huerge</td>
<td>huer(t)ke</td>
</tr>
<tr>
<td>gen.</td>
<td>huerionge, hueregom</td>
<td>huereregrar</td>
<td>huereskes</td>
</tr>
<tr>
<td>dat.</td>
<td>huerionge</td>
<td>huereregrar</td>
<td>huerionge</td>
</tr>
<tr>
<td>acc.</td>
<td>huernge, huern(e)gan</td>
<td>huereg</td>
<td>huer(t)ke</td>
</tr>
</tbody>
</table>

Old forms attach the case ending to huer- and then follow it with -ge; new forms have -(e)g- between the stem and the case ending; hybrid forms repeat the inflectional affix in both positions. For a Basque example, see Trask 1996: 105.

1.4.3 Issues

- restores the (universal) preference that derivational morphology should go outside inflectional morphology, which is destroyed by grammaticalisation (morphologisation). This explains why only inflectional morphology (not derivational) is ever externalised.
• often (normally?) proceeds via doubling (unlike much word order change?)

\[
\begin{array}{ccc}
\text{AB} & \Rightarrow & \text{ABA} \\
\text{not AB} & \Rightarrow & \text{AB and BA}
\end{array}
\Rightarrow \text{BA}
\]

• externalisation is not analogy. In the Georgian case, it could be proportional (four-part) analogy:

\[
\begin{align*}
nom. \text{ mope} \text{ ‘king’} : & \quad \text{gen. mopes} \\
nom. \text{ rame} \text{ ‘anything’} : & \quad \text{gen. x} = \text{ rames}
\end{align*}
\]

But this does not explain the appearance of hybrid forms

• Haspelmath (1993): externalisation is the addition of a morpheme when its initial occurrence has become opaque: in the Georgian example, rasmes is created because the -s- in rasme is no longer transparently an accusative affix. Subsequently stem levelling takes place: variation between ra- and ras- is removed in favour of ra-. This also satisfies ‘conservatism’: languages change in the smallest possible steps. So externalisation = reanalysis + analogy?

2 Morphological reanalysis

Reanalysis = the reassignment of (morpheme) boundaries
• the reanalysis itself is unobservable (present only in speakers’ minds)
• reanalysis becomes observable once a new form based on it is created

2.1 Reassignment of word boundary between articles and nouns

English
\[
\begin{align*}
an \text{ ewt} & \Rightarrow \text{ a newt} \\
a \text{ napron} & \Rightarrow \text{ an apron} \\
a \text{ nadder} & \Rightarrow \text{ an adder} \\
an \text{ other whole} & \Rightarrow \text{ a whole nother etc.}
\end{align*}
\]

French
\[
\begin{align*}
\text{unicorne} & \Rightarrow \text{ un-icorne} \Rightarrow \text{ licorne} \\
l \text{unicorne} & \Rightarrow \text{l’icorne} \Rightarrow \text{ la licorne} \\
\text{une unicorn} & \Rightarrow \text{ une icorne} \Rightarrow \text{ une licorne}
\end{align*}
\]

Welsh
\[
\begin{align*}
\text{yr hiniog} \text{ ‘the threshold’} & \Rightarrow \text{ y rhiniog}
\end{align*}
\]

• affects only individual lexical items (‘sporadic’)
• no general impact on the language

2.2 Creation of new derivational morphology through reanalysis

Can lead to creation of new morphemes which are then used productively:

\[
\begin{align*}
\text{electrician} & \Rightarrow \text{electic} + \text{ ian} \Rightarrow \text{ electr + ian} \Rightarrow \text{ beauti + ian} \\
\text{minimum} & \Rightarrow \text{minimum} \Rightarrow \text{mini-mum} \Rightarrow \text{mini-series} \\
\text{helicopter} & \Rightarrow \text{helicopter} \Rightarrow \text{heli-copter} \Rightarrow \text{heli-port} \\
\text{marathon} & \Rightarrow \text{marathon} \Rightarrow \text{mar-athon} \Rightarrow \text{tel-ethon} \\
\text{alcaholic} & \Rightarrow \text{alcahol-ic} \Rightarrow \text{alc-aholic} \Rightarrow \text{work-aholic}
\end{align*}
\]

• difficult to reformulate as ‘core’ analogy (often treated as ‘sporadic’ analogy)

2.3 Creation of new inflectional morphology through reanalysis

Reanalysis can create new inflections e.g. Welsh third-person singular future inflection -iff:
Stage I (Middle Welsh)
kaffael ‘to get’
cf. taflu ‘to throw’
kaffaf kaffwn
tafla tafliwn
keffy keffwch
tefly teflwch
keiff kaffant
teffl taflant

Stage II (Middle Welsh, /f/ > ø between vowels)
kaf kawn no change
key kewch
keiff kant

Stage III (Modern Welsh, keiff reanalysed as ka-iff where -iff is 3s future)
caf cawn
tafla tafliwn
cei cewch
tefli teflwch
caiiff cant
tafliff taflant

• is this analogy?
• a four-part analogy would be something like kaf : keiff as taflaf : x = tafliff
• is the analogy revealing?
(for a Basque example, the creation of -danik ‘since’, see Trask 1996: 104)

3 EXAPTATION
• in evolutionary biology exaptations = ‘those useful structures that arose for other reasons, or for no conventional reasons at all, and were then fortuitously available for other changes’ e.g. birds’ feathers (perhaps) developed as a thermoregulatory device for warm-blooded proto-birds living at high altitudes, but later they were used for flying.
• in linguistics
  • a language makes a grammatical distinction
  • this distinction is lost, but the morphology that encodes it remains
  • this ‘junk’ is put to use for some other purpose
• not the same as analogy e.g. cow:cows by analogy with stone:stones; here there is no ‘junk’.

Example: Afrikaans adjectives
Middle Dutch had an adjective paradigm that depended on gender and case of the head noun (although with a lot of variation depending on definiteness):

<table>
<thead>
<tr>
<th></th>
<th>NOM</th>
<th>ACC</th>
<th>GEN</th>
<th>DAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASC.</td>
<td>-e</td>
<td>-en</td>
<td>-(e)s</td>
<td>-en</td>
</tr>
<tr>
<td>FEM.</td>
<td>-e</td>
<td>-e</td>
<td>-er</td>
<td>-er</td>
</tr>
<tr>
<td>NEUT.</td>
<td>-e</td>
<td>-e</td>
<td>-(e)s</td>
<td>-en</td>
</tr>
<tr>
<td>PLUR.</td>
<td>-e</td>
<td>-e</td>
<td>-er</td>
<td>-en</td>
</tr>
</tbody>
</table>

In Afrikaans (a descendent of Middle Dutch), the endings were reduced to either -ø or -e. Initially, syntactic environment determined which was used e.g. ø used with neuter sing.: 

neuter onsdagheliks broed ‘our daily bread’
common een zwart mantelken ‘a little black coat’
plural de groote huizen ‘the big houses’ (neut.)
onduitsche termen ‘un-Dutch terms’ (common)

• gender then lost completely
• the distribution of -e and ø appeared random = ‘junk’
• the ending -e was reused to indicate adjective class membership
• one class of adjective has -e when used attributively, ø when used predicatively; the other always has ø:
  e.g. inflecting type (broadly morphological complex or polysyllabic)
      (die) geheime resep(te) ‘the secret recipes’
      die resep(te) is geheim ‘the recipe is secret’
  e.g. non-inflecting type (monosyllabic) e.g. diep ‘deep’.

Contrast English, which underwent a fairly similar development, but lost all inflectional morphology on adjectives.

4 Suppletion
• (historically) the process by which one form in a paradigm comes to be filled by a form derived from a historically unrelated lexical item

Examples
Verbs
Romance ‘go’: French aller ‘go (infinitive)’ (< Latin ambulâre ‘walk’), je vais ‘I go’ (< Latin vadere ‘go rapidly, advance’), j’irai ‘I shall go’ (< Latin ire ‘go’) (also elsewhere in Romance);
English past tenses: go: went (go: gang and wend: went merged);
Indo-European copulas: (i) IE *es (Latin sum, French suis, Latvian esmu (all be.1SG.PRES), English is etc.); (ii) IE *bh(e)u ‘grow, become’ (Latin fui be.1SG.PERF, Old Church Slavonic byti (be.INF), English be, German bin (be.1SG.PRES) etc.); (iii) IE *wes ‘remain, dwell’ (English was etc.); (iv) IE *sta ‘stay’ (Spanish estar (be.INF), French étais (be.1SG.PRES), Hindi thā (be.SG.PAST), Irish (tā be.PRES) etc.)
Imperatives of ‘come’ and ‘go’: Welsh mynd ‘go’, imperative cer (< cerdded ‘to walk’), dod ‘come’, imper. tyrd or dere (both < rhedeg ‘to run’); Greek erxese ‘you come’: imperative ela (< elaon ‘drive’); Bulgarian idvaš ‘you go’ : imperative ela (< Greek).

Nouns
Russian plurals: rebjonok ‘child’, plur. deti; god ‘year’, gen. plur. after numerals let (< leto ‘summer’);
Breton plurals: ki ‘dog’, plur. chas loan from French chasse pack (of dogs) replaced earlier plural kon (itself irregular); marc’h horse, plur. kezeg (< kazeg ‘mare’); den ‘person’, plur. tud (< tud ‘folk, nation’).

Adjectives
Old High German adjective comparison: ubil : wirsiro : wirsito ‘bad : worse : worst’;
French adjective comparison: bon - meilleur - mieux ‘good, better, best’.

• a side-effect of grammaticalisation (e.g. grammaticalisation of verbs as copulas leaves mixed paradigms)
• one form becomes obsolete (e.g. wend, llaw) or isolated (imperative-only verbs) and learners try to fit the remaining forms together into a paradigm
• one form loses its transparent phonological relationship to its root and gets reassigned to a different lexeme (e.g. dyred ‘run’ > tyrd / dere)
• existing irregularity (e.g. kon) favours change
• speakers try to make verbal paradigms fit common verbal templates (analogy) (Aski 1995 for Romance ‘go’)
• incorporation of loanwords (Breton chas, Bulgarian ela)
**Reading**

**Morphologisation**


Lass, Roger. 2000. Remarks on (unidirectionality. In *Pathways of change: Grammaticalization in English*, eds. Olga Fischer, Anette Rosenbach and Dieter Stein, 207–227. Amsterdam: John Benjamins. [Argues against the claims (a) that all grammaticalisation moves in a single direction only; and (mostly) (b) that all new morphological material comes (ultimately) from former lexical items. There are plenty of morphs in Proto-Indo-European and Proto-Uralic that cannot be shown to have derived from earlier free words.]

Siewierska, Anna. 2000. On the origins of the order of agreement and tense markers. In *Historical linguistics 1995: Selected papers from the 12th International Conference on Historical Linguistics, Manchester, August 1995*, eds. John Charles Smith and Delia Bentley, 377–92. Amsterdam: John Benjamins. [An investigation of the possible scenarios by which languages end up with tense marking further away from the verb than agreement marking, although you won’t find many examples here.]

**Morpheme ordering (externalisation)**


**Morphological reanalysis**


**Exaptation**


Suppletion


