9. Morphological Typology

http://www.oberrheingraben.de/Geophysik/Erdbeben.htm

For maps of the **linguistic** morphology of Europe and elsewhere see http://wals.info/ or, previously, the atlas accompanying P. Wilhelm Schmidt's *Die Sprachfamilien und Sprachenkreise der Erde* (1926)
Typology is that branch of linguistics which is especially concerned with the patterns of crosslinguistic **diversity** (How can languages differ from one another?) and the question of **unity** (How are languages all the same?) The expectation (some would say realistic, others too optimistic) is that diversity is not random and unlimited, insofar as grammars and lexicons are subject to laws or law-like constraints (= universals).

However, patterns of diversity and ultimately unity are difficult to establish **empirically** (there are very many languages to examine, worldwide and over the history of speaking man), and once established, constraints on diversity also want to be **explained**.

Owing to its difficulty and importance, the typological research programme is, and has long been, one of the major challenges of linguistics.

Morphology has for centuries been at the centre of typology. Here we are introducing a **quantitative** (Chapter 9.1) and a **qualitative** dimension (Chapter 9.2) of morphological typology.
For more in this area see the bibliography “Themes in Typology” and other materials on my homepage (http://ling.uni-konstanz.de/pages/home/plank/).

Among the numerous textbooks I especially recommend the morphology chapters in Bernard Comrie’s *Language Universals and Linguistic Typology* (201989) and Edith Moravcsik’s *Introducing Language Typology* (2013).

For current research read the journal *Linguistic Typology* (online at http://www.degruyter.com/view/j/lity).

For morphological and other (alleged) universals browse or search: THE UNIVERSALS ARCHIVE, http://typo.uni-konstanz.de/archive/intro/index.php
9.1. ANALYTIC — SYNTHETIC

On the quantitative side, the question is to what extent languages have morphology.

Although it is conceivable that a lexicon of basic expressions and a richly articulated syntax are all there is, it seems safe to extrapolate that all languages (spoken as well as signed, and including pidgins too) will have morphology, minimally in the shape of word formation and in particular compounding. Reduplication is the overt form of morphology that is most likely to be universal, followed by suffixation.

But then there are huge quantitative differences. As to compounding, some languages have many and internally very complex compounds, other languages use compounding less productively and their compounds are less complex.
German likes compounding (though not reduplication), and so do Mandarin Chinese or Vietnamese. English is in this group, too, although here the line between compounds and syntactic constructions (phrases) is harder to draw.
The basic idea of quantitative morphological typology is that languages as a whole can be ordered in this dimension:

**ANALYTIC**  **----------------**  **SYNTHETIC**  **----------------**  **POLYSYNTHETIC**

(a.k.a. ISOLATING)  (a.k.a. INCORPORATING)

Analytic languages have little morphology (compounding and perhaps reduplication and some further word formation seems the minimum that all languages have), synthetic languages have much morphology, and polysynthetic languages have even more morphology, typically clustering around the verb, with the verb as the core of the clause “incorporating” much that analytic languages would express as separate syntactic parts of clauses.

Don’t blame me for the terminology, blame them:  Adam Smith (1723–90)  Peter Stephen Duponceau (1760–1844)
9.1.1. “Little” and “much” in these overall typological characterisations are rather vague quantifiers. However, there are ways of being more precise about the extent to which languages have morphology.

One approach is to calculate the average ratio of numbers of morph(eme)s to numbers of words in representative texts of a language:

The higher the ratio, the more synthetic the language, and the lower, the more analytic.

Being synthetic or analytic thus is a continuum, not an either-or distinction, and the position of a language on this continuum is defined through its average ratio of morphemes to words. (Establishing what is the average for a language is one challenge here, though.)
Latin will serve as an example of a language sitting squarely on the synthetic side of the continuum (which also goes to show how much depends here on one’s morphological and syntactic analyses):

\[
\begin{align*}
&{\text{domin-}}\text{-}\text{u-}\text{-}\text{s} & &{\text{am-}}\text{-}\text{a-}\text{-t} & &{\text{ancill-}}\text{-}\text{a-}\text{-s} & &{\text{pulchr-}}\text{-}\text{a-}\text{-s} \\
n\text{master-}\text{THEME-}\text{NOM.SG} & n\text{love-}\text{THEME-}\text{3SG.PRES.IND.ACT} & n\text{maid-}\text{THEME-}\text{ACC.PL} & n\text{beautiful-}\text{THEME-}\text{ACC.PL}
\end{align*}
\]

‘(the/a) master loves (the) beautiful maids.’

On this (plausible) analysis (for simplicity gender is here subsumed under THEME), there are 12 morphemes and 4 (morphological-syntactic-lexical) words; syntheticity quotient therefore \(12 : 4 = 3.0\).

This is the quotient for this particular sentence, but it would seem to be a sentence that is typical of Latin as a whole, and more extensive text counts would no doubt confirm a figure in this area.

(Analyse some others if you are doubtful.)
Compare this with the **English** translation equivalent (assuming both Latin noun phrases are intended as definite):

*the* master love-*s* 
*the* beauti-*ful* maid-*s*

DEF master love-3SG.PRES.IND DEF beauty-ADJCT maid-PL

9 morphemes : 6 (morphological-syntactic-lexical) words =
syntheticiity quotient 1.5
– which is lower than that of Latin and rather close to the minimum value of 1.0, analyticity.

If the definite article is analysed as morphologically complex,  
*th-*e DEF-ART, then the figures are slightly different: 11 : 6 = 1.83,  
which is still lower than the result Latin – which confirms, and makes  
more precise, the general impression that English has less morphology than Latin.

Again, more extensive text counts are necessary to confirm this result.
A good text to begin with the counting, and once again to practise morphological analysis, is the *Universal Declaration of Human Rights*, because it is available in lots of languages, including two alternative Latin translations (the *Lord’s Prayer* used to be the favourite parallel text):

Omnes homines dignitate et iure liberi et pares nascuntur, rationis et conscientiae particeps sunt, quibus inter se concordiae studio est agendum.

http://www.ohchr.org/EN/UDHR/Pages/Language.aspx?LangID=lt

Omnes homines liberi aequique dignitate atque juribus nascuntur. Ratione conscientiaeque praediti sunt et alii erga alios cum fraternitate se gerere debent.

http://www.ohchr.org/EN/UDHR/Pages/Language.aspx?LangID=lt1

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

http://www.ohchr.org/EN/UDHR/Pages/Language.aspx?LangID=eng
To illustrate quantitative morphological typology, here are some further languages.

**Vietnamese** comes close to being the prototype of an analytic language (syntheticity quotient close to 1);

**Kalkatungu** is mildly synthetic, but differs in another respect;

**Turkish** is quite synthetic, though in a qualitatively different way from Latin (see further below, Section 9.2);

**West Greenlandic Eskimo** is prototypically polysynthetic (with a syntheticity quotient much higher than that of Latin).
Attention should be paid to the **presentation** of examples – intended to reveal morphological structures even to those not knowing the language:

- The first line gives the **example** form or construction (in phonemic transcription, or in some familiar transliteration, or also in the standard orthography), with **hyphens** indicating word-internal morphological boundaries and with **blank spaces** separating (morphological-syntactic) words.

- The second line provides a **gloss**, with the morphological **segmentation** corresponding exactly to that of the example; semantic components not separated by a morphological boundary are separated by a **period** (e.g., \texttt{SPECIFIC.ACCUSATIVE} or \texttt{GEN.PL}), except in the case of person and number where the period is omitted (e.g., \texttt{1PL} rather than \texttt{1.PL}).

- The third line provides a **translation** and any useful further information.
tiếng Việt(nam), Việt-ngữ (Vietmuong subfamily, Mon-Khmer family, Austro-Asiatic phylum)

(1) Sáng nay tôi uông hai tách cà phê
    ‘I drank two cups of coffee this morning’

• 7 words in Vietnamese, 8 words in the English translation (to go by blanks in the written form) – not a big deal.
• 3 or 4 words in English are complex (cup-s [PLURAL], drank [PAST of drink], I [SUBJECT case, SINGULAR number of me, we ...], th-is?), none is in Vietnamese.
• The complex “words” in English are instances of inflection, that is, one word-form of the several word-forms realising a lexeme; in Vietnamese, lexemes are not realised by several word-forms, but – with a very few exceptions (see below) – only by one.

The morphemes-per-word ratio for this sentence, therefore: $7 : 7 = 1.0$
– couldn’t be less synthetic/more analytic!
(2) Tôi ăn lót-dâ o· câu.lác.bô, chú’ không phải o· hø.p.tác.xá
me eat line-stomach at club but not correct at cooperative ‘I ate breakfast at the club, and not at the cooperative’

• lót-dâ ‘to line [one’s] stomach’, two stems/words, a verb followed by a noun, in a morphological construction forming one complex word/lexeme: a compound.

Morphemes-per-word count for this sentence: 11 : 10 = 1.1, still very much at the analytic end of the continuum.

(3) mùa-màng
REDUPL-crop
‘crops, vegetation’

• with reduplication to express, among other notions, that of COLLECTIVE.

(4) canh-kiê´c
soup-EMOTIVE (a suffix)
‘soup and the like’
• probably the only genuine affix of the language

Morphemes-per-word for these last two expressions: \(2 : 1 = 2.0\).

Summary:
Vietnamese confirms the idea that if there is any morphology, it will be compounding; if a little more, perhaps reduplication for notions that this kind of exponent is well suited to express; if yet more, a suffix of none-too-specific meaning.

Overall, such morphology does not raise the average morphemes-per-word count much above 1.0, and Vietnamese therefore is a paradigm case of an analytic language. (In fact, it is exceptionally radical in taking analyticity to the extreme, much further than Chinese, which is often cited as an example.)
Constructions in Vietnamese are almost exclusively syntactic; hardly any are morphological. Distinguishing morphemes, as constituent parts of morphological constructions, from words, the minimal units of syntax, is necessary even for Vietnamese, but it is a distinction of very limited usefulness for its grammar.

Vietnamese almost exclusively relies on syntax (and the lexicon) and gives far less responsibility to morphology than does Latin or also English.

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

(Article 1 of the Universal Declaration of Human Rights)

http://www.ohchr.org/EN/UDHR/Pages/Language.aspx?LangID=vie
Turkish (Turkic subfamily of Altaic, a family widely spread over Eurasia, and reaching as far north as Lithuania and as far west as Berlin Kreuzberg)

(1) *Ev-ler-i*  
    house-PLURAL-SPECIFIC.ACCUSATIVE  
    ‘We (have) bought the houses’

• 2 words in Turkish, 4 (or 5) in English;  
• 8 basic building blocks, to judge by the gloss:  
  4 combined in the first word, 4 in the second in Turkish, with some building blocks given separate expression that would be cumulated in languages such as Latin, e.g. PLURAL number and ACCUSATIVE case;

Morphemes-per-word ratio for this sentence: 6 : 2 = 3.0, comparable to Latin.
(2) Tebrik ve teşekkür-ler-im-i sun-ar-im
congratulation and thank-PLURAL-1PL.POSSESSOR-SPEC.ACC present-AORIST-1SG.SBJ
‘I offer my congratulation and thanks’

- The first word seems morphologically simplex, in comparison with the third, consisting of 4 morphological parts: How come? (Inflections are only expressed once, with the second conjunct.)

Morphemes-per-word ratio: 9 : 4 = 2.25.

(3) daya-n-ış-tır-il-amı-yabil-ecek mi-ymiş-iz?
prop.up-REFL-RECIPIENT-CAUS-PASS-IMPOTENTIAL-POTENTIAL-FUTURE INTERROG-INFERENTIAL-1PL.SBJ
‘Is it said that we may not be able to be made to practise mutual aid?’

- Remarkable! 2 words in Turkish, 16 in English!
Morphemes-per-word ratio: 11 : 2 = 5.5, reaching a new high
(4) *Resim-ler-imiz kardeş-ler-iniz-in-ki-ler-den kıymet-li-dir*

picture-PL-1PL.POSS brother-PL-2PL.POSS-GEN-PRO-PL-ABL value-ADJECTIVISER-be.3

‘Our pictures are more valuable than those of your brothers’

- 3 words in Turkish, 10 in English!

Morphemes-per-word ratio: $13 : 3 = 4.33$.

Overall, taking the average of our four examples sentences (3.77), Turkish comes out as more synthetic than Latin.

Atatürk introducing the new Turkish alphabet to the people of Kayseri, 20 September 1928
http://en.wikipedia.org/wiki/Turkish_alphabet

Bütün insanlar hür, haysiyet ve haklar bakımından eşit doğarlar. Akıl ve vicdana sahiptirler ve birbirlerine karşı kardeşlik zihniyeti ile hareket etmelidirler.

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood. (Article 1 of the Universal Declaration of Human Rights)
http://www.ohchr.org/EN/UDHR/Pages/Language.aspx?LangID=trk
But regardless of whether a language has as much morphology as Turkish or Latin (3.77 and 3.0 morphemes per word on average respectively) or as little as English or even Vietnamese (1.5 morphemes per word and barely above 1.0 respectively), such languages equally recognise a distinction between **words** and **morphemes**.

Turkish, Latin, and English, and also Vietnamese all have **two distinct levels of constructions**, **morphological** and **syntactic**, with morphemes and words as their respective constituent parts.

The difference between such languages consists in how much and exactly what responsibility they give to morphology and to syntax: in Turkish and Latin, since there is more morphology to be relied on than in English and Vietnames, it will have to do more grammatical work, work done by syntax in English and even more so in Vietnamese.
But things can also be more radically different.

Before illustrating such radical difference with Kalaallisut, an Australian interlude will show us that even when things morphological are rather similar to mildly synthetic languages like English, there can be a major difference in the compartment of syntax.
Kalkatungu (a language of West Queensland, now extinct, a member of the large Pama-Nyungan family which comprises most Australian Aboriginal languages)

(1) cipa-yi thuku-yu yaun-tu yanyi icayi
   this-ERG dog-ERG big-ERG white.man bite
(2) yaun-tu cipa-yi thuku-yu icayi yanyi
(3) yanyi icayi cipa-yi yaun-tu thuku-yu
(4) cipa-yi thuku-yu yanyi icayi yaun-tu
(5) thuku-yu cipa-yi icayi yanyi yaun-tu
(6) cipa-yi icayi yanyi thuku-yu yaun-tu
...

‘This big dog bit/bites the/a white man’

The morphemes-per-word ratio for such sentences in Kalkatungu is moderately synthetic: \(8 : 5 = 1.6\).
This is rather similar to English. But there is something else about Kalkatungu that couldn’t be more different from English (and vice versa: no judgment is intended that either one or the other is deviant): the ordering of the words of a clause:

(i) Just about all permutations of the words of a clause are equally grammatical (and more would be possible in Kalkatungu than have been given above in (1)-(6)); none of them is grammatically more basic or normal than the other, but the choice between them is a question of the pragmatic organisation of discourse (emphasis, contrast, given–new, topic–comment).

(ii) Words which would seem to closely belong together on account of their meaning – the three which together pick out the active participant in the event described in (1)-(6): ‘this’, ‘big’, ‘dog’ (bold in the examples) – can easily be split up and be distributed all over the clause, in all chunkings and orders conceivable (and again, not all possibilities are exhausted in (1)-(6)).

When the ordering of words is “free”, not reined in by syntax but pragmatically driven, and when no linear continuity is required for words in semantic association, one begins to wonder whether there exists a level of constructions in such a language which gives groups of words cohesion: the phrase.
If there were no noun phrases in Kalkatungu clauses like those above, this would explain why those words which correspond to the members of a noun phrase in the English translation are not rigidly ordered relative to one another and can even be discontinuous. And this is indeed the conclusion that has been drawn for such languages. A structurally closer translation of (1) would therefore go like this:

‘this one, a dog, a big one, the/a white man, (it) bit/bites (him)’

The only constituents of clauses accordingly would be words, and these would be juxtaposed, being in loose apposition to one another rather than in tight syntactic construction, and arranged in any order that the context and the speaker’s priorities might dictate.

For another Australian language of this kind see this influential account:


Non-configurationality has been an intensely debated topic ever since. This recent survey, highlighting Australian languages, gives a useful concise summary:


But now on to the mega synthetic.
Kalaallisut (a.k.a. West Greenlandic, the language of the Kalaallit, the indigenous inhabitants of Greenland, having settled there in the 13th century, long before the Danes and earlier European whalers arrived; a member of the Inuit subfamily of the Eskimo-Aleut family, at home in the entire Arctic area)

(1) \((\text{kissartu-mik})\quad \text{kavvi-sur-put}\)
\(\text{(hot-INSTRUMENTAL)}\quad \text{coffee-drink-3PL.INDICATIVE}\)
‘They drank (hot) coffee’
morphemes-per-word: \(5 : 2 = 2.5\)

(2) \(\text{Nuum-muka-ssa-atit}\)
\(\text{Nuuk-go.to-FUTURE-2SG.INDICATIVE}\)
‘You will go to Nuuk’
morphemes-per-word: \(4 : 1 = 4.0\)
(3) *ikiu-palla-ssa-vakkit*
   help-quickly-future-1SG/2SG.INTERROGATIVE
   ‘Shall I help you a moment?’
   morphemes-per-word: 4 : 1 = 4.0

(4) *tusaa-nngit-su-usaar-tuaannar-sinnaa-nngi-vip-putit*
   hear-not-PARTICIPLE\textsubscript{INTRANS}-pretend-always-can-not-really-2SG.INDICATIVE
   ‘You simply cannot pretend not to hear all the time’
   morphemes-per-word: 9 : 1 = 9.0

(5) *aliikkus-irsu-i-llammas-sua-a-nira-ssa-gukku ...*
   entertainment-provide.with-SEMITRANSITIVE-one.good.at-big-be-
   say.that-FUTURE-1SG/3SG.CONDITIONAL
   ‘If I should say that he is a good entertainer ...’
   morphemes-per-word: 9 : 1 = 9.0
The average morphemes-per-word ratio for our example sentences is 7.13, way above Turkish (3.77), and Kalaallisut is rightly considered a paradigm case of **polysyntheticity**.

To flesh out this typological concept:

- All example sentences are one word in West Greenlandic, but several words in the English translations – as many as ten in (4) and (5); only the adjective in (1), ‘hot’, an optional part, would add a second word (but there are also ways of “incorporating” adjectives).
- Many independent morphemes in English (“words”: adverbs, negation, modal auxiliaries, pronouns, ...), correspond to bound morphemes (affixes) in West Greenlandic.
• Many syntactic constructions in English (verb – verb, verb – noun) correspond to morphological constructions in West Greenlandic; English can do something that looks similar, but not as the normal way of clause construction: noun incorporation (a sort of compound), but not *English noun-incorporates a lot.

• In fact, whole clauses and in fact multi-clause sentences in English (syntactic constructions) standardly correspond to single words in West Greenlandic (morphological constructions) – to the extent that the very distinction between these kinds of units, word and clause/sentence, which is so central to languages like English, begins to look doubtful for languages like West Greenlandic (hence the traditional term “sentence-words” for such constructions where the verb “incorporates” everything else – object, adverbials, subject, pronominals or also nominal).
Inuit tamarmik inunngorput nammineersinnaassuseqarlutik assigiimmillu ataqqinassuseqarlutilu pisinnaatitaaffeqarlutik. Silaqassusermik tarnillu nalunngissusianik pilersugaapput, imminnullu iliorfigeqatigiittariaqaraluarput qatanngutigiittut peqatigiinnerup anersaavani.

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(Article 1 of the Universal Declaration of Human Rights)

http://www.ohchr.org/EN/UDHR/Pages/Language.aspx?LangID=esg
9.1.2. There are yet other ways of quantifying the amount of morphology. Instead of counting morphemes and words in texts, we could look at morphological systems. Such systems are defined through

- which and how many morphological categories they contain;
- which and how many terms are realising those categories;
- which and how many exponents there are to express those terms.

The richer such systems, the more synthetic a language; the poorer a system, the more analytic a language.
By the way, *The Guinness Book of Records* awards the crown of morphologically richest language on earth, with particular reference to the number of cases, to Tabasaran, a language of Daghestan (Lezgic branch of the Northeast Caucasian family): Tabasaran reputedly has more than 40 cases!

But the *Guinness Book of Records* errs, having gotten the morphological analysis wrong: not all of these forms that are being counted here are really simple cases; instead there are combinations of genuine cases (a relatively modest number in Tabasaran: Hungarian has more, namely around 20) with local and directional and orientational morphemes.

Still, overall, the Northeast Caucasian languages are among those with the richest morphological systems. Instead of (or in addition to) *The Guinness Book of Records* read A. E. Kibrik’s chapter in *Noun Phrase Structure in the Languages of Europe*, ed. F. Plank, Berlin: Mouton de Gruyter, 2003.
9.1.3. Whatever the method of measuring analyticity and syntheticity (morphemes per words; system complexity), when contemporary English is compared to English as spoken 1,500 years ago, it is striking how English has become more analytic: Old English was about as synthetic as Latin. Similarly, the descendants of Latin itself – Portuguese, Galician, Spanish, Catalan, Occitan, French, Italian, Raeto-Romance, Sardinian, Romanian – have undergone the same kind of overall development from (more) synthetic to (more) analytic.

fisc·flōdu·āhōfonferg | enberig | warpāsricgrornpærhenetrengothiswom | hronæsbān

Franks Casket, Northumbria, ca. 650 CE, http://www.britishmuseum.org/explore/highlights/highlight_objects/pe_mla/t/the_franks_casket.aspx
On the other hand, the history of morphology is not a one-way street.

Morphology – morphological categories, terms realising them, exponents expressing them – can diminish and wholly vanish, (i) as a result of phonological change affecting and obliterating exponents, or (ii) in the course of morphological changes with the effect of simplifying or abandoning parts of morphological systems (as typically happens in untutored L2 acquisition).

But morphology can also be newly created and then elaborated. Its chief source is the lexicon: lexical items (nouns, verbs, adjectives, pronouns) in syntactic constructions. As seen earlier, morphology can also be borrowed from donor languages or be re-analysed from existing native morphology.
Here is a typical example of the going and coming of morphology:

- Latin had an inflectional category of TENSE with FUTURE as one of its terms: e.g., *cant-a:-b-o:* sing-THEME-FUT-1SG.IND.ACT.

- This way of expressing FUTURE was given up by the speech communities that continued speaking Latin in the form of the Romance vernaculars, probably because the exponent of FUT was so similar to that of IMPERFECT (*cant-a:-b-am* etc.) as to cause confusion.

- But in several descendants of old Latin, such as French, a new morphological FUTURE was created from a (“periphrastic”) syntactic construction:

  \[ cant-a:-re \quad hab-e-o: \]
  
  sing-THEME-INF have-THEME-1SG.PRES.IND.ACT
  
  ‘I am under an obligation to sing, I have to sing’
In this last development, the meaning of a component form and of the construction changed: necessity, a modality with reference to the future (when there is an obligation to do something, this will typically be done in future) and expressed through a verb of possession, was reanalysed as a FUTURE tense.

At the same time, the nature of the forms and their grammar changed, insofar as a syntactic construction, via a stage where the auxiliary verb had become an enclitic, was reanalysed as a morphological construction.

(je) chant-r-ai
(I) sing-FUT-1SG
Today’s principal exponent of FUTURE in French (similarly in Italian) is in fact the segment /r/ of the erstwhile suffix of the INFINITIVE (joined in this expressive task by the word-final endings, -ai, -as, -a, etc., which continue the forms, but not the meaning, of avoir ‘have’): in this respect, the relationship between exponents and terms has been reanalysed, too.
To sketch another example where grammaticalisation has come full circle – that is, where a content/lexical word changed to a function/grammatical word, which in turn changed to an affix, via an enclitic function word, and eventually disappeared through phonological “erosion” or as part of a morphosyntactic change:

The PAST tense marker of “weak” verbs in Germanic is a dental suffix: G *schau-t*-, E *look-ed*, Sw *kika-de* etc.

This suffix goes back to (the stem of) the auxiliary verb ‘to do’, itself tense-inflected, which was in syntactic construction with a main verb, and with the auxiliary getting phonologically and then also morphologically bound to the preceding main verb, undergoing considerable reduction in the process; schematically: *he look did* $>$ *look=did* $>$ *look-ed*

In varieties of English (such as Black Vernacular English), the dental suffix has fallen victim to phonological change (cluster simplification), in such weak verbs where PAST is clear from stem vowel: 

*he kep* keep-PAST, vs. *keep* PRES; but *he look-ed*
Elsewhere in Germanic, the inflectional PAST tense has been discontinued in a different manner, being replaced by the periphrastic PRESENT PERFECT ("Präteritumsschwund").
Thus, grammar, including morphology, is not eternal, but is created, changed (elaborated or scaled down), and abandoned by speech communities, as speakers, and especially L1 and L2 learners, analyse forms and constructions and their meanings differently from preceding generations.

The history of morphology is not linear, but cyclical: upon creation follows change and destruction or discontinuation; upon loss follows recreation from lexicon and syntax, and so forth. (As long as there are speakers continuing their language.)

Synthesis and analysis are recurring stages of this eternal cycle.

A keyword here is **grammaticalisation**: lexical forms in loose syntactic constructions are reanalysed by new generations of speakers, ending up as grammatical forms in tight morphological constructions, and are eventually obliterated and discontinued. A new cycle can begin: there will always be the lexicon and loose syntax to recycle.
The cycle of grammaticalisation

(I.i) ... \[ X_{\text{lex word}} Y_{\text{lex word}} \] phrase ... downgrading lex > gram

(I.ii) ... \[ X_{\text{lex word}} Y_{\text{gram word}} \] phrase ... phono binding: cliticisation

(I.iii) ... \[ X_{\text{lex word}}=y_{\text{gram word: clitic}} \] phrase ... morpho binding: affixation “univerbation”

(I.iv) ... \[ X_{\text{stem}}-y_{\text{affix}} \] lex word ... loss of affix

(I.v) ... \[ X'_{\text{stem}} \] lex word ... new combinations of lex words

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(II.i) ... \[ [X'_{\text{stem}}]_{\text{lex word}} Z_{\text{lex word}} \] phrase ...

... and so on, indefinitely

One of the (by now numerous) textbooks is *Grammaticalization* by Paul Hopper & Elizabeth Traugott, Cambridge UP, 2003.
The Geostrophic (or Rock) Cycle
http://www.indiana.edu/~geol116/week3/rockcyc.JPG

Read this book for its discovery... and that for how geology showed linguistics the way towards the recognition of the Morphology Cycle: morphology doesn’t grow from roots and on stems, and is no edifice going to final wrack and ruin.
9.2. **AGGLUTINATIVE — FLEXIVE**

A key concept in the qualitative dimension of morphological typology is the distinction of AGGLUTINATION and FLEXION. (The latter is sometimes also called FUSION, so as not to be confused with INFLECTION.)
Background (it is too complex a matter to be done justice in this introduction, which is limiting itself to bare essentials):

Very importantly, agglutination vs. flexion is a higher-level distinction subsuming a whole range of more elementary distinctions, which are all to do with the nature of morphological exponents.

Sometimes these elementary distinctions are in agreement with one another, for single exponents or indeed whole languages, allowing whole languages to be categorised as either agglutinative or flexive; sometimes they are not, jeopardising a clear-cut higher-level distinction.
The two most important elementary distinctions are these two:

- Are exponents **SEPARATIVE** or **CUMULATIVE**?
  Do they express a single category or more than one, without being further segmentable?

- Are exponents **INVARIANT** or **VARIANT**?
  Do they appear in just one **morphological** form or in **morphologically different** forms, giving rise to inflection classes?
  (That is, phonologically or semantically conditioned allomorphs are not considered variant in the present sense.)

Being separative and invariant are ingredients of agglutination; being cumulative and variant are ingredients of flexion.
9.2.1. To illustrate SEPARATION and CUMULATION from English:

**Separative**

- *s  PLURAL  as in *(the) cat-s*

  - expresses only a single category, NUMBER: PLURAL

**Cumulative**

- *s  PERSON OF SUBJECT: 3.,  as in *(she) save-s*
  - NUMBER OF SUBJECT: SINGULAR,
  - MOOD: INDICATIVE,
  - TENSE: PRESENT,

- expresses four categories with no way of dividing up the exponent into four parts, one for each category
Demonstration that the single segment -s really expresses a four-way categorial contrast: PERSON (of subject), NUMBER (of subject), TENSE, and MOOD:

- 1st and 2nd PERSON (vs. 3rd) SINGULAR in INDICATIVE PRESENT: I/you save-∅;
- 3rd PERSON PLURAL (vs. SINGULAR) NUMBER in INDICATIVE PRESENT: they save-∅;
- 3SG PRESENT in SUBJUNCTIVE and IMPERATIVE (vs. INDICATIVE) MOOD: God save the queen; someone save me!
- 3SG (INDICATIVE) in PAST (vs. PRESENT) TENSE: she save-d.
Languages like German, Latin, West Greenlandic Eskimo are predominantly cumulative, languages like Turkish and indeed the majority of languages with inflectional morphology are predominantly separative.

And English?

As just seen, -s for 3SG.IND.PRES is cumulative while -s for PLURAL is separative.

And the rest of its inflection?

PAST TENSE is expressed separatively (-d/-t or ablaut).

And GENITIVE – if it is inflection rather than encliticisation?

The question here is how GENITIVE is related to PLURAL.
Homework:

1. Attempt a morphological analysis of examples like these.

   these oxens’ tails
   these mice’s tails
   these children’s parents
   these cats’ tails

Compare with Turkish (undoubtedly separative, in these respects and just about all others):

<table>
<thead>
<tr>
<th>English</th>
<th>Turkish</th>
<th>English</th>
<th>Turkish</th>
</tr>
</thead>
<tbody>
<tr>
<td>these oxens’ tails</td>
<td>kuyruk-lar-ı in</td>
<td>these cats’ tails</td>
<td>cats’ tails</td>
</tr>
<tr>
<td>these mice’s tails</td>
<td>kuyruk-lar-ı</td>
<td>oxen’s tails</td>
<td></td>
</tr>
<tr>
<td>these children’s parents</td>
<td>kuyruk-lar-ı</td>
<td>mice’s tails</td>
<td></td>
</tr>
<tr>
<td>these cats’ tails</td>
<td>kuyruk-lar-ı</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. 3SG.IND.PRES is cumulative in Standard English, as just demonstrated. What about regional and social varieties of English which are doing something like this:

- they either extend -s to all singular persons, so that it becomes a number marker, expressing no person distinctions (*I says, you says, he/she says, we/you/they say*);
- or they omit the -s entirely from verb inflection (*I say, you say, he/she say, we/you/they say*);
- and/or they don’t use the subjunctive, thereby getting rid of the mood contrast.
To be firmly kept in mind: separation and cumulation are primarily properties of individual morphological forms and of the terms and categories they express!

It is only secondarily that they can (or cannot) be considered properties of entire languages. If all inflectional forms of a language are either of one kind or another, then the language as a whole can be classified as separative or cumulative, as the case may be. Otherwise a language will have to be recognised as predominantly either separative or cumulative, or, if neither separation nor cumulation predominates, as in this respect mixed.

Naturally, as always in life and in linguistics too, when things turn out to be one way or another, one wants to know why they are one way rather than the other.
For instance, why does the line between separation and cumulation run between PLURAL and PAST (being both separative) and PERSON, NUMBER, MOOD, PRESENT (cumulative) in English? Why isn’t PAST cumulative? Why isn’t 3rd PERSON given separate expression? Is there anything predictable, thereby also helping the language acquirer, about (some terms of) some categories inclining towards separation and others towards cumulation? Is this to do with the terms and categories concerned? Their (un-)markedness? The history of their forms of morphological expression? Ask again in Advanced Morphology ...

Cumulus clouds by Luke Howard
9.2.2. For the parameter **INVARIANCE/VARIANCE** we need to recall what we earlier learnt about the **conditioning of allomorphy**.

Is **PLURAL** in English variant?  
Yes, there are a number of alternative exponents of **PLURAL** which are allomorphs and which are lexically conditioned; only the alternation of /ız, z, s/ is phonologically conditioned (and is of a phonological kind, too), and zero is semantically conditioned in the case of the “game plural”.

Is **3SG.IND.PRES** in English variant?  
No, not morphologically: there is an alternation of exponents, of a phonological kind, namely between /ız, z, s/ (as with noun **PLURAL**), but it is phonologically conditioned. Morphologically speaking, /ız, z, s/ are one and the same.
Is PLURAL in Turkish variant?
No, not morphologically: there is an alternation of exponents, between -ler and -lar, but it is of a phonological nature and is phonologically conditioned (vowel harmony). Morphologically speaking, -ler and -lar are one and the same.

Is GENITIVE in Turkish variant?
Once more no: there is an alternation, -in/-in/-un/-ün, but it is of a phonological kind and is phonologically conditioned (vowel harmony).
And so on.

As with separation and cumulation, invariance and variance are primarily properties of the exponents of individual terms of individual morphological categories, not properties of entire languages.

Only secondarily, after the examination of the entire morphological system of a language, are we entitled to generalise that that language as a whole is exclusively, predominantly, or mixedly either invariant or variant.

Thus, Turkish, for example, is predominantly and almost exclusively invariant in its inflection, while Latin is predominantly variant and English mixes invariance and variance.
9.2.3. SEPARATION/CUMULATION and INVARIANCE/VARIANCE are logically speaking independent of one another: it should be possible for terms of morphological categories to have the value SEPARATIVE on one parameter and the value VARIANT on the other, or to be CUMULATIVE and INVARIANT. Any combination of values is conceivable and not inherently contradictory.

It is an empirical question – and one of the remits of the research programme of morphological typology – how these two parameters (and others, not considered here) relate to one another in individual forms and in entire languages.
Here are some of the examples we have already been looking at, classified with respect of these two parameters:

- **NOM.PL** in Latin: **cumulative**, variant (likewise all other cases and numbers)
- **3SG.IND.PRES** in English: **cumulative**, invariant
- **PLURAL** in English: **separative**, variant
- **PLURAL** in Turkish: **separative**, invariant
- **GENITIV**E in Turkish: **separative**, invariant (likewise all other cases)

**Homework:**
Classify further inflectional forms from other languages.
Even such a small sample goes to show that SEPARATION/CUMULATION and INVARIANCE/VARIANCE occur in all combinations.

Nonetheless, a wider-ranging survey would reveal certain preferences; across the languages of the world, these two combinations clearly predominate:

- SEPARATION and INVARIANCE
- CUMULATION and VARIANCE
Accordingly, languages have been classified holistically as follows:

- a language is (predominantly/exclusively) **AGGLUTINATIVE** if its morphological categories are (predominantly/exclusively) expressed **separately and invariantly**;

- a language is (predominantly/exclusively) **FLEXIVE** if its morphological categories are (predominantly/exclusively) expressed **cumulatively and variably**.

The challenge remains to discover, through crosslinguistic empirical research, which particular **mixtures** of agglutination (separation, invariance, etc.) and flexion (cumulation, variance, etc.) are attested, and whether there are general constraints on which mixtures are permissible.
9.2.4. Like analyticity and syntheticity, separation/cumulation and invariance/variance can change over the history of a language.

Typically, but not exclusively, separative exponents are turned into cumulative ones through the working of fusional phonology, obliterating boundaries between adjacent morphemes.

example:
Norwegian definite noun plural -ene fused from -er-ne -PLURAL-DEFINITE.PLURAL
-gutt ‘boy’, gutt-en boy-DEF.SG.M, gutt-er boy-PL, gutt-ene boy-PL.DEF;
-jente ‘girl’, jent-a girl-DEF.SG.F, jent-er girl-PL, jent-ene girl-PL.DEF

Invariant exponents tend to become variant, again through the working of phonology, adapting exponents to their different environments and thereby diversifying their forms.

But as with analyticity and syntheticity, there are no one-way streets of morphological change between agglutination and flexion.
In a qualitative as well as a quantitative sense, morphological types are best seen as stages in the historical development of languages, their grammars and lexicons. Thus, typology needs to be pursued in tandem with historical linguistics.

Languages, including their morphologies, are what they have become. They can only be as different as they have been able to become different.

But that would be leading us far beyond Morphology I, which herewith ends.

😊 ☹️ ☹️
morphologie rectangle  morphologie dite 8  morphologie A, ou pyramide  morphologie masculine, L – XXXL

Quelle robe pour quelle morphologie?

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