Split morphology: How agglutination and flexion mix

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Abstract

Being AGGLUTINATIVE *or* FLEXIVE *are not properties of entire languages, nor are they simple properties. There is a whole range of simple properties, all logically independent of each other, prominently including those of separation/cumulation and invariance/variance. They are all properties of individual word forms, and again there is no logical necessity for these to agree in their property sets. This creates a huge potential for heterogeneity within and for diversity across languages, which, if realized to the full, would render morphological typology unviable. However, an examination of splits between separation and cumulation and between invariance and variance along the lines of word-classes, of subsets within single word-classes, of morphological categories, and of terms of categories suggests that mixtures between agglutination and flexion, though multifarious, are not random. If grammars are found to be less heterogeneous, and languages less diverse, than they could be, this can be due to universal, timeless principles or to regularities of change. Both play a role in shaping morphological systems.*

Keywords: agglutination, allomorphy, case, cumulation, flexion, fusion, grammaticalization, inflection classes, invariance, markedness, morphological typology, number

1. Morphological typology: A file to be closed or opened?

Ageless though they seem, the critical success of the five or six cardinal morphological types—analytic (or isolating), synthetic, and polysynthetic (or incorporating); agglutinative, flexive[1] (or fusional), and possibly introflexive (or symbolic or non-concatenative)—has not been unqualified. Time and again morphological typology has been criticized as being impracticable, plain wrong, or not worth anyone's while. Word structures were felt by relativists

to be so incommensurable across languages (other than the Standard Average European ones) as to render any comparison well-nigh impossible. Presupposing that its aim is to classify languages, morphological typology has been considered confuted by absolutists on the grounds of pure types being rare or indeed non-existent: normally, they would reason, languages will comprise morphological structures of diverse types; at best, one or the other component will be found to predominate in type-mixtures, and this is what must have inspired the coarse-grained taxonomies of old and what modern users of such gross impressionistic labels seem content with. Seeking system where there appears to be but little, one might try sorting out such morphological medleys, quantify their composition[2] and thus add some modest substance to the old labels; but—or so counsel the utilitarians[3]—why waste one's time on what is of no consequence whatsoever?

Such criticism is either misconceived or premature.

The charge of impracticability is best taken as a piece of advice: words and whatever other structural units are relevant for particular languages should be described so as to facilitate comparison across languages even when the differences between them are radical. As to typology, it is not so much about languages wanting to be classified (preferably into pure types) as about individual structural traits and the relationships between their distributions across languages. Having identified traits that are logically independent of each other and therefore could vary independently from one language to another, typology's aim is to discover actual co-variation. And for any single trait, however lowly it may seem in itself, it is worth knowing whether or not it co-varies with any other; there is no other way of establishing that there are limits to crosslinguistic variation.

In morphology, the smallest independent variables are individual morphological categories or category-bundles, the terms realizing categories, the exponents expressing terms, and the domains of categories, terms, and exponents (defined by the words or classes of words, and possibly also the other categories or terms, with which they are used). Should these variables turn out, upon empirical examination, to show less co-variation than might have been hoped by those idealists convinced that morphological systems must perforce be perfectly homogeneous, typology's remit is to determine to what extent heterogeneity within languages and diversity across languages are orderly or random. Ironic though this seems in view of the long tradition of morphological typology and the amount of lip service which has been paid to the sheer inevitability of type-mixture, the PATTERNS of such mixtures have not really received much attention. But it is precisely in the delimitation of such patterns that the predictive potential of morphological typology ought to be sought—regardless of whether morphological variables are interdependent with any others outside morphology.[4] The question to ask next would be WHY variables are

interdependent, however comprehensive or partial the co-variation. It is another question whether morphological typology itself can provide answers.

The focus in this paper will be on agglutination and flexion. This is essentially a matter of how morphological categories, or the terms realizing them, are expressed, whereas the distinction between analysis, synthesis, and polysynthesis is a quantitative rather than a qualitative one, based on the morphemic complexity of words. After identifying several of the ingredients of agglutination and flexion (Section 2), two key ones will be examined more closely: separatist vs. cumulative and invariant vs. variant exponence. It will be shown how morphologies can be split between separation and cumulation and between invariance and variance; and it will be seen that such splits are not as disorderly and discordant as they could be (Section 3).

When crosslinguistic diversity, in whatever respect, is found to be limited, this means that languages have developed, and will probably continue to develop, in such a way as not to exceed these limits. This raises a general question of responsibility: Do timeless implicational laws, by imposing limits on variation, constrain change, or is typological variation itself merely the product of regular change, reflecting different kinds of origins of forms, rules, and constructions and different stages in their evolution? In light of the patterns of morphological systems and of the sources of forms and the mechanisms of change to be reckoned with, the answer appears to be: in principle, both—though many attendant questions remain open (Section 4).

2. Agglutination vs. flexion: Line-up of the elements

When a word is to be marked for more than one morphological category, these categories may be expressed separately or in inextricable combination. For example, the nouns for 'field' in Turkish and in Old English, *tarla* and *feld*, both inflect for number and case, and the terms realizing these categories in both languages include plural and accusative; the difference is that in Turkish the exponents of plural and accusative are neatly segmentable, while in Old English they are not:[5]

(1)	a.	Turkish	b.	Old English
		tarla-lar-ı		*feld-a*
		field-PL-ACC		field-ACC.PL

In Turkish, *-lar* expresses the plural of *tarla* also with all cases other than accusative, and *-ı* expresses its accusative also in the singular number. In Old English, the suffix *-a* does not recur in a way to suggest such a regular pairing of two forms and two meanings; *feld*'s dative and genitive, for example, are *feld-um* and *feld-a* in the plural, and its accusative is *feld* in the singular.[6]

Ever since morphological typology was inaugurated in the mid-eighteenth century, by Adam Smith and others developing his themes, SEPARATIST and CUMULATIVE exponents have been considered the hallmarks of agglutination and flexion, respectively. Still, no matter how prominent, this parameter has to be seen as but one among several, collectively defining the morphological style of a language. Here is a selection of some of the others, with only the sparsest introductions and with illustration continuing to come from Turkish and Old English, suitably different on most counts.[7]

First, the exponents of morphological categories or category-bundles, or of the individual terms realizing them (such as accusative case and plural number), may be INVARIANT for all words in their domain and for all relevant co-occurring categories or VARIANT, disregarding such alternations as phonology is responsible for. Thus, *-lar* and *-ı* or their vowel-harmony variants (*-ler*, *-i/-ü/-u*) uniformly express plural and accusative for all nouns in Turkish, while in Old English *-a* is but one exponent of accusative plural among several (*-as*, *-u* or its phonological variant *-Ø*, *-e*, *-an*, *-Ø*, and umlaut) for nouns to choose from, depending on their declension class (which is to say, on their choices among alternative exponents of other cases and numbers) and also their gender.

Second, morphological categories or category-bundles, or the terms realizing them, may be expressed DISTINCTLY from all others or they may be HOMONYMOUS, with distinctness and identity again defined morphologically. Thus, *-lar* in Turkish is uniquely plural and *-ı* is distinct from all other cases.[8] In Old English, accusative always coincides with nominative in the plural, whether it is expressed by *-a* or any of its competitors; moreover, with *feld* and other *u*-stems, *-a* is also shared by genitive plural and genitive and dative singular.

Third, unmarked morphological categories or terms realizing them, such as the singular number and the nominative or absolutive cases, may ALWAYS or only SPORADICALLY (or indeed NEVER) be expressed by ZERO exponents. Thus, the Turkish and Old English accusative plurals *tarla-lar-ı* and *feld-a* both have corresponding nominative singulars without overt exponents, *tarla* (also serving as non-specific accusative singular) and *feld* (also accusative singular). However, while this is the rule for all nouns in Turkish, other classes of nouns have overt exponents or stem-extending formatives for nominative singular in Old English (*-u*, *-e*), preventing the nominative singular from serving as the base to which all other inflections could simply be added.

Fourth, exponents may be LOCAL, with the expression of a category syntagmatically confined to a single affix or the stem itself, or EXTENDED, with several morphological constituents of a word sharing in the expression of one category. Number and case exponents in both Turkish and Old English are as a rule local. In varieties of Old English, when the stem-vowel alternations

of athematic nouns were no longer fully phonologically conditioned owing to analogical levelling, the expression of number and case was occasionally distributed over suffix and stem, with or without umlaut (as in dative plurals like *bǣc-um* 'books').

Fifth, categories may admit of direct or mediated REPETITION in one and the same word, perhaps in the form of different terms realizing them (such as different cases), or they may be limited to SINGLE marking. Thus, in Turkish, after a noun in the genitive has added the "pronominal" suffix *-ki* (itself exempt from vowel harmony), it may inflect again for number and case: *tarla-lar-ın-ki-ler-in* field-PL-GEN-PRO-PL-GEN 'of those belonging to the fields'.

Sixth, the PARADIGMS of which categories are members may be relatively LARGE or SMALL. Thus, while *tarla* in Turkish inflects for six cases (nominative, accusative, genitive, dative, locative, ablative) and two numbers (singular, plural), Old English *feld* has equally few numbers but even fewer cases (four: nominative, accusative, genitive, dative). Some words inflecting for case in (early) Old English show traces of an instrumental and a locative. Far more productive, however, are two possible addenda to the case paradigm of Turkish, a comitative-instrumental in *-(y)le* and a benefactive in *-(y)çin*; diachronically deriving from postpositions, they undergo vowel harmony like suffixes, although unlike these they remain unaccented. Two words inflecting for number in Old English (1st and 2nd person personal pronouns) have one number more than any word has in Turkish, viz. a dual; but that hardly swells the number paradigm out of proportion. Turkish noun inflection, on the other hand, includes a further category for which Old English needs separate pronouns: possessives, distinguishing person and number of possessor.

Seventh, the SEGMENTATION of word forms into radical elements (stems or roots) and morphological exponents may be TRANSPARENT or, at least on the face of it, OPAQUE. Thus, while in Turkish it is only hiatus-avoiding consonants that may make it difficult to locate the boundary between noun stem and case suffix (e.g., *tarla-y+ı/tarla+y-ı* field-ACC), the overt reflexes of stem extensions and other stem alternations in Old English may obliterate such boundaries more profoundly (e.g., in the genitive plural of the weak declension, *gum(-?)en(-?)a* 'men'; or in the plural of *es/os*-stems, *lamb(-?)r(-?)u* 'lambs').

Eighth, the PHONOLOGICAL COHESION of radical elements and exponents may be relatively LOOSE or TIGHT. While it would be unusual for morphological word-parts to have complete phonological independence, sandhi processes, phonotactics, accent, vowel assimilations and the like may fuse them less or more tightly.

Ninth, the MORPHOLOGICAL BONDING of radical elements and exponents may likewise be LOOSE or TIGHT. Loosely bound exponents may be omitted in certain circumstances, especially when more than one word within a phrase would carry the same marking. Thus, when two nouns are in coordinate con-

struction in Turkish, number and case suffixes may be omitted from the first; and while an adjective on its own inflects for number and case, it remains un-inflected when followed by a noun, which now, as the last word in the noun phrase, picks up the inflection. In Old English, nouns hold on to their case-number inflections under all circumstances. In this respect Turkish and Old English can be distinguished as PHRASE-MARKING and WORD-MARKING.

Tenth, the MARKING for morphological categories may be OPTIONAL, being subject to contextual requirements or limited to subsets of words of a relevant class (e.g., personal or animate nouns rather than all count nouns), or OBLIG-ATORY, even if redundant. Thus, the non-use of a plural suffix with a noun in Turkish does not preclude plural reference. In Old English even the presence of a numeral higher than 'one' does not induce nouns with plural reference to shed plural marking.

There are no logical reasons to expect any of these eleven parameters to be interdependent. A priori, both separatist and cumulative exponents could be invariant or variant, distinct or homonymous, always or never or sporadically zero, local or extended, repeatable or once-only, members of larger or smaller paradigms, transparently or opaquely segmentable, loosely or tightly cohesive, loosely or tightly bound, optional or obligatory. Any such variable could take either value regardless of any other without contradiction. (And there are still further variables, here neglected, that have also been claimed to be implicated in the distinction between agglutination and flexion.)

Considering further that different words to be marked for the same morpho-logical categories are under no logical obligation to agree on types of expo-nents, it is easy to see that two handfuls of independent parameters create a huge potential for heterogeneity within individual languages; and the potential for diversity across languages is correspondingly rich. First, ONE AND THE SAME WORD marked for TWO MORPHOLOGICAL CATEGORIES might express them separately for one combination of terms realizing these categories (say, accusative case and plural number) and cumulatively for another combination (say, genitive and plural); and these partly separatist and partly cumulative ex-ponents of single words might differ further on variance, cohesion, bonding, and all the other parameters. Second, of SEVERAL WORDS within the domain of THE SAME SET OF MORPHOLOGICAL CATEGORIES, some might express them separately and the others cumulatively; some might have distinct and the others homonymous exponents for these categories; some might attach these exponents loosely and the others tightly; etc. Third, of SEVERAL CLASSES OF WORDS (such as nouns and verbs), some might opt for separation and others for cumulation of WHATEVER CATEGORIES they are marked for; and the expo-nents might differ further on the other parameters across word-classes. Fourth, DIFFERENT CATEGORIES, or also DIFFERENT TERMS realizing single cate-gories, might differ in terms of any and all the parameters, with some always

expressed separately and others always cumulatively, some expressed invariantly on all relevant words and others variantly, some always attached loosely and others always tightly, and so forth.

Variation in word order, or in the accusative, ergative, active or other alignment of grammatical relations, or in the location of marking on heads or dependents and whatever else allegedly comes with it can hardly involve more variables. And if this were a measure of significance, morphological typology would not score lower than such syntactic typologies. But then, typology confronts possibility with reality. Its significance, therefore, is more meaningfully gauged by the ratio of possible to actual variation. In the domain at hand reality could be at the following two opposite extremes or anywhere in between them:

THE STRONG HOMOGENEITY HYPOTHESIS
In any language, all marking for all morphological categories and their terms on all words can only have either one of two repertoires of properties; the fully agglutinative one (separation, invariance, distinctness, always zero exponence, locality, repeatability, larger paradigm size, transparent segmentability, weak cohesion, loose bonding, optionality) or the fully flexive one (cumulation, variance, homonymity, no or sporadic zero exponence, extendedness, unrepeatability, smaller paradigm size, opaque segmentability, strong cohesion, tight bonding, obligatoriness).

THE STRONG HETEROGENEITY HYPOTHESIS
In any language, any marking for any morphological category and its terms on any words can have any logically possible combination of properties.

Classical nineteenth-century morphological typology is reputed, however unlikely, to have maintained homogeneity, and in such a categorical version that it was hopeless. The forms in which it has variously been endorsed in more recent times are less bold ones, with homogeneity elevated to an ideal that reality strives to attain, but somehow or other does not quite succeed to. What comes to mind here are Sapir's "formative slants towards the agglutinative or the fusional method" (1921: Chapter 6), Skalička's five "ideal constructs" (1979), Wurzel's "principle of typological uniformity and regularity of morphological systems" (1984: Chapters 3 and 5), or Lehmann's "principle of analogy" (1985), intended to hold for only such categories as frequently co-occur such as nominal number and case. More commonly, however, homogeneity, whether actual or ideal, has been found fault with, and in rash consequence has often been dropped altogether as a respectable theoretical notion. An instructive case of disillusionment is Wurzel (1996), who abandons typological uniformity even as a tendency, having convinced himself that agglutinative and flexive properties could not get along with each other better. Lehmann too appears to place little trust in his own principle of analogy, since he simultaneously proclaims morphological typology useless: "as everybody is aware,

we know very little if we know that a language is agglutinative. The reason is that it remains completely open which grammatical categories are expressed agglutinatively" (1985: 42).

Thus, as if there were no states in between order and chaos, strong homogeneity has either been embraced wholesale or been rejected completely in favour of the null hypothesis, strong heterogeneity, instead of being judiciously attenuated only as much as is demanded by the degree and kind of actual morphological imperfection. While strong homogeneity is evidently counterfactual, it is remarkable that it has never been examined in detail across languages how orderly or disorderly morphologies really are.

This paper, now, aims to explore just how far and how (dis-)orderly morphological systems may deviate from strong homogeneity. Towards this end, two key parameters will be singled out in the following section, separation/cumulation and invariance/variance. Our first aim is to illustrate along which lines splits may run between separation and cumulation (Section 3.1) and between invariance and variance (Section 3.2), drawing on whatever languages were felt to serve that modest purpose of illustration. Special emphasis will be given to splits along term distinctions for the categories of case and number. The second aim of this preliminary survey is to suggest that, despite their diversity, such splits follow certain patterns and are not entirely random.

3. Delineating splits

3.1. *Separation and cumulation*

3.1.1.   *The (relatively) pure and impure exemplified: Turkish and Old English.* Not only the accusative plural of Turkish *tarla* 'field', but the entire inflection of this noun for number and case is separatist (Table 1); hiatus-avoiding *-y-* in the accusative and dative and *-n-* in the genitive singular superficially increase the variance of case marking of such vowel-final nouns but do not interfere with its separateness from number.

Table 1. *Noun inflection in Turkish*

	SG	PL
NOM	*tarla*	*tarla-lar*
ACC	*tarla-yı*	*tarla-lar-ı*
GEN	*tarla-nın*	*tarla-lar-ın*
DAT	*tarla-ya*	*tarla-lar-a*
LOC	*tarla-da*	*tarla-lar-da*
ABL	*tarla-dan*	*tarla-lar-dan*

Table 2. *Personal pronoun inflection in Turkish*

| | 1ST PERSON | | 2ND PERSON | |
	SG	PL	SG	PL
NOM	*ben*	*biz*	*sen*	*siz*
ACC	*ben-i*	*biz-i*	*sen-i*	*siz-i*
GEN	*ben-im*	*biz-im*	*sen-in*	*siz-in*
DAT	*ban-a*	*biz-e*	*san-a*	*siz-e*
LOC	*ben-de*	*biz-de*	*sen-de*	*siz-de*
ABL	*ben-den*	*biz-den*	*sen-den*	*siz-den*

Given one word with impeccably separatist inflection for two categories, there are various kinds of lines along which the morphological system of a language can be split for the parameter of separation/cumulation.

First, other nouns, or also other words inflecting for the same categories (such as personal pronouns), could cumulate number and case, consistently or for some combinations of terms. As it happens, none do in Turkish. Even in the pronouns for 1st and 2nd person (Table 2), case comes on its own, although number here appears to be cumulated with person, with suppletive stems for singular and plural. Arguably, by further segmenting these pronouns, person and number might also be disentangled (*b-iz*, *s-iz*), with *-iz* as a plural (or perhaps collective) exponent of the variant type, limited to 1st and 2nd person words (including verbs) and contrasting with *-ler* for 3rd person.

Second, other morphological categories marked on words of the same class or of different classes could be expressed cumulatively. Again, almost none are in Turkish. The only partial exceptions are person and number. Person and number marking on nouns, indicating possessors, shows a few complications (Table 3): there are regular phonologically conditioned alternants of all relevant suffixes (postvocalic vs. postconsonantal), in addition to vowel-harmony alternations; the plural is variant, with *-iz* for 1st and 2nd person and *-ler* for 3rd person; in 1st and 2nd person the person suffix precedes the number suffix, while it is the other way round in 3rd person. The only instance where person and number are not overtly segmentable is when the noun as well as the 3rd person possessive are plural. However, this cumulation is only superficial: here two *-lar*'s in a row are haplologically reduced to one, which in addition creates a three-way homonymy ('their fields', 'his/her/its fields', 'their field').

Person and number marking on verbs, though similar in many respects and historically deriving from similar sources (essentially, personal pronouns), adds further complications (Table 4). Verbal person-number suffixes are to some extent variant rather than invariant and come in four sets (I–IV), partly similar

Table 3. *Possessor marking on nouns in Turkish*

possessor	noun in nominative singular		noun in nominative plural	
	SG	PL	SG	PL
1ST	*tarla-m*	*tarla-m-ız*	*tarla-lar-ım*	*tarla-lar-ım-ız*
2ND	*tarla-n*	*tarla-n-ız*	*tarla-lar-ın*	*tarla-lar-ın-ız*
3RD	*tarla-sı*	*tarla-lar-ı*	*tarla-lar-ı*	*tarla-lar-ı*

Table 4. *Verbal person-number inflection in Turkish*

	I		II		III		IV	
	SG	PL	SG	PL	SG	PL	SG	PL
1ST	*-im*	*-iz*	*-m*	*-k*	*-e(-)yim*	*-e(-)lim*	–	–
2ND	*-sin*	*-sin-iz*	*-n*	*-n-iz*	*-e(-)sin*	*-e(-)sin-iz*	*-Ø*	*-in(-iz)*
3RD	*(-dir)*	*(-dir)-ler*	*-Ø*	*-Ø-ler*	*-e*	*-e(-)ler*	*-sin*	*-sin-ler*

and partly different, distributed by tense, mood, and aspect. And here we also encounter a few instances of cumulation that cannot be explained away as superficial. They involve 1st person and plural: in set I the plural does without the 1st person suffix *-im* (retained in nominal possessives, see Table 3); and in set II a distinct suffix, *-k*, expresses 1st plural that is not found in any other person or number. In set III, restricted to the subjunctive, it is also 1st person plural that is least transparent. In set IV, used for the imperative, the shorter 2nd person plural form is the less polite one; unaccompanied by plural *-iz*, *-in* also looks like it cumulates (2nd) person and (plural) number.

All in all, then, Turkish is remarkably consistent in its preference for separatist exponents. There are too many logically independent decisions for separation and against cumulation involved for this to be accidental. Of course, all this and more (for Turkish inflection also shows all the other ingredients of agglutination in fairly unadulterated form) would follow from the Strong Homogeneity Hypothesis, which provides a sufficiently sweeping generalization.

By contrast, for some of the same categories that Turkish separates, Old English opts for cumulative exponence with equal consistency. In no combination of terms can number and case exponents be separated in the (highly syncretic) inflection of *feld* 'field' (Table 5). Nouns in other declension classes as well as pronouns and adjectives likewise cumulate number and case for all terms of these two categories. The only separate expression of number is the stem extension *-r-* in nouns like *lamb* 'lamb', confined to the plural; but in this mi-

Table 5. *Noun inflection in Old English:*
u-*declension, masculine*

	SG	PL
NOM	*feld-Ø*	*feld-a*
ACC	*feld-Ø*	*feld-a*
GEN	*feld-a*	*feld-a*
DAT	*feld-a*	*feld-um*

Table 6. *Noun inflection in Old English:*
es/os-*declension, neuter*

	SG	PL
NOM	*lamb-Ø*	*lamb-r-u*
ACC	*lamb-Ø*	*lamb-r-u*
GEN	*lamb-es*	*lamb-r-a*
DAT	*lamb-e*	*lamb-r-um*

Table 7. *Verbal person-number inflection in Old English*

	I SG	I PL	II SG	II PL	III SG	III PL	IV SG	IV PL	V SG	V PL	VI SG	VI PL
1ST	-e	-aþ	-e	-en	-e	-on	-Ø	-on	-Ø	-on	–	–
2ND	-est	-aþ	-e	-en	-est	-on	-e	-on	-st	-on	-e	-aþ
3RD	-eth	-aþ	-e	-en	-e	-on	-Ø	-on	-Ø	-on	–	–

nor declension the inflectional endings proper cumulate number and case, too (Table 6).[9]

In no tense-mood set of person-number endings of verbs can these two categories be separated, as is evident from Table 7, ignoring conjugation-class variance of certain exponents, such as 2SG -*ist*/-*ast* and 3SG -*iþ*/-*aþ* in set I (present indicative), and 2SG -*i*/-*a* in set VI (imperative). In set II, used for the subjunctive, all distinctions of person are neutralized; if the endings of this set are analysed as expressing only number, unlike those of all others, then they would do so separatistically, though lacking a partner category where the difference between separation and cumulation would really show.

This almost exhausts the cumulative component of Old English morphology. Most other categories are expressed separately, just as in Turkish. This includes tense inflection, with ablaut (a stem-vowel alternation reminiscent of introflex-

ion as more extensively practised for instance in Semitic) or a dental suffix as the primary exponents of the preterite, though with the exponence of preterite also extending to some suffixes that primarily distinguish person, number, and mood (compare the weak preterite indicative set III with the present indicative set I in Table 7). No derivational categories are cumulated with each other or with any inflectional category. A possible exception are agentive nouns such as *bæc-ere* 'baker' vs. *bæc-estre* 'bakeress', whose suffixes might be analysed as cumulating agency and sex (with *-estre* later generalized to both sexes), on the problematic assumption that sex is a morphological category in Old English.

Old English self-evidently renders the Strong Homogeneity Hypothesis untenable even with regard to the single parameter of separation/cumulation; and there are families and areas where languages resembling Old English abound. But then morphology alla turca is not as unique as has sometimes been supposed either. The following sections chart, in different degrees of detail,[10] the possible patterns that deviations from (almost) full separatist homogeneity may follow.

3.1.2. *Split by word-class.*

Although unattested or at least not particularly prominent in Old English, splits between word-classes are not uncommon. Of the major word-classes, verbs (and personal pronouns) seem more likely to engage in cumulation than nouns, largely owing to the popularity of person and number as verbal categories (often derived from personal pronouns), which are prone to be cumulated. However, separation of the same categories in one word-class and their cumulation in another—like person and number in nouns and verbs in Turkish, respectively—seems rare.

3.1.3. *Split by word-subclass.*

Splits between words within a single word-class, not attested at all in Turkish or Old English, are not widespread. A particularly striking example of a split within a word-class, with each subclass itself consistent in its allegiance to cumulation or separation, is the nominal inflection in Sogdian, an extinct Eastern Iranian language (Indo-European; Sims-Williams 1982). Case and number inflection is fully cumulative in the traditional Indo-European manner for light-stem nouns (such as *ram-í* 'people' in Table 8, illustrating only one of three genders, masculine, and one of several declensions), but unexceptionably separatist for heavy stems (such as *mēθ* 'day' in Table 9, with no further diversity of declensions), which also limit themselves to two-way contrasts for both number and case.[11]

After the loss of even earlier cumulative plurals, the plural of both types of nominals had in fact once been separatist, deriving from the Old Iranian feminine collective suffix *-tā*. When the collective was reinterpreted, this eliminated gender and declension distinctions in the plural and made the plurals look much like feminine singulars, except for initial /t/ in all their endings.

Table 8. *Noun inflection in Sogdian: light stems*

	SG	DU	PL
NOM	*ram-í*	*ram-á*	*ram-tá*
ACC	*ram-ú*	*ram-á*	*ram-tá*
GEN	*ram-é*	–	*ram-tyá*
LOC	*ram-yá*	–	*ram-tyá*
ABL	*ram-á*	–	*ram-tyá*
VOC	*ram-á*	–	**ram-té*

Table 9. *Noun inflection in Sogdian: heavy stems*

	SG	PL
DIRECT	*mēθ*	*mēθ-t*
OBLIQUE	*méθ-ī*	*méθ-t-ī*

Table 10. *Noun inflection in later Sogdian: light stems*

	SG	PL
DIR	*ramí*	*ram-tá*
OBL	*ramí-ī*	*ram-tá-ī*

Table 11. *Noun inflection in Yaghnobi*

	SG	PL
DIR	*kat*	*kat-t*
OBL	*kát-i*	*kát-t-i*

Then it was essentially the phonology which inadvertently brought about the split between types of inflections, with heavy and light stems faring differently under Sogdian's "Rhythmic Law". After heavy stems, retracting stress from the endings, *-yá* changed to unstressed *-ī*, which provided the oblique suffix, and vocalic endings other than *-ī* were apocopated. Light stems, keeping stress on inflectional endings, initially resisted such curtailment; but later they also developed a separatist pattern, having reänalysed the inflected nominative singular (*-í*) as a basic form (Table 10).

Catching the spirit of the area rather than directly continuing Sogdian forms, its sole surviving dialect, Yaghnobi, has also generalized the separatist style of nominal inflection (Table 11, *kat* 'house'; Sims-Williams 1982).

Table 12. *Noun inflection in North Russian Romani: animates vs. inanimates*

| | ANIMATE | | INANIMATE | |
	SG	PL	SG	PL
NOM	*rom-Ø*	*rom-á*	*mar-ó*	*mar-é*
ACC	*rom-és*	*rom-én*	*mar-ó*	*mar-é*
DAT	*rom-és-ke*	*rom-én-ge*	*mar-és-ke*	*mar-én-ge*
LOC	*rom-és-te*	*rom-én-de*	*mar-ó*	*mar-é*
ABL	*rom-és-tïr*	*rom-én-dïr*	*mar-és-tïr*	*mar-én-dïr*
INS	*rom-és-sa*	*rom-én-sa*	*mar-és-sa*	*mar-én-sa*

When splits are the blind workings of phonology it is hard to see how they could be amenable to genuinely morphological generalizations about how to divide up the words favouring separation and cumulation. Still, one constraint might be that the words of either subset have to be consistent in their choice of separation or cumulation for all terms of the categories concerned—or else morphological systems might end up entirely heterogeneous, with any word taking its own choice between separation and cumulation for any term of any category, regardless of the choices it or any other word takes for any other term of any other category. In actual fact, there are such splits within word-classes where the subclasses are not internally consistent.

Nouns may be divided up among themselves by genders or noun-classes and declensions, rather than by their phonological shape as in Sogdian, and then identical terms can behave differently in the different subclasses. Although they do not seem to do so frequently, this is what they do in the North Russian variety of Romani (Indo-European; Wentzel 1980). Animates such as *rom* 'man, gipsy' (Table 12) cumulate case and number in the nominative only and have separate exponents in all other cases, where the oblique stem formatives (-*és* vs. -*én*) alone distinguish singular and plural.[12] With inanimates such as *maró* 'bread' the split is between nominative plus accusative and locative on the cumulative side and only dative, ablative, and instrumental on the separatist side, with the cumulative case-numbers here all homonymous.

3.1.4.   *Split by category.* Splits between separation and cumulation along categorial lines, like in Old English, are not uncommon. A typical dividing line is that between derivation, which seldom deviates from separation, and inflection, which is prone to license at least some cumulation, though never with derivational categories. Among inflectional categories, person and number are universally those most liable to be cumulated, arguably owing to their interlocked meanings (with plurals of 1st and 2nd person rarely or not exclusively

referring to more than one speaker or addressee), while tense seems relatively resistant to cumulation.

3.1.5. *Split by term.*

Lastly, splits can occur between the terms of morphological categories, as has just been illustrated from Romani in conjunction with a gender-based split within a word-class. They also occur without splits within word-classes, but not in plenty even then when the overall circumstances are less complex. An example from Turkish was verbal person and number (Table 4), cumulating 1st person and plural (in sets I–III), and optionally 2nd person and plural (in set IV), while separating 3rd and normally also 2nd person and plural.

If such deviations from homogeneity were random, any term of any category co-occurring with another should be equally likely to be either separated or cumulated. Another typical difference between agglutinative and flexive morphologies might seem to help curb this threat of random diversity: having systematically zero exponents for unmarked terms might narrow down the possibilities for cumulation to make inroads on separation. By this reasoning, the (often) zero exponent for 3rd person and for singular in the Turkish inflection for person and number would preclude cumulation in 1st, 2nd, 3rd person singular as well as in 3rd person plural—there simply is no sequence of exponents. But this reasoning is erroneous: in combinations of categories where one is represented by the unmarked term, like 3rd person (unmarked) and plural (marked), there could well be an unsegmentable exponent that is different from that of the marked term in combination with marked terms of its partner category—and such an exponent would qualify as cumulative. (In Turkish, -*ler* does contrast with 1st/2nd person -*iz*, but it is better analysed as a variant marker, sensitive to person, than as actually cumulating plural and 3rd person.)

Splits in verbal paradigms by persons or numbers seem too rare for broad generalizations, but an extended survey of splits in nominal paradigms by cases and numbers suggests that although they are fairly diverse they are not random.

In Brahui (North Dravidian; Andronov 1980, Elfenbein 1998) the singular number and the nominative case of nouns are both without overt exponent. In impeccably agglutinative manner, in all cases with overt exponents these are used both in the singular and plural, in the plural following the invariant suffix -*tē*. The plural suffix in the nominative is not -*t(ē)* but -*k* (Table 13, *xal* 'stone'). One interpretation of this kind of pattern is that plural has variant exponents, -*k* and -*tē*, sensitive to case (nominative vs. the rest), but both separatist.[13] Alternatively, and more straightforwardly, -*tē* can be interpreted as separatist and invariant, and -*k* as cumulating plural and nominative.

Similar patterns are sometimes seen in Uralic, for example in Finnish (Table 14, *pöytä* 'table', also showing consonant gradation determined by syllable structure; Fromm 1982: 64–85) or Karelian (Comrie et al. 1981: 118); among

Table 13. *Noun inflection in Brahui*

	SG	PL
NOM	*xal(-Ø)*	*xal-k(-Ø)*
GEN	*xal-nā*	*xal-t[ē]-[n]ā*
ACC	*xal-ē*	*xal-t[ē]-ē*
DAT	*xal-ki*	*xal-tē-ki*
ABL	*xal-ān*	*xal-tē-ān*
INS	*xal-aṭ*	*xal-tē-aṭ*
COM	*xal-tō*	*xal-tē-tō*
LOC I	*xal-(a)ṭī*	*xal-tē-ṭī*
LOC II	*xal-ā(ī)*	*xal-tē-ā(ī)*
ADESS	*xal-(is)k*	*xal-tē-k*
TERM	*xal-(is)kā*	*xal-tē-kā*

Table 14. *Noun inflection in Finnish*

	SG	PL
NOM	*pöytä(-Ø)*	*pöydä-t(-Ø)*
GEN	*pöydä-n*	*pöyt-i-en*
PART	*pöytä-[t]ä*	*pöyt-i-[t]ä*
ESS	*pöytä-nä*	*pöyt-i-nä*
TRANSLAT	*pöydä-ksi*	*pöyd-i-ksi*
INESS	*pöydä-ssä*	*pöyd-i-ssä*
ELAT	*pöydä-stä*	*pöyd-i-stä*
ILLAT	*pöytä-än*	*pöyt-i-in*
ADESS	*pöydä-llä*	*pöyd-i-llä*
ABL	*pöydä-ltä*	*pöyd-i-ltä*
ALLAT	*pöydä-lle*	*pöyd-i-lle*
ABESS	*pöydä-ttä*	*pöyd-i-ttä*
INSTRUCT	*pöyd-i(-)n*	*pöyd-i-n*
COM	*pöyt-i(-)ne*-POSS	*pöyt-i-ne*-POSS
	(or: *pöyt[ä]-ine*-POSS)	(*pöyt-[i-]ine*-POSS)

their relatives genitive or partitive may also join the cumulative ranks, as in Estonian, or cumulation may prevail completely, as in Saami (Bergsland 1976). The plural suffix is *-i* in all cases, except again in the nominative.[14] Since the nominative has zero exponence in the singular, this renders the corresponding plural again structurally ambiguous between variant-separatist and invariant-cumulative. Another feature that is not neatly separatist here is the number

Table 15. *Noun inflection in Mordvin*

| | INDEF | | DEF | |
	SG	PL	SG	PL
NOM	*pakša(-Ø)*	*pakša-t(-Ø)*	*pakša-š(-Ø)*	*pakša-t'ńe(-Ø)*
GEN/ACC	*pakša-ń*	–	*pakša-ńt'(-Ø)*	*pakša-t'ńeń*
DAT/ALLAT	*pakša-ńeń*	–	*pakša-ńt'-eń*	*pakša-t'ńe-ńeń*
INESS	*pakša-so*	–	*pakša-so-ńt'*	*pakša-t'ńe-se*
ELAT	*pakša-sto*	–	*pakša-sto-ńt'*	*pakša-t'ńe-ste*
ILLAT	*pakša-(a)s*	–	*pakša-ńt'-eń*	*pakša-t'ńe-s*
PROLAT	*pakša-va*	–	*pakša-va-ńt'*	*pakša-t'ńe-va*
ABL	*pakša-do*	–	*pakša-do-ńt'*	*pakša-t'ńe-d'e*
LAT	*pakša-v*	–	–	–
TRANSLAT	*pakša-ks*	–	*pakša-ks-o+ńt'*	*pakša-t'ńe-ks*
ABESS	*pakša-vtomo*	–	*pakša-vtomo-ńt'*	*pakša-t'ńe-vt'eme*
COMP	*pakša-ška*	–	*pakša-ška-ńt'*	*pakš a-t'ńe-ška*

homonymy for the instructive and comitative, due to the extension of the plural suffix to the singular, provoked by an apparently even more undesirable homomymy of the original instructive singular with genitive singular.

In a slightly more complicated variation of this Uralic theme, definiteness is added to nominal inflection in Mordvin (both Erzya and Moksha; Collinder 1957, Keresztes 1997). As seen in Table 15 (*pakša* 'field'), indefinite is systematically zero (with plurals of non-nominatives lacking), and definite is cumulated with number, with the definite plural suffix (*-t'ńe*) preceding case and the definite singular suffix (*-ńt'*) either preceding or following case. Case is kept clearly separate from definiteness-number throughout most of the paradigm (with only the illative deviating from invariance, sharing one of its variants, *-eń*, with dative/allative singular definite, itself slightly irregular), but in the nominative and the genitive/accusative the cumulative marking of indefinite and plural (*-t*) and of definite and singular (*-š*, *-ńt'*) admits of an analysis where case is also included in the cumulation. The reasons are that *-t* and *-š* are unique to the nominative, and that *-ńt'* in the genitive/accusative singular definite lacks the suffix (*-ń*) expressing this case in singular indefinite and plural definite.

Noun inflection in Chukchi (Chukchi-Kamchatkan; Skorik 1961, Kämpfe & Volodin 1995) presents a similar split pattern, although with an unusual difference. Table 16 gives the paradigms for a human and a non-human noun (*tumɣ(ə)-* 'friend', *kupre-* 'net'): there are seven cases (or more, with possible additions such as an associative and a comitative, a relative, or also an ergative, distinct only for pronouns) and two numbers (plus perhaps a collective

Table 16. *Noun inflection in Chukchi*

	HUMAN		NON-HUMAN	
	SG	PL	SG	PL
ABS	*tumɣə-tum*	*tumɣə-t*	*kupre-n*	*kupre-t*
INS	–	–		*kupre-te*
LOC	*tumɣə-Ø*	*tumɣə-rək-Ø*		*kupre-k*
ABL	*tomɣ-epə*	*tomɣə-rɣ-əpə*		*kopra-jpə*
ALLAT	*tomɣə-Ø* (*tomɣ-etə?*)	*tomɣə-rək-ə*		*kopra-ɣtə*
ORIENT	*tumɣə-ɣjit*	*tumɣə-rə[ɣ]-ɣjit*		*kupre-ɣjit*
ESS	*tumɣ-u*			*kupre-nu*

contrast, with *-ne* identifying human nouns in cases other than absolutive as non-collective and *-rək* or its variants expressing collective rather than plural). Number is obligatorily distinguished for all nouns in the absolutive case and optionally for human nouns in all other cases (other than essive), where non-human nouns lack a number contrast entirely. Most of the time where there is a number contrast, the plural exponent, *-rək* or its variants, is separate from those of the cases, which also show phonologically or morphologically conditioned variation. The locative lacks an overt exponent for human nouns, for which class it serves as an ergative (for non-human nouns the instrumental has that function); but the plural marker here is the regular one, which precludes its possible interpretation as cumulative. (The human allative too is probably overtly zero, but this seems due to the phonology, and should not cause morphological problems.) Now, by contrast to the previous languages, the basic case in Chukchi may unmistakably have overt exponence: while some nouns do leave the absolutive unmarked, as is the agglutinative norm, others express it by the reduction of stem vowels, by partial reduplication of the noun stem (like *tumɣ(ə)-*), or by suffix *-n* (like *kupre-*)—but in the singular only. Plural in the absolutive is *-t* (with variants *-(i)til-(i)te*) for both human and non-human nouns. This contrast within the absolutive plus the non-recurrence of either absolutive singular or plural exponents in any other case, thus, force a cumulative interpretation upon absolutive number marking.

In Yawelmani (and similarly in other Yokutsan languages of California; Newman 1944), plural marking on nouns is limited to those high in animacy, and even with them is not obligatory. Regular noun pluralization is by separate suffixes; but with nouns highest in animacy—kin terms, tribal names, derivational agentives, and a few other nouns for persons—number is formally more intricate and partly bound up with case. As is illustrated in Table 17 for

Table 17. *Inflection of nouns with ablaut-type plural in Yawelmani*

	SG	PL
NOM	*ne'i·ş-Ø*	*né'a·ş-i*
ACC	*ne'e·ş-i*	*né'a·ş-h-i*
GEN	*ne'e·ş-in*	*né'a·ş-h-in*
DAT	*ne'eş-ni*	*né'a·ş-h(e·)-ni*
ABL	*ne'eş-nit*	*né'a·ş-h(e·)-nit*
LOC	*ne'e·ş(a)-w*	*né'a·ş-h(i)-w*

one such noun (*ne'e·ş-* 'younger brother'), plural stems differ from singular stems by ablaut-type vocalic changes. Nouns generally distinguish direct and oblique stems, with the former used for the nominative and the latter (among other things) for the other cases, and with different classes of nouns showing different ways of forming these stems (qualitative and quantitative vowel changes or other, plus different "protective" vowels). With ablaut-plural stems, the formative for the oblique stem in the plural is invariably *-h*; it is thus cumulatively involved in both plural and relational (non-subject) marking. For locative, ablative, and dative, the case suffixes themselves are the same in the plural and singular. For genitive, *-in* alternates with *-an* in the plural, depending on the (phonological) stem class, while genitive singular limits itself to invariant *-in*, regardless of stem class. For accusative, *-i* alternates with *-a* in the plural, again depending on stem class, while the singular adds three further variants: *-in*, *-an* (selected by phonological stem classes), and *-Ø* (selected by a few kin terms). A more serious divergence occurs in the nominative, where singular has *-Ø* and plural the variants *-i/-a*, just like accusative (or also *-iy*, with only three nouns).[15] Unlike in the previous examples, there actually is a separate exponent of plural (and direct) even in the nominative, namely the plural stem. And the structural ambiguity of the nominative plural form here does not rest on whether or not also to posit a separatist-style zero for nominative in the plural. Still, given the formal oppositions in the paradigm, the nominative forms are again ambiguous between a cumulative interpretation (*-Ø* NOM.SG vs. *-i/-a* NOM.PL, with number thus extending over stem and suffix) and a variant-separatist one (*-Ø* and *-i/a* NOM, selected by singular and plural stems, respectively).

Back in the Old World, in Tocharian (an extinct group of Indo-European languages once spoken in Central Asia; Winter 1967) cases are conventionally distinguished as "primary" (nominative, accusative, genitive, in Tocharian B also vocative) and "secondary" (dative, ablative, instrumental, locative, comitative, in Tocharian B also causative). The primary cases are cumulated with num-

Table 18. *Noun inflection in Tocharian A*

	SG	PL
NOM	*ri*	*ri-ñ*
GEN	*riy-is*	*riś-śi*
ACC	*ri(-Ø)*	*ri-s(-Ø)*
DAT	*riy-ac*	*ri-s-ac*
ABL	*riy-āṣ*	*ri-s-āṣ*
INS	*riy-ā*	*ri-s-ā*
LOC	*riy-aṃ*	*ri-s-aṃ*
COM	*sey-aśśāl*	*sew-ās-aśśāl*

ber, while number is expressed separately from the secondary cases, which on the evidence of stress retractions are still recognizable as enclitic postpositions rather than suffixes in Tocharian B. Table 18 gives the Tocharian A forms of *ri* 'town' (showing phonological adjustments before inflections), and *sey* 'son' in the comitative, where *ri* is unattested. The secondary cases are assumed to be built on the accusative singular and plural. However, another way of seeing this is to analyse the accusative as having zero exponence in both numbers, with the *-s* as a separatist exponent for plural, like in the other secondary cases.

So far we have seen cumulation encroaching on predominantly separatist inflection, gaining a foothold in the plural of the (usually zero-marked) nominative and perhaps further grammatical cases. Now, noun inflection of Classical Armenian (Indo-European; Schmitt 1981) is predominantly flexive, like that of Old English, except that there are two cases arguably not cumulated with number (Table 19, *ban* 'word, thing'). The instrumental has the same case suffix in singular and plural, followed by a further suffix in the plural—with case and number in what is crosslinguistically an unusual order. Assuming that nominative, in a spirit of agglutination, is a case with zero exponence (the accusative is also endingless in the singular, but shares the locative suffix in the plural), nominative plural can also be analysed as separatist, with only one overt exponent for plural, the same as that of the instrumental. In Modern Armenian number and case have separated throughout, and also appear in the right order, as shown for Eastern Armenian in Table 19 (Kozintseva 1995).

In Georgian (Kartvelian; Fähnrich 1986) case and number are again consistently separatist when plural is expressed by the suffix *-eb* (Table 20, *buz* 'fly'), whose original meaning was probably collective. The older way of forming plurals, still retained as an archaism in Modern Georgian, was more complicated, using a separatist suffix *-n* for the direct cases (nominative, vocative) and a suffix *-t(a)* cumulating number and ergative, dative, and genitive with-

Table 19. *Noun inflection in Classical and Modern Eastern Armenian*

| | Classical | | Modern | |
	SG	PL	SG	PL
NOM	*ban(-Ø)*	*ban(-Ø)-kʻ*	*ban*	*ban-er*
ACC	*ban*	*ban-s*	–	–
GEN	*ban-i*	*ban-icʻ*	*ban-i*	*ban-er-i*
DAT	*ban-i*	*ban-icʻ*	*ban-i*	*ban-er-i*
LOC	*i=ban-i*	*i=ban-s*	*ban-um*	*ban-er-um*
ABL	*i=ban-ê*	*i=ban-icʻ*	*ban-ic*	*ban-er-ic*
INS	*ban-iw*	*ban-iw-kʻ*	*ban-ov*	*ban-er-ov*

Table 20. *Noun inflection in Old and Modern Georgian*

| | Old | | Modern |
	SG	PL	PL
NOM	*buz-i*	*buz-n-i*	*buz-eb-i*
VOC	*buz-o*	*buz-n-o*	*buz-eb-o*
ERG	*buz-ma*	*buz-t(a)*	*buz-eb-ma*
DAT	*buz-s(a)*	*buz-t(a)*	*buz-eb-s(a)*
GEN	*buz-is(a)*	*buz-t(a)*	*buz-eb-is(a)*
INS	*buz-it(a)*	*buz-it(a)*	*buz-eb-it(a)*
ADV	*buz-ad(a)*	*buz-ad(a)*	*buz-eb-ad(a)*

out distinguishing these three oblique cases from each other;[16] number remains undistinguished in the instrumental and adverbial in the old system.

Noun inflection in Chechen (North-East Caucasian; Nichols 1994 and personal communication) is especially recalcitrant. There are several variants of plural exponents, but that preferred by most nouns for most of their cases is *-(a)š*. Still, as seen in Table 21 (*xabar* 'talk'), the (separatist) exponent of plural is a different one in the locative and comparative, *-ie* (the vowel of these case endings in the singular is probably epenthetic). The simplest interpretation, and the one most congruous with the overall system, is that plural is variant, being sensitive to case, with locative and comparative exceptionally requiring *-ie* instead of regular *-(a)š*;[17] alternatively, plural would have to be assumed to be cumulated with case throughout (plural nominative/dative/ergative/instrumental/allative *-(a)š*, plural.locative/comparative *-ie*), with case thus receiving extended exponence. The allative is also deviant, for although it has the regular plural suffix, the suffix which follows it *(-ka)* differs from that marking this case in the singular (*-ie*, homonymous with the exceptional

Table 21. *Noun inflection in Chechen*

	SG	PL
NOM	*xabar*	*xabar-š*
GEN	*xabar-an*	*xabar-i:ⁿ*
DAT	*xabar-na*	*xabar-š-na*
ERG	*xabar-uo*	*xabar-š-a*
INS	*xabar-ca*	*xabar-š-ca*
LOC	*xabar-ax*	*xabar-ie-x*
COMP	*xabar-al*	*xabar-ie-l*
ALLAT	*xabar-ie*	*xabar-š-ka*

plural). One interpretation here is that allative is (inward-)sensitive to number; another, arguably less plausible one is that allative is cumulated with number, with extended exponence of plural (by regular *-(a)š* and by *-ka*). What is not shown in Table 21 is that the ergative exponent is variant too, being sensitive to stem class, gender or animacy, and number. In none of these deviations is separability at risk, though. But there is one case which, on the face of it, stands out as not separating case and any variant of plural: the genitive. It remains to be seen whether a more abstract analysis is viable that segments $-i\!:^n$ into the exceptional plural exponent found with locative and comparative (*-i(e)*) and the nasal expressing genitive in the singular.

Nouns in Wakhī (Pamir group, Indo-Iranian; Grjunberg & Steblin-Kamenskij 1976, Comrie et al. 1981: 167–172, Payne 1989) distinguish fewer cases. Their basic contrast is between one case for subjects and predicate nominals, the absolute, and another for objects and complements of adpositions, called oblique in such patterns widespread in modern Iranian languages. But in Wakhī this contrast is limited to the plural: there is no such case nor overt number marking in the singular; the overt suffixes are cumulative ones for plural and absolute vs. oblique case (*-iš(t)* vs. *-əv*). There are also suffixes for dative and ablative/genitive, and they are independent of number. These are added to oblique noun forms, thus creating two levels of case inflection in the plural: an inner one, cumulated with number, and an outer, separatist one (Table 22, *kənd* 'woman').

In yet another variation of the theme of two-level case paradigms, opposing direct (or absolute or primary) and oblique forms and using the latter as bases of further case inflection (as seen above in Yawelmani, Sogdian heavy stems, Yaghnobi, Romani, Tocharian, and Wakhī), there are oblique singular as well as oblique plural exponents in Archi and other Daghestanian languages (North-East Caucasian; Kibrik 1991). Nominative, as the direct case, and erga-

Table 22. *Noun inflection in Wakhī*

	SG	PL
ABS	*kənd-Ø*	*kənd-iš(t)*
OBL	*kənd-Ø*	*kənd-əv*
DAT	*kənd-ərk*	*kənd-əv-ərk*
ABL/GEN	*kənd-ən*	*kənd-əv-ən*

Table 23. *Noun inflection (partial) in Archi*

	SG	PL
NOM	*qlin*	*qlonn-or*
ERG	*qlinn-i*	*qlonn-or-čaj*
GEN	*qlinn-i-n*	*qlonn-or-če-n*
DAT	*qlinn-i-s*	*qlonn-or-če-s*
COM	*qlinn-i-ĺu*	*qlonn-or-če-ĺu*
COMP	*qlinn-i-Xur*	*qlonn-or-če-Xur*
SUPERESS	*qlinn-i-t*	*qlonn-or-če-t*

tive remain without overt exponents, with oblique forms serving as ergative; each other oblique case has its separate suffix, coming last in the noun. Since singular is without overt exponent in the nominative (disregarding automatic vowel alternations in certain noun stems, such as *qlinn–qlonn* 'bridge') and is expressed by -*i* in all oblique cases, there is thus an additional marker of obliqueness, cumulated with singular number. Unlike singular, plural does have a separatist exponent, -*or*, used for direct and oblique cases alike. But there is again an additional marker cumulating obliqueness with plural number, -*čaj/-če* (Table 23, *qlin* 'bridge', several further local cases as well as markers of localization omitted).

To close with another kind of marking system altogether, in Tunica (hard to affiliate with any other North-American language; Haas 1946) there are mutually exclusive nominal suffixes for the local relations 'to, at' and 'on' on the one hand and for (cumulated) number and gender on the other, neither of which occur in noun phrases followed by a postposition. Owing to their being limited to noun phrases in subject and object function, these number-gender suffixes can be interpreted as simultaneously expressing a grammatical relation, subject/object as opposed to locatives and other adverbial relations, i.e., as a (direct) case. With non-subject/object noun phrases not being marked for number(-gender), there is no opportunity for the two locatives to be cumulated with number.

Table 24. *Splits between separation from and cumulation with number by cases: Summary*

SEPARATIST	CUMULATIVE	languages
all	–	Turkish, Modern Georgian, Modern Armenian, Yaghnobi, Yawelmani suffix-plural nouns, Sogdian light stems, …
others	NOM	Brahui
others	NOM	Finnish, Karelian
others	ABS	Chukchi
others	NOM (GEN?, ACC?)	Yawelmani ablaut-plural nouns
LOC, ALLAT	DIRECT (SBJ/OBJ)	Tunica
oblique (ACC, DAT, LOC, ABL, INS)	direct (NOM)	North Russian Romani animates
others	NOM, GEN/ACC	Mordvin
others	NOM, GEN, PART	Estonian
DAT, ABL, INS, LOC, COM, (ACC?)	NOM, GEN, ACC?	Tocharian A
DAT, ABL, INS	NOM, ACC, LOC	North Russian Romani inanimates
DAT, ABL/GEN	ABSOLUTE, OBLIQUE	Wakhī
others	GEN, (ALLAT?)	Chechen
NOM, oblique (final suffixes)	oblique (internal suffixes)	Archi
direct (NOM, VOC)	oblique (ERG, DAT, GEN)	Old Georgian
NOM, INS	others	Classical Armenian
–	all	Old English, Sogdian heavy stems, …

Summarizing this survey of splits between the terms of the category of case in Table 24, no pattern emerges of certain cases always preferring separatist and certain others always preferring cumulative exponence with number (ignoring further categories of nominal inflection). What is less arbitrary, however, is where the dividing lines run.

On top of the table, just below pure separation as in Turkish and elsewhere, are the more common type of splits where cumulation with number extends across case paradigms from the GRAMMATICAL end, covering the cases of subjects and (direct) objects. Outside Dravidian, Uralic, Chukchi-Kamchatkan, several American Indian families, and modern Indo-Aryan and Indo-Iranian, a predominance of separatist number and case with the plural and possibly dual of only the subject case(s) (nominative, or rather absolutive and possibly also ergative) as not-so-unambiguously separatist is also encountered in Eskimo languages and varieties of Basque. The case system of Proto-Indo-European too is commonly reconstructed with the accusative plural as separatist (*-n/-n̥-s ACC-PL, with the nasal basically labial and assimilated to the following coronal), assuming zero for singular (*-m/-m̥-∅ ACC-SG); and since nominative is zero (alternating with *-s), nominative plural can then also be analysed as separatist (*-∅-es NOM-PL).[18]

Genitive, the typical case for attributes, is here sometimes included in the cumulative domain, but it is once found in that of separation too (in Wakhī, where it also has the non-attributive function of an absolutive, though).

At the bottom of Table 24, just above pure cumulation, as found in Old English and most of its Indo-European relatives and not so frequently elsewhere, is exactly the opposite preference insofar as cumulation affects SEMANTIC cases, i.e., all or most cases other than that of subject.

In between is, first, a case of an individual stray from the fold that seems haphazard, Chechen with its sole cumulative genitive; and here may also belong the instrumental of Classical Armenian and the locative of North Russian Romani inanimates. Second, there is Archi, where the individual oblique cases are separatist and general obliqueness is cumulated with number.

Disregarding occasional misfits, on current evidence intra-categorial splitting is thus not entirely arbitrary insofar as the cases are roughly divided into grammatical (or only that of subject) and semantic ones, although with no unique preference of either group for either separation or cumulation.

In several of our examples the analysis of a word form as separatist or cumulative did not really rest on the morphemic segmentability or otherwise of overt exponents, but on the interpretation of zeros in combination or opposition with something. It is not these forms themselves, involving one term unmarked within its category, but how they are related to the rest of their paradigms that suggests their interpretation as cumulative (plural co-expressed with nominative in Brahui, Finnish, Karelian, and Yawelmani, and with accusative(/genitive) in Mordvin and Tocharian A) or separatist (plural plus zero-expressed nominative in Classical Armenian and Archi; plural plus possibly zero-expressed 3rd person in Turkish verb inflection). A second generalization, then, is that such protean forms are conducive to intra-categorial splits, where they themselves are possibly the only odd men out in a paradigm.

An observation that may point to a further condition on such splits is that terms sharing the method of cumulation within a separatist milieu may also share actual exponents: thus, the incongruous locative of North Russian Romani inanimates is homonymous with nominative and accusative, and in old-style Georgian ergative, dative, and genitive are also conflated in the cumulative plural.[19]

3.2. *Invariance and variance*

3.2.1. *The (relatively) pure and impure exemplified: Turkish and Old English, again.*

The exponent of accusative in *tarla-lar-ı* 'fields' in Turkish is of the invariant type: it is by the suffix *-ı* that accusative is expressed not only on this noun and in the plural, but on all other nouns and indeed on all other kinds of words in the domain of case (personal and other pronouns when representing NPs of their own[20]), in the singular as well as in the plural, and in the company of any other morphological category as well. Plural is invariably expressed by *-lar* on native nouns and 3rd person personal and other pronouns (pluralizing their reference) as well as in 3rd person possessive forms (pluralizing the noun's or pronoun's possessor) and 3rd person verbal forms (indexing the verb's subject as plural). To pluralize 1st and 2nd person, however, different suffixes are used: *-iz* on personal pronouns, in possessive nominal forms, and in certain verbal paradigms (in fact in all for 2nd person), and cumulative *-k* and *-(e-)lim* in one verbal paradigm each. Conceiving of number broadly, as a category equally applicable to different word-classes, plural marking in Turkish is of the variant type, being sensitive to distinctions of person. On a more limited view of number as a referential category of nouns only, plural is as invariant as is the accusative case.

What matters for (in-)variance is MORPHOLOGICAL identity. When exponents differ, but it is the phonology that can be held fully accountable for their difference, they will naturally be considered morphologically identical. In Turkish, accusative *-ı* does alternate with *-i/-ü/-u*, and plural *-lar* with *-ler*; but, being the product of the rules of palatal and labial vowel harmony, these alternations are of a phonological nature and their conditioning is also phonological. The alternation of *-lar/-ler* with zero can also be attributed to the workings of phonology, haplologically suppressing one such plural exponent when two would come in a row, as in the plural of nouns with a 3rd person plural possessor (*tarla-lar-ları-ı*, Table 3). There is yet a further alternant also of accusative *-ı* (or of whichever formative precedes it), involving the appearance of *-y-* (*tarla-yı*, vs. plural *tarla-lar-ı*, Table 3). Hiatus avoidance is a phonological phenomenon, but its conditioning is partly morphological, insofar as different consonants or glides are required by different categories of vowel-initial suffixes (*-y-* with accusative *-i/-ü/-ı/-u* and dative *-e/-a*, *-n-*

Table 25. *Accusative plural variants in Old English*

I	II	III	IV	V	VI	VII	VIII
stān-as 'stones'	*scip-u* 'ships'	*wund-al-e* 'wounds' *word-Ø* 'words' *lamb-r-u* 'lambs'	*win-el-as* 'friends'	*feld-a* 'fields'	*ēag-an* 'eyes'	*fēt-Ø* [umlaut of stem] 'feet'	*brōþor-Ø* 'brothers'

with genitive *-in/-ün/-ɪn/-un*, *-s-* with 3rd person singular possessor *-i/-ü/-ɪ/ -u*).[21]

In Old English, accusative plural is of the variant type. On nouns, *-a* as in *feld-a* is but one of about eight options to express this combination of case and number, listed in Table 25. This listing disregards some historical and dialectal variation as well as the sharing among several nouns of some of the alternatives given (*-a*, *-e*, *-as*). A subset of the nominal exponents is selected by adjectives for their accusative plurals (*-e*, *-al-e*, *-u/-Ø*, *-an*); somewhat different ones are used by the two demonstratives and the 3rd person personal pronoun (*þ-ā*, *þ-ās*, *h-īe*); 1st and 2nd person personal pronouns have stem suppletion (*ūs*, *ēow*). The alternation between *-u* and *-Ø* with nouns like *scip* 'ship' and *word* 'word' (II, all neuters) is a phonological one and its conditioning is also phonological: in Old English high vowels are deleted after a heavy syllable or two light ones—or, to capture the right generalization in metrical terms, when they are in the weak branch of a foot, with the resolved moraic trochee as the foot type of older Germanic (Dresher & Lahiri 1991). There is additional variation in connection with *-u*, insofar as some nouns with this exponent of accusative (and nominative) plural such as *lamb* 'lamb' have an additional stem extension *-r* in all plural cases. In the main the alternants of accusative plural in Old English, unlike in Turkish, differ morphologically rather than phonologically,[22] and their conditioning is morphological and lexical: the relevant factors are word-class (noun, adjective, personal and demonstrative pronoun), gender (an inherent category of nouns and assigned to adjectives by agreement; in Table 25 I and IV are models followed by masculine nouns, II by neuters, III by feminines, V, VII, VIII by masculines and feminines, and VI by all three genders), definiteness or determination (relevant only for adjectives, in choosing between their "weak" and "strong" declension), and above all the arbitrary lexical specification of nouns for their selection of inflectional alternatives itself (their declension class).[23]

3.2.2.   *Taxonomy of alternations.* Accusative plural in Turkish and English were presented as almost self-evidently exemplifying invariance and variance, respectively. However, distinctions here may be subtler, and where to draw the dividing lines is not always obvious.

The conditions of alternations can be of different kinds. They may be semantically arbitrary, like declension class membership is in Old English, which is a matter of lexical specifications of nouns. They may also reflect semantic distinctions, if as opaquely as for example those in terms of gender in Old English. But then the semantics of a conditioned alternation may also be entirely transparent. For example, in Tamil (Dravidian; Annamalai & Steever 1998), the locative is *-itam* or *-il* (*-kitte* or *-le* in spoken Tamil), and the ablative based on it is *-itam-iruntu* or *-il-iruntu*, depending on whether a noun belongs to the rational (roughly, human) or irrational (non-human) class (Table 26); an intervening separatist plural suffix does not interfere with this selection, even though plural itself is invariant (unlike elsewhere in Dravidian, including earlier Tamil).[24] As with the Old English declensions, the relationship between these alternants selected on a semantic basis in Tamil is not of a phonological kind.

The CONDITIONING of alternations of exponents, thus, can be phonological or morphological/lexical or semantic, or also mixed phonological and morphological (and perhaps semantic); and the NATURE of alternations themselves can be phonological or non-phonological. Clearly, variance in the morphological sense consists in morphologically or lexically or also semantically conditioned morphological alternations, while phonologically conditioned phonological alternations do not render exponents morphologically variant. Far less clear is the status of hybrids, where the conditioning is phonological and the alternation morphological or the conditioning is morphological (or lexical or semantic) and the alternation phonological.

Sogdian nominal inflection provides an example of the former, with light and heavy stems selecting exponents of number and case which are not phonologically related, apart from being cumulative and separatist, respectively (see Tables 8 and 9 above). Other examples are the separatist suffixes for ergative

Table 26. *Locative alternations in Tamil*

RATIONAL	IRRATIONAL
manitan-itam	*kālatt-il*
man-LOC	time-LOC
manitar-kal-itam	*kālan-kal-il*
man-PL-LOC	time-PL-LOC

and a few other cases in Australian languages, such as Yidiny (Table 27) or Warlpiri (Table 28), which characteristically come in alternants synchronically unrelatable to each other by phonological rules although the choice between them exclusively depends on their phonological environment (Dixon 1980: Chapter 10). The postconsonantal suffixes in Yidiny also show phonologically conditioned phonological alternation, with /d/ assimilating to the preceding consonant in place of articulation; and there is a single noun which selects yet another phonologically unrelatable ergative alternant: *bama-lu* person-ERG. In Bolivian Quechua (Andean-Equatorial; Bills et al. 1969) it is the separatist plural and genitive that have morphological alternants distributed phonologically (Table 29). In a variation on this theme, almost all case suffixes in Evenki (Tungusic, Altaic; Nedjalkov 1997) have phonologically conditioned alternants, and while the alternations themselves are mostly phonological, they are not with allative and prolative, which in postconsonantal environment are built on the dative suffix *-du/-tu* (Table 30).

Table 27. *Case alternations in Yidiny*

	after a vowel	after a consonant
ERG	*-ŋgu*	*-du/-bu/-ju*
LOC/ALLAT/INS	*-la*	*-da/-ba/-ja*

Table 28. *Case alternations in Warlpiri*

	after disyllabic stems	after stems longer than two syllables
ERG	*-ngku*	*-rlu*
LOC	*-ngka*	*-rla*

Table 29. *Plural and genitive alternations in Bolivian Quechua*

	after a vowel	after a consonant
PL	*-s*	*-kuna*
GEN	*-q(pa)*	*-pa*

Table 30. *Case alternations in Evenki*

	after a vowel	after a consonant
ALLAT	*-lA*	*-dulA/-tulA*
PROL	*-li*	*-duli/-tuli*

Table 31. *Nominative (and vocative) singular alternations in Latin*

	first declension, otherwise after /l, r, n/		elsewhere		
NOM.SG	-Ø		-s		
	mēnsă-Ø	'table'	–		(1st decl)
	puer-Ø	'boy'	hortu-s	'garden'	(2nd decl)
			cīvi-s	'citizen'	(3rd decl)
			grū-s	'crane'	
			hiem(p)-s	'winter'	
	cōnsul-Ø	'consul'	prīncep-s	'chief'	
	pater-Ø	'father'	par-s (stem /part-/)	'part'	
	leŏ-Ø (stem /leōn-/)	'lion'	rēg-s (/rēk-s/)	'king'	
	–		frūctu-s	'fruit'	(4th decl)
	–		diē-s	'day'	(5th decl)
VOC.SG	-Ø		-e or like NOM.SG		
	puer-Ø		hort-e		(2nd decl)

A cumulative analogue, from categories which are typically cumulated even if just about all others are separatist, is 2nd person singular of the intransitive verb conjugation in Hungarian, which for verbs of the *ik*-class is -*ol* when stems end in /l/ and -*sz* otherwise, and for other verbs -*ol* when stems end in strident coronals and -*sz* otherwise (Tompa 1968: 168).

A possible cumulative analogue from nominal inflection, though one more complex, is the nominative (and vocative) singular in Latin (Indo-European): its conditioning is also phonological, although only partly and less unexceptionally and straightforwardly, and the alternation conditioned looks non-phonological on the face of it (Table 31; Gildersleeve & Lodge 1895). The nominative singular of masculines and feminines is generally -*s*, following after the stem-vowels characteristic of the separate declensions. Only in the first declension, with stem-vowel -*ă*, is it -*Ø*—which is thus an instance of morphological or rather lexical conditioning. Consonant-final stems are only found in the third declension, and here the "mute" stems, ending in the stops /p, b, t, d, k, g/, as well as the only attested stem ending in labial /m/ (*hiem*-) follow the vowel stems and take -*s*, with the stems sometimes undergoing phonological adjustments such as the deletion of final /n/, the elision of /t/ before /s/, or the voicing assimilation of stops. The so-called "liquid" stems, ending in /l, r, n/, instead opt for -*Ø* as their nominative singular.[25] They all hail from the third declension, but they are joined by a subclass of /r/-final stems from the second declension, with the once morphological subclass of stems in -*ro* losing their stem-vowel; these nouns also replace the second declension vocative singular -*e* by -*Ø*, with the vocative coinciding with nominative in the other declensions (except the second). This picture is further complicated by a few third

Table 32. *Case alternations in Malto*

	with -*du* nouns	after consonant	after vowel
ACC	-*a(n)*	-*in*	-*n*
INS	-*et*	-*it*	-*t*
LOC	-*no*	-*ino*	-*no*

declension "liquid" stems going along with the opposite class after dropping stem-final /n/ in the nominative singular (retaining it elsewhere—e.g., *sangui-s* 'blood', GEN.SG *sanguin-is*), and by numerous second declension *ro*-stems retaining their stem-vowel and taking the corresponding nominative and vocative alternants -*s* and -*e* (*numerus* 'number', *umerus* 'shoulder', *iūniperus* 'juniper', etc.). What makes it questionable whether the alternation of -*s* and -∅ for the nominative singular of nouns other than first declension ones is indeed non-phonological, like that of Australian ergatives and locatives or Quechuan plural and genitive, is that it does have a phonological rationale: reflecting a general ban of final clusters of coronals in Latin, nominative singular /s/, itself a coronal, is dropped after coronals (/l, r, n/), and stem-final /t/, also a coronal, is elided before /s/ (as in /part-s/).[26]

Phonological alternations of exponents whose conditioning is non-phonological are hard to find.[27] Possibly the alternations of (separatist) accusative, instrumental, and locative case suffixes in Malto (Dravidian; Mahapatra 1979) are an example (Table 32). Their conditioning is phonological, depending on the preceding segment of the stem or another suffix, but also involves a morphological class—non-masculine nouns with the stem formative -*du*, dropped before overt case markers (and also when the noun is governed by a postposition). While the postconsonantal and postvocalic alternants can be derived from each other by a rule of vowel deletion or insertion (except that the roots of -*du* nouns invariably end in a consonant, and yet they require locative -*no*, elsewhere occurring postvocalically), it is unclear whether the vowels of the accusative and instrumental can be accounted for phonologically, notwithstanding the identity of the suffixal consonants.

It is not self-evident how best to relate phonologically conditioned morphological alternations and morphologically conditioned phonological alternations to those where both the conditions and the alternations themselves are of the same sort. It has recently been argued by Kiparsky (1996) that the kind of conditioning is irrelevant, with phonological and morphological (or morpholexical) alternations each forming a natural class on several parameters (including the obedience to phonological or morphological locality conditions and the interaction with other phonological or morphological rules), regardless of

whether the conditions are phonological or morphological. Similarly, Wurzel (1984) advocates that inflection classes be distinguished whenever an alternation of inflectional exponents is morphological, irrespective of the conditions. On the other hand, there is the tradition of subsuming such non-phonological alternants as are phonologically conditioned under single inflectional macro-classes, which are themselves constituted by such non-phonological alternants as are morphologically (or lexically) conditioned.[28] For example, in Latin (Table 31) nominative singular -$\emptyset$ of the first declension would accordingly be considered morphologically different from -$\emptyset$ of the "liquid" stems, which in turn would be morphologically the same as -*s* elsewhere.

That the nature of the conditions is of some theoretical significance, and probably bears on morphological (in-)variance, is also suggested by differences about which species of alternations thrive in which morphological milieus. Phonologically conditioned phonological alternations, not affecting morphological invariance, abound both when exponents are predominantly separatist and substantially cumulative—although they are possibly of partly different kinds, with vowel harmony tending to imply agglutination. Morphological alternations as such are also ubiquitous, but semantically as well as phonologically conditioned ones seem far more characteristic of agglutinative than of flexive morphology, while morphologically or lexically conditioned ones preferably or even exclusively come with flexion. If one wants to hold that all morphological alternations entail variance irrespective of their conditioning, then variance of exponents would still have to be recognized as differing in essence depending on the type of morphology.

Whatever notion of morphological (in-)variance is the appropriate one, universally or relative to morphological types, complete consistency as would satisfy the Strong Homogeneity Hypothesis is rarely attained, if ever. Accusative -*ı*/-*i*/-*ü*/-*u* in Turkish is invariant, and so is nominal plural and most of Turkish morphology—but not quite all. Accusative plural in Old English is variant, and so is much else of Old English morphology—but not nearly all. As with separation and cumulation, what is at issue is whether deviations from homogeneity are orderly or random, and the questions again are: What are possible splits? And is there system in what goes on which side of a divide?

3.2.3.   *Split by word-class.*   One possibility for splits between invariant and variant exponence is again to run along word-class lines, with some word-classes taking only invariant and others only variant exponents for whatever morphological categories they are marked.

In Old English, as nouns divide up into declensions, so do verbs into conjugations, owing to lexically conditioned variance of their respective inflectional categories. In Turkish, neither nouns nor verbs fall into such inflection classes. Still, Turkish verbal inflection knows some variance, owing to at least

one term combination showing a morphologically (tense/aspect/mood) conditioned morphological alternation: 1st person plural *-iz/-k/-(e)lim* (see Table 4 above).[29] It may be a valid generalization that, whenever there is a split in a language between the two major word-classes, nouns will tend towards invariance and verbs towards variance. Frequently, however, there is some variance in both, with alternants of some inflectional and derivational categories typically selected by semantic subclasses of nouns and of verbs.

3.2.4. *Split by word-subclass.*   Unless conditioned by co-occurring categories alone, all variance implies splits between subclasses of words. Still, there may be subclasses internally so cohesive as to gain special significance for the delimitation of the domains of invariance and variance. Thus, as seen earlier (Tables 8 and 9), number and case inflection in Sogdian is variant, considered altogether; yet its variant component (with number and case cumulated) is limited to light-stem nominals, divided into declension and gender classes, while heavy stems inflect invariantly (keeping number and case separate).

3.2.5. *Split by category.*   Third, invariance and variance can be split by morphological categories.

In Turkish, case and most other categories have invariant exponents, with only (plural) number across word-classes and person of verbs and nouns as moderately variant.

In Old English, number and inevitably its cumulative partner, case, are thoroughly variant. Tense is clearly variant, too, insofar as strong verbs take (introflexive-style) ablaut patterns and weak verbs the dental suffix as the primary exponents of the preterite, and different suffixes for person in the singular as its secondary exponents (1/3SG -$\emptyset$ vs. *-e*, 2SG *-e* vs. *-est* in the strong vs. weak preterite). Assuming that final suffixes of verbs are the primary exponents of person and number only, there actually is not so much variance for these two categories across verb classes other than in the preterite singular, all further variation being due to preterite-presents and a few other anomalous verbs; it is across subparadigms for moods and tenses that the exponents of person and number typically vary (with, e.g., 1st person plural of the major verb classes being *-ab* in the indicative present, *-on* in the indicative preterite, and *-en* in the subjunctive present and preterite). But then, since mood lacks any exponent of its own in Old English, this category itself is arguably included in the suffixal cumulation; and interpreted as primary exponents of all three—person, number, plus mood—, finite verb suffixes turn out to be correspondingly less variant, now lacking an independent paradigmatic dimension relative to which they could potentially vary. Variance of inflectional categories of Old English adjectives is equally dependent on analysis. Adjectival endings cumulate gender, number, and case, and there is almost no variance for these categories

of agreement, with only a few *i-* and *u-*declension adjectives retaining distinct nominative and accusative singular forms. What variance there is would essentially be due to gender-number-case endings coming in a "strong" (definite) and a "weak" (indefinite) set. On the other hand, definiteness itself, not expressed independently, can arguably be analysed as being cumulated with gender-number-case, which would eliminate this category as a condition for variation. Adjectival comparison appears to be variant, with parallel alternations in the comparative (*-ra* plus umlaut vs. *-ra* without umlaut: *eald* 'old' – *ield-ra*; *earm* 'poor' – *earm-ra*) and superlative (*-est* vs. *-ost/-ast*: *ield-est* – *earm-ost/-ast*), although stems sometimes vacillate between these suffix alternants. Of the non-finite verbal categories, while the perfective participle is unassailably variant, with the alternants *-n* vs. *-d* distributed like those of the preterite (strong vs. weak verbs), the three others—infinitive (*-an*), gerund (*-enne*), imperfective participle (*-ende*)—represent the acme of invariance in Old English inflection.

On the evidence of Turkish and Old English, the inflectional categories of a language do not split evenly between invariance and variance: category-wise, either one or the other type of exponence is massively predominant. But beyond this rather gross generalization there appears to be little system in where precisely variance may encroach on invariant dominions and vice versa. This impression is confirmed by discrepancies even within relatively small and close-knit families such as the Dravidian one (as surveyed in Steever 1998), where it is common for number (plural, with singular remaining unmarked) and certain cases (local ones, instrumental, genitive) to be variant, with alternations conditioned by animacy, but where there are also languages where only the plural number is variant and all cases are invariant (e.g., Kannada) while in others plural is invariant and some cases are variant (e.g., Modern Tamil).

More positively but even more impressionistically, it seems, first, that categories determined by agreement, such as gender, number, case on adjectives or number on verbs, tend towards invariance more strongly than the same categories marked on the controllers of agreement, nouns, and, second, that derivational categories are less favourable to variance than inflectional ones.

3.2.6. *Split by term.*

A fourth possibility for invariance and variance to be split is by terms of single categories.

In Turkish, case is a fully invariant category, like nearly all others. Of number, singular is invariably without overt exponence, and plural is invariably in *-ler/-lar* within the domain of nouns, but there is some variance across its wider domain. Bound person marking is arguably variant for all three terms (see Tables 3 and 4 above), although the clearest morphologically variant (as well as cumulative) suffix is *-k* in the 1st person plural (of verbal set II).

Table 33. *Accusative, genitive, and dative plural alternations in Old English*

	I	II	III	IV	V	VI	VII	VIII
ACC.PL	*stān-as*	*scip-u* *word-Ø* *lamb-r-u*	*wund-a/-e*	*win-e/-as*	*feld-a*	*ēag-an*	*fēt-Ø*	*brōþor-Ø*
GEN.PL	*stān-a*	*scip-a* *word-a* *lamb-r-a*	*wund-a*	*win-a*	*feld-a*	*ēag-en-a*	*fōt-a*	*brōþr-a*
DAT.PL	*stān-um*	*scip-um* *word-um* *lamb-r-um*	*wund-um*	*win-um*	*feld-um*	*ēag-um*	*fōt-um*	*brōþr-um*

In the predominantly variant inflection of Old English some categories have an invariant admixture. While the preterite is clearly variant (ablaut vs. dental suffix), the present tense is largely invariant, lacking a primary exponent of its own and being secondarily co-expressed by exponents of person-number(-mood) identical for all verbs other than a few anomalous ones. Case and its cumulative partner, number, are variant for almost all term combinations, except those of genitive plural and dative plural, which attain almost impeccable invariance—as is seen in Table 33 by comparison with accusative plural, one of the combinations most profusely endowed with morphologically distinct alternants. The genitive plural exponent is invariably -*a* for all nouns, including those of the weak declension (see VI in Table 33) on the assumption that -*en* is a stem extension; adjectives too have *(-en)-a* in the weak declension, and their strong declension as well as demonstratives and the 3rd person personal pronouns have an extended genitive plural suffix -*ra* (assimilated to -*sa* in the proximal demonstrative *þis-sa*); only the 1st and 2nd person pronouns supplete for genitive plural (*ūre, ēower*). The dative plural is even more uniform, being -*um* for all nouns and adjectives and the proximal demonstrative, reduced -*m* for the distal demonstrative and the 3rd person pronoun, and again suppletive for 1st and 2nd person pronouns (*ūs, ēow*).

When a category is split, markedness theory holds that it is predictable how it will be divided up between invariance and variance; and it also has a reason to offer why terms take those sides they do (or ought to).[30] Adding forms and forcing choices between them, variance means complexity, and complexity is the easier to tolerate the less complex the circumstances. Therefore, since markedness is to do with (conceptual and formal) complexity, indulging in or sanctioning variance is something to be expected of unmarked rather than of marked terms. Assuming that singular, nominative or absolutive, 3rd person, and present are the unmarked terms of number, case, person, and tense, these

terms rather than their marked counterparts ought to be able to afford variance and to condone variance in categories they co-occur with, cumulated or otherwise. On this reasoning it seems disconcerting that it is the marked number (plural), a marked person (1st), and a marked tense (preterite) that have the strongest variant leanings in Turkish and Old English inflection; but then, in order to have variant exponence it needs SOME overt exponence to begin with— and this is what unmarked terms frequently lack. Influences across categories are more straightforwardly motivated by markedness, and it is reassuring that it is in the marked plural rather than the unmarked singular where Old English cuts down on the proliferation of case alternants. Also, as predicted, it is not the unmarked subject and object cases but the genitive and dative that are kept invariant.

However, when we again examine case, a category potentially rich in terms, across a wider range of languages, we find more diversity in splitting by terms than markedness would lead one to expect. Table 34 summarizes the results of such a survey.[31]

As with splits between separation and cumulation by cases, there is system discernible behind diversity, if not always very distinctly. Again, knowing whether a case is GRAMMATICAL or SEMANTIC helps to predict which other cases it will tend to find itself aligned with—namely with some or all other grammatical or semantic cases, respectively. Again, what is not predictable from the grammatical or semantic nature of a case alone are its invariant or variant predispositions. For this, it is useful to know in addition whether a case is separatist or cumulative. (Hence the Indo-European bias in the bottom, flexive part of the table, reflecting the uneven genetic incidence of cumulative case marking.)

When case is separate from number, either no cases are variant (top of the table[32]), or (second group in the table) cases other than those for subject and object—in particular local cases (such as dative, locative, adessive, ablative, allative, illative, prolative), other adverbial cases (instrumental, comitative), and also possessive cases (genitive, also dative)—are those most prone to deviate from the invariant norm, contrary to markedness expectations. Usually only a miscellaneous subset of the non-grammatical cases is variant. Sometimes an ergative joins the variant assortment, and, paradigmatically if not always syntactically, it does belong with the adverbial rather than the core grammatical cases. The variant objective in Mutsun seems to be a general non-local oblique case rather than an accusative limited to direct objects. The conditioning of these alternations tends to be semantic or phonological[33] rather than lexical or morphological.

Nominatives or absolutives are seldom found on the variant side; and how could they, since they typically lack overt exponence in agglutinative-style morphology. Significantly, the variant non-zero nominative in Tsova-Tush

Table 34. *Splits between invariance and variance by cases*

INVARIANT	VARIANT	Languages
all cases	–	Turkish (Altaic)
all cases	–	Sumerian (isolate)
all cases	–	Yuma (Yuman)
all cases	–	Tunica (isolate)
all (separatist) cases	–	Modern Georgian (Kartvelian)
all separatist cases	– (separatist cases)	Archi (NE Caucasian)
both separatist cases	– (separatist cases)	Sogdian (IE)
others	GEN	Tulu (Dravidian)
others	GEN	Quechua (Andean)
others	DAT	Modern Eastern Armenian (IE)
others	GEN, DAT	Kolami (Dravidian)
others	GEN, VOC	Ket (Yeniseian)
others	ILL	Mordvin (Uralic)
others	LOC, ABL	Tamil (Dravidian)
others	ALLAT, PROLAT	Evenki (Altaic)
others	ADESS, ABL, ALLAT, VOC	Tauya (TNG, Papuan)
others	INS	Tonkawa (isolate)
others	INS, LOC, COM?, OBJ	Mutsun (Utian)
others	LOC/ALLAT/INS, ERG	Yidiny (Australian)
others	LOC, ERG	. Warlpiri (Australian)
others	ALLAT, ERG	Chechen (NE Caucasian)
others (ABS, ADV)	GEN, DAT, INS, ERG	Svan (Kartvelian)
others	GEN, LOC, ABL, ALLAT, CIRCUMLAT, SUBLAT, SUPERESS, ESS, TEMP, ERG/INS	Chantyal (Tibeto-Burman)
others	LOC, ABL, ALLAT, NOM	Kayardild (Australian)
others	ERG, NOM.PL	Tsova-Tush (NE Caucasian)
ORIENT, ABL, COM, ASSOC	ABS.SG/PL, INS, LOC, ALLAT	Chukchi (Chukchi-Kamchatkan)
others	ACC, NOM.PL, GEN (PL)	Yawelmani (Yokutsan)
all cases in PLURAL, INS (NOM/ACC.SG?)	cases in SINGULAR other than INS (and NOM/ACC.SG)	Classical Armenian (IE)

Table 34. *(continued)*

INVARIANT	VARIANT	Languages
DAT.PL, GEN.PL, DAT/GEN.DU, DAT.SG	other cases-numbers	Ancient Greek (IE)
DAT.PL, INS.PL, PREP.PL	other cases-numbers	Russian (IE)
DAT.PL, GEN.PL	other cases-numbers	Old English (IE)
– (cumulative marking)	oblique (cumulated with number)	Archi (NE Caucasian)
– (cumulative cases)	all cumulative cases	Sogdian (IE)
–	all cases(-numbers)	Classical Latin (IE)

(also known as Bats(bi)) is cumulated with plural. In Chukchi, too, the variant non-zero absolutive is cumulated with both numbers; and the other variant cases, though separatist, include all those used for marking the grammatical relations of transitive subject (instrumental and locative) and object (allative)—as if foreshadowing the preferred cumulative pattern further down the table.

In Yawelmani, it is also the cumulated nominative plural of ablaut-plural nouns that is variant (with alternants -*i*/-*a* according to phonological stem class and with -*iy* idiosyncratically selected by only three nouns); elsewhere nominative is invariant (-$\emptyset$). But otherwise Yawelmani splits rather capriciously. The accusative, clearly a grammatical case and separatist, is on the variant side; but at least it has more variants in the singular (-*i*/-*a*/-*in*/-*an*/-$\emptyset$/-*n*, conditioned by phonological stem classes, in the case of -$\emptyset$ also semantically, and in the case of -*n* by word-subclass, namely by demonstratives) than in the plural (with the choice reduced to -*i*/-*a*). Marking possessors and agents of passives and nonfinite actives, the genitive would also seem to be more of a grammatical than of a semantic case, and it is separate from number; still, it is variant in the marked number, plural, of ablaut-plural nouns (-*in*/-*an*, according to phonological stem class), while in the plural of other nouns and generally in the singular it is invariant (-*ni*). The semantic cases—dative (a general adverbial case), ablative, locative, all separatist—are all on the invariant side.[34]

In the lower region of Table 34 reigns cumulation, and if there are splits between invariance and variance (deep down there aren't), the way they run is in line with markedness. First, deviations from the variant norm are encouraged in the marked numbers of plural or dual rather than in the singular.[35] Second, inverting the pattern from the top of the table, invariance now favours the marked adverbial cases (such as dative, instrumental, prepositive, also genitive), which are prime variance candidates in separatist milieus, over the core grammatical cases of nominative and accusative, which are most likely to be

invariant when separated from number. The conditioning of these alternations tends to be lexical.

3.3. *Multiple splits: Independent or interdependent?*

3.3.1. *Separation/cumulation and invariance/variance.* The homogeneity hypothesis, intended to constrain the interplay of a whole set of parameters and yielding what has been summarily labelled agglutinative and flexive morphology, is untenable even for single parameters individually: although there always seem to be clear preferences one way or the other, separation and cumulation are not mutually exclusive within particular languages, nor are invariance and variance. However, evidence like that assembled in the preceding two sections also demonstrates that deviations from full homogeneity in either respect are not random.

Now, since the relationships between these two parameters, and any of the others also implicated in the overall typological contrast, are not dictated by logic, it is possible for the respective deviations to be independent of each other, no matter how regular either deviation is individually. If in reality they were found to be interdependent, this would boost the spirit of homogeneity, since it would mean that morphological systems are not as heterogeneous and crosslinguistically diverse as they could be, being able to be split differently on different parameters.

Some of the evidence above forcefully suggests an interdependence of splits. In Sogdian all cumulative case-number marking is variant and all separatist case and number marking invariant. In Classical Armenian the instrumental and the nominative are the only separatist cases, and the instrumental is the only incontrovertibly invariant case in the singular, possibly joined by nominative and accusative. In Tsova-Tush nominative is the only case cumulated with plural, and it is one of only two cases which are variant, the other being the ergative. Likewise, the subset of cases showing up on the variant side in Chukchi and Yawelmani includes the absolutive and the (ablaut-plural noun) nominative, which also represent the cumulative minority among the cases of these two languages. Turkish does with a modicum of cumulation and variance, and both are simultaneously reserved for verbal person (especially 1st) and number (plural).

However, there is also evidence of independence. In Old English the primary exponents of the preterite tense, unlike those of virtually all other inflectional categories, are separatist, with neither introflexive-style ablaut nor the dental suffix bound up with any other categories, but they are also variant, being sensitive to morphological-phonological classes of verbs (strong vs. weak). Among the languages with multiple deviance in their case marking, figuring in both Tables 24 and 34, Mordvin has the nominative and genitive/accusative as its only

cumulative cases, whereas the illative is the only variant one; and in Chechen the lone cumulative case is the genitive, while allative and ergative are the variant pair. In fact, appearing in only one of the Tables 24 and 34, or appearing in both but once in lines other than the top or bottom ones where some exemplary non-splitters are recorded, is indicative of splits being independent. Ideally, any single cumulative case deviating from the separatist norm of a language ought to be variant (but, e.g., the nominative in Finnish or the direct case in Tunica are not), and any single separatist case deviating from a cumulative norm ought to be invariant (but, e.g., the nominative in Archi is not). Vice versa, any single variant case deviating from an invariant language-particular norm ought to be cumulative (but, e.g., the dative in Modern Eastern Armenian is not), and any single invariant case deviating from a variant norm ought to be separatist (but, e.g., the dative and genitive in Old English are not). Reassuringly, instances of such independent splitting do not seem to be abundant.

Moreover, some such ill-aligned splits can plead mitigating circumstances: though deviating from homogeneity, they are not wholly unprincipled. Cases which are arguably cumulative but clearly invariant are sometimes ones with zero exponents in the singular, marking subjects, and zero is prone to complicate morphological analyses, sowing the seeds of structural ambiguity (upper split section of Table 24, Brahui ff.). Markedness has been mentioned as a general principle subsidiary to that demanding homogeneity of types of exponence, and it would help explain the incidence of other cumulative but invariant case marking in paradigms (lower split section of Table 34, Classical Armenian ff.): invariance is absence of morphological variation, and if formal variety is to be limited, then preferably for marked terms (such as non-subject cases) and in marked company (like that of the plural). Apart from certain freak patterns, this would leave one major manifestation of ill-aligned splits by terms unaccounted for: separatist but variant exponence, as for the predominantly non-grammatical cases in the upper split section of Table 34 (Tulu ff.) or for the preterite of Old English and its Germanic relatives.

3.3.2. *Other parameters of agglutination/flexion.*   Were the other parameters of agglutination and flexion examined in some more detail, the results would presumably be similar.

For example, on several occasions it was observed in passing that deviations from separation and/or invariance coincided with homonymy of the exponent concerned—cases such as the locative of North Russian Romani inanimates, the whole oblique set in older Georgian, the instructive and comitative in Finnish, the illative in Mordvin, the nominative plural in Yawelmani. Still, it would be too optimistic to expect that whenever there is a split in a language between distinctness and homonymy, all distinct exponents will be separatist and invariant and all homonymous exponents cumulative and variant.

To mention a further parameter reaching into syntax, in languages where cases are normally cumulated with numbers, adjectives and perhaps other modifiers and determiners tend to agree with nouns in these two categories, thus showing word-marking, which is one manifestation of tight morphological bonding. In Sogdian, light-stem adjectives, cumulating number and case, agree in these categories, but heavy stems, separating number and case, tend not to or to agree only in number but not case. In Classical Armenian, where agreement is limited to monosyllabic adjectives, these only agree in case but not number when the head noun is in the instrumental or also nominative plural, where number and case are separated. (But they do not number-agree in accusative and locative plural either, despite cumulation.) In Tocharian, adjectives only agree in the "primary" cases, which are cumulated with number, but not in the "secondary" cases, separate from number. Derivational categories in general, favouring separation, are not normally exploited for agreement. However, although there is diachronic evidence (e.g., from modern Indo-European languages such as Armenian or Ossetic on the one hand, and from Uralic and Altaic languages on the other) suggesting (i) that agreement weakens or discontinues as number and case marking changes from cumulative to separatist, and (ii) that agreement intensifies with increasing cumulation,[36] separatist morphology, though often favouring phrase-marking, does not categorically resist agreement. Thus, model separatist families such as Australian, Hurro-Urartean, Central Cushitic, and Tungusic have profuse agreement.[37]

Assuming that there will frequently be splits for any single parameter, and that the various splits will only overlap to some extent, it has to be left to future research to determine for which parameters the matches suggest interdependence or independence.

4. A question of responsibility

4.1. *Types as stages?*

Typology is about uniformities in diversity. Its laws are implicational universals, which obtain when two or more logically independent properties (units, categories, constructions, rules), of those which languages may possess or lack, do not occur in all possible combinations across languages at any and all times (or, if the implication is probabilistic rather than categorical: when they occur in one combination significantly less frequently than in others). Diachrony is about how one or more of the properties which a language may have at any particular time change in time. Its laws are about possible and impossible (or likely and unlikely) transitions between subsequent stages of a language. (More accurately, what laws are about is GRAMMARS—regardless of the particular linguistic experiences upon which they are constructed in the case of

typological laws, and linking particular experiences to particular reanalyses in the case of diachronic laws.)

Sharing vested interests in the subject of crosslinguistic variation and its limits, typology and diachrony can be meaningfully related to each other in two ways.

When there is evidence pointing to a limitation on crosslinguistic diversity, with two properties not occurring in all possible combinations (say, p & q, −p & −q, −p & q, but not, or not often, p & −q), typology and diachrony could both be held responsible. (Or of course chance.) On the view from typology, there would be an implicational universal, p ⊃ q, prohibiting p and −q from being combined in any language (or in many languages)—which would perforce preclude (many) languages with any of the permissible property combinations from changing so as to acquire the illicit one, regardless of the possible ease of such an acquisition. On a more liberal view, languages may infringe (combining p and −q), going astray by force of adverse circumstances, but order would then be expected to be restored before long. On the view from diachrony, there would be a constraint on possible change, disallowing for q to be lost (q *> −q), with the opposite change (−q !> q) valued as highly desirable: given languages with all possible combinations of properties permitted by timeless universals, that with p & −q would not survive long, owing to −q !> q, and could not be recreated from its only possible source, p & q, owing to q *> −q.

To illustrate less abstractly and not entirely hypothetically, suppose there are languages with both adfixes (i.e., prefixes and/or suffixes) and infixes, with neither, and with only adfixes, but none with only infixes. One way of making sense of this skewed co-variation is to posit a typological law: infixes imply adfixes. The relative difficulty of storing and processing discontinuous units might even explain why infixes are crosslinguistically the least favoured species of affixes. Another handle on the unpopularity of infixes, however, would be their genesis: given that infixes can only ever originate from adfixes, and that they can only ever be shoved inside stems by phonological metathesis in the interest of optimizing phonotactics or more rarely by "entrapment" owing to the reanalysis of an outer affix as part of the stem, this regularity of change itself[38] would account for adfixes being the obligatory companions of infixes (assuming further that adfixes will not all get metathesized or entrapped) but not vice versa.

In the early, eighteenth- and nineteenth-century days of morphological typology, types were usually, though not always unambiguously, conceived of as (cyclically recurring) stages in the evolution of grammatical forms, set and kept going by a limited repertoire of changes remodelling a limited inventory of kinds of forms. Today this view of systematic crosslinguistic co-variation as the by-product of lawful change is not widely espoused for domains often considered central to typology, especially syntax.[39] For morphology, however, the

inclination has persisted to devolve the responsibility for whatever generaliza-tions there are to be captured upon prehistory and diachrony. With the renewed interest in grammaticalization, crucial properties of morphological exponents, such as their separation or cumulation, invariance or variance, loose or tight bonding, weak or strong cohesion, continue to be attributed to diachronic pro-cesses turning lexemes into (isolative) function words and eventually bound grammemes, first of an agglutinative and then of a flexive nature.[40] On this view, there would be no relevant universal, timeless constraints specifically on word-level structures: word-structural patterns would come about as the result of lawful changes of whatever kind; and whatever non-diachronic constraints there are, they would pertain to syntactic constructions of the words to be gram-maticalized and to the phonology of the various domains of combination.

But then, the message of this paper so far was that morphological systems are hugely complex, comprising innumerable variables which are logically inde-pendent and which indeed do vary independently—albeit within limits: strong homogeneity is being deviated from most of the time, but very rarely are such deviations random. It is not so much a global vote for wholesale agglutination or flexion, but the admissible splits on individual parameters and the admissi-ble interplay of separate parameters, that need accounting for—typologically or diachronically.

What exactly can typology hope to account for, then, abstracting away from how morphologies are changing in time? Typically, the timeless explanatory principles that have been invoked are functional. First, structural ambiguity can be appealed to to account for zero exponence being such a critical foothold for cumulation in separatist milieus. Second, categories whose meanings are not so easily separable, such as person and number, ought to be those most strongly tending towards formal cumulation, as dictated by iconicity. Third, finding in-variant instead of variant cumulative exponents for marked terms or in marked company is accounted for by the tenet of markedness theory that complexity is to be minimized in environments already complex. Fourth, finding systematic homonymy with cumulative and variant rather than with separatist and invari-ant exponents is accounted for by the desirability to economize on forms when they threaten to be too numerous—and cumulation and variance are both inher-ently uneconomical.[41] And for further parameters and their interactions there may be further explanatory principles similarly lacking a temporal dimension.

But there are also patterns that would seem to remain typologically unac-counted for, like the solidly established one of separatist exponents for marked terms (adverbial cases, past tense) differing from those for unmarked terms in being variant. Also, which word-classes, word-subclasses, categories, or terms end up on which side if a system is divided between separation and cumu-lation or between invariance and variance is underdetermined by the general principles mentioned above. Most disconcertingly, since these two have been

considered key parameters, there is no cogent immediate reason why cumulation should go with variance and separation with invariance in the first place, rather than the other way round. If anything, on grounds of formal economy, (uneconomical) cumulation ought to come with (economical) invariance and (economical) separation with (uneconomical) variance.

Since the typological contribution to the explanatory agenda is less than comprehensive, it is only natural to turn to diachrony for help at least with the unfinished business, if not for a comprehensive account in its own right. What amount and kind of orderliness could be expected, then, if morphological systems were shaped not so much by timeless constraints as by the possibilities and limitations of their evolution?

4.2.   *Types of origins and changes*

In principle there are familiar points of departure from, and viable routes by, which to arrive at pure morphological types and their permissible mixtures, or at any rate close by. The barest sketches of relevant scenarios will have to do here, accompanied by a minimum of illustration and argument.

Assuming (i) an evolutionary stage with no morphology and (ii) processes capable of faithfully transforming syntactic constructions into morphological ones, if those words to be downgraded to affixes were themselves invariant and separatist, this would automatically yield invariant and separatist (i.e., agglutinative) morphology upon univerbation. This is in fact not too unrealistic a scenario, at least for categories such as number and case. Number affixes commonly have number words (numerals, quantifiers, or words akin to them) as their sources, and case affixes adpositions (in turn recruited from relational nouns or verbs); and quantifying and relational meanings are thus expressed separately rather than cumulatively. Typically, number words and adpositions are not choosy about the nouns they accompany, as long as they admit of quantification and can be construed in the relevant grammatical or semantic relation; they thus tend towards invariance.

However, should words separately designating numbers and relations be variant, then so would be the affixes descending from them, provided the several words or word forms all undergo univerbation. Although separation-cum-variance is probably a misalliance, it is one which is occasionally attested, in certain non-grammatical cases in languages in Table 34 and in the Germanic preterite; and it is not accounted for otherwise. Appropriate sources especially for variant local cases are co-existing local adpositions which are roughly synonymous; and words performing classifying functions, perhaps among others, naturally give rise to variant possessive cases and variant number marking. The source of the dental preterite suffix of weak verbs in Germanic is the stem of the auxiliary 'do', expressing past tense or perfective aspect by reduplication;

variance is here due to the inability of derived verbs to adopt the formal patterns of basic verbs for tense distinction, lacking the vowels and consonantal skeletons suitable for ablaut.[42]

A further source of affixes of both number and case, especially grammatical ones, are 3rd person personal or demonstrative pronouns. Since such pronouns tend to inflect non-compositionally or otherwise irregularly, and also to be variant owing to common distinctions of genders or classes, they are liable to be turned into morphological exponents with the flexive property combination of cumulation and variance. They also account for the verbal leanings towards cumulation, being the customary source of inflections for person and number.

It is only invariant cumulative morphology that is difficult directly to trace to corresponding ancestral words. But then such mongrel exponents, like dative plural and genitive plural in Old English, are rare; and they always seem to occupy the niches earmarked for them by timeless principles of markedness.

All these transformations of syntax into morphology are essentially non-disruptive. But there are other commonplace changes which do more than merely effectuate the morphological binding of erstwhile free forms. They too contribute to producing the whole gamut of exponents, from pure agglutination to suitable mixtures and pure flexion, and to bring about all sorts of metamorphoses.

Thus, morphological invariance may be due to selection. When several roughly equivalent words (such as local adpositions) co-exist as candidates for grammaticalization, it may happen that only one of them actually gets grammaticalized at a time—which is how separatist exponents commonly come into being. When co-existing forms are already bound, selection is also a mechanism by which to get from variance to less variance or invariance, with one exponent analogically extended to radical elements which used to require exponents of their own choice, now fallen into disuse. This seems to happen to separatist and cumulative exponents alike, which changes them to purely agglutinative (invariant and separatist) or mixed ones (invariant and cumulative), respectively.

The other way round, invariant exponents may get variant in two rather different ways: by additional equivalent forms being grammaticalized and by phonological diversification. Being a phonologically driven process, diversification is likely to generate phonological variants, distributed phonologically. But diversification may also involve the reanalysis of parts of radical elements as parts of the exponents, and these parts may differ with different radicals and may eventually gain morphological significance, distinguishing inflection classes. Analogical extensions may again spread such reshaped exponents to other radical elements, or also to other terms of the same category, thus eliminating a split or re-drawing the line between invariance and variance in a paradigm.

When two separatist exponents (or also grammatical words, like prepositions and articles—cf. French *de le* > *du*, *à le* > *au*) are frequently juxtaposed, they are prone to be phonologically fused to the extent that they may end up cumulative. Number and case on nouns, or also definiteness markers and postpositions closely attached to nouns in the singular or plural, or person and number on verbs should meet this precondition, while derivational categories should not co-occur with each other or with inflectional categories regularly enough to be fused for good.

Given the right syntagmatic and paradigmatic circumstances, a cumulative exponent may be reanalysed (or metanalysed) as morphologically complex, separately expressing the respective categories.

Finally, morphology may be borrowed from another language, without necessarily following homegrown models.

4.3. *Co-variation as co-evolution*

In sum, when no special typological laws rein in changes which purposely or inadvertently affect cumulation/separation and invariance/variance, and anything diachronically possible and plausible goes, this guarantees a steady supply of morphological exponents of all attested kinds, pure agglutinative or flexive as well as mixed. But with this embarassment of riches there is the rub. What needs to be ensured, by diachrony or typology, is that the SYSTEMS assembled from individual exponents for individual words, word-classes, categories, and terms will, at any time, conform to a limited number of patterns of heterogeneity, if not full homogeneity.

If they are tapping only CERTAIN sources, of all those possible, for the forms needed and if these are undergoing only CERTAIN developments, of all those possible, systems may indeed find themselves drifting towards certain kinds of mixtures, including ones which are otherwise unaccountable, like that of separation-cum-variance. But if this is what happened diachronically, there still remains the question of why the potential sources and developments were being utilized so selectively. One answer might be: by chance. If this is the right answer, it means that what is systematic about the diversity of morphological systems cannot be explained, diachronically or typologically.

A more satisfying answer would be that systematic co-variation is due to systematic co-evolution, with changes producing forms of similar properties from similar (or also dissimilar) sources occurring in sync. Its advocates include, perhaps most outspokenly, Greenberg (1995: 163):

> It is indeed striking that the overall trend portrayed in modern grammaticalization theory clearly echoes the traditional sequence of isolating ..., agglutinative, and inflective types. ... However, current grammaticalization theory simply treats these as stages in the life-history of individual elements. For the morphological

typology it is essential that, on the whole, INDIVIDUAL ELEMENTS BE IN TANDEM IN THE COURSE OF THEIR DEVELOPMENT [emphasis added]. ... To a great extent I believe that this is true, and for two major reasons. Reductive phonological changes generally proceed without regard to the grammatical category they affect. Further, analogical pressures tend to make members of the same category go through parallel changes in regard to word order and assimilative processes. Thus, if a separate word meaning 'above' becomes a suffix in a particular language, a word meaning 'below' will practically always do likewise. The natural zero-state in such a typology is clearly the type traditionally called isolating.

Others sharing this general viewpoint are not so sure whether also to share Greenberg's optimism that grammaticalization, left to its own devices—univerbation, selection, analogical extension, reanalysis, diversification, fusion—typically takes concerted action upon pristine isolation. Thus, Wurzel (1995) explains the properties of flexional exponents as the inevitable outcome of the ageing of agglutinative morphology, with inflection and derivation growing old in their own ways; but he wavers whether the coming into morphological being, maturation, and decline is something that forms experience individually or collectively. For Lehmann (1985: 51; 1986: 14), on the other hand, synchronized development is out of the question, because his principle of analogy, entailing homogeneity, is claimed to be counteracted by an exactly contrary one of complementarity, inducing languages to choose heterogeneous forms of expression even for single grammatical domains.

However inconclusive these answers, the question is definitely an empirical one. So far, however, it is essentially only beliefs that have been set against each other rather than against facts.

Supposing that facts, plausibly interpreted, can be recovered which are in at least partial support of a position like Greenberg's, would this "dynamicization" of morphological typology really place explanatory reponsibility with diachrony? The crucial condition on evolution producing reasonably orderly systems of forms is that individual changes be synchronized. The question now is whether such synchronization is guaranteed if diachrony is left to itself or whether an ever ready helping hand is needed to maintain good order.

To take Greenberg's own example, locational adverbs or adpositions like 'below' and 'above' might conceivably be of roughly similar form, and similar changes, blind to the demands on morphological systems, might conceivably reduce them to (agglutinative) affixes at about the same time. But the joint changes might also be superintended by a typological, timeless law about the structure of case systems, to the effect that a subessive case implies a superessive case and vice versa, which triggers the concerted action and prevents 'below' from being grammaticalized without 'above' following suit or vice versa. Presumably, the more numerous the grammaticalization events to be synchronized, the unlikelier it is that the relevant forms will all be similar enough to

undergo similar changes. One series of coincidences is a particularly tall order for diachrony to fill all on its own: the phonological fusions and diversifications (plus perhaps reanalyses) which would have to conspire to turn whole inflectional paradigms of separatist and invariant exponents into cumulative and variant ones.[43] There would seem to be a role for morphological typology here, as a *spiritus rector* behind the conspiracy of changes.

Dynamicizing morphological typology by crediting co-variation to co-evolution, thus, does not perforce away with timeless universals. Still, merely stipulating, as a typological condition on diachrony, (i) that changes rendering separatist exponents cumulative be synchronized with the transitions of the same exponents from invariance to variance and (ii) that inflectional systems be recast systematically rather than randomly would not be to EXPLAIN the coincidences.

4.4. *License to fuse and to sever*

The linkage between concomitant changes from separation to cumulation and from invariance to variance would not need to be stipulated if it would follow from something else—something more general or something correlating with the two variables individually and thus mediating between them.

There has been speculation that the missing link is phonology.[44] Chief agents in rendering separatist and invariant exponents cumulative and variant are phonological fusion and diversification. On the assumption that such phonological processes are not universal it would follow that in those languages where they are not operative, the morphology would stay essentially what it was right after univerbation: separatist and invariant. It remains to be seen whether the idea can be substantiated that phonology in itself is crosslinguistically variable, tending either to respect or to obliterate morphological separation and invariance.

Another, and potentially more fundamental, mediator is one of the other parameters figuring in the ensemble defining agglutination and flexion: morphological bonding. In the diachronic part of the scenario, the normal course of events would be for the morphological bonding of radical elements and exponents, loosish upon univerbation, to become increasingly tighter. To prevent developments from getting out of step, typology's contribution would be to license, and perhaps even instigate, such changes as promote cumulation and variance only on condition that separatist and invariant exponents have already been bound more tightly. Insofar as cumulation and variance are effectuated phonologically, the appropriate phonological processes would thus be contingent on the tightness of morphological bonding.

The clearest evidence of such a licensing relationship between the tightness or looseness of bonding on the one hand and separation/cumulation and invari-

ance/variance on the other comes from less common developments reversing the effect of grammaticalization. Since it is possible for grammatical markers to be cumulative, variant, and either tightly or (although more rarely) loosely bound, there can be no timeless constraint prohibiting languages from having or acquiring markers of either kind. What seems impossible, however, even under unusual circumstances,[45] is for variant markers to sever the tight bonds with their radical elements, especially if they are also cumulative. On the evidence available, they are only licensed, or even encouraged, to be reanalysed as looser appendages once they have become invariant and preferably also separatist.[46]

The genitive in some Germanic languages, including English, Danish, and Swedish, is a well documented case of the upgrading of a tightly (word-)bound suffix to a loosely bound phrase-suffix or enclitic postposition.[47] In older Germanic the genitive was cumulated with number like all other cases; in the singular it was variant, differing non-phonologically and chosen in accordance with declension classes and genders (with *-es, -e, -a, -an, -Ø* as the alternatives for nouns in Old English); like other inflectional suffixes it was tightly bound to stems (of nouns and of adjectives and other modifiers and determiners); and like other cases the genitive participated in agreement inside noun phrases. Early on in English (beginning in late Old English) and somewhat later in continental Scandinavian (from the 14th century), owing to sound-changes and analogical extensions of the strong masculine/neuter *a*-stem alternant, the genitive became increasingly less variant and, unlike the plural which retained declension-class alternations at least rudimentarily, was eventually reduced to invariant *-(e)s* (with phonological alternants, conditioned phonologically).[48] Also, by further extending the generalized singular exponent to plural, the genitive here extricated itself from number, though not entirely successfully from the regular plural in English (at least on the face of it, without assuming haplology as on the more abstract analysis in (3b)):[49]

(2)   Swedish
       konung(-en)-s   *öga(-t)-s*
       king(-DEF.SG.UTER)-GEN   eye(-DEF.SG.NEUT)-GEN
       konung-ar(-na)-s   *ög-on(-en)-s*
       king-PL(-DEF.PL.UTER)-GEN   eye-PL(-DEF.PL.NEUT)-GEN

(3)   English
       a. *king-s*   b. *king-s*   *ox-s*
           king-GEN.SG   king-GEN   ox-GEN
           king-s-Ø   *king-s-s* (→/king-z/)   *ox-en-s*
           king-PL-GEN.PL   king-PL-GEN   ox-PL-GEN

Only as this near-agglutinative stage had been reached could genitives, with certain limitations, be detached from their noun stems, with their location now

redefined as following after the last word of a noun phrase, (almost) regardless of its word-class. Having turned from word-markers into phrase-markers, they ceased to occur on more than one noun in certain complex noun phrases and to participate in any phrase-internal agreement.[50] To illustrate:

(4)   a.   Old English

Ælfred-es   cyning-es   godsunu;
Alfred-GEN.SG   king-GEN.SG   godson

Ælfred-es   godsunu   cyning-es
Alfred-GEN.SG   godson   king-GEN.SG
'King Alfred's godson'

eal-ra   gōd-ra   eald-ra   mann-a   weorc
all-GEN.PL   good-GEN.PL   old-GEN.PL   men-GEN.PL   works
'all good old men's works'

b.   Middle English and later

King Pandion-es faire doghter;
'King Pandion's fair daughter';

kyng-ys doghtur and emperowre
'a king's daughter and an emperor('s)';

the god of slepe-s heyre
'the god of sleep's heir'

(5)   a.   Old and early Middle Swedish

war-s   kyær-e   broðor-s   bænðig-s
our-GEN.SG   dear-GEN.SG   brother-GEN.SG   Bænðig-GEN.SG

mæn
men
'our dear brother Bænðig's men'

min-s   fadhir-s   ok   modhir-s   hionalagh
my   father-GEN.SG   and   mother-GEN.SG   marriage
'my father and mother's marriage'

en-s   idhen-s   man-s   arbede
a-GEN.SG   industrious-GEN.SG   man-GEN.SG   work
'an industrious man's work'

b.   late Middle Swedish and later

min   far   och   mor-s   gifte
my   father   and   mother-GEN   marriage

en   idog   man-s   arbede
an   industrious   man-GEN   work

There are a number of other cases on record where affixes which were more or less tightly bound got detached, sometimes advancing to independent word-

hood. Like the English, Danish, and Swedish ex-genitives, they are all invariant and separatist or only mildly cumulative (combining such close partners as person and number). Most of them—such as the Classical Greek and Latin preverbs upgraded to independent adverbs in Modern Greek and Romance (Méndez Dosuna 1997), the Estonian emphatic and interrogative suffixes likewise becoming adverbs or particles (Campbell 1991), the decimal-multiplicative suffixes in German (-*zig*) and Dutch (-*tig*) becoming indefinite numeral adjectives (Norde 1997: 3), or the Japanese bound connectives turned free discourse markers (Matsumoto 1988)—do not have a known past of variance and (more extensive) cumulation. However, in Old Tamil plural was variant, with the choice between -*kaḷ*, -*ar*, -*ir*, and -*mār* conditioned by noun classes to do with animacy (Lehmann 1998: 81), and it was only after it had become invariant, owing to the generalization of -*kaḷ* (with phonologically conditioned variants -*ka* and -*nka*), that it was free to be used as an enclitic attachable to all kinds of constituents in order to express respect to the addressee (Brown & Levinson 1978: 185, 282). In Latin, the 1st person plural inflection of verbs was fairly invariant and the only further category it was cumulated with was voice, with active -*mus* contrasting with passive -*mur*; in Spanish the 1st person plural suffix continuing it, now without a contrasting passive, is invariantly -*mos*—which under certain circumstances has given way to an enclitic *nos* in non-prescriptive regional Spanish (Janda 1995). The 3rd person plural suffix in Latin showed somewhat greater variance depending on tense and mood (-*nt*, -*ērunt*/-*ēre*, -*ntō*); the Italian 3rd person plural suffix is not fully invariant either, since regular -*no* contrasts with forms ending in -*ro* in the conjunctive and conditional mood, but this marked alternant was probably too marginal to prevent *no* from occasionally becoming an enclitic in non-prescriptive Italian and also to attach to 3rd person plural personal pronouns (Spagnoletti & Dominicy 1992).

A suffix such as dative plural -*bus* in Latin would never have received a license to dissociate itself from nominal stems (such as *omn-i-bus* all-THEME-DAT.PL), having a morphologically conditioned variant -*is* and being thoroughly cumulative.

A somewhat different manifestation of the looseness of an affix is that it permits a clitic to separate it from its radical element and perhaps other, more tightly bound affixes. Thus, in Florentine Italian the 3rd person plural suffix allows the 3rd person plural clitic pronoun to disconnect it from the verb stem in interrogative sentences (*ha(e)=gli-no* have=3PL.PRO-3PL; Brandi & Cordin 1989). In dialects of Dutch and Frisian clitic or weak-form pronouns can likewise sneak inside inflected verb forms, ahead of the dental suffix of weak preterites (*hoor=ik-t-e* hear=1SG.PRO-PAST-SG, alongside *hoor-t-e ik*; Flikweert 1994[51]); although the preterite in Dutch, Frisian, and elsewhere in Germanic is variant, with the dental suffix only selected by weak verbs, it is

the only affixal marker of past tense and it is separatist, and this might have contributed to licensing the verb's interruption. However, suggesting a violability of the licensing law by such interruptions, there are rare instances of what seem to be genuine affixes which are separated from stems by clitics despite being thoroughly variant and cumulative, such as the verbal inflections for person-number in Portuguese, varying with tense, mood, and verb class (*levá=lo-ei* raise=3SG.MASC.PRO.OBJ-1SG.FUT; Spencer 1991: 366).

There is some evidence of a typological curb on diachrony, then, in the way the two parameters of separation/cumulation and invariance/variance interact with that of loose/tight bonding in degrammaticalization. For an explanation WHY invariance and separation should be able to license looseness, and WHY tight morphological bonds should license and even encourage the phonology to engender variance and cumulation, one might turn to considerations like those of Sapir (1921: 131–133), groping after what might underlie overt phonological-morphological fusion:

> It is necessary to understand that fusion of the radical element and the affix may be taken in a broader psychological sense .... If every noun plural in English were of the type of *book : books*, if there were not such conflicting patterns as *deer : deer*, *ox : oxen*, *goose : geese* to complicate the general form picture of plurality, there is little doubt that the fusion of the elements *book* and *-s* into the unified word *books* would be felt as a little less complete than it actually is. One reasons, or feels, unconsciously about the matter somewhat as follows:—If the form pattern represented by the word *books* is identical, as far as use is concerned, with that of the word *oxen*, the pluralizing elements *-s* and *-en* cannot have quite so definite, quite so autonomous, a value as we might at first be inclined to suppose. They are plural elements only in so far as plurality is predicated of certain selected concepts. The words *books* and *oxen* are therefore a little other than mechanical combinations of the symbol of a thing (*book*, *ox*) and a clear symbol of plurality. There is a slight psychological uncertainty or haze about the juncture in *book-s* and *ox-en*. A little of the force of *-s* and *-en* is anticipated by, or appropriated by, the words *book* and *ox* themselves, just as the conceptual force of *-th* in *dep-th* is appreciably weaker than that of *-ness* in *good-ness* in spite of the functional parallelism between depth and goodness. Where there is uncertainty about the juncture, where the affixed element cannot rightly claim to possess its full share of significance, the unity of the complete word is more strongly emphasized. The mind must rest on something. If it cannot linger on the constituent elements, it hastens all the more eagerly to the acceptance of the word as a whole. A word like *goodness* illustrates "agglutination", *books* "regular fusion", *depth* "irregular fusion", *geese* "symbolic fusion" or "symbolism". [Footnote: ... I do not wish to imply that there is any mystic value in the process of fusion. It is quite likely to have developed as a purely mechanical product of phonetic forces that brought about irregularities of various sorts.]
>
> The psychological distinctness of the affixed elements in an agglutinative term may be even more marked than in the *-ness* of *goodness*. To be strictly accurate,

the significance of the *-ness* is not quite as inherently determined, as autonomous as it might be. It is at the mercy of the preceding radical element to this extent, that it requires to be preceded by a particular type of such element, an adjective. Its own power is thus, in a manner, checked in advance. ... If the *-ness* could be affixed as an abstractive element to each and every type of radical element ..., we should have moved appreciably nearer the agglutinative pole. A language that runs to this loose-jointed sort may be looked upon as an example of the ideal agglutinative type, particularly if the concepts expressed by the agglutinated elements are relational or, at the least, belong to the abstracter class of derivational elements.

Sapir always pays translating into today's theorizing, and cognitive morphology certainly is not above such input. What should also pay off is to suspend cherished beliefs (or disbeliefs) in matters of morphology typology and do research into how morphological SYSTEMS, poised between homogeneity and heterogeneity, are really assembled and transformed in time, with typological mixes like those garnishing this paper as interim stages.

Notes

These ideas and materials, partly continuing earlier concerns of mine, were first presented in my advanced typology seminars at Konstanz (summer term 1998) and in the class on the interface of phonology, morphology, and syntax that Aditi Lahiri and I taught at the Typology Summer School of the Deutsche Gesellschaft für Sprachwissenschaft at Mainz (September 1998). They were further developed for talks at the Scuola Normale Superiore at Pisa (November 1998), the Zentrum für Allgemeine Sprachwissenschaft at Berlin (December 1998), and the annual meeting of the Deutsche Gesellschaft für Sprachwissenschaft at Konstanz (February 1999). I believe the paper owes much to questions, suggestions, criticism, and factual information from these audiences, from Sasha Kibrik, Jaklin Kornfilt, Aditi Lahiri, and Johanna Nichols who were kind enough to read drafts, and from three anonymous typologists who had to review it for *LT*.

Too callow for discernment when I irrelevantly annotated my xerox copy of his *Prolegomena* a long time ago, and perhaps too past it for reform when he made the point again that REPRESENTATION matters in morphology too, over late lunch one snowy afternoon last February, at the *Zeitlos* of all places, I would still like to dedicate this article to Morris Halle.

1. For typological purposes I use the terms "flexive" and "flexion", to avoid confusion with "inflection(al)". Inflection is a branch of morphology, more or less well delimited from derivation and other word-formation, which is found in languages of agglutinative and introflexive as well as of flexive type.
2. À la Greenberg (1954).

3. Including Comrie (1981: 48; 1988: 453), Lehmann (1985: 42), and Spencer (1991: 38).

4. There is in fact a long record of attempts to relate morphological variation to syntactic and phonological variation, documented in Plank (1998). For example, agglutinative morphology has been claimed to imply SOV order and to be implied by vowel harmony; and the predominance of analytic or synthetic inflection has been correlated with the rigidity or flexibility of word order. More recently, one of the parameters of agglutination and flexion, separation and cumulation (see below) has been linked to the elaboration of the system of "functional projections", with cumulated or separate person-number and tense in verbal inflection corresponding to a single (as it were, cumulated) Inflectional Phrase or one separated into a Subject Agreement Phrase and a Tense Phrase; and much else in (Minimalist) syntax is believed to hinge on such differences (see, e.g., Bobaljik 1997, Thráinsson 1998).

5. For basic factual information on Turkish and Old English I have drawn on Lewis (1975) and Campbell (1962). Abbreviations of category and term names used in glosses are either self-explanatory or are explained in the text.

6. For Turkish it might be argued that the accusative suffix is in fact cumulative too, combining case with specificity (or perhaps rather referential prominence) rather than with number. However, looking at this in terms of case usage rather than of case form, an alternative and perhaps preferable analysis would have the accusative limited to specific (referentially prominent) objects, with the zero-marked nominative encoding subjects as well as non-specific (non-prominent) objects. For languages like Old English, I assume that case-number exponents do not also cumulate gender, but are sensitive to inherent nominal gender and declension classification.

7. See Plank (1992a, b, 2000) for the early history of morphological (and other) typology, restoring the priority of the Enlightenment over Romanticism also in this branch of the Science of Man. Fuller expositions of the variables that have since been suggested as possible components of morphological types are given in Plank (1991, 1995a, 1998). To find perhaps even more correlates, search The Universals Archive at http://www.ling.uni-konstanz.de/pages/proj/sprachbau.htm (Plank & Filimonova 2000).

8. Accusative *-ı* is almost but not quite homonymous with 3rd person singular possessive: while they are identical after a consonant, after a vowel the former is *-yı* and the latter *-sı*.

9. In Wurzel (1996) such patterns are unconventionally interpreted as separatist, which is one of the reasons for his ecumenical conclusion that agglutination and flexion can intermingle promiscuously.

10. It will be noted that it is the portraits of, and generalizations about, splits by terms (Sections 3.1.5 and 3.2.6) that are crosslinguistically best supported. Even these are not based on genetically balanced samples, though—which I do not necessarily consider a methodological flaw, since there is no close relationship between genetic and structural diversity. Typology is about structural diversity.

11. The light-stem dual had in fact also come to be used with higher numerals. Adjectives are likewise split between cumulative and separatist case-number inflection.

12. These stem formatives themselves cumulate number and a relational distinction (being limited to oblique cases, in opposition to the nominative).

13. Such sensitivity to a distinction of terms expressed more peripherally in word forms has in fact been claimed to be impermissible; see Carstairs (1987: Chapter 5, and especially 5.1.8 for discussion of this very kind of paradigm).

14. In dialects the genitive plural shows some variation, retaining among other variants the plural suffix -*t*.

15. Demonstrative and personal pronouns, which in addition have a dual number, are in this respect like the more regular number-marking nouns, taking -$\emptyset$ in the nominative of all three numbers, which are generally distinguished by stem formatives through all cases.

16. When the -*eb* plural was innovated, ergative, dative, and genitive could theoretically have remained homonymous, **buz-eb-t(a)*. But with separation came distinctness, confirming one of the agglutinative interdependencies.

17. This would be an instance of "outward sensitivity", which is generally less common than being sensitive to material closer to the stem (Carstairs 1987a: 165–168, 179–188).

18. This reconstruction has number outside case, though, which is rather uncommon among real languages.

19. Homonymy tends to be implicated in other deviations from agglutinative or flexive norms too. Thus, as mentioned above, instructive and comitative in Finnish do not distinguish singular and plural, and one exponent of the non-invariant illative of Mordvin is homonymous with dative/allative in the singular definite subparadigm. In Yawelmani, the (possibly cumulative) nominative suffix in the plural is homonymous with that for (separatist) accusative.

20. There is one pronoun, interrogative *ne* 'what?', which permits the basic form *ne* as well as *ne-yi* with regular accusative suffix when used as an object. This situation is parallel to that of object nouns without and with an overt accusative suffix, depending on specifity or referential prominence. The semantic difference with *ne* is one of specificity, and instead of assuming variant accusative exponents (-*i* and -$\emptyset$) or a cumulated specific-accusative exponent, it is preferable to limit the accusative of *ne*, expressed invariantly and separatistically, to the use as a specific object.

21. Rather than being epenthetic, these segments are therefore probably best treated as underlyingly part of these respective suffixes.

22. The relationship between them is therefore one of suppletion—although this term is commonly limited to stem alternations. They could be called allomorphs—but this term has been used more widely, to include alternants that can be related by phonological or morphonological rule.

23. Not in fact for every single choice of alternatives but only for crucial ones, since some of them are predictable from others.

24. Such conditioning at a distance is at odds with locality constraints as variously suggested in recent and not-so-recent approaches to morphology. In Lexical Phonology and Morphology, according to Kiparsky (1996: 23), it is only the selection of one morpheme by another that is subject to an adjacency requirement, not the de-

pendency of a morpheme on a morphological category—and the conditioning of the Tamil locative alternants is certainly not morpheme-specific. Elsewhere (Plank 1982: Chapter 2.9) I have argued that non-local conditioning is licensed if conditioning and conditioned formatives are sometimes adjacent—as noun stems and locative are in the singular in Tamil. On this account distant conditioning should be expected in agglutinative rather than flexive morphology, because here formatives are prone to find themselves in different neighbourhoods depending on whether potentially neighbouring categories are realized by unmarked or marked terms, with unmarked terms regularly lacking overt exponence. And this expectation is probably not counterfactual.

25. The overt absence of nominative singular -*s* from third declensions sibilant stems is a phonological matter, being due to final degemination (/flōs-s/ → /flōs/ 'flower', with final /s/ rhotacized intervocalically in all other cases-numbers, e.g., GEN.SG /flōs-is/ → /flōris/).

26. The coronal connection was pointed out to me by Aditi Lahiri.

27. Phonological stem-alternations whose conditioning is arguably morphological are less uncommon.

28. Carstairs (1987a: 47–55, 179–188) is a modern representative of this traditional practice.

29. As mentioned above, plural in general is variant, although only if it is conceived of widely, with both nouns and verbs in its domain.

30. See Greenberg (1966: 29), Primus (1987: 56–57), or Plank (1991: 32) for discussion of this particular issue.

31. The data sources were as follows. Turkish: Lewis (1975); Sumerian: Thomsen (1984); Yuma: Halpern (1946), Tunica: Haas (1946); Georgian: Fähnrich (1986); Archi: Kibrik (1991); Sogdian: Sims-Williams (1982); Tulu: Bhat (1998); Quechua: Bills et al. (1969); Modern Eastern Armenian: Kozintseva (1995); Kolami: Subrahmanyam (1998); Ket: Werner (1997); Mordvin: Keresztes (1997); Tamil: Annamalai & Steever (1998); Evenki: Nedjalkov (1997); Tauya: MacDonald (1990); Tonkawa: Hoijer (1946); Mutsun: Okrand (1977); Yidiny and Warlpiri: Dixon (1980); Chechen: Nichols (1994); Svan: Harris (1985); Chantyal: Noonan (1999); Kayardild: Evans (1995); Tsova-Tush: Holisky & Gagua (1994); Chukchi: Skorik (1961), Kämpfe & Volodin (1995); Yawelmani: Newman (1944); Classical Armenian: Schmitt (1981); Ancient Greek: Goodwin (1894); Russian: Unbegaun (1969); Old English: Campbell (1962); Latin: Gildersleeve & Lodge (1895).

32. Tunica is the odd man out, insofar as its direct (subject/object) case is cumulated with number-gender. On the unusual nature of this kind of relational marking (by limiting what are essentially number-gender suffixes to subject and object noun phrases) see Section 3.1.5 above (following Haas 1946).

33. And, in (almost) blind trust of my sources, I may have erred by including a few cases where not only the conditioning but the alternation itself is of a phonological nature, and exponence is therefore morphologically invariant.

34. Reassuringly, dative and ablative are marginally variant in other Yokutsan languages (Newman 1944: 202–204).

35. Following Gildersleeve & Lodge (1895: 13), dative singular might be considered

the only invariant case-number in Latin, contradicting this preference for marked numbers. However, this hinges on its exponent being -*i* in all declensions, which necessitates phonological reductions that are not beyond doubt (especially in the second declension: e.g., /domin-o-i/ → /domin-o:/).

36. See Haudry (1980), Honti (1997), and Bouda (1949).
37. See Plank (ed.) (1995).
38. It was early stated by Georg von der Gabelentz (1901: 348) and has often been re-affirmed since. See further Plank (1999a).
39. See, however, Krifka (1985: 85) for suggestions that word order implications owe their existence to regularities of grammaticalization, Aristar (1991) for a diachronic explanation of Greenberg's universals linking modifier and adposition ordering, Plank (1999b) for a diachronic reinterpretation of universals about the placement of question markers, Plank & Schellinger (2000) for discussion of the diachronic or typological nature of dual implications, and more generally in this vein Bybee (1988) and Heine (1997), and above all much work by Greenberg himself (as conveniently collected in Greenberg 1990). Greenberg would sometimes go so far in his "dynamicization of typologies" as to assert categorically, although mostly with regard to phonology and syntax rather than morphology, that "synchronic regularities are merely the consequence of such forces" as certain dynamic selective tendencies and chiefly analogical change (1990: 105).
40. See, for instance, Wurzel (1984), Lehmann (1985, 1986), or Bybee (1997), among those few explicitly relating stages of grammaticalization to morphological types. Although she purportedly does not view morphological typology as synchronic or static, but rather focuses on "the creation and maintenance of a type as a dynamic matter" (and as something that can be done differently in different languages, whence ensues typological diversity), Bybee (1997: 33) still seems to credit types with some ahistoric existence.
41. This old quantitative theme, dating back to Adam Smith et al., is developed further in Plank (1986), Carstairs (1987a: Chapter 4), and Plank (ed.) (1991).
42. As traced in detail by Lahiri (2000), the history of the Germanic weak preterite is an object lesson in what can inadvertently happen to words and morphology in the course of grammaticalization.
43. As mentioned above, there is also another possible source for cumulative and variant morphology, bypassing the agglutinative stage: cumulative, variant words such as pronouns.
44. See Bybee (1985: 46) and earlier literature surveyed in Plank (1998).
45. And degrammaticalization in general seems to need special inducements, such as accidental homonymies (Janda 1995) or idiosyncratic properties of individual markers (Plank 1995b).
46. Morphological types in general have also been conceived of as evolutionary stages in scenarios which have morphology originate by excrescence rather than coalescence, as scripted by Adam Smith, the brothers Schlegel, or Otto Jespersen (see Plank 1992a, b). De-flexion would here have to be licensed accordingly.
47. The literature on the question of its proper classification and its implications for morphological theory is voluminous. For the historical facts and their implica-

tions for theories of morphological-syntactic change see Jespersen (1918, 1934), Carstairs (1987b), Plank (1985, 1992c, 1995b), and Norde (1997).

48. For English see Knapp (1902) and for Swedish Norde (1997: 93–127).

49. Also, at the Middle English stage where genitives began to be detached, they were hardly fully separatist, since the genitives of weak plural nouns did not yet add -*s*, being *ox-en* rather than *ox-en-s*.

50. In Swedish there were early signs of a weakening of case-agreement, as the genitive was still variant and cumulative.

51. This phenomenon and the reference were brought to my attention by Carlos Gussenhoven.

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