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# THE INTERPRETATION AND DEVELOPMENT OF FORM ALTERNATIONS CONDITIONED ACROSS WORD BOUNDARIES. THE CASE OF *WIFE'S, WIVES,* AND *WIVES'*

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Much attention has recently been paid to a supposedly general constraint on morphological structures disallowing the conditioning of allomorphy and similar alternations at a distance. While there is considerable empirical support for the assumption that such conditioning relationships can only hold between formatives which are adjacent in terms of linear and/or operational sequence, it also faces some empirical and theoretical problems. These are not at issue in this paper, however. Here I propose to consider the implications of tightening up the locality requirement on the conditioning of allomorphy by adding (1) to the adjacency constraint.

(1) Allomorphy cannot be conditioned across (grammatical) word boundaries.

This word-internality constraint, which is more general than alternative constraints with similar aims, including in particular the 'Insensitivity Claim' of Carstairs (1981:4ff.), may seem attractive because it appears to prohibit conditioning relationships not disallowed by the adjacency constraint alone. What is at issue here is whether the implications of (1) indeed are empirical or rather conceptual. This question bears upon the partial demise of an allomorphic alternation in the history of English, which will be argued to have been inevitable in view of a universal constraint on the conditioning of form alternations - a constraint, however, which pertains to syntactic rather than morphological structures.

That a word-internality constraint such as (1) should have empirical implications would seem fairly obvious: after all, it is not difficult to adduce actual instances

of conditioning relations which should not exist if (1) were valid cross-linguistically. For example, the singular and plural masculine definite articles in Italian have allomorphs (*il/lo* Sg., *i/gli* Pl.) the choice among which depends on the initial segment(s) of the following word, *lo/gli* appearing before 'impure *s*' /ts/, /dz/, and /ñ/, and *il* (prevocalically *l*')/*i* elsewhere (cf. 2).

(2) *il libro* 'the book' - *lo zio* 'the uncle'

If (1) is intended as a universal constraint, it is evidently falsified by examples of this familiar kind. On the other hand, note that the conditioning factors in this and numerous similar examples are purely phonological and do not involve any morphosyntactic or lexical categories. The selection of the Italian masculine definite article allomorphs is uninfluenced, for instance, by factors such as the word-class membership of the following word: *lo/gli* or *il/i* are chosen in the appropriate phonological environments no matter what category of word hosts the conditioning initial segments (compare 2 with 3).

(3) *lo stesso libro* 'the very book' - *il caro zio* 'the dear uncle'

The exceptions to (1), if they were exclusively of this kind, would be principled rather than random: one could still maintain that (1) is generally valid except for sandhi-type conditioning, as we might call the conditioning of allomorphy by purely phonological properties of adjacent words, preferably within phonological words or phrases.

What would be required, then, to falsify this more liberal version of the word-internality constraint are actual instances of allomorphy conditioned across grammatical word boundaries with morphosyntactic or lexical categories acting as conditioners. But would such empirical discoveries really enforce the abandonment or at least some further liberalization of this constraint on morphological structures? Not necessarily, because under certain circumstances form alternations thus conditioned need not count as instances of allomorphy in the first place. Some hypothetical examples should help us to gauge the scope of (1).

Consider a language that is like Italian except that the initial segments of nouns alone determine the choice among the masculine definite article variants *lo/gli* and *il/i*; instead of the article variants in (3), we would thus get those in (3'):

(3') *il stesso libro - lo caro zio*



Would *lo* and *il*, and *gli* and *i*, still be recognized as allomorphs?

Consider a language that is like English in that it has person/number agreement between subjects and finite verbs, but, unlike English, has alternative agreement markers with 3rd person singular subjects depending on the gender or sex of the subject:

(4) *He come-s - She come-t - It come-th*

Would *-s*, *-t*, and *-th* be recognized as allomorphs of the 3rd person singular agreement marker?

Consider a language that is like English except that its personal pronouns appear in different forms depending on the verbs whose objects the pronouns represent, as illustrated in (5).

(5) *Smith helps/trusts/follows him - Smith supports/watches/pursues hin*

Would *him* and *hin* be recognized as allomorphs of the 3rd person singular masculine (direct) object pronoun?

Consider, finally, a language resembling English but having at its disposal four postpositional markers of 'genitive' noun phrases of which one, *is*, appears after singular common nouns or strong verbs at the end of genitive noun phrases (6a), another, *id*, after singular proper names or weak verbs (6b), the third, *ib*, after prepositions (6c), and the fourth, *im*, after plural nouns (6d).

(6) a. *the king/the king of this country/ the king we slew is successor*

b. *King Kong/ the king of England/the king we killed id successor*

c. *the girl you live with ib parents*

d. *the kings/the king of these countries/our children im friends*

Would *is*, *id*, *ib* and *im* be recognized as allomorphs of one attributive postposition?

If such form variants were regarded as allomorphic variants, their totally or partly morphosyntactic or lexical conditioning would be across grammatical word boundaries, contrary to the prohibition of the liberalized version of (1).

As is well known, there is no single notion of allomorphy on which morphologists unanimously agree, and it is

only wise, therefore, not to be too specific in one's pronouncements on questions like those posed after the hypothetical examples above. Nevertheless, there would seem to be some basic consensus among standard conceptions of allomorphy concerning the extreme limits of this notion. Roughly, allomorphy is to do with the selection of forms alternatively realizing particular lexemes or morphosyntactic categories; different forms realizing different lexemes or different morphosyntactic categories are not usually regarded as allomorphs but as different morphemes. We may refer to Bazell (1949/1966) as one of the authorities to have codified this standard assumption:

> For morphemic unity it is necessary in the first place, that the limit between one expressive variant and another should not answer to the limit between one semantic variant and another, i.e. that no variation in the expression should be accompanied by a variation in content ... The mutual indifference of expressive and semantic variants is a necessary, but not of course a sufficient, criterion of the unity of a morpheme. (1966: 220)

Bazell goes on to comment on the conditioning of allomorphic ("expressive") and morphemic ("semantic") alternants, effectively postulating a word-internality constraint like (1) as well as suggesting an explanation of the different syntagmatic domains of conditioning:

> The expressive alternants are usually determined by the other morphemes within the same word, whereas the semantic alternants are usually determined by morphemes outside the word in which the semantic alternant of the morpheme is found. Typical examples are the variants of 'case-form' in different declensions, and the variations of 'case-value' with different verbal or prepositional rection. This is a consequence of the fact that the expressions of morphemes combine in an expressive unit, the word, whereas their meanings combine in a unit of meaning, which is not the word. (1966: 22)

Whatever value Bazell's explanation may have (for my part, I am not convinced that it is not circular), it is evidently the absence of a syntactic relationship between conditioned and conditioning formatives (e.g. between the variants of a particular case/number category and the host nouns belonging to various declension classes in languages such as Latin) which licenses the allomorphic interpretation of the conditioned form alternation even if it answers to a paradigmatic contrast involving the conditioner



(between lexical classes of nouns in the declension-class example). That is, any word-internally conditioned form alternation may in principle count as allomorphic, whereas word-externally conditioned form alternations must meet additional requirements to be recognized as allomorphic rather than morphemic, specifically that of not answering to paradigmatic contrasts.

On this basis we can practically rule out an allomorphic interpretation of the *-s/-t/-th* and the *him/hin* alternations in our first two quasi-English examples. In (4) as well as in (5) the conditioning is word-external, and the (grammatical) words showing formal variation and the words conditioning this variation (or maybe rather the phrases containing these words) are linked by asymmetric syntactic relationships: the subject-verb and the verb-object relationships respectively, which could perhaps be identified at some more general level as a uniform relationship of dependency. If the form variations of one partner in such relationships, then, correspond precisely to morphosyntactic or lexical, i.e. any non-phonological paradigmatic distinctions pertaining to the other partner, one is entitled to assume that different morphosyntactic categories are being expressed by the formal variants, instead of having to take the alternative conditioned forms for alternative realizations of single morphosyntactic categories. These different morphosyntactic categories established by this reasoning can be assigned the function of expressing the syntactic relationship holding between the elements in the conditioning relation: in particular, they express these syntactic relationships in so far as they signal syntagmatic relatedness by means of answering to paradigmatic contrasts, i.e. agree with or are governed by contrasting elements elsewhere in syntagms. The alternants in these quasi-English examples would thus be interpreted as different morphemes rather than as allomorphs of one morpheme: *-s*, *-t*, and *-th* in (4) as forms for the different gender (or sex) categories of 3rd person singular agreeing with the corresponding subclassification of the subject; *him* and *hin* in (5), or maybe only their contrasting constituent parts *-m* and *-n*, as forms for different subcategories of (direct) objects of personal pronouns governed by different classes of verbal lexical items. A word-internality requirement such as (1) does not apply to such conditioned form variations simply because they are no instances of allomorphy.

It should be mentioned that what has been presented as the consensus view of the limits of allomorphy is not universally agreed on either. Among the dissenters one

even finds so prominent a theoretician as J. Kuryłowicz (1949/1973, 1964), who calls the ablative and genitive inflections of objects governed, or at any rate admitted, by certain verbs in Latin (cf. 7) allomorphs of the more usual accusative inflection of direct objects, 'des variantes combinatoires de la désinence de l'accusatif du régime direct, variantes conditionnées par les groupes sémantiques des verbes qui régissent les cas en question' (1973:138).

(7) *urb-e potiri - urb-is potiri - urb-em capere*
'to take possession of the town (Abl./Gen./Acc.)'

This 'syntactified' notion of allomorphy strikes me as decidedly non-standard, as do certain unusually wide characterizations of this notion temporarily entertained by one or the other of the early American structuralists.

The quasi-Italian example above is different from the quasi-English patterns (4) and (5). The words showing formal variation, viz. the singular and plural definite articles, and the words conditioning this variation, viz. exclusively the head nouns, are also linked by an asymmetric syntactic relation, which might be called determination. Here the form variations of the articles, however, do not correspond to any morphosyntactic or lexical distinction pertaining to the head nouns nor to any other paradigmatic contrast elsewhere in the whole syntagm, but to a purely phonological distinction. It is due to the purely phonological nature of the crucial distinctive property, even if this property is one of a morphosyntactically identified class of words, that prevents an interpretation of the form alternation as manifesting a distinction of morphosyntactic or lexical categories. Since such variants, thus, count as allomorphic according to the standard view, despite their partly morphosyntactic word-external conditioning, their conditioning falls within the jurisdiction of a word-internality constraint such as (1), and is not licensed by the provisions its liberalized version makes for sandhi-type conditioning. The same would hold, for example, for form alternations whose conditioning involves word-order rather than phonological distinctions. If in a language similar to English, masculine singular personal pronouns were found to take different forms depending on whether the subject precedes or follows the finite element, as illustrated in (8),

(8) *She admires him - Does she admire hin?/Not for a second has she admired hin*



it would seem difficult to associate a categorial distinction with the formal alternation between *him* and *hin* - unless of course the word-order alternation itself has some primary categorial significance.

The quasi-English pattern (6) is different again. This is a typical sandhi-pattern in so far as the word which happens to precede the postposition causes the form alternation. There is an asymmetric syntactic relation of dependency between noun phrases as a whole and the formally variable postposition governing them; but it is not the dependent noun phrase or its internal head noun which conditions the postpositional form variation: all words which may occur phrase-finally act as conditioners. This hypothetical pattern is entirely unlike sandhi-style conditioning, however, in so far as the conditioning properties of adjacent words are clearly morphosyntactic rather than phonological. Presumably such form alternations answering to paradigmatic contrasts of adjacent words with no, or no unique, syntactic relation to the words showing the form alternation should be regarded as allomorphic, and should be accepted as another pattern on which the liberalized constraint (1) has some bearing.

The overall conclusion so far is that the empirical scope of the word-internality constraint (1) is more limited than it might have seemed at first sight. Conditioning of allomorphy by purely phonological factors cannot, on empirical grounds, be prohibited from taking place across grammatical word boundaries. If the conditioning factors are morphosyntactic or lexical, the conditioning across word boundaries cannot, under the particular circumstances set out above, be prohibited by a constraint on morphological structures either, because under the relevant circumstances formal alternations fall outside the domain of morphology and within that of syntax. There is, however, a residue of patterns of word-external, not purely phonological or entirely non-phonological conditioning, exemplified by quasi-Italian article alternations (2/3') and quasi-English postposition alternations (6), where (1) appears to have empirical implications - provided such conditioning patterns cannot be ruled out on different grounds (e.g. by purely phonological constraints on the linear segmental distance between phonological conditioning factors and conditioned alternations). The empirical question, then, is whether patterns resembling in their essential features the hypothetical quasi-Italian and quasi-English ones are really unattested, as predicted by (1). (The alternation of singular definite articles *la* and *el* with feminine nouns in Spanish, discussed in

Plank 1984a, does not instantiate the conditioning pattern (2/3'), because this alternation is conditioned by the initial segment of feminine nouns only if these are adjacent to the article, and, moreover, is not allomorphic but a manifestation of syntactic disagreement. The alternation of segmental nominative markers in Somali, which, as outlined in Banti 1984, is determined by various morphosyntactic properties of all kinds of words at the end of nominative-marked noun phrases, seems comparable to pattern (6), except that from Banti's account it is not clear that the Somali nominative marker really is separated from the preceding word by a grammatical word boundary.)

But rather than to embark on a cross-linguistic search for examples that would help decide this empirical question, I shall devote the remainder of this paper essentially to the examination of a single pattern of formal alternation in English, viz. the alternation of stem-final voiceless and voiced fricatives in nouns such as *wife - wives* [f - v], *mouth - mouths* [θ - ð], *house - houses* [s - z]. In particular, I shall argue that general considerations about the limits of allomorphy and constraints on the conditioning of formal alternations are able to illuminate the evolution of this pattern. Attention will also be paid to variations of the marking of 'genitives', i.e. of the category that is of primary diachronic importance for voice alternation.

To begin with, it is not self-evident how best to describe the voice-alternation pattern in Modern English. The observational basis includes the following facts: (a) A set of nouns with stem-final voiceless labiodental, dental, or alveolar fricative have the corresponding voiced fricative when accompanied by a regular plural suffix; (b) this alternation is most productive with labiodental, less productive with dental, and least productive (in fact restricted to a single noun: *house*) with alveolar fricatives; (c) among the partial regularities which help to specify which nouns will show this alternation is the phonological one designating noun stems with long vowels or diphthongs, and with short vowel plus /l/ in the case of final /f/ (cf. *elf, shelf, self*), as the most likely candidates; (d) a further regularity excludes non-Germanic nouns (such as *chief, paragraph;* partial exception: *beef*) and nouns whose spelling indicates that their final /f/ has developed relatively late from /x/ (such as *cough, laugh*) from this alternation; (e) a number of nouns vacillate between voiced and voiceless fricative in the plural (e.g. *hoof, oaf, self, scarf, beef, youth, truth, oath,* in American English also *house*), reflecting an overall diachronic tendency towards the levelling of voice alternation; (f) no



noun shows voice alternation when followed by the genitive marker, whose alternants /s - z - ɪz/ are formally identical to the regular plural alternants (cf. *my wife's knives* etc.), (g) nor when followed by reduced enclitic forms of the verbs *is* and *has,* whose alternants are the same as those of the regular plural and the genitive (cf. *My wife's here too, My wife's been told that...*). For present purposes we may ignore to what extent this voice alternation applies to non-nominal stems: it is categorically excluded with verbal inflections of the same form as the regular plural marker (cf. *he knifes/*knives*), and it is sporadic in certain derivational patterns (cf. *thief - to thieve - thievish,* but *leaf - to leaf - leafy*).

One possibility to account for these observations - the one that seems to me preferable and has recently been defended against alternatives by Lieber (1982) - is to assume two equally basic stem allomorphs of the nouns which exhibit voice alternation (i.e. /waɪf - waɪv/, /maʊθ - maʊð/, /haʊs - haʊz/etc.), and to make the selection of the voiced alternant of these stems contingent on the presence of a following plural marker. The strongest motivation for this purely allomorphic solution that involves no general morphonological rules but at best a set of lexical correspondence statements comes from the essential unpredictability of the individual nouns which partake in voice alternation. It does not account very well for the partial regularities noted above (b, c, d), nor for the fact that the relevant stem alternants do not really differ radically from one another (as do stem allomorphs such as *go - wen(t)*) but only in one phonological feature of their final fricative. The purely allomorphic description further fails to acknowledge the at least partly phonological rationale of voice alternation: in the absence of a rule of voice assimilation, it looks like an accident that the regular exponents of the morphological category, plural, which conditions the stem allomorphy, turn out to agree in voicedness with the final segment of the stem allomorphs they co-occur with. Nevertheless, it is obvious that the conditioning does involve the morphological category of plural and is not purely phonological. The conditioning, moreover, is strictly local: it does not take place at a distance nor across a word boundary.

An alternative descriptive solution would be to take one variant of the relevant noun stems as basic, and to derive the other by morphonological rule - by a rule of fricative devoicing if, somewhat implausibly (despite Householder 1971:111ff.), voiced variants are assumed as basic, or by a rule of fricative voicing if, more plausibly, voiced

variants, the citation forms, are assumed as basic. A further alternative (suggested by Harris 1942/1966) would be to take neither of the actual stem variants as basic, but rather to derive, by morphonological rules, both variants from a common base form whose final fricative is unspecified as to the feature of voicing. (See Lightner 1968: 58-60 and Zwicky 1975: 149-152 for brief discussions of these alternatives.) As they involve rules rather than only individually listed stem alternants, these solutions are obviously better equipped to deal with the partial regularities of voice alternation. Another advantage claimed by Strauss (1984) for the fricative-voicing solution is that basic forms such as /wæɪv/would violate a putative morpheme structure condition requiring retracted [ɑɪ] before [v] (cf. with [ɑɪ] *hive, dive, drive* etc.) but [æɪ] before [f] (as in the pronunciations of both *wife* and *wives*); hence forms such as [wæɪvz] can only be non-basic, derived by a morphonological rule of fricative voicing triggered by plural marking. Irrespective of the merits of this particular argument, it should be noted that the rule solutions share essential features with the allomorphy solution: the conditioning involves a morphological category, viz. plural (in fact, in the case of the implausible final-devoicing solution, devoicing would occur *unless* nouns are in the plural); and the formal variation conditioned by plural must be limited to a phonological no doubt partly arbitrary set of nouns. In this last respect the impression of regularity created by rule statements is thus to some extent illusory.

The following discussion is in terms of conditioned allomorphy. If we had adopted one of the alternative descriptive solutions, the constraints we are primarily interested in here would be ones pertaining to the morphological conditioning of morphonological rules - which may after all not be an entirely different issue from that concerning the conditioning of allomorphy.

Of particular diachronic interest are observations (a), (f), and also (g) above. As is well documented in the handbooks (e.g. Jespersen 1942: 258-266), the voiced allomorphs conditioned by the regular plural in present-day English, if with slowly decreasing frequency, once also occurred before the segmentally identical genitive markers. Needless to emphasize, the historical period referred to here is not the one where stem-final voiceless fricatives (as in Middle English *wif*) were voiced intervocalically (as in *wives* Plural/Genitive Sg.) by a regular phonological rule, but a later one where this voice alternation of stems had become morphologically conditioned.



Such a voice alternation between basic noun forms and genitives was widespread in late Middle English once the alveolar fricative formatives had been generalized as the common genitive marker, had (between the 14th and the 16th century) become voiced like /s/ everywhere else in unaccented syllables, and had lost their unaccented vowel except after a sibilant, requiring the assimilation of /z/ to a preceding voiceless segment. It was still the norm in certain editions of Shakespeare at least with stem-final labiodental fricative (cf. e.g. *for my wiues sake, my liues counsell, at the staues end*), but was levelled entirely in later Modern English, with things apparently coming to a head in Elizabethan times and with only a few nouns retaining occasional voiced stem allomorphs until the end of the 18th century, especially in fixed compounds (such as *calves-head, knives-point*). During the period where genitive and plural markers both conditioned this voice alternation of certain noun stems the verbs *is* and *has* could take the same phonological forms as these markers, but were usually enclitic to pronouns (or vice versa: *'Tis* instead of *It's*) rather than to nouns. So far as I was able to determine, there are no instances of nouns with final voiced fricative conditioned by reduced enclitic forms of these verbs.

Thus, what demands an explanation is, firstly, why the voice alternation was given up with the genitive but was by and large retained with the plural, after it had been equally characteristic of these two categories in late Middle and early Modern English, and, secondly, why it was given up with the genitive at a particular time, viz. essentially in the Elizabethan period. And, thirdly, one is also entitled to wonder about a non-event: the apparent failure of voice alternation ever to be extended to nouns followed by reduced enclitic forms of *is* and *has*. Of course, what has and has not happened may have been historical accidents, in which case the search for explanations would be in vain. On the whole, however, it seems intellectually more satisfying to start from the assumption that patterns of language behaviour are or are not modified for particular reasons, and that some modifications may even be historically inevitable given the right circumstances.

In the case at hand, I am not the first to ask for reasons why the history of later Modern English has taken the direction it took. Jespersen offered this explanation for the levelling of voice alternations with the genitive but not with the plural:

> the power of analogy, which was here [with the genitive - FP] stronger [than with the plural] because the genitive ending was felt to be a looser addition than the pl[ural] ending ..., has now introduced the voiceless sound with scarcely any exception (1942: 264)
>
> If the *s* of the genitive is more loosely connected with the word it belongs to than is the *s* (or other suffix) of the plural, that is the reason why it tolerates no change in the body of the word (1918/1960: 332)

This explanation, he assumes, also accounts for the selective levelling of allography of nouns spelled with final *y*: cf. *lady - ladies* (Pl.) - *lady's* (Gen.), which used to be spelled *ladies* in earlier Modern English as well (1960:332). In fact, Jespersen is fairly specific about what he means by 'looseness of an addition/connection'. From the next chapter (ch. XVII) of the same volume of his *Modern English grammar* it becomes obvious that 'genitive ending' in our first quote cannot have been intended as a technical term in the sense of 'case morpheme bound to nominal stems' (i.e. 'case suffix'), because there Jespersen takes great care to show that the genitive marker has developed into a rather unaffixlike type of marker which he calls 'interposition', on account of its occurrence at the end of whole attributive phrases and before their heads. In his *Chapters on English* he also uses the term 'interposition' ('partly a suffix as of old, partly a prefix', 1960:331f.), but in addition draws typological comparisons: the uniform genitive marker *s* (with alternants /ɪz - z - s/), having ousted all other original genitive suffixes of the various Old English declension classes, reminds him of 'those endings in agglutinating languages like Magyar, which cause no change in the words they are added to, and which need only be put once at the end of groups of words' or of 'the so-called empty words of Chinese grammar' rather than of a typical inseparable inflectional suffix of flexional languages (1960:335).

The general law Jespersen apparently had in mind here is that 'endings' are the unlikelier to condition stem allomorphy (and allography) the more independent they are of stems - which is reminiscent of our word-internality constraint (1). If Jespersen's observation about the different conditioning capacities of 'endings' in flexional and in agglutinating languages should prove valid (as it may well do), this need not perforce invalidate our version of the constraint: agglutinative 'endings', unlike flexional ones, may turn out to be separated by grammatical word boundaries from the elements they phonologically lean on. But regardless of whether the constraint on the conditioning of allomorphy is stated in terms of word boundaries or, more generally, in terms of some other notion of relative independence, it is not entirely above suspicion, as was argued in the first part of this paper. Hence its explanatory value should not be taken on trust, despite the appeal it had for Jespersen. One must agree with Jespersen, though, that the changing conditioning behaviour of the genitive 'ending' is somehow a consequence of a change in its formal and functional status; and it is therefore appropriate briefly to recapitulate the metamorphoses of this relational marker.



At stage 1, which is actually a complex sequence of stages spanning Old and most of Middle English, *-(e)s* was a genitive singular morpheme bound to certain masculine and neuter noun stems and later generalized to all noun stems, i.e. an impeccable inflectional suffix cumulatively expressing case and number, whose evolving formal variants /ɪz - z - s/ were regular phonological alternants, as were voicing variations of stem-final fricatives. In fact, in the later phases of this stage, with the generalization of *-(e)s* also to the genitive plural of nouns that utilized umlaut rather than a suffix to encode plural (cf. e.g. Middle English *man* Sg. - *mannes* Gen. Sg. - *men* Pl. - *mennes* Gen. Pl.), the cumulative character of this marker began to be eroded. Due to its presence also with a particular type of plural nouns, *-(e)s* began to be interpretable as a pure genitive marker, with a zero alternant appearing in the plural whenever a noun formed its plural by suffixation rather than umlaut (cf. e.g. Middle English *book - bokes* Gen.Sg./Pl./Gen.Pl., *oxe* Sg. - *oxes* Gen.Sg. - *oxen* Pl./Gen.Pl., morphologically *bok-es-Ø, ox-en-Ø* Stem-Pl.-Gen. vs. *menn-es* Stem (Pl.)-Gen.).

At stage 2, spanning late Middle and early Modern English, with its first symptoms appearing in the 13th century and with its full bloom coming in the 15th, 16th, and 17th centuries, we have a marker of the attributive syntactic relation that is no longer bound to the stem of the internal head nouns of attributive phrases but occurs at the end of entire attributive phrases preposed *in toto* to their heads. The clearest evidence for the conversion of the word-marker *-(e)s* into a phrase-marker is the appearance of 'group genitives' (9a), and also of spellings such as *(h)is, (h)ys, 's,* resembling those of the 3rd person singular masculine possessive pronoun (9b).

(9) a. *for your bothes peynes, of the quene his modres owne brestis, your worship & the childis auaille, my wife and childrens ghosts*

b. *the quene ys modyr, her Grace is requeste, at þare ditch his grunde, Winchestre his toun*

One causal factor in this reanalysis of an inflectional suffix (i.e. a morphological marker) as a phrase-final (i.e. a syntactic) marker, in the course of a word-order change gradually outlawing the extraposition of parts of an attributive phrase after the head (as in *the wyues loue of Bathe*), indeed was the homophony with the 3rd person singular masculine possessive pronoun *(h)is*, which had acquired the same phonologically conditioned *h*-less alternants as the genitive marker (as reflected in Shakespearian spellings such as *Put off's cap, kiss his hand*), and also the functional similarity to this possessive pronoun, which could link possessor and possession phrases in anacoluthon (cf. *euery man that eateth the sowre grape, his teeth shall be set on edge*) and in ditransitive constructions (cf. *þet tu wult... reauen God his strencðe*). As a result of this reanalysis, two formerly distinct elements, a possessive pronoun and a genitive marker, became virtually indistinguishable in attributive constructions. (See Jespersen 1960:336-345 for a detailed account of this development, and more recently also Janda 1980, who seems to believe he is the first to appreciate the significance of this conversion of a morphological into a syntactic marker. Further, in my opinion inconclusive, discussion of the present status of 'genitive' *'s* may be found in Hansen 1970:273ff.) Notice, however, that the attributive marker at this stage is invariably /ɪz - z - s - Ø/, i.e. does not vary with the gender, person, and number of the possessor in the manner of a possessive pronoun. As to the alternants of the attributive marker, note that zero at this stage is further limited to nouns taking the regular plural suffix (cf. e.g. *oxens*, morphologically *ox-en-s* Stem-Pl.-Gen., instead of *ox-en-Ø* as at stage 1), which reinforces the impression that this marker is no longer cumulatively encoding a syntactic relation and number, but has purely relational function, even though it remains partly, on account of the distribution of its zero alternant, sensitive to the expression of number.

At stage 3, which partly coincides with stage 2 and is gradually phased out in the 18th and early 19th centuries, the attributive relation is encoded more indirectly by a cross-reference marker that is syntactically associated with head phrases and varies with the gender, person, and number of the possessor:



(10) a. *the daulphin of France his power, Harlesdon ys name*

b. *Juno hir bedde, the Queenes Majestie her request* (illustrating two kinds of attributive marking)

c. *Me (poore man) my Librarie*

d. *Canterbury and Chillingworth their books, Estrangers their ships*

In so far as it could be seen as continuing a traditional habit (cf. e.g. *Asia & Europe hiera landgemircu togædre licgað* Ælfred, Oros.), this cross-referential attributive construction is no genuine early Modern English innovation out of the blue. On the other hand, its usage seems to become much more popular in this period, somewhat later than the merger of the original genitive marker and the 3rd person singular masculine possessive pronoun at the zenith of stage 2. It is only at this stage 3 that the marker continuing the original genitive singular suffix *-(e)s* entirely loses its sensitivity to plural, because forms expressing a different morphosyntactic category, viz. plural, rather than number-sensitive alternants expressing a single category, are chosen with plural possessors (cf. 10d).

At stage 4, continuing without any clear-cut boundary stage 2 since the 18th century, the attributive marker again forsakes agreement variation. The essential difference to stage 2 lies in the reassertion of the distinction betweenan attributive marker and the 3rd person singular masculine possessive pronoun, also reflected by changes in the alternants of the possessive pronoun, which dropped its non-syllabic variants. Jespersen claimed justification for his characterization of this marker as an interposition from its resistance to occur phrase-finally if there was no head immediately following the attributive phrase, as in examples of his such as *The entire turmoil had been on Lem's account and nobody's else* or *There shall nothing die of all that is the childrens of Israel* (1942:298). Since this resistance has certainly lost much of its vigour and *'s* now occurs relatively freely in phrase-final position without a following head phrase, this attributive marker is presumably best categorized as a postposition of attributive phrases, to the last element of which it is enclitically attached. Nida's (1949:104f.) attempt to defend the suffixal rather than enclitic categorization of this *'s* strikes me as misguided: not only must Nida himself admit that *'s* combines with all kinds of classes of forms rather than only with nouns and pronouns; his insistence that the external distribution class memberships of clitic combinations be numerous, moreover, seems exaggerated, because

only very few forms that can be considered clitics on other grounds appear to meet this criterion. (See also Carstairs 1981:3ff. for a defence of the clitic interpretation of *'s* .)

The fact of crucial relevance for present purposes is the transformation of the genitive marker from a word-level, i.e. morphological, to a phrase-level, i.e. syntactic, marker, which the erstwhile suffix *-(e)s* underwent at stage 2 and which has not been reversed at any of the subsequent stages. Since the end of the 18th century this fact has been orthographically acknowledged through the use of an apostrophe, but Jespersen recommends a more radical recognition when he suggests that 'there would be no great harm done if the twentieth century were to go the whole length and write, *e.g., my father s house, the Queen of England s power, somebody else s hat,* etc.' (1960:335f.). Clearly, occasional occurrences of plural markers on the last element of more or less fixed word-groups (as with *lady friends, postmaster-generals, whisky-and-sodas, grown-ups, son-in-laws,* etc. - see Jespersen 1942:298-300) do not suffice to demonstrate that plural marking too now operates at the phrase level: plural markers in English remain fairly typical suffixes bound to noun stems, even though they have ceased to be cumulative exponents of number and case. It is the transformation of the genitive marker which provides the perspective for the interpretation of the development of voice and other form alternations.

Evidently, if the attributive marker is separated by a grammatical (though not by a phonological) word boundary from the internal head noun or any other final word of attributive phrases, the conditioned alternations of its own form must be seen as being conditioned across a grammatical word boundary. As far as the alternation between the three forms with an alveolar fricative, /ɪz - z - s/, is concerned, regardless of whether it is handled allomorphically or phonologically (see Zwicky 1975 for a thorough survey of alternative analyses), its conditioning is of the straightforward sandhi variety, hence does not offend against any universal constraints. The same applies to the identical form alternations of the verbs *is* and *has*, when these are enclitic, their encliticization being subject to further non-phonological conditions. It seems fairly unobjectionable on general grounds for the same form alternation to be phonologically conditioned across as well as within grammatical word boundaries, especially if these do not correspond to phonological word boundaries. Thus, there is nothing unusual in the



parallel alternation behaviour of the regular plural suffix, the attributive marker, and the enclitic auxiliaries in Modern English. (The evolving boundary differences, incidentally, are again reflected more faithfully in spelling; notice the absence of allographic alternants of the attributive marker after sibilants: *bus's* Gen. vs. *buses* Pl.)

What really seems rather unusual is the conditioning of the zero alternant of the attributive marker. The least worrisome alternation is the optional one between forms with alveolar fricative and zero with singular attributes, where zero may appear after and/or before words with final/initial alveolar fricative (cf. *Jesus'(s) parents, for fashion('s) sake*). Even though its conditioning may involve several factors not all of which are phonological, a (mor)phonological rule of haplology seems the best solution here. Complications begin with singular internal head nouns of complex attributive phrases whose final noun is in the plural:

(11)a. *a mother of five children's chance to re-marry, an owner of five geese's chance to sell them all*

b. *a mother of five girls' chance to re-marry, the compiler of indices' first rule of thumb*

If this final plural is irregular, the attributive marker appears in its regular forms (11a), but if it is regular, at least in so far as the plural suffix resembles the regular one (cf. *indic-es,* with /iz/ rather than /ɪz/), the attributive marker is obligatorily, rather than optionally, zero (11b). (Jespersen 1942:287 quotes a single example with non-zero attributive marking, *after a couple of miles's riding,* but this sounds decidedly odd.) Regardless of whether one prefers to handle this pattern in terms of a rule of haplology or in terms of allomorphy, the conditioning here is crucially morphological: to account for the distribution of zero, reference must be made to the category of regular plural rather than to the phonological environment of a preceding alveolar fricative, because an alveolar fricative, if not the last segment of a regular plural suffix, at best conditions optional haplology (cf. *the mother of Jesus'(s) chance to re-marry, the reader of theses'(s) first rule of thumb*). Things are getting even more intricate when the internal head nouns of attributive phrases are in the plural:

(12)a. *our children's friends, the addenda's main purpose, both sheep's owner, women's liberation*

b. **both geese's/geese' owner, *two teeth's/teeth' loss, *these theses's/theses' common denominator*

c. *the queens' mutual dislike, your wives' common denominator, these indices' main purpose*

d. **the Queens of England's common denominator, *the queens of these countries' mutual dislike, *the children of these women's/countries' education*

With irregular plurals we again encounter the regular forms of the attributive marker (12a), unless such plurals, while differing from their singulars, end in an obstruent, in which case, strangely enough, the postpositional attributive construction as such is prohibited, no matter which form the attributive postposition would take (12b). As before, the attributive marker is obligatorily zero after regular or semi-regular plurals (12c). (In dialects, a regular plural need not exclude the non-zero form of the attributive marker; cf. *the færmers's kye, other boyses head* etc. (Jespersen 1942:272).) Regardless of the regularity or irregularity of the plural of the internal head nouns of attributive phrases, and also of their final nouns, group genitives with plural heads, where plural and attributive markings are not associated with the same word (to use one of Zwicky's 1975:166 formulations of this constraint), are generally avoided (12d). Their prohibition is probably not quite categorical: when such marginal plural group genitives occur, as in the example quoted by Jespersen (1942:287), *three-quarters of an hour's journey*, it is the phrase-final noun rather than the internal head which determines the form of the attributive marker. The avoidance of plural group genitives, nevertheless, appears to argue against the assumption once popular among grammarians (such as Bullokar, Wallis, and Lane - cf. Jespersen 1942:272) that all that is needed here is a phonological or rather morphonological rule of haplology ('duo *s* in unum coincidunt', as Wallis put it in 1653): examples like those in (12d), where the plural and attributive markers are not adjacent, with the latter hence being no possible victims of haplology, ought to be unobjectionable if this were the correct analysis.

Unlike the Old English genitive plural suffix *-a*, which presumably is its formal ancestor (*-a* > *-e* > *ø*), the zero alternant of the Modern English attributive marker, whether or not it is analysed as a genuine allomorph of /ɪz - z - s/, thus is conditioned across grammatical word boundaries. Even though, on account of the causal involvement of the morphological category of plural, its conditioning is not of the pure sandhi type, which would exempt it from the word-internality constraint, it bears some resemblance to this type, much as the hypothetical pattern (6) above did. Firstly, it is hardly entirely coincidental that zero appears only after *regular* plural suffixes: after /ɪz - z - s/ (or /iz/) it makes more phonological sense to avoid another alveolar fricative than after other phonological segments. Secondly, even if this is partly covered up by the general aversion to plural group genitives (12d), it is the plural marking of the noun that happens to precede the attributive marker, rather than that of the internal head noun of complex attributive phrases, which conditions the choice of zero. That is, the morphological conditioning factor is associated with a word that by itself bears no syntactic relation, except that of linear precedence, to the word showing the conditioned alternation. Thirdly, differing from the hypothetical pattern (6), it is no categorial paradigmatic distinction as such which conditions the choice between zero and alveolar fricative forms of the attributive marker, but rather the distinction between alternative formal expressions of one morphological category, plural. In this last respect the alternations of the Modern English attributive postposition, thus, differ, for example, from the (non-allomorphic) alternation between the directional prepositions *in* and *nach* in German, which is conditioned by the categorial morphosyntactic distinction between place names with and without definite articles (cf. *in die Sowjetunion - nach Russland* 'to the Soviet Union/Russia'), resulting in a pattern of alternation that is cross-linguistically rather uncharacteristic of adpositions. The second and the third feature of the Modern English conditioning pattern certainly preclude an interpretation of the variants of the attributive postposition as syntactic agreement forms corresponding in number to the internal head noun of attributive phrases - which would be a cross-linguistically uncommon, if not unique pattern (if adpositions agree, they do so in person *and* number). This set of three properties, then, would seem to define the somewhat unusual circumstances where conditioning of allomorphy or similar form alternations must be admitted to take place across grammatical word boundaries, in violation of constraint (1) as liberalized above.

Given this further liberalization that is inevitable on empirical grounds, it could seem as if the present version of our word-internality constraint would also license the retention of voice alternation with genitive markers after their separation from noun stems by a word boundary (from stage 2 onwards), as well as the extension of this stem alternation to relevant nouns in subject phrases when followed by enclitic *is* and *has*. Here is the pattern that could accordingly be expected to have evolved from the original state of affairs:

(13) a. *my wive's tale, My wive's here too*

b. *the Wife of Bath's tale, The Wife of Bath's here too*

c. *the knife of my wive's blade, The knife of my wive's been found*

Note that in this hypothetical pattern it would always be the last noun of attributive or subject phrases, rather than only their internal head noun, which shows stem allomorphy when followed by the attributive marker or enclitic *is/has*, in the manner that is typical of sandhi-style conditioning. This is reminiscent of the conditioning of the zero alternant of the attributive marker dealt with above; but the two other factors that were also involved there have no parallels here. In so far as the conditioned stem-final fricative and the adjacent alveolar fricative of the conditioning attributive marker or enclitic *is/has* agree in voicedness, the conditioning does make phonological sense. It is, however, the voicing or devoicing of the attributive marker or enclitic *is/has* themselves that can be understood as being due to phonological assimilation to the stem-final segment rather than vice versa: that is, the phonological form of the morphologically conditioning elements depends on the phonological form of the morphologically conditioned element. And the conditioning factors here indeed would be morphological or morphosyntactic categories as such, viz. the presence of a particular attributive postposition or of 3rd person singular indicative present forms of enclitic *be/have*, rather than distinctions between alternative formal expressions of particular categories, as above. In the case of the attributive marker it seems legitimate to attribute the conditioning force to this marker as such rather than only to its non-zero alternants, because its zero alternant in fact never occurs adjacent to stem-final fricatives, hence is positionally prevented from manifesting its potential conditioning capabilities. Thus, contrary to initial appearances, the development of a pattern like that in (13) turns out not to be sanctioned by the



liberalized version of the word-internality constraint to which we currently subscribe.

Consider now another hypothetical pattern which differs from (13) in that only the internal head nouns of attributive or subject phrases show voice alternation, but which *a priori* would seem an equally imaginable result of historical developments.

(14) a. *my wive's tale, My wive's here too*

b. *the Wive of Bath's tale, The Wive of Bath's here too*

c. *the knive of my wife's blade, The knive of my wife's been found*

Also imaginable would have been the evolution of a pattern differing from that in (14) in that internal head nouns show voice alternation only when immediately followed by the attributive marker or enclitic *is/has:*

(15) a. *my wive's tale, My wive's here too*

b. *the Wife of Bath's tale, The Wife of Bath's here too*

c. *the knife of my wife's blade, The knife of my wife's been found*

What is peculiar about (14) is that conditioning words cause the same effect whether they are adjacent to or distant from the stems showing the conditioned alternation. What is peculiar about (15) is that words capable of conditioning form alternations of head nouns sometimes do (when adjacent), but sometimes don't (when distant) cause this effect. In these respects they are different from plural markers, which are always adjacent to the noun stems (such as *wife, mouth, house*) whose allomorphy they condition and which, therefore, always cause this effect. Obviously, these differences relate to the fact that plural in Modern English is word-level marking, whereas the attributive postposition is a phrase-level marker and, like enclitic *is/has*, separated by a grammatical word boundary from the preceding word. Which brings us back to the question whether some constraint against the word-external conditioning of allomorphy is to be held responsible for the levelling of voice alternation with the attributive marker (as seems to have been Jespersen's opinion) and for its non-extension to enclitic *is/has*.

This may well be the correct explanation in the case of the non-extension. The words which would, always (14) or only in phrase-final position (15), show formal variation, viz. the relevant internal head nouns of

subject phrases, and the words conditioning this variation, viz. the 3rd person singular indicative present forms of enclitic *is* and *has*, would be linked by an asymmetric syntactic relation, that of subject, which is also encoded by the finite verbs themselves, which agree with subjects in person and number. Despite this clearly word-external morphosyntactic conditioning, the form variation of head nouns would presumably still count as allomorphic, rather than, say, as syntactic agreement of subjects with finite verbs, because it is arguably the phonological realization of certain 3rd person singular indicative present enclitic verbs (viz. of *be* and *have*), rather than any non-phonological paradigmatic contrast pertaining to finite verb forms, to which the formal distinction of subject head nouns corresponds. In our discussion of patterns like the quasi-Italian one (3') above, we concluded that the word-external conditioning by phonological properties of morphosyntactically identified classes of words falls within the jurisdiction of the word-internality constraint. Therefore, the refusal of Modern English to endow enclitic *is* and *has* with the capacity of conditioning stem-final voicing of subject head nouns, as hypothetically illustrated in (14) and (15), is in accordance with this universal constraint.

The explanation of the levelling of voice alternation with attributive markers, however, seems to me to be outside the scope of this morphological constraint. Supposing the voiced stem allomorphs of internal head nouns had been retained with the enclitic attributive postposition, always (14) or only in phrase-final position (15), how would the resulting form variations between (singular) internal head nouns of attributive phrases and other nouns have been interpreted? According to our previous reasoning, they could not be interpreted allomorphically because it is a morphosyntactic distinction, viz. presence vs. absence of an attributive postposition, rather than a purely phonological distinction, which is reflected, across word boundaries, by the form variation concerned. Moreover, since the conditioning word, the attributive marker, syntactically governs the nouns (or rather the entire noun phrases headed by them) which would exhibit the formal variation vis-à-vis their occurrences in other syntactic environments, the conclusion would have to be that this is no instance of the selection of alternative forms realizing certain nominal lexemes (i.e. stem allomorphy) but rather an instance of the selection of different morphosyntactic categories associated with these lexemes. What is expressed by these morphosyntactic



categories associated with nouns are the grammatical relations of these nouns, or the phrases headed by them, to other elements they are in construction with - and morphological markers with that function fit the usual criteria of the category of case. Thus, retained stem-form alternations conditioned by what used to be a genitive inflectional suffix but had turned into an attributive postposition would have become interpretable as an incipient system of case marking, amounting to the innovation of a 'postpositional' case syntactically governed by the attributive postposition and in paradigmatic opposition with what might be called the 'general' case, serving all other syntactic functions. This would be the most straightforward interpretation in particular of pattern (14). With pattern (15) one might have been slightly irritated by the lack of case marking on internal head nouns which do not occur at the end of attributive phrases. No major irritation should have been caused, however, by the limitation of this postpositional case marking to singular nouns, the relevant nouns appearing always with the voiced stem-final fricative in the plural: neutralizations of case distinctions with the marked member of the number opposition after all are nothing extraordinary.

Thus, since the patterns that would have resulted if voice alternation had not been selectively abandoned in later Modern English would not have been of the allomorphic type, the actual development cannot be explained by a general constraint on the conditioning of allomorphy. We must look elsewhere for an explanation of the levelling of voice alternation with the attributive marker. If it is to be accounted for in general terms, the constraint(s) needed must pertain to case systems. And there indeed are some such constraints that may be brought to bear on the development at issue.

The forms case marking can possibly take are no doubt subject to certain limitations. Note that the postpositional case in Modern English which would have been innovated if voice alternation had not been levelled with the attributive postposition, would have been expressed by segmental modification, viz. the voicing of stem-final fricatives, rather than by the addition of segments, i.e. by affixation (specifically suffixation), which is the most familiar method of encoding case distinctions. Still, segmental modification is cross-linguistically attested in this function, even though it is not nearly as widespread as affixal case marking, whose potential of encoding paradigmatic distinctions is inherently much greater. The skewed cross-linguistic distribution of segment-modifica-

tional and affixal case marking, nevertheless, suggests an implicational universal:

(16) In any language, case marking by means of segmental modification implies that affixes are also utilized in this paradigmatic domain.

In explaining this tentative descriptive generalization, the greater distinctive potential and systematicity of affixes appear to be key factors. In view of languages such as Irish, where relation-coding heavily, though not exclusively (cf. the 2nd declension feminine Gen. Sg. in *-e*, the obsolescent Dat. Pl. in *-(a)ibh*), relies on initial mutations, stem-vowel and final-consonant alterations, the empirical validity of (16) perhaps should not be taken for granted; the vast majority of case languages, however, clearly confirm constraint (16). (See Plank 1984b for a survey of the phenomenology of relation-coding.) The retention of voice alternation in Modern English would have created a pattern blatantly violating this constraint: the only paradigmatic case distinction, between the general and the postpositional case, would have been encoded by segmental modification rather than affixation.

Another disadvantage of the incipient case system might have been the limitation of the new postpositional case to an arbitrary set of nouns, one that was definable neither in morphological nor in phonological terms (not *all* nouns ending in a voiceless fricative were taking part in voice alternation even within word boundaries). On the other hand, if this limitation was so undesirable, it should have been possible in principle to extend the scope of postpositional case marking by generalizing the formal alternation to all nouns with final voiceless fricatives or even to all nouns with final voiceless segments. No such extensions are on the historical record, though. Moreover, it would probably be rash to exclude as a matter of universal principle case marking variation that is sensitive to phonological properties or also to arbitrary lexical distinctions of case-marked nouns. Admittedly, however, limitations like those defined by the original incidence of voice alternation in early Modern English would be rather unusual for genuine and stable case systems.

As far as pattern (15) is concerned, which Modern English could have ended up with but managed to steer clear of, the prevention of case marking when internal head nouns do not occur at the end of their phrases is cross-linguistically uncommon. To be sure, patterns are attested where internal head nouns are or are not case-marked depending on their phrase-final or phrase-internal



position. In such patterns, however, it is always the phrase-final word, head noun or other, which carries the appropriate case marker, whereas in the hypothetical pattern (15) noun phrases would remain without postpositional case marking altogether whenever their internal heads happen not to be phrase-final. Thus, by assuming a universal constraint on case-marking languages along the lines of (17),

(17) The non-phrase-final position of internal head nouns may (in particular with agglutinative rather than cumulative case morphology) prevent the case marking of these head nouns themselves, but not that of the entire noun phrases containing such non-final heads.

we are able to rule out on principled grounds at least one turn the history of Modern English might have potentially taken.

A potent factor, finally, may have been a constraint that sets limits to the categorial infrastructure of case paradigms. If voice alternation had not been levelled with the attributive marker, the incipient case system would have included a single marked case governed by a single attributive postposition, in paradigmatic opposition to the unmarked general case, taking the form of basic noun stems and encoding all other grammatical relations of noun phrases in construction with verbs and adpositions. A case system of this kind appears to be cross-linguistically highly unusual, possibly even unique. Surveying the attested minimal, i.e. two-term, case paradigms, one tends to encounter instances where one general, or 'direct', case is either opposed to one grammatical case encoding the core relations of object or, more rarely, subject (and maybe subject/object complement), or to one local or, more rarely, non-local adverbial case. In either case, the noun phrases receiving the single non-basic marked case tend to be in construction with verbs and perhaps other lexical relational expressions (such as nouns and adjectives), or also with both lexical and grammatical (in particular adpositional) relational expressions, but not exclusively with adpositions. The prevailing paradigm infrastructures, thus, could seem to justify this universal constraint:

(18) It is impossible for minimal case systems to include, in addition to the basic general case, only a single further case exclusively marking noun phrases in construction with (adverbial/grammatical) adpositions.

An adpositional case, accordingly, would imply the presence of a second grammatical or of an adverbial case marking noun phrases in construction with verbs or other lexical relational expressions. However, constraint (18) may turn out to be untenable in its present strict form: there in fact are languages, especially among the modern Indo-Aryan ones, where a single 'oblique' case coexists with a basic 'direct' case and predominantly marks noun phrases in construction with postpositions. To be more precise, the relevant languages (such as Hindi, Urdu, Marathi) usually boast a vocative as a third case, hence do not really have *minimal* case paradigms, and usually retain a few uses, if marginal ones, of the oblique case without a postposition, i.e. in construction with verbs. But regardless of whether or not the empirical evidence available suffices to overthrow (18), the oblique case in the languages potentially threatening to undermine the strict version of this constraint is employed with all postpositions, and is above all employed with the postpositions occurring at clause level rather than only with a single phrase-level attributive adposition. And a diachronic aspect of these somewhat unusual case systems also deserves to be mentioned: they are old rather than new, i.e. are the remnants of earlier richer case paradigms rather than innovations *ex* (morphological) *nihilo*.

Presupposing that a constraint such as (18) can be maintained in perhaps slightly modified form, it follows that a case governed by a single attributive postposition cannot be the first non-basic, marked case in the rise of a case system in any language. If later Modern English nouns had retained the *wife/wive-* type voice alternation with the attributive marker as well as with the plural, English would have innovated the very kind of minimal case system disallowed by this universal constraint. This innovation in English would have come about, not by the creation of some new formal device, but by the retention of a previously existing form alternation of noun stems. Given a constraint such as (18), it is understandable that this voice alternation was selectively levelled in the Elizabethan period: it was at this time that the word-marking genitive suffix had been re-analysed as a post-positional marker of attributive phrases that was no longer bound to noun stems. (Within the context of this paper it is instructive to see that Kelkar 1959:138, in his careful attempt to separate genuine cases from other kinds of relation coding in Marathi, wonders whether it might not be preferable to analyse oblique noun forms as grammatically conditioned allomorphs of direct noun forms rather than



as proper case forms syntactically governed by postpositions. This (in my opinion questionable) move would eliminate potential counterexamples to the minimal-case-system constraint (18) while saddling the word-internality constraint on the conditioning of allomorphy with new problems.)

A constraint such as (18) is no more than a descriptive generalization with (ideally) universal scope. As such, it serves the purpose of explaining, in some sense, why particular languages have the minimal case systems they have rather than any others, and of course also why they cannot innovate such conceivable alternative case systems. Ultimately one would wish to be able to explain such descriptive generalizations themselves. To indicate at least where to head for, this higher-level explanation of (18) presumably would have to focus on the functional basis underlying the formal distinction of casual and adpositional relation coding. Typically, adpositions are less systematically grammaticalized than cases, and have more specific relational content of their own compared to cases. Consequently, adpositions are predestined to encode the semantically more specific and more diversified relations of noun phrases outside the valency of verbs and other lexical relational expressions, whereas cases, while not excluded from the same domain, preferably encode the semantically less specific and less diversified valency-bound syntactic relations whose specific semantic content is supplied by verbs and other elements from the lexical fund. Adpositions may encode the valency-bound syntactic core relations of subject and object and perhaps attribute only if languages dispense with morphological case marking altogether; but if cases and adpositions coexist in a language, it is cases rather than adpositions which are employed with the core relations. If noun phrases take case marking when occurring in core relations governed by verbs and other lexical expressions, they will also do so when in construction with adpositions in syntactically more peripheral relations, even if this dual grammatical relation coding on single noun phrases would seem redundant (unless several adpositional cases may contrast). These two relation-coding devices may be employed redundantly as long as at least one of them has uses where it is not redundant. But to create and preserve a grammatical coding device that cannot be employed but redundantly - such as a morphological case marker co-occurring exclusively and non-contrastively with adpositional relation markers -, would seem to be too uneconomical a step to take under normal linguistic circumstances.

The pattern that was primarily at issue in this paper, the alternation of stem-final voiceless and voiced fricatives of English nouns, admittedly is a minor and rather peripheral one, situated at the margins rather than the core of English grammar. But it is this marginality which renders it so instructive from the point of view adopted here, which aims to bring cross-linguistic generalizations to bear on structural regularities of particular languages. Usually only the *major* patterns of particular languages - for instance, general word order patterns, the overall morphological make-up, relational organization - are foregrounded within this comparative perspective. What I hope to have demonstrated with the present case study is that *minor* patterns of individual languages, and very marginal ones indeed, may likewise be determined by general, typological or universal, principles. However minor and peculiarly Modern English the pattern primarily discussed here and its development may seem, they can only be understood, or explained, in terms of universal constraints on morphological or rather syntactic structures - that is, by looking beyond English.

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