

NATURALNESS, MARKEDNESS AND THE PRODUCTIVITY OF THE  
OLD ENGLISH *A*-DECLENSION

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1. Introduction and aim

The purpose of this paper is to investigate the reasons why the Old English *a*-declension<sup>1</sup> of nouns eventually became the only productive one in the later history of the language, as is demonstrated by the present-day Standard English default plural marker *-(e)s* (< OE *-as*, the nominative/accusative plural of that inflectional class). I will argue against the idea that analogy is sufficient to cover all the changes which took place in the long-drawn-out process which eventually led to the present situation. I will also claim that, in order to be satisfactory,

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<sup>1</sup> It is only for the sake of convenience that I retain the division into the traditional classes (*as*, for instance, in Campbell 1959), which is based on the Proto-Germanic classification, although its functionality in Old English was extremely limited. In fact, I share Krygier's criticism, in particular the fact that the traditional framework "offers nothing new for the analysis of Old English inflections and its only advantage lies in its purely didactic applications" (1998: 123). He rightly suggests that "alternative models should be sought" (1998: 123) using different criteria which "have to reflect changes in productivity of various declensions" (1998: 124). However, his claim that "the only viable choice lies in the selection of inflectional endings for this purpose" (1998: 124) does not seem very clear – unless he takes for granted the existence of implicative relations on which paradigms are based – since the widespread extension of a few individual inflectional markers (the so-called 'superstable markers', e.g., *-as*, *-es*) beyond their etymological class and the considerable ambiguity of many of them (e.g., *-e*) make this criterion hardly reliable. Clearly, what we need are implicative patterns, as claimed, for instance, by Wurzel: "Die Flexionsparadigmen werden durch die Implikationen gleichsam zusammengehalten. Es gibt (außer ganz extremen Fällen von Suppletion) keine Paradigmen, die nicht auf der Basis von über das Einzelwort hinaus geltenden Implikationen aufgebaut sind" (1984: 118 [The inflectional paradigms are kept together by implications. There are no paradigms (except highly extreme cases of suppletion) that are not based on implications valid beyond the individual word]).

our analysis must provide an explanation of the phenomena it investigates rather than simply suggest labels to describe them. In order to propose an explanation of the changes under consideration I will have recourse to Naturalness Theory (in particular to morphological naturalness as developed by Mayerthaler and Wurzel) and to Markedness Theory.

## 2. Analogy as a label

According to traditional handbooks, the device through which the Old English *a*-declension progressively increased its lexical stock is definitely analogy, that is, its unexplained capability to attract words from the other classes, which consequently lost words as a consequence of their equally unexplained weakness.

### 2.1. Some remarks on analogy

First of all, analogy can be understood as paradigmatic regularization, as claimed, for instance, by Saussure, who wrote, "L'analogie s'exerce en faveur de la régularité et tend à unifier les procédés de formation et de flexion" (1916 [1968]: 222 [Analogy acts in favour of regularity and tends to unify the processes of word formation and inflection]). In generative grammar, analogy is the "generalization of a rule beyond its proper domain in the grammar of the older generation" (King 1969: 129), which reflects "a universal process of simplification that ultimately goes back to the child's acquisition of grammar" (King 1969: 130), and which can have different shapes, such as restructuring, rule loss, rule generalization, and rule reordering (King 1969: 131).

However, even if analogical changes are superficially based on the application of rules, it should not be ignored, as Esper remarked, that "Rules are products, not of speakers, but of linguists or psycholinguists" (Esper 1973: 200), in the sense that the cases in which average speakers actually formulate rules are very rare. What speakers actually do in analogical changes is to broaden the domain of application of a rule to a context where it has not been used before, and, as Anttila aptly suggested, analogy represents "fundamental generalization, not just mere simplification" (Anttila 1977: 57).

Not surprisingly, however, owing to their conception of language as an isolated system and their concentration on "ideal" speakers only, generativists have inevitably rejected the notion of analogy, but any theory which limits itself to the mere analysis and description of linguistic structures is unable to deal with phenomena such as analogical changes, which belong above all to everyday unguarded speech, as well as to language acquisition, slips of the tongue, etc. As King wrote, "If we accept the weaker interpretation of analogy as something that merely points the direction of possible change, then analogy becomes superfluous because simplification is enough" (King 1969: 133), and consequently

"we reject analogy" (King 1969: 134); but while analogy equals simplification, simplification is not always the result of analogy.

The fact is, as Leed pointed out, that "To say that 'grammar is enough' is to ignore mechanisms (causes, processes, events) and deal only with results (effects, consequences, interpretations of events). It is to ignore the deeper, underlying sources of the native speaker's intuition and deal only with the surface manifestations thereof" (1970: 16-17, n. 15). This is what generative linguists have actually done; as a rule, they have simply compared different stages of a language, totally overlooking the dynamics of change<sup>2</sup> and the relevant underlying mechanisms. As King overtly claimed, "the study of linguistic change is the study of *how* the grammars of language change in the course of time" (King 1969: 39; emphasis added), that is, it is reduced to the mere analysis of surface correspondences with the complete, conscious neglect of actual speakers and usage, the basic features of which are variation and overlapping stages of development which neat and orderly rules of course cannot account for.

### 2.2. Analogy as a diachronic process

It must also be clearly pointed out that analogy is implicitly a dynamic, developmental process, since it is in their evolution over time that languages manifest their "analogical tendencies". Therefore I cannot help agreeing with Esper that "analogical processes are an essential feature both of daily speech and of *historical* extension and change" (1973: 179; emphasis added). On the contrary, Saussure's claim that "L'opposition entre les deux points de vue – synchronique et diachronique – est absolue et ne souffre pas de compromis ... elle est irréductible" (1916 [1968]: 119 [The opposition between the two points of view – synchronic and diachronic – is absolute and does not admit compromise ... it is unbridgeable]), which led him to consider analogy an exclusively synchronic fact ("... elle est tout entière grammaticale et synchronique", 1916 [1968]: 228 [it is totally grammatical and synchronic]), is in my opinion absolutely unacceptable. On the contrary, it is much more reasonable to argue that the distinction between synchronic and diachronic linguistics "seems unfortunate for the study of analogy" (Esper 1973: 179) and, more in general, of language(s), since a strictly synchronic analysis is impossible and conflicts with linguistic reality, which is inherently dynamic and constantly changing.

<sup>2</sup> Bailey prefers "*developmental* to the ambiguous, disputed, and misunderstood terms, *historical*, *diachronic*, *dynamic*, etc." (1980: 45 fn. 2; emphasis original). However, since Bailey himself uses "dynamic" (with reference to "the comparison of variants", 1980: 45 fn. 2), and since it implies the idea of movement, change and development itself, I feel that 'dynamic'/'dynamics' can be safely used.

However, also Saussure's definition of an analogical form as "une forme faite à l'image d'une ou plusieurs autres d'après une règle déterminée" (1916 [1968]: 221; emphasis added [a form made like another one or several other ones according to a determined rule]) has obvious dynamic implications, which unfortunately Saussure himself does not seem to have realized.<sup>3</sup>

### 2.3. Analogy in inflectional morphology

Inflectional morphology seems to be quite commonly affected by analogical changes given the strong paradigmatic cohesion existing there as opposed to the higher rate of allomorphy typical of word formation. Therefore, analogical changes, both as paradigmatic levelling and as extension, as in the case of the Old English *a*-declension attracting nouns from other classes, "verlaufen derart, daß die jeweilige  $\bar{m}$ -Form bzw. das jeweilige  $\bar{m}$ -Formativ gewinnt" (Mayerthaler 1981: 63 [proceed in such a way that the respective  $\bar{m}$ -form or  $\bar{m}$ -formative wins]), which agrees with the theorem of markedness theory " $\bar{m} \rightarrow \bar{m}$ " (Bailey 1977: 8; Mayerthaler 1981: 41).

### 2.4. Analogical class changes in Old English

The traditional, descriptive conception of analogy as the extension of forms into a new environment has been widely used in English historical linguistics.

<sup>3</sup> Starting with Jakobson, Trubetzkoy and the Prague linguists in general, scholars have repeatedly offered convincing arguments for the rejection of merely synchronic linguistic analyses (in this connection, in the last few decades mention can be made of, among the others, Bailey, Dressler and all the proponents of Naturalness theories). I fully agree with their severe criticism since "historical reconstruction, dialectology, and sociolinguistics – all pursuits involving comparison – cannot be carried out synchronically without falling into a contradiction" (Bailey 1980: 45 fn. 2). Blameworthy, of course, is also the "eclipse" into which historical linguistics fell during the structuralist and transformationalist periods (Bailey 1980: 45 fn. 2). It is undeniable in fact that "synchronic linguistics is a chimera" (Bailey 1980: 34), or, rather, that "to treat history as a succession of absolute states is contrary to the logic of the whole enterprise" (Bailey 1980: 45 fn. 3). In addition, both structuralism and transformational grammar have failed to be acceptable theories, not only because their framework and models are static, but also because they lack explanatory and predictive power.

It is also worth underlining, as the above mentioned linguists have often done, that "theory – essentially explanation and prediction – is but a fanciful dream in linguistics if explored in separation from the study of change and development in dynamic analyses", since the latter "provide the basis for explaining already developed linguistic structures and for making theoretical predictions" (Bailey 1977: 7). The rejection, among others, of the myth "entweder Synchronie oder Diachronie" (Mayerthaler 1981: 174 [either synchrony or diachrony]) is one of the basic claims of Naturalness Theory.

In particular, concerning Old English nominal inflection, a few quotations will suffice to illustrate this attitude. In connection with *i*-nouns, Campbell wrote that "In the pl., the OE nom. and acc. in *-as* and the dat. are from the *a*-declension" (1959: 241). In connection with *u*-nouns, he spoke of "the tendency of mascs. to take the endings of *a*-stems, and fems. those of  $\bar{o}$ -stems" (1959: 247); in connection with nouns of relationship, he said that "IW-S analogical forms are g.s. *faederes*, d.s. *faedere*, g.p. *faederena*" (1959: 256). Finally, regarding nouns in *-nd*, he remarked that "The gen. and dat. sg. in *-es*, *-e* are from the *a*-stems" (1959: 257), as well as the ending *-as* of the nominative and accusative plural of disyllables.

In connection with *i*-nouns, Wright and Wright said that "the masculines came to be inflected after the analogy of the *a*-stems in early OE" (1923: 105), and regarding the *u*-nouns they pointed out that a large number of these "passed over entirely into the *a*- and  $\bar{o}$ -declensions respectively in the prehistoric period of the language" (1923: 109); in connection with nouns in *-nd*, they wrote that "The gen. and dat. sing. and the nom. acc. pl. in *-es*, *-e*, *-as* were formed after the analogy of the masc. *a*-stems" (1923: 116). Lastly, they said that the nouns in *-os*, *-es* "formed their gen. and dat. sing. after the analogy of the neuter *a*-stems" (1928: 116). Finally, Hogg wrote, for instance, that "... the *i*-stems lost their separate identity and transferred to the *a*-declension" (1992: 132), and that the nouns belonging to minor consonantal declensions showed "a strong tendency to transfer to the *as*-plurals [that is, the *a*-declension – AB]" (1992: 137), as is shown, for instance, by forms like *fædras* 'fathers'.

As is self-evident, these quotations do not say anything about the systemic reasons which triggered changes and, even more relevant, they totally ignore to investigate the underlying principles determining their direction. In the following sections, I will try to provide an explanation of both issues applying some fundamental tenets of Natural Morphology (NM), in particular the concept of productivity.

### 3. Productivity in Mayerthaler's theory

Mayerthaler remarks that in traditional linguistics the term 'productivity' is often synonymous with 'quantity' and claims that "'Produktivität = Anzahl' zum Bereich 'linguistische Mythen' zählt" (1981: 125 ['productivity = quantity' belongs to the category of "linguistic myths"]). He agrees with Aronoff that 'productivity' has something to do with the probability of a word being part of the active vocabulary of a speaker (Mayerthaler 1981: 126), or, in other words, that productivity is to be equated with 'potentiality' rather than with 'actuality'. Significantly, Mayerthaler takes into consideration word formation rules, to which he applies Fregean principles, but when inflectional morphology is considered,

different principles may be needed, and even quantitative evaluations can be totally acceptable.<sup>4</sup>

In addition, Mayerthaler claims not only that “natürlich ≠ normal” (1981: 134 [‘natural ≠ normal’]), but also that “Natürlichkeit darf nicht mit L<sub>i</sub>-spezifischer Normalität bzw. Systemangemessenheit gleichgesetzt werden” (1981: 133 [Naturalness must not be equated with L<sub>i</sub>-specific normality and system adequacy]); in this connection he suggests an interesting comparison: “‘Natürlichkeit’ entspricht der autonom konzipierten, idealen ballistischen Flugkurve; L<sub>i</sub>-Normalität der umweltsensitiven, faktischen” (1981: 134 [‘naturalness’ can be compared to the independently conceived, ideal ballistic flight curve; L<sub>i</sub> normality to the environmentally sensitive real one]), and at the end of his section on productivity he remarks that “‘L<sub>i</sub>-Normalität’ wirkt dermaßen negativ auf ‘Produktivität’ zurück” (Mayerthaler 1981: 134 [‘L<sub>i</sub> normality’ has a negative effect on ‘productivity’]).

### 3.1. Some flaws of system-independent morphological naturalness

Some of Mayerthaler’s claims, however, seem to be empirically unsatisfactory. For instance, they do not help us to understand why, in a specific language at a particular time, one inflectional class is productive while another one is (or the others are) not. His statement that “Zugleich scheinen ik. Operationen im allgemeinen zu den produktiven Prozessen einer Einzelsprache zu gehören bzw. gegenüber weniger ik. Konkurrenten im Laufe der Zeit die Oberhand zu gewinnen” (1981: 131 [iconic operations seem to belong in general to the productive processes of an individual language and to gain the upper hand in the course of time vis-à-vis less iconic opponents]) unfortunately cannot explain the case under discussion.

It is well-known, in fact, that in Old English nominal inflection other classes besides the *a*-declension had iconic plural marking of the nominative/accusative plural. One of these was, for instance, the *u*-declension, as exemplified by the masculine nouns of the type *feld* ‘field’ vs. *feld-a* ‘fields’ (or even *sun-u* ‘son’ vs. *sun-a* ‘sons’, in which, according to the universal scale of sonority, the plural marker /a/ is more sonorant – and therefore more perceptible – than the singular

<sup>4</sup> In this connection, it is interesting to note how easily these “linguistic myths” can be generated. For instance, Hogg writes that the Old English *a*-declension “was probably the most important declension, containing about one-third of the nouns in the language” (1992: 127), from which he comes to the (unfortunately rather simplistic) conclusion that “As such it had the power to attract other nouns towards it” (1992: 127). As we will see later, although quantity is highly relevant in this connection (see, e.g., fn. 6 below, as well as the principle “the rich get richer and the poor get poorer”, which Donegan applies in phonology (1978: 67, and *passim*) and which can reasonably be applied also to the historical changes in English inflectional morphology under consideration), many more factors than mere quantity were involved.

/u/). Similar considerations apply to the feminine nouns of the same class: e.g., *dur-u* ‘door’ vs. *dur-a* ‘doors’, *hand* ‘hand’ vs. *hand-a* ‘hands’, etc. Also the weak declension and the descendants of the old Indo-European stems in *-os*, *-es* such as *lamb* ‘lamb’ (nom./acc. pl. *lamb-ru* ‘lambs’), etc. had iconic plural encoding. Quite obviously, other factors must have been relevant.

### 3.2. Productivity in Wurzel’s theory

In Wurzel’s theory (1984: §§ 4.5-4.7), an inflectional class is defined productive if:

- i) it can acquire new words, that is, native neologisms as well as borrowings from other languages;
- ii) it can attract words from other inflectional classes;
- iii) it does not lose words to other inflectional classes.

#### 3.2.1. Productivity and class stability

Although it is clearly distinct from it, productivity is partly based on class stability. Moreover, class transitions take place only among complementary classes, that is, transfers of lexical items from one inflectional class to another are based on common extramorphological properties of the basic form of words (see fn. 7). The same properties determine the assignment of neologisms to inflectional classes, and implicitly determine constraints on such assignments. Clearly this amounts to saying that there is no absolute productivity. It must also be pointed out that in principle productivity holds if the class is system-congruous, and, obviously, that a class is productive as long as there are words with exactly the extramorphological properties required for assignment to it. As far as Old English is concerned, class transfers were commonly based on gender (although in some cases, as we will see later, also the phonological shape of words seems to have been relevant). The early merger of the feminine nouns of the *i*-declension with nouns of the *ō*-declension (“the first real class merger” (Hogg 1992: 134)) is just one example of this.

#### 3.2.2. Loss of productivity

On the other hand, loss of productivity of a stable class – and its eventual diachronic elimination – is brought about by changes in the system-defining structural properties. A typical example (illustrated in Wurzel 1984: 158-159) is the case of kinship nouns (or *r*-nouns) in some old Germanic languages. In spite of the small number of words belonging to it (only five nouns of relationship), the class was retained in Old Icelandic because, among other things, it distinguished ‘singular’ from ‘plural’, a fundamental feature for non-neuter nouns. On the contrary, the Old High German (originally stable) class underwent changes in both number and case distinctions which made it one of the least system-con-

gruous inflectional classes of the language; as a consequence, it lost its productivity through the complete (gender-based) transition of its words to the productive *a*-declension and *ō*-declension, and eventually it completely disappeared from the language. Roughly, similar considerations apply also to Old English, where, for instance, nom./acc. pl. *fæd(e)ras* and *\*mōdra* are clearly modelled on the *a*-declension and *ō*-declension respectively.

### 3.2.3. Productivity and system-congruity

It is obvious, therefore, that productivity results from both class-stability and system-congruity. However, if a conflict between the two arises the latter will prevail, system-congruity being more highly valued than the stability of an inflectional class.<sup>5</sup> In other words, as Wurzel remarks, "Produktivität ist demnach keine primäre, sondern eine abgeleitete Grösse, ein 'Oberflächenphänomen'" (1984: 159 [Productivity is therefore not a primary but a derived parameter, a 'surface phenomenon']). As a derived parameter, it is however very important as an index of both the stability and the system-congruity of an inflectional class.

### 3.2.4. Actual productivity

The role of productivity as an index of such relevant aspects of the inflectional morphology of a language is fundamental also as far as the direction of morphological processes is concerned. Transfers of words from one inflectional class to another, as well as the integration of neologisms and loanwords into a specific class, are the actual means by which the potential productivity of a class materializes. Clearly, these phenomena are not random; indeed, they are definitely determined by productivity criteria, which therefore determine the diachronic direction in case of levelling and adaptation.

## 3.3. Wurzel's primary and secondary productivity

To sum up, in Wurzel's theory productivity is determined without reference to system-independent naturalness, over which it prevails, and in spite of which it determines the direction of change. Moreover, according to Wurzel (1984: §§4.5-4.6) we can distinguish between primary productivity and secondary productivity.

### 3.3.1. Primary productivity

The former applies to all those cases in which the assignment of lexical items to an inflectional class is automatic (or "default"), since the extramorphological

<sup>5</sup> Indeed, according to Wurzel "the principle of system adequacy is the strongest morphological principle whatsoever" (1998: 69).

properties of the words (e.g., semantic properties, phonological structure, grammatical gender, etc.) conform exactly to those which characterize that class. For instance, when *hete* 'hate' and other nouns originally belonging to the class of nouns in *-es, -os* were transferred to the *i*-declension in early Old English, such a change was above all supported by the phonological shape of these words. As neuters, they could also have been assigned either to the *a*-declension – but its neuters ended in a consonant – or to the weak neuters, a tiny but "solid" group consisting of only three lexical items, that is, *ēage* 'eye', *ēare* 'ear', and *wange* 'cheek', clearly associated by the semantic property 'part of the body', and consequently unsuitable for the class of the old nouns in *-es, -os*.

### 3.3.2. Secondary productivity

Secondary productivity, on the other hand, refers to the integration of words which have to be phonologically, semantically or syntactically adapted in order to meet the extramorphological properties of the class into which they are accepted. It. *brioscia*, for instance, is a loanword from French (*brioche*), initially taken over in its original phonological shape (and in some idiolects still /briɔʃ/), but which has later been adapted to comply with the phonological structure of Italian; as often happens with nouns, however, it has retained its original grammatical gender. Of course, several inflectional classes of a language can be stable; in this case, loanwords are usually assigned to the most stable one (for the integration of loanwords in Old English, see §4.0.iii).

## 4. Reasons for the productivity of the Old English *a*-declension

We are now in a position to examine the reasons why the Old English *a*-declension had the dominant paradigm structure conditions and was therefore the most productive of all.

i) First of all, it included over 50% of the nouns in the Old English lexicon (Quirk – Wrenn 1957: § 25), and quantitatively preponderant classes are inevitably more "normal" than the others.<sup>6</sup> Also in connection with analogy, quantitative relationships seem to be relevant, and I agree with Thomason's claim that, *ceteris paribus*, "forms or sets of forms that occur in greater numbers or with greater frequency will be analogical models rather than victims" (Thomason 1969, cited in Esper 1973: 197).

<sup>6</sup> In Wurzel's model of Natural Morphology, "Normalität von Flexionsklassen bzw. Dominanz von Paradigmenstrukturbedingungen bedeutet also nichts anderes als deutliches quantitatives überwiegen von Flexionsklassen gegenüber anderen" (1984: 127 [Thus normalcy of inflectional classes or dominance of paradigm structure conditions is based entirely on the relative size of the classes in question]).

Clearly, this quantitative preponderance of the *a*-declension (or of an inflectional class in general) is to be understood in terms of 'type frequency' rather than of 'token frequency' or frequency in texts of words belonging to it (Wurzel 1984: 130, fn. 15).

ii) Except for a few *ia*-nouns (e.g., *ende* 'end', *wīte* 'punishment', etc.), the *a*-declension already had word-based inflection (e.g., *stān* 'stone' //stān/<sub>BF/N</sub>), which is morphosemantically and morphotactically more transparent than stem-inflection (e.g., *guma* 'man' //gum/<sub>Si</sub>a/<sub>BF/N</sub>);<sup>7</sup> the former is clearly more advantageous, since "Morphotactically more transparent sign combinations are easier to process and to separate into their constitutive elements" (Dressler 1985: 319). Noticeably, this has remained the only productive type of inflection (also with verbs and adjectives) in the language, and bears out the prediction that "morphotactically more transparent rules will be more productive than less transparent rules within a given language" (Dressler 1985: 318).

Another relevant fact is that from the semiotic point of view words are primary signs, hence more salient than stems, which, as bound morphemes, are secondary signs; therefore word-based inflection is semiotically more highly valued.

iii) Loanwords accepted into the language in the Old English period (see Campbell 1959: §§519-565) confirm the productivity of the *a*-declension. For instance, masculine and neuter nouns of the Latin second and fourth declensions usually fell into the OE *a*-declension (e.g., *s(e)alm* 'psalm', *decan* 'dean', *engel* 'angel', *disc* 'dish', *wīn* 'wine', etc., from Latin *psalmus*, *decānus*, *discus*, *vīnum*); only few of them were integrated into the weak nouns (e.g., *crystalla* 'crystal', from Lat. *crystallum*). Also neuter nouns of the Latin third declension like *alter* 'altar', *pipor* 'pepper', etc. (Lat. *altar/altāre*, *piper*) and masculine ones like *munt* 'mountain' (Lat. *mons*) were integrated into the *a*-declension, which even accepted the feminine *torr* 'tower' (Lat. *turris*).

As these examples demonstrate, the adoption of these loanwords by the *a*-declension was usually determined by their grammatical gender. However, even if this extramorphological property would have allowed these lexical items to be integrated into two or more complementary classes, they actually fell into the stable, system-congruous *a*-declension, that is, they received unmarked class as-

<sup>7</sup> As Wurzel aptly remarks, in the lexicon of a language base forms are stored rather than stems since "the properties of base forms including their flexives and not those of stems determine the inflection-class membership of words" (1990: 204), a claim that Wurzel has recently reiterated: "Lexemes are represented in the lexicon as concrete base forms" (1999: 257). Mayerthaler's point of view is very similar, as can be seen from his statement that "Eine morphol. Regel hat ausschließlich Zugang zu Information, die in ihrer Basis enthalten ist" (1981: 132 [A morphological rule has access exclusively to information contained in its base]).

signment. As far as their lexical representation is concerned, just as all the words belonging to that class or transferred to it from others, these loanwords did not have an explicit inflectional class specification. This means that inflectional class membership is specified only for those lexical items which have a marked class assignment, that is, "the specification of inflectional class in minimalistic" (Wurzel 1999: 259) and follows the default principle. Lexical complexity was thus reduced, in the sense that the implicit application of the dominant paradigm meant that the speakers did not have to learn whether and in what way these lexical items deviated from it.<sup>8</sup>

Of course there were foreign lexical items which were not assigned to the *a*-declension, but these cases are easy to explain, and as a matter of fact they cannot even be considered exceptions. In Old English, nouns of the Latin first declension, which were mostly feminine, were integrated either into the *ō*-declension (having only feminine nouns in Old English), e.g., *cylen* 'kiln', *straet* 'street' (from Lat. *culīna*, *strāta*), etc., or into the weak declension, e.g., *albe* 'white garment' (Lat. *alba*), etc., the *a*-declension having only masculine and neuter nouns.

As far as loanwords from Celtic languages are concerned, *dr̄y* 'magician' (Old Irish *druī*) was assimilated into the masc. *i*-declension, obviously owing to its phonological structure, while masc. *assa* 'ass' (< Old Welsh \**assen*) was nativized as a masculine weak noun. Gender would have allowed it to be absorbed into the *a*-declension, but as a rule nouns of that class ended in a consonant (except for a few *ia*- and *ua*-nouns ending in *-e* or *-u* respectively), whereas a considerable number of weak nouns ended in /a/; moreover – and this may have been even more relevant – *assa* fell in with many other words designating animals, such as *apa* 'ape', *bera* 'bear', *bucca* 'buck', *dogga* 'dog', *frogga* 'frog', *hara* 'hare', *oxa* 'ox', *spearwa* 'sparrow', etc., all of which were weak nouns.

All these aspects of the integration of foreign loanwords undoubtedly confirm that morphological and extramorphological properties are strictly linked in the inflectional morphology of a language.

iv) With the exception of a few neuter nouns (e.g., *word* 'word', *tungol* 'star', *cynn* 'race'), the *a*-declension was the only one in which there was no syncretism of the nominative/accusative plural with other cases, whereas in all the other declensions the nominative/accusative plural forms coincided more or less exten-

<sup>8</sup> A case in point are Italian nouns in *-a* (mostly feminine), which have a default plural marker *-e* (as, e.g., *cas-a* 'house', pl. *cas-e*). However, masculine nouns belonging here (e.g., *poeta* 'poet', *profeta* 'prophet', etc.) have *i*-plural (*poet-i*, *profet-i*, etc.), and this has to be specified in their lexical description. As a consequence, speakers have to know not only that these lexical items deviate from the *e*-plural, but also that their plural marker is *-i*.

sively with other inflectional markers, with the consequence that they were often highly ambiguous and that the opposition between singular and plural was often blurred.

v) Last but not least, as we have seen above (§2.4), the Old English *a*-declension was the target of transfers from other inflectional classes.

Obviously it is the dominant paradigm structure condition – that is, the paradigm of the class which, being quantitatively predominant in the system, is definitely more “normal” than the others – that brings about the transition of words from one inflectional class to another and that, more important, determines the direction of transfers (Wurzel 1984: 133). In fact, lexical items are transferred from unstable and stability-indifferent classes towards stable ones, but not the opposite way round. Metaphorically, thus, an unstable class can be seen as a *locus minoris resistentiae* in the system; as such it is bound to be diachronically eliminated.

It is undeniable that such massive changes affect lexical items gradually. As Bailey argues, “morphological rules affect lexical items in the diffusionist manner” (1977: 24), even if, as Bailey himself underlines, “implicational relationships among the changes which obtain in all subgroups of speakers” (1977: 24) are not precluded.

This closely resembles what happens in phonology, where phonological changes proceed on a word-by-word basis (cf. Wang’s “lexical diffusion”, 1969: §3).<sup>9</sup> Consequently, as contemporary (even Standard) English shows to a large extent – not to mention earlier stages of English historical phonology – “in any living language, we should expect to find several sets of morphemes with dual pronunciations” (Wang 1969: 15). Similarly, in inflectional morphology different lexical items, even those belonging to the same inflectional class, are affected “individually” by class changes, with the consequence that “residue” will inevitably be present in the dynamics of language reality. Of course, not only sociolinguistic factors have a role in bringing about lexical diffusion and residue; strictly linguistic factors too are to be taken into account in this connection: consider, for example, present-day English *wound* (past tense and past part. of *to wind*) with /aʊ/, that is, the reflex of ME /u/, irregularly diphthongized in this phonetic context owing to morphological analogy with strong verbs of the same class (e.g., *found*, *bound*, etc.), as opposed to *wound* (noun) with the (“regularly”) undiphthongized reflex of ME /u/. Presumably, this is what happened also during

<sup>9</sup> For the inconsistent application of phonological processes “on a lexical item by lexical item, ‘patchy’ basis” in English historical phonology, see Jones (1989: 289 and *passim*), and Labov (1994, especially 526-531). For the phonetic motivation in lexical diffusion, see Trudgill (1986: 58-61).

the Old English period, when the individual lexical items etymologically belonging to different inflectional classes were steadily transferred to the *a*-declension.

Finally, mention must be made of the fact that these changes show overlapping stages of development between the first instance of the innovation in one speaker’s *parole* and its eventual acceptance into the *langue* (i.e.  $A > Ab > AB > aB > B$ , where the “pure” *A* stage is progressively and inexorably tinged with *B*-quality until it disappears from the system). Similarly, in our case some (conservative) speakers probably continued to use the original paradigm (for instance, the *i*-class paradigm for *wine* ‘friend’), while more advanced ones already used the innovative inflection according to the *a*-class paradigm; yet others probably used both, switching from the *a*-declension to the *i*-declension according to the sociolinguistic context.

#### 4.1. Class transitions and lexical representation

Naturally, class transitions cause changes in the lexical representation of words. When, during the Old English period, the *a*-declension attracted words from other inflectional classes, given its status of regular (or “regular-unmarked”, Wurzel 1990: §1) class in the inflectional morphology of the language, the naturalness of the latter as a whole was improved. In fact, less “normal”, unstable classes were quantitatively reduced, and consequently became more and more unstable; eventually they were eliminated, whereas the lexical stock of the quantitatively dominant (as well as productive) class was gradually increased. Metaphorically, it can thus be suggested that the *a*-declension was a sort of “magnet” or “attractor” for the lexical items of other inflectional classes, with the consequence that it became larger and larger, the others smaller and smaller.<sup>10</sup>

According to the default principle, membership of words in the unmarked class is the normal situation; consequently, the lexical items which were trans-

<sup>10</sup> Mayerthaler remarks that in catastrophe theory an attractor “is a structurally stable minimum characterized by the function  $f(x) = x^2$ ” (1987: 55), which can be represented by a valley attracting water or a ball (1987: 55, fig. 6). Similarly, we can conceive of the Old English *a*-declension as a “valley” attracting lexical items because, in mathematical terms, “Maxima of naturalness scales, i.e. maximally natural parameter fixations (relative to a scale *S*) are mathematical minima of catastrophe theoretical attractors” (Mayerthaler 1987: 55). On the contrary, “naturalness theoretical minima represent mathematical maxima or repellers defined by the inverse function  $f(x) = -x^2$ ” (Mayerthaler 1987: 55), and corresponding to a negative parabola (Mayerthaler 1988: 56, fig. 7), which can be visualized as a mountain repelling water or a ball; such were all the other inflectional classes.

It is obvious, however, that in the case of an inflectional class attracting lexical items (as well as in all other cases of attractors in languages) the unpredictability of sociolinguistic factors makes it impossible to predict whether or when ‘the valley will be filled completely’. Significantly, in our case the default *s*-plural still has not attracted all the nouns existing in the language. What can be safely predicted, however, is that a certain class (or, as in present-day English, a particular inflectional marker) will be an attractor while others will be repellers.

ferred to the *a*-declension, being inflected according to the dominant paradigm structure conditions, lost any specification in their lexical representation regarding inflectional class membership.<sup>11</sup>

For instance, the word *wine* 'friend' had the specification [+ *i*-DECLENSION] in its lexical description; this meant not only the obvious (explicitly stated) application of the paradigm-structure conditions of the *i*-declension, but also – (logically) prior to that – the implicit blocking of the application of the dominant paradigm structure conditions of the *a*-declension. However, when in early Old English *wine* came to be inflected as a noun of the latter inflectional class – that is, it acquired the dominant paradigm structure conditions – the feature referring to inflectional class membership was eliminated from its lexical description. In this way, the application of the “normal” class paradigm was no longer blocked.

In other words, in the absence of an explicit specification of inflectional class, speakers automatically apply the dominant paradigm. On the contrary, when this is not applied they have to learn in what way a word differs from the default paradigm, and this is just the function of the specification of inflectional class in the lexical description of words.

#### 4.1.1. Class changes and markedness reduction

As I have already pointed out (Bertacca, forthcoming), the transfer of a lexical item from one inflectional class to another is essentially an iconic process. In fact, the change in the lexical specification of a word, e.g., *wine* 'friend' (*i*-declension), from

$$(1) \quad //win/_{St}e/_{BF/N} \text{ [nom./acc. pl.]} \rightarrow -e$$

to simply

$$(2) \quad //win/_{St}e/_{BF/N}$$

on the model of *stān* (unmarked *a*-declension), resulted in the lexical specification of *wine* being a diagram of that of *stān* as far as inflectional class membership is concerned. It is thus clear that this change in the lexical specification

<sup>11</sup> Wurzel writes, “Jeder im Laufe der Sprachgeschichte sich vollziehende Übertritt von einer instabilen in eine stabile Komplementärklasse ... bedeutet einen Sieg der jeweils dominierenden Paradigmenstrukturbedingung, d.h. den Abbau einer Blockierung im Lexikon” (1984: 132 [Every transition from an unstable to a stable complementary class taking place in language history ... means a victory of the dominant paradigm-structure condition, that is the elimination of a lexical blocking]). It was through similar inflectional class changes that the Old English *a*-declension progressively became by far the most stable class in the whole system and, being system-congruous, also the most productive of all.

considerably increased the naturalness status of *wine*, since, according to universal semiotic principles, the more iconic a sign is, the more natural it is.

Consequently, through changes of this type the naturalness of the inflectional morphology of the language was increased and markedness reduced. More precisely, changes of this type, which are “generated from within [the system – AB] rather than through borrowing from without” (Bailey 1977: 10) can be characterized as natural or “unmarked” (Stein 1989: 82); as a rule, they first occur in unguarded speech or in slips of the tongue, and can be formalized as in (3):

$$(3) \quad \overset{>}{m} \rightarrow \overset{<}{m}$$

which can be read as ‘what is more marked tends to change to what is less marked’. Bailey calls it “the principle of *change*” (1977: 8; emphasis original), and Mayerthaler defines it as “local markedness reduction or developmental pattern” (1987: 50).

In other words, as Stein argues, “a statement that the state of grammar of a language at a given time is marked implies that there is diachronic directionality towards unmarking” (1989: 67). This direction towards less markedness is typical of natural, internally triggered change; however, owing to the well-known tendency of each component of grammar to increase its own naturalness, markedness reduction on one level (any natural change being “a local optimization” (Mayerthaler 1987: 51)) usually brings about markedness increase on another. In particular, morphological change is often phonologically induced; Wurzel underlines “the continuous influence of phonology on morphology” (1987: 66), and Mayerthaler points out that “sind Phonologie und Morphologie fast nie simultan optimierbar: Der Effekt der Phonologie ist – abgesehen von einigen Ausnahmen – kontramorphologisch (Allomorphie, Flexivverlust etc.)” 1981: 43 [phonology and morphology are almost never simultaneously optimizable: the effect of phonology is – apart from a few exceptions – counter-morphological (allomorphy, inflectional loss, etc.)], and adds that “phonologischer Wandel häufig zu Störungen des k. Ik. führt” 1981: 43 [phonological change often leads to constructional iconism disturbances]). It is therefore not surprising that a language or, more in general, a language type “sacrifices”, as it were, the naturalness of some parameters for the sake of greater naturalness in other parameters” (Dressler et al. 1987: 11).

The opposite direction – towards more markedness – characterizes “unnatural” (Bailey 1974: §3) or “marked” (Stein 1989: 82) changes, that is, those which are brought about by external borrowing. As such, they depend on highly unpredictable sociolinguistic factors, and therefore are unavoidable and far from uncommon; yet, their role in linguistic evolution is considerable, since “new systems can only come into being through interlingual contact” (Bailey 1977:



10). Consequently, "To leave this out of consideration would be to deprive the theory of language of something essential" (Bailey 1977: 10).<sup>12</sup>

#### 4.2. Some remarks on markedness

As far as markedness is concerned, it is fundamental to underline that 'featured' (German *merkmalhaft*) and 'featureless' (German *merkmallos*), which are mere "Beobachtungsprädikate" (Mayerthaler 1981: 9 [observation predicates]), are to be absolutely distinguished from 'marked' (German *markiert*) and 'unmarked' (German *unmarkiert*), which on the contrary are "Evaluationsprädikate" (Mayerthaler 1981: 9 [evaluation predicates]).<sup>13</sup> Therefore, using the unambiguous German terms, we can say that "merkmallos ≠ unmarkiert" (Mayerthaler 1981: 9 [featureless ≠ unmarked]) and "merkmalhaft ≠ markiert" (Mayerthaler 1981: 9 [featured ≠ marked]). Moreover, while 'm' values (that is,  $\overline{m}$  and  $\overline{m}$ ) depend on semantic and symbolization values, and therefore imply comparison, 'featured' or 'featureless' are normally used as simple labels of a dichotomous formal symbolization of morphosemantic values. In particular, when applied to the case of the Old English lexical items exemplified above, markedness refers to the complexity which characterized particular lexemes as opposed to the simplicity (unmarkedness) of others, that is, "complexity pertains to the assignment of words to inflectional classes" (Wurzel 1989: 232), and not to inflectional classes themselves.<sup>14</sup>

To clarify what markedness means in this context, a comparison with phonology is not out of place. For instance, nasalized vowels are not marked *sic et simpliciter*, but rather with specific reference to the feature [+nasal] in opposition to the vowels characterized as [+oral], which are therefore unmarked in this connection. Similarly, in the inflectional morphology of Old English, the lexical items which did not follow the *a*-declension paradigm were marked (=  $\overline{m}$ ) with

<sup>12</sup> The claim that "Social factors are constitutive for language" (Dressler et al. 1987: 12) is one of the basic tenets of Naturalness Theory; these factors belong to the set of extralinguistic bases which has to do with the communicative function of language. However, as the same authors unambiguously point out, this does not mean the "total reduction of linguistic facts to extralinguistic facts that determine them, because extralinguistic facts *only* constrain the possibilities of universal language faculty" (Dressler et al. 1987: 12; emphasis added).

<sup>13</sup> Wurzel has gone so far as to claim that "markedness principles form a specific class of language universals which may be characterized as evaluation universals" (1998: 69-70).

<sup>14</sup> Wurzel unambiguously points out that "inflectional class markedness does not mean 'markedness of the inflectional class as such' but 'markedness of words with respect to their inflectional class membership'. Inflectional class markedness is a lexical property of individual words" (1989: 233). However, since there are also marked inflectional classes, the phrase *per se* (as used in the title of Wurzel's paper) is potentially subject to ambiguous interpretations. Consequently, it would perhaps be better to replace it with "lexical markedness", which definitely refers to a lexical property of individual lexemes.

reference to the specification of the inflectional class they belonged to. On the contrary, as we have seen above, membership of items in the dominant *a*-declension (=  $\overline{m}$ ) was not indicated in their lexicon; clearly, this resulted in an easier characterization of these items, owing to their unmarked inflectional class assignment. It is for this reason that we speak of markedness (as complexity) of the former and, on the contrary, of unmarkedness of the latter. This amounts to saying that in this context markedness merely refers to a lexical property of each individual word; there are in fact no apparent reasons why we should generically say that, for example, *wine* was a marked lexical item.<sup>15</sup>

This explains why in Old English, as has been mentioned above (§4.iii), loanwords which, on the basis of their extramorphological properties, could have been assigned to different complementary classes as a matter of fact were assigned to the *a*-declension, which required no explicit inflectional class specification in the lexicon of its words. This typically occurs when words which could belong to two or more inflectional classes as a rule are members of the class with the largest number of lexical items.

#### 4.3 The preference for Wurzel's theory

Finally, a few remarks are needed to explain the reasons why, when specific instances of change are taken into account, I feel inclined to prefer Wurzel's theory of system-dependent morphological naturalness to Mayerthaler's theory of system-independent morphological naturalness,<sup>16</sup> although the two are clearly not opposed to each other but rather complementary.

If we take number encoding as an example, Mayerthaler claims that, according to system-independent semantic markedness values (that is,  $\overline{sem}$  <singular, plural>), the iconic encoding of plural is preferred to non-iconic or, even more so, to counter-iconic encodings. Thus, for instance, *boy-s* is more natural than the non-iconic (i.e. "marked" because featureless) plural form *sheep*; consequently, regarding inflection, *sheep* is marked while *boy-s* is not. However, both English *boy-s* and *ox-en* are natural plural forms since they are more featured than the respective singular forms;<sup>17</sup> consequently, Mayerthaler's "starke Ausprägung" (1981: 23 [strong expression]) of constructional iconism:

<sup>15</sup> As Wurzel has recently remarked, "There is no 'markedness as such', and the statement 'G; is marked' is either an abbreviation or simply meaningless" (1998: 65).

<sup>16</sup> Of course this does not suggest any disrespect for such a distinguished scholar as Mayerthaler.

<sup>17</sup> In particular, they are "segmental-additiv" [segment-additive], a subtype of "additiv merkmalhaft" [additive featured] (Mayerthaler 1981: 24).

(4) "Gilt  $\text{sem} \langle K_i, K_j \rangle$ , so liegt die starke Ausprägung vor gdw.  $K_i \rightarrow \emptyset$   
 $K_j \rightarrow -\emptyset$

d.h. wenn  $K_i$  merkmellos und  $K_j$  merkmalshaft symbolisiert/kodiert wird"

[If  $\text{sem} \langle K_i, K_j \rangle$ , then the strong expression is  $K_i \rightarrow \emptyset$   
 $K_j \rightarrow -\emptyset$

that is, when  $K_i$  is symbolized/coded as featureless and  $K_j$  as featured]

can be applied to both instances. Indeed, from the point of view of constructional iconism, the *-en* plural encoding in *ox-en* is even more featured than the *-s* in *boys* if optional /ə/ is phonetically realized in actual speech. In spite of this, according to system-dependent morphological naturalness theory, *oxen* is marked owing to its non-default plural marker (which consequently must be specified in its lexical description), whereas the default plural form *boys* is unmarked (and so has no such specification in its lexical description). If we apply 'sym-values', the relative degree of markedness of *boys* and *oxen* can be expressed by:

(5)  $\text{sym} \langle -s, -en \rangle$

However, Mayerthaler himself admits "shortcomings of system-independent morphological naturalness theory" (1987: §5.1), one of these being the fact that "there are some cases where NT does not make a stability prediction at all" (1987: 53). The example Mayerthaler gives is Middle English plural formation. According to system-independent morphological naturalness, in fact, the two major markers *-en* and *-(e)s* "are equally natural: accordingly, NT is unable to predict the victory of the sigmatic suffix in the later history of English" (Mayerthaler 1987: 54), which obviously can be accounted for only if system-dependent criteria are applied.

However, even if "system-dependent principles are hierarchically above system-independent ones" (Mayerthaler 1987: 52), they can be considered complementary, as a look at present-day English plural formation easily shows. As we have seen, *s*-plural encoding is less marked than *en*-plural (incidentally, this applies also to their Middle English antecedents mentioned by Mayerthaler). This is due to the overwhelming preponderance of the former, that is, to system-dependent factors (for the relevance of quantitative relationships, see, e.g., fn. 6).

If we take into consideration, for instance, the plural form *sheep*, its markedness degree, however, is due to system-independent criteria, exactly to the fact that it is non-iconic; on the other hand, the plural form *fungi* contradicts not only system-independent criteria (since it is counter-iconic; cf. the regularized plural form *funguses*), but also system-dependent ones, given its non-default plural marker and, above all, its non-default stem-inflection, typical of the donor language.

Applying 'sym-values' as in (5) above, we can easily express the relative degree of markedness of all plural encodings, which in turn can help us to predict in what order – necessarily theoretical in view of the already mentioned unpredictable sociolinguistic factors – each individual encoding will eventually be "regularized".

## 5. Conclusion

In this paper I have tried to demonstrate the reasons why the Old English *a*-declension was the most productive of all and why the descendant of its nominative/accusative plural marker *-as* has remained the only productive plural encoding.<sup>18</sup> I have applied some tenets of Natural Morphology, in particular Wurzel's claims that the inflectional morphology of a language and the changes occurring in it are based on "system-dependent" parameters. As has been mentioned above, and as Mayerthaler himself openly admits, there are cases which cannot be explained applying his theory only. The case under consideration demonstrates, among other things, that when constructional iconicity can be implemented in different ways, the choice of a specific plural marker at a particular time in the history of a language can be explained only if we take into account a number of factors which are "system-dependent".

Secondly, I have also had recourse to Markedness Theory, being particularly careful to clearly specify the difference between formally 'marked', materially more complex or 'featured' (German *merkmalshaft*) on one hand, and 'marked' in more substantive terms (German *markiert*), that is, as conceptually 'unnatural' or ranking lower on naturalness scales on the other hand.

The combined application of Naturalness Theory and of Markedness Theory has certainly demonstrated both their considerable potentiality and, once again, their explanatory and predictive powers, which make them a very fruitful methodological approach.

<sup>18</sup> As I have tried to demonstrate in this paper, there are strong internal factors which account for the productivity of this plural marker. In Bertacca (in press) I have already argued against Bailey-Maroldt's claim that "The Nordic creolization of Anglo-Saxon caused inflections to be phonetologically reduced; their final loss can be attributed to the general creole tendency to simplify morphology" (Bailey-Maroldt 1977: 45). The loss of inflections, as well as considerable syncretism, date from long before (compare, for instance, Proto-Germanic with Indo-European!) and contact with Scandinavian populations may have accelerated changes which were already in progress or for which the time was ripe, but certainly it did not trigger them. Even less acceptable are their other statement that the analytic tendency which can be attributed to creolization "converted any inflectional tendencies inherited from the Anglo-Saxon (surface) case system into a prepositional format very similar to the corresponding constructions in French" (1977: 45), and their (not unexpected) conclusion that "the nominal declensions of the two languages [i.e. Middle English and Old French – AB] can be easily reconciled" so that "it is not unfair to say that the French forms prevailed" (1977: 49).

## REFERENCES

- Anttila, Raimo  
1977 *Analogy*. The Hague – New York: Mouton.
- Bailey, Charles-James N.  
1974 “Naturalness in historical reconstruction and changes that are not natural”, in: Anthony Bruck – Robert A. Fox – Michael W. La Galy (eds.), 13-20.  
1977 “Linguistic change, naturalness, mixture, and structural principles”, *Papiere zur Linguistik* 16: 6-73.  
1980 “The role of language development in a theory of language”, *Papiere zur Linguistik* 22: 33-46.
- Bailey, Charles-James N. – Karl Maroldt  
1977 “The French lineage of English”, in: Jürgen M. Meisel (ed.), 21-51.
- Bertacca, Antonio  
in press “The great vowel shift and Anglo-French loanwords: A rejoinder to Diensberg”.  
forthc. “Economy and theories of diachronic change: The case of English nouns”.
- Bruck, Anthony – Robert A. Fox – Michael W. La Galy (eds.)  
1974 *Papers from the Parasession on natural phonology*. Chicago: Chicago Linguistic Society.
- Campbell, Alistair  
1959 *Old English grammar*. Oxford: Clarendon Press.
- Donegan, Patricia Jane  
1978 *On the natural phonology of vowels*. Columbus: Ohio State University.
- Dressler, Wolfgang Ullrich  
1985 *Morphology: The dynamics of derivation*. Ann Arbor: Karoma Publishers.
- Dressler, Wolfgang Ullrich – Willi Mayerthaler – Oswald Panagl – Wolfgang U. Wurzel (eds.)  
1987 *Leitmotifs in Natural Morphology*. Amsterdam – Philadelphia: John Benjamins.
- Dressler, Wolfgang Ullrich – Hans C. Luschützky – Oskar E. Pfeiffer – John R. Rennison (eds.)  
1990 *Contemporary morphology*. Berlin – New York: Mouton de Gruyter.
- Esper, Erwin A.  
1973 *Analogy and association in linguistics and psychology*. Athens: University of Georgia Press.
- Hogg, Richard M.  
1992 “Phonology and morphology”, in: Richard M. Hogg (ed.), 67-167.
- Hogg, Richard M. (ed.)  
1992 *The Cambridge history of the English language*. Vol. 1. *The beginnings to 1066*. Cambridge: CUP.
- King, Robert D.  
1969 *Historical linguistics and generative grammar*. Englewood Cliffs, NJ: Prentice-Hall.
- Krygier, Marcin  
1998 “On a synchronic approach to Old English morphology”, *Folia Linguistica Historica* 19, 1-2: 119-128.
- Jones, Charles  
1989 *A history of English phonology*. London: Longman.
- Labov, William  
1994 *Principles of linguistic change*. Volume 1. *Internal factors*. Oxford: Blackwell.
- Leed, Richard L.  
1970 “Distinctive features and analogy”, *Lingua* 26: 1-24.
- Mayerthaler, Willi  
1981 *Morphologische Natürlichkeit*. Wiesbaden: Athenaion.

- Mayerthaler, Willi  
1987 “System-independent morphological naturalness”, in: Wolfgang Ullrich Dressler et al. (eds.), 25-58.
- Meisel, Jürgen M. (ed.)  
1977 *Langues en contact – Pidgins – Creoles – Languages in contact*. Tübingen: G. Narr.
- Mišeska Tomić, Olga (ed.)  
1989 *Markedness in synchrony and diachrony*. Berlin – New York: Mouton de Gruyter.
- Quirk, Randolph – C.L. Wrenn  
1957 *An Old English grammar*. (2nd edition.) London: Methuen.
- Saussure, Ferdinand de  
1916 *Course de linguistique générale*. Paris: Payot.  
[1968] [Reprint of the 3rd edition. Paris: Payot.]
- Stein, Dieter  
1989 “Markedness and linguistic change”, in: Olga Mišeska Tomić (ed.), 67-85.
- Thomason, Sarah. G.  
1969 “On the nature of analogical change”, Paper read at the December meeting of the Linguistic Society of America.
- Trudgill, Peter  
1986 *Dialects in contact*. Oxford: OUP.
- Wang, William S.-Y.  
1969 “Competing changes as a cause of residue”, *Language* 45, 1: 9-25.
- Wright, Joseph – Elizabeth Mary Wright  
1923 *An elementary Old English grammar*. Oxford: Clarendon Press.  
1928 *An elementary Middle English grammar*. (2nd edition.) Oxford: Clarendon Press.
- Wurzel, Wolfgang Ullrich  
1984 *Flexionsmorphologie und Natürlichkeit*. Berlin: Akademie-Verlag.  
1987 “System-dependent morphological naturalness in inflection”, in: Wolfgang Ullrich Dressler et al. (eds.), 59-96.  
1989 “Inflectional class markedness”, in: Olga Mišeska Tomić (ed.), 227-247.  
1990 “The mechanism of inflection: Lexicon representations, rules, and irregularities”, in: Wolfgang Ullrich Dressler et al. (eds.), 203-216.  
1998 “On markedness”, *Theoretical Linguistics* 24, 1: 53-71.  
1999 “How are inflectional properties represented in the lexicon? From diachrony to synchrony”, *JGLSA* 4, 2: 255-266.