

COLLATERAL ADJECTIVES, LATINATE VOCABULARY,
AND ENGLISH MORPHOLOGY¹

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1. Introduction

1.1. Aim

The purpose of this paper is to study the nature of collateral adjectives and the Latinate vocabulary in English together with some morphological problems relating to them. English abounds in pairs like the following, in which adjective counterparts are difficult to relate in terms of their shape to the base nouns:

- | | | |
|-----|----------------------------|---|
| (1) | spring – vernal | summer – aestival |
| | fall (American) – autumnal | winter – hibernal |
| | dog – canine | cat – feline |
| | wolf – lupine | horse – equine |
| | arm – brachial | heart – cardiac |
| | iron – ferric | ice – gelid, glacial |
| | father – paternal | mother – maternal |
| | day – diurnal | church – ecclesiastical, ecclesial ² |

Pyles – Algeo (1970: 129) call the above adjectives *collateral adjectives* (CAs). According to their definition, CAs are “[adjectives which] are closely related in meaning but quite different in form from their corresponding nouns, like *equine*

¹ This paper was written while I was on sabbatical leave from Jissen Women's University at University of Edinburgh. I should like to thank all those institutions for their support, and John Anderson, Fran Colman, Heinz Giegerich, Graeme Trousdale, and Igor Mel'čuk for various useful comments on the content of this paper.

² These examples are taken from *ORD*.

and *horse*". It seems that this terminology is strictly theirs, and I have not seen any other literature on word formation referring to it.

In the tradition of lexicography, on the other hand, the term CA was once used in the dictionaries published by Funk and Wagnalls in the 1950's.³ Those dictionaries are peculiar in that they describe CAs in the entry of the base nouns. However, all of the dictionaries of that company are now out of print and hence we seldom see this term used in the lexicographic field as well.

"Collateral" in CA means "[d]escended from the same stock, but in a different line; pertaining to those so descended. Opposed to *lineal*." (OED "collateral" *adj.* 4.) CAs are what Leisi (1985) calls *dissociated words*. According to him, words are consociated if linked by transparent morphology, whereas they are dissociated if morphologically isolated.

Note that there are different degrees of dissociation. Examples like *paternal* (~ *father*) are probably morphosemantically less opaque, while examples like *seismic* (~ *earthquake*) are totally opaque.⁴ This is due to the differences in phonological connectability between the base nouns and CAs. However, such connectability if present is normally based on the etymological knowledge and hence is unnoticed by the average speaker. Therefore, we often find the notion of suppletion applicable not only to the CAs of the latter kind but also to those of the former kind.

In the present paper, I use the term CAs to mean adjectives of Latinate origin used dissociatively.⁵ This means that CAs are embedded in the context of the Latinate vocabulary in English. Such adjectives as *rank* (~*odour, smell, stench*)⁶ which are of native origin, I do not regard as CAs. Although in its strict sense, *vernal* is not etymologically collateral to *spring* (i.e. no "same stock" can be assumed between them etymologically), I still refer to it as a CA because it is an adjective of Latinate origin used dissociatively.

One final comment on terminology. I am aware that the distinction between Latinate words and words of Greek origin is not always clear-cut, for instance *ornithic*, which is often thought to be from Greek, although *AHD* posits a New Latin form *ornithosis* from Greek *ornis*. Such being the case, I would like to use the term *Latinate* to cover both words of Latinate and Greek origins.

³ Nobuyuki Higashi (Tokyo University of Electro-Communications, personal communication) has drawn my attention to this fact.

⁴ "~ X" means that X is the base noun of the CA.

⁵ *Standard College Dictionary*, published by Funk and Wagnalls in 1963 has an entry of "collateral adjective", whose definition is etymological in nature; namely, "[a]n adjective closely related to a given noun in meaning, but not in immediate origin, as *brachial* is to *arm*."

⁶ According to *OED*, *rank* "having an offensive strong smell" is of native origin and its first record dates back to 1529. Among nouns meaning "(bad) smell" are *odour* from Anglo-French (a1300), and *smell* and *stench*, both of native origin (c1200 and c893 respectively).

1.2. Basic questions

What I would like to address, and try to answer, are the following questions:

- What sort of relationship do CAs have with their base nouns?
- How should we describe the meaning shared by base nouns and CAs?
- What are the grammatical properties of CAs?
- What makes Latinate vocabulary and CAs sociolinguistically or stylistically elevated in English morphology?

Concerning the first two questions, I shall conclude that CAs are related to their base nouns on the basis of what I call pseudo-paradigms. Before embarking on this topic, remarks on paradigmatic aspects of derivation are in order.

As to the third question, I show that most CAs are actually what Levi (1978) refers to as *complex nominals* (CNs).

Finally, concerning the fourth question, it is well known that the CAs and Latinate vocabulary in general constitute an elevated, learned layer in English morphology. The special status of this layer in English morphology is also considered in this paper in comparison with the morphology of Japanese, which also has the similar vocabulary layers.

The starting-point for the discussion will be the quite mundane brainstorming to find out potential problems, through which I hope to clarify my reasoning in what follows.

2. Problems related to CAs

2.1. The problem of morphosemantic opacity

CAs are dissociated words in the sense that their relations to base nouns are hard to reduce to any transparent morphological processes synchronically. Even as to such pairs as *father* – *paternal*, Finkenstaedt and Wolff (1973: 161) correctly point out that they are not consociated because their etymological relationship is "only known to the philologist, who cannot be taken as the representative 'average speaker'."

However, it seems that speakers have some sort of intuition whereby, if there is a noun there is always its adjective counterpart; and this intuition constitutes an important part of establishing the relations between base nouns and their corresponding CAs.⁷ One can extemporise by saying that the adjective of *spring* is *spring-like*, or *springy*, rather than *vernal*, but many native speakers of English

⁷ Actually, questions of the type "what is the adjective form of X?" were once very common in university entrance examinations in Japan back in the 1970's. In my opinion, their rapid desuetude in the 1970's can be ascribed to the growth of the lexicalist position in the generative paradigm.

will surely select *vernal* if they know the word. What lies behind such native speakers' intuition?

As I have suggested, some linguists talk about some sort of suppletive relationship CAs have with their base nouns, but suppletion is normally applied in inflectional morphology, not in derivational morphology. Is it applicable in derivational morphology as well? More fundamentally, what is it that leads us to say that a linguistic element is suppletive? When we speak of suppletion, there has to be some complete grid-like whole in terms of which suppletion is to be defined. In order to clarify this, we need some discussion about the notion of paradigm in morphology.

2.2. Problems of characterising CAs

What are the main syntactic and semantic characteristics of CAs? For example, are there any grammatical phenomena specific to CAs? It is true that many CAs are what Levi (1978) calls CNs, which are normally restricted to attributive uses. Then, what kind of relationship do CAs (e.g. *lithic*, *paternal*) have with nouns used attributively (as *stone* in *stone bridge*), non-collateral adjectives (e.g. *fatherly*), combining forms (e.g. *-lithic* in *monolithic*), or nouns in the possessive case (e.g. *father's*)?

2.3. The stylistic or sociolinguistic problem

It is evident that Latinate vocabulary consists of a stylistically or sociolinguistically elevated layer in the overall English vocabulary.⁸ Thus, not many people use such CAs as *haemal* (~ *blood*), *osseous* (~ *bone*), *caseous* (~ *cheese*), etc. Why is this so? What sort of sociolinguistic characteristics do they have? To solve this problem, we have to look back into the history of English and evaluate the significance of Latinate loanwords.

Also, there are some other languages in the world having a native base plus admixture of words from some other sources. I would like to pick up one such language (my native language, Japanese) and make a contrastive study.

2.4.

The above is definitely not the exhaustive list of problems related to CAs, but I think it suffices for clarifying fundamental problems. We shall discuss them one by one in what follows.

3. The problem of morphosemantic opaqueness

We can approach this problem by examining the following terms: allomorphy, lexicalisation, suppletion, and paradigm, all of which are fundamental notions related to the notion of morphological derivation.

3.1. Derivation

The notion of morphological derivation hinges on the speaker's knowledge that some linguistic unit definable in morphosemantic terms is operating as a base of word formation processes. The admission of such speaker's knowledge is reflected in the use of the term *morpheme* in morphology and there always has been a desire on the part of linguists that every such unit should be an identifiable, thing-like entity. Therefore, affixation has always been derivation *par excellence* and linguists, especially in the American structuralism tradition, have been keen to reduce all morphological processes to simple affixation.

Such a reductionistic attitude, however, has proved not to be successful because however hard we may try, morphology is not always simple concatenation of morphemes. There is a problem of allomorphy on its formal side; and on its semantic side we have the problem of various semantic changes leading to lexicalisation.

3.1.1. Allomorphy

As to allomorphy, we have a problem of so-called "ill-behaved morphs" (Anderson 1988: 153) as shown by the existence of zero, subtractive, replacive, metathetical, or overlapping morphs. They are not frequently found in English, but English has vowel mutation (see, e.g. *sing-sang-sung*, *goose-geese*, etc.). However, the most devastating is the existence of etymologically totally unrelated word forms shown typically in inflection. See *go-went-gone* and various word forms of the lexeme {BE}.

In the field of derivation, the situation is even worse than in inflection. Marchand (1969) was aware of this problem, admitting allomorphy as minimally as possible. But as Shibata (1975: 358) observes, even Marchand finds it difficult to exclude allomorphy completely from his scope, and admits some allomorphy in his treatment of English word-formation. See his treatment of foreign elements, such as *a-/an-* in *anelectric*, *amoral*, etc.; *scient-/science*; and *-ate* in *translate*, *create*, etc. and *-ate* in *hyphenate*, *missionate*, etc.,⁹ all of which are treated as allomorphs of the same morpheme in his book.

⁸ Lipka (1992: 8) observes that words of Latin or Greek origin consist of what Leisi (1985) means by *hard words*, which "pose problems for those ignorant of classical languages." I will return to this problem in section 5.

⁹ *-ate* in *translate* is stem-based in Kastovsky's (1989) terminology, whereas *-ate* in *hyphenate*, etc. is word-based. Note that Marchand's (1969: 8) characterisation of the latter as formed "on a native basis" means that they are word-based.

3.1.2. Abstract explanations

As mentioned above, Marchand limits his scope as far as possible to a concrete level, but there are some morphologists who dare to dive under the surface and seek abstract explanations. Lightner (1983) is one of them. His derivational morphology includes allomorphy shown in the examples like *father-paternal*, *pedal-foot*, etc. The tack taken by him is to admit high abstractness into his analysis and he makes use of diachronically traceable and describable sound changes under the guise of (quasi-) synchronic phonological perspectives. Interestingly, this is basically the strategy adopted in various study-aid books for building up vocabulary ("vocabulary expanders") like Denning – Leben (1995), Ayers (1986), among others (see 5.2.2).

The problems for such abstract explanation, then, are of a familiar kind – how deep should one dive and what makes one a qualified diver? We have to be realistic considering these problems. Note that however deep one dives, or however learned the diver may be, such pairs as *spring-vernal*, *summer-aestival* are impossible to deal with because their stems are not even remotely connectable etymologically.

3.1.3. Abstract explanations in generative linguistics

In the paradigm of generative linguistics, we always recognise some effort to reduce all the morphological processes to simple affixation so that morphosemantic transparency is satisfied perfectly at least on the formal side. One such extreme is: what we get in the world of morphology is something like exception-free, rule-governed syntax, where everything is compositional, and if some element of processual morphology creeps in, that is in the realm of chaotic lexicon.¹⁰ It seems to me that such a radical position would only take us to the abstract world of the complete ideal, at the expense of ignoring diversities existing in the real world.

3.1.4. Semantic shift and lexicalisation

As to the semantic side of derivation, the situation is just as chaotic. We often find examples in which what were once derivatives have developed special, non-compositional semantics. Thus, for example, we have *business* semantically distinctive from *busy-ness* (cf. *OED* "business" I. †1).¹¹ We also see many adverbs in *-ly* developing into sentential adverbs such as *consequently*, *signifi-*

cantly, etc. We normally ascribe such semantic idiosyncracies to the results of semantic changes, or lexicalisation.¹²

The strategy taken by Marchand (1969) seems very wise at first sight. He introduces the term "derivative relevancy" to apply only to those having pure morphosemantic transparency. Thus, to him any word having developed special semantics has to be treated as monomorphemic. However, even he turns out not to be completely successful, as is shown in the descriptions of such words as *committee* "a small group of people chosen to represent a larger organisation", *swimmer* "a bird or swimming organ", etc. In such cases, Marchand (1969: 276) simply admits "[m]any words join various sense groups."

3.1.5. Is the notion of derivation necessary at all?

Indeed, many linguists have found it so difficult to define derivation that some of them consciously try to avoid using this term. For example, Lipka (1992: 80) professes that he prefers the term affixation to derivation in classifying word-formation types.

Probably, the purest sort of morphotactic transparency is most typically observed in nonce-word formations. Nonce words such as *poorness*, *fruitfulness*, etc. are transparent because otherwise they result in communication failure because hearers cannot retrieve their morphological and semantic composition.

3.2. The notion of paradigm in derivational morphology

In my opinion, what seems promising for looking at CAs is to apply a recent, paradigm-based approach to morphology. In what follows, we shall see some attempts so far made to establish paradigms in derivational morphology, along with some comment on the distinction between inflection and derivation. After that, we shall start discussing how CAs should be related to their base nouns.

3.2.1. Dressler (1985a)

Dressler (1985a: 104) observes that *paternal* (~ *father*) is suppletive, whereas *maritime* (~ *sea*) is not. As I mentioned in 2.1, suppletion presupposes some sort of grid-like whole, which is typically referred to as a paradigm. Therefore, his reasoning takes it for granted that such pairs as *father-paternal* make up a paradigm, whereas such pairs as *sea-maritime* do not. He bases this difference in treatment on Mel'čuk's definition of suppletion, which is "the relationship between any linguistic units A and B which meet the following condition: the se-

¹⁰ See the morphologists in the "syntax-of-words" camp, especially, Di Sciullo – Williams (1987).

¹¹ *Business* used to be a morphosemantically transparent formation. The form *busyness* is a new formation. *OED* records its first appearance in 1849.

¹² Derivation sometimes seems to apply only a subset of the meanings of a particular word, see *fitly* meaning "aptly" but not "healthily". If we take all lexemes to be monosemous, we can avoid this problem to a certain extent. See Akasu *et al.* (1996: Chapter 2) for the "one word, one meaning" policy of *CIDE*.

semantic distinction between A and B is regular, while the formal distinction between them is not regular" (1976: 50).

Nevertheless, what Mel'čuk's means by "regularity" in his quotation above seems not at all clear in Dressler (1985a). Why does he treat *sea-maritime* differently from *father-paternal*? Probably, just like Lightner (1983), Dressler simply assumes that the etymological affinity between *father* and *paternal* is enough to guarantee the regularity, whereas that between *sea* and *maritime* is not; but as we have seen, it is inconceivable that average speakers have such etymological knowledge.

3.2.2. Inflection vs. derivation

We seem to have no problem in defining inflectional paradigms but when it comes to applying the notion of paradigm to derivation, we have to face one big problem; namely, what actually makes inflection typical of making up paradigms? To answer this question, we have to step into that recalcitrant problem of the distinction between inflection and derivation. Since the literature dealing with this problem is abundant, I would like to focus on those aspects I think are relevant to the notion of paradigm.

A. Across-the-board nature of inflection

First of all, inflection normally applies to all the lexemes within the same parts of speech. PDE shows this across-the-board application, so to speak, to PL and POSS for nominal categories, and PRS, PRP, PST and PSP for verbal categories.¹³ However, derivation never shows across-the-board application of this sort. Even what seems to be a quite productive process like *-ness* suffixation is not free from exception.¹⁴ Therefore, we can conclude that inflectional paradigms show complete coverage, while derivational paradigms do not.

i. COMP and SUP

There are three problems here, however. First of all, PDE has also COMP and SUP inflection for adjectival and adverbial categories, but can we apply the notion of paradigm to them even if some lexemes have only periphrasis with *more/most*? This question turns out to be a little tricky because if the answer is

¹³ Abbreviations are based on traditional terms. PDE = present-day English; PL = plural, and POSS = possessive; PRS = 3rd person singular present, PRP = present participle, PST = past, and PSP = past participle; COMP = comparative, and SUP = superlative. Note that this across-the-board nature of inflection is the same as the notion of *generality* in Bybee's (1985, Chapter 4) terminology.

¹⁴ See Riddle (1985) for semantic constraints on *-ness* suffixation. Interestingly, *-ness* can sometimes attach to pronouns (*nothingness*) and adverbs (*thereness*) and even to phrasal units (*matter-of-factness*) (cf. Marchand 1969: 225-226).

in the affirmative, then it means that we have to liberate the notion of paradigm into a part of syntax. But this may be avoided if we keep maintaining that those with periphrasis can potentially be inflectional word forms as seen in nonce-word examples like *meaningfuller*, *meaningfullest*, etc.

Also as to these inflectional categories, we must not forget that there are some which simply seem to lack COMP, or SUP forms, as shown in *other*, *several*, *half*, *daily*, *own*, among others. If we try to define paradigm on the basis of its across-the-board application to the lexemes within the same parts of speech, they surely cause problem.

After all, as to these last categories, we have to admit that we see transitional shift from morphology to syntax here,¹⁵ and therefore, the notion of paradigm turns out to be a little difficult to apply to them.

ii. Pronouns

The second problem about the across-the-board application of the notion of paradigm to inflection is concerned with pronouns. Should we say that pronouns are examples of English inflection? Pronouns are different from the above-mentioned categories in that they do not make up an open system. However, the notion paradigm as a grid seems to fit easily upon them, witness the examples from PDE personal pronouns like *I-my-me-mine*, *you-your-you-yours*, *he-his-him-his*, etc. Therefore, I assume they are also part of the inflectional system in PDE.

iii. *Pluralia tantum* and *singularia tantum* in nouns

Bybee (1985: 85) points out that the morphosyntactic category of number for nouns, which is regarded as inflectional, has a number of defective paradigms. These include such plurals having no singulars as *pants*, *oats*, *measles*, *pliers*, etc. (*pluralia tantum*); and such singulars having no plurals as *air*, *fleece*, *peace*, *contemplation*, *cleanliness*, etc. (*singularia tantum*).

What seems to me important is that although these two groups of nouns do not inflect themselves, they have to be treated either as being singular or as being plural for the purpose of syntax. Indeed, this is the basic argument for distinguishing the countability of nouns (i.e. inherent number properties of nouns) from how the category of number is used in terms of syntax (i.e. agreement). Therefore, I think we can still say that the across-the-board nature of inflection is robust.

¹⁵ PDE has a preference to use periphrasis, rather than inflectional forms. Cf. Nakao and Koma (1990: 13).

B. Syntactic relevance of inflection

Secondly, and more importantly, morphosyntactic properties like gender, number and case, marked inflectionally, must be organised in a systematic way, so that syntax can build up larger units like phrases and sentences by making reference to them in the form of agreement (or *cross-referencing*).¹⁶ Derivational meanings (not properties), on the other hand, need not to be so well systematised. Since the paradigm presupposes something neatly systematised, it should be inflectional morphology rather than derivation that can accommodate them perfectly.

Indeed, natural language has one inescapable physical constraint, i.e. it has to be under the constraint of absolute linearity whether it is temporal or spatial (in the case of written language). However, meaning, on the other hand, has to be expressed in non-linear, hierarchical structures (i.e. constituency or dependency).

The world's languages differ as to how they mark constituency under this linearity constraint. Some make use of agreement based on inflection, some vowel harmony, or sandhi phenomena.¹⁷ In inflectional languages morphosyntactic categories are used to mark these hierarchical structures, but interestingly, these categories are usually based on some part in our conceptual world that can be systematised in the forms of rigid grids. Following the tradition of tagmemics, I call them *etic grids*. Etic grids are found in the distinctions of numbers and sex, for example. One may speculate that morphosyntactic categories such as number and gender resulted from a sort of *emicisation* (i.e. to making them emic) (or, *grammaticisation*, or *linguisticisation*?) of what used to be etic grids.

PDE makes heavy use of vowel reduction (as can be shown in weak forms of function words) and pausing (as can be shown in *old men and women* vs. *old men, and women*) to show constituency. Note that English has lost most of its inflection by PDE.¹⁸ Therefore, vowel reduction and pausing can be regarded as sort of complementary devices for this loss.

Even in PDE where there is little inflection, morphosyntactic properties concerning inflection have to be neatly systematised. Therefore, although its history has brought about much opacity in the form of allomorphy, we can still find perfect paradigms in inflection. Without paradigmatic organisation in inflection, the syntax of inflectional languages would undoubtedly fail.

C. A final comment – suppletion in inflection and derivation

It has often been assumed that inflection accommodates suppletion whereas derivation does not, see Allen (1979: 3), Aronoff (1976: 2), among others. I think one of the reasons for this asymmetry can surely be ascribed to the syntactic relevance of inflection.

Inspired largely by Bybee's work, Fertig (1998) observes that the overall diagrammatic structure of inflecting languages accommodates suppletion well in semantically generic, grammaticalised or grammaticalising elements. He says that Mayerthaler's principle of uniform encoding is widely regarded as one of the most basic types of diagrammaticity in grammar: "sameness of meaning is diagrammed by sameness of form, difference of meaning by difference of form" (1074).

Then, he compares the paradigms of two German verbs, *sein* and *lernen*. In the case of *sein*, he finds that its "lexical" meaning is essentially grammatical, whereas in the case of *lernen*, what we find is much more specific lexical meaning. Therefore, in *lernen*, this semantic specificity has to be shared by the word-forms in its paradigm, whereas in *sein*, the difference of phonological shapes of word-forms, parcelling out their syntactic categories, is far more important. This means that the paradigms of grammatical words tend to be suppletive, whereas those of content words are not. I think this can be thought of as another argument for inflection accommodating suppletion better than derivation.

What we have seen so far seems to me to make a strong argument for the better applicability of the notion of paradigm to inflection than derivation.

3.2.3. Pilch (1985)

As to applying the notion of paradigm to derivation, Pilch's (1985) approach has many interesting points. He completely subsumes derivation under the notion of paradigm. Specifically, he assumes that the morphological analysis of a word consists in assigning it to a particular derivational (or, inflectional, if applicable) paradigm. See the following example of his exemplary paradigm, based on which the affix *re-* is defined:

(2)	<i>write</i>	:	<i>rê-write</i>
	<i>start</i>	:	<i>rê-start</i>
	<i>consider</i>	:	<i>rê-consider</i>
	<i>read</i>	:	<i>rê-réad</i>
	<i>rê-write</i>	:	<i>rê-rewrite</i>

(Pilch 1985: 411)

Indeed, what Pilch does is to assume a complete well-organised grid-like structure supported both formally and semantically, based on which he defines derivation.

¹⁶ See Andrew (1985) for the typology of cross-referencing in the world's languages.

¹⁷ Many Indo-European languages tend to mark constituency by inflection. Altaic languages such as Mongolian make use of vowel harmony; languages like Sanskrit make use of sandhi phenomena, for this purpose.

¹⁸ Interesting in this respect is the fate of Danish. Danish has lost all person and number markers in verbs. To make amends for this loss, Danish has *enhedstryk* (unit accentuation) to mark constituency.

(2) is an exemplary paradigm in that it defines simple affixation. That is the reason he can include the formal side as well as the semantic side into his characterisation. But of course, not all situations are as neat. In morphology, we have “ill-behaved morphs”, allomorphy, among others. Therefore, we have to loosen the formal side of the above characterisation to some extent to accommodate such cases.

A. The lexical paradigm

Consideration of such “deviant” cases forces Pilch to integrate word formation into lexicology, and the notion *lexical paradigm* is introduced of which *morphological paradigms* are subsets. See the following examples of the toponym – inhabitant relations, in which the whole pair set makes up a lexical paradigm and (3a) – (3d) are morphological (sub-) paradigms.

(3)	Toponym	Inhabitant
a.	<i>London</i>	<i>London-er</i>
	<i>New York</i>	<i>New York-er</i>
	<i>New Zealand</i>	<i>New Zealand-er</i>
b.	<i>Seattle</i>	<i>Seattl-ite</i>
	<i>Ann Arbor</i>	<i>Ann Arbor-ite</i>
	<i>Michigan</i>	<i>Michigan-ite</i>
c.	<i>Halifax</i>	<i>Haligonian</i>
	<i>Aberdeen</i>	<i>Aberdonian</i>
	<i>Wales</i>	<i>Welshman</i>
d.	<i>Birmingham</i>	<i>Brummy</i>
	<i>Indiana</i>	<i>Hoosier</i>
	<i>North Carolina</i>	<i>Tarheel</i>

(Pilch 1985: 415)

One thing that should be kept in mind is that lexical paradigms sometimes have gaps. In toponym-inhabitant relations, the place I lived in during my sabbatical – *Edinburgh* – does not seem to have any corresponding inhabitant nouns.¹⁹

Apart from being paradigm-based, Pilch’s lexical paradigm is similar to Zwicky’s (1987) in that it separates morphological operations (rules) from morphological rules (metarules). When talking about derivation, we see the whole lexical paradigm, but when it comes to treating each morphological operation, we come down to the level of morphological paradigms.

¹⁹ I remember a person living in Edinburgh once humorously coined a word *Edinburghian* [edn'brɪən], which is a good example of nonce word formation.

B. Integrating lexicology in paradigm-based approach to word-formation

A word of caution is in order about the term *lexicology*, which Pilch uses without definition. Apparently, he has something in mind similar to Lipka’s (1992) characterisation of the term. Lipka (1992: 5) writes: “It is certainly true that lexicology must include both the study of individual words and their structure ... and of the overall structure of the vocabulary as a whole ..., and that it cannot describe either from a purely formal point of view, without considering semantic aspects and relations.”

Indeed, the notion of lexical paradigm gives a key to describing the relations between base nouns and their CAs. However, here again, we have to face the same problem as before: how should we define lexical paradigms characterising them differently from mere semantic relatedness between words? I will come back to this topic shortly (see 3.2.5 D).

C. Suppletion

In Pilch’s paper, the term suppletion is used only once, which is footnote 6, in which he observes: “Professor Dressler ... applies the terms ‘suppletion’ and ‘derivation’ to all pairs of the lexical paradigm ...”. Apparently, Pilch consciously avoids bringing the term “suppletion” or “derivation” in the lexical paradigm.

D. Satellite words and polysemy

Satellite words can be defined as synonyms co-existing in the paradigm with the *established words*, like *Kiwi* co-existing with *New Zealander* in (3). It is often the case that satellite words have developed special connotations.

As to polysemy, Pilch regards it as a fact of linguistic synchrony. Paradigms contribute to addition of certain meanings, but these meanings are susceptible to special semantic changes. Moreover, it often happens that such special semantics is conventionalised and is synchronically in rivalry with the paradigmatic meaning. For example, *waiter* “who waits on patrons in a restaurant” vs. *waiter* “who waits”. Accepting polysemy like this thus explains semantic conflict as shown in the above *business* vs. *busyness* example.

E. Distinguishing monolingual derivation from bilingual derivation

Pilch also makes a rigid distinction between monolingual and bilingual derivation. Latinate word-formation like the one forming CAs is not monolingual derivation in English. Marchand (1969: 6-8) refers to this word type of formation as “Neo-Latin basis of coining” and he makes a sharp distinction between this type of word-formation from “native basis of coining”. This separation is of the utmost importance in both synchrony and diachrony of English, to which we shall return later in 5.1.3.

3.2.4. Bauer (1997)

Bauer (1997) argues that there is a relationship between paradigmaticity, i.e. the applicability of the notion of paradigm, and the inflection-derivation division in morphology. He observes that if paradigmaticity is shown to exist in derivational morphology, it might be taken as “(weak) evidence” for split morphology. After quoting Carstairs’ (1987: 48-49) definition, Bauer posits six core concepts of the paradigmaticity and examines whether they are attested in derivation.

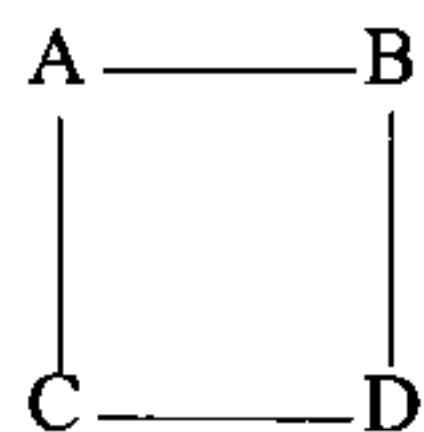
What is very interesting is that he suggests the existence of “a cline in degrees of paradigm coherence and applicability” in parallel with “a cline between typical cases of inflection and typical cases of derivation” (Bauer 1997: 254). Note that this is very similar to my analysis in 3.2.5.

However, when he talks about paradigm, all of his examples have some formal bases, and he does not seem to want the term to apply to formally unrelated words such as CAs. On the other hand, I think we can extend the term to include formally unrelated relations as well.²⁰

3.2.5. Paradigm-based approach to CAs: my opinion

With Dressler, Pilch, and others, I am of the opinion that it is important to introduce a paradigm-based approach into derivation. As we have seen, the notion of paradigm can be useful in describing morphology because it can show us how semantics and forms are related. As to the definition of paradigm, I propose the following one based on Cruse’s (1986) notion of proportional series given in (5).

- (4) An etic grid recognisable *a priori* in our world, which is based on Cruse’s (1986) proportional series.
- (5) The simplest proportional series consists of a single “cell” which has four elements:



The relation between the elements must be such that from any three of the elements the fourth can be uniquely determined. The configuration is thus structured by the following relations of proportionality:

²⁰ With Bauer (1997), I am of the opinion that we should not define the term paradigm so narrowly as to exclude paradigmaticity completely from derivational morphology.

A is to B as C is to D
B is to A as D is to C
A is to C as B is to D
C is to A as D is to B

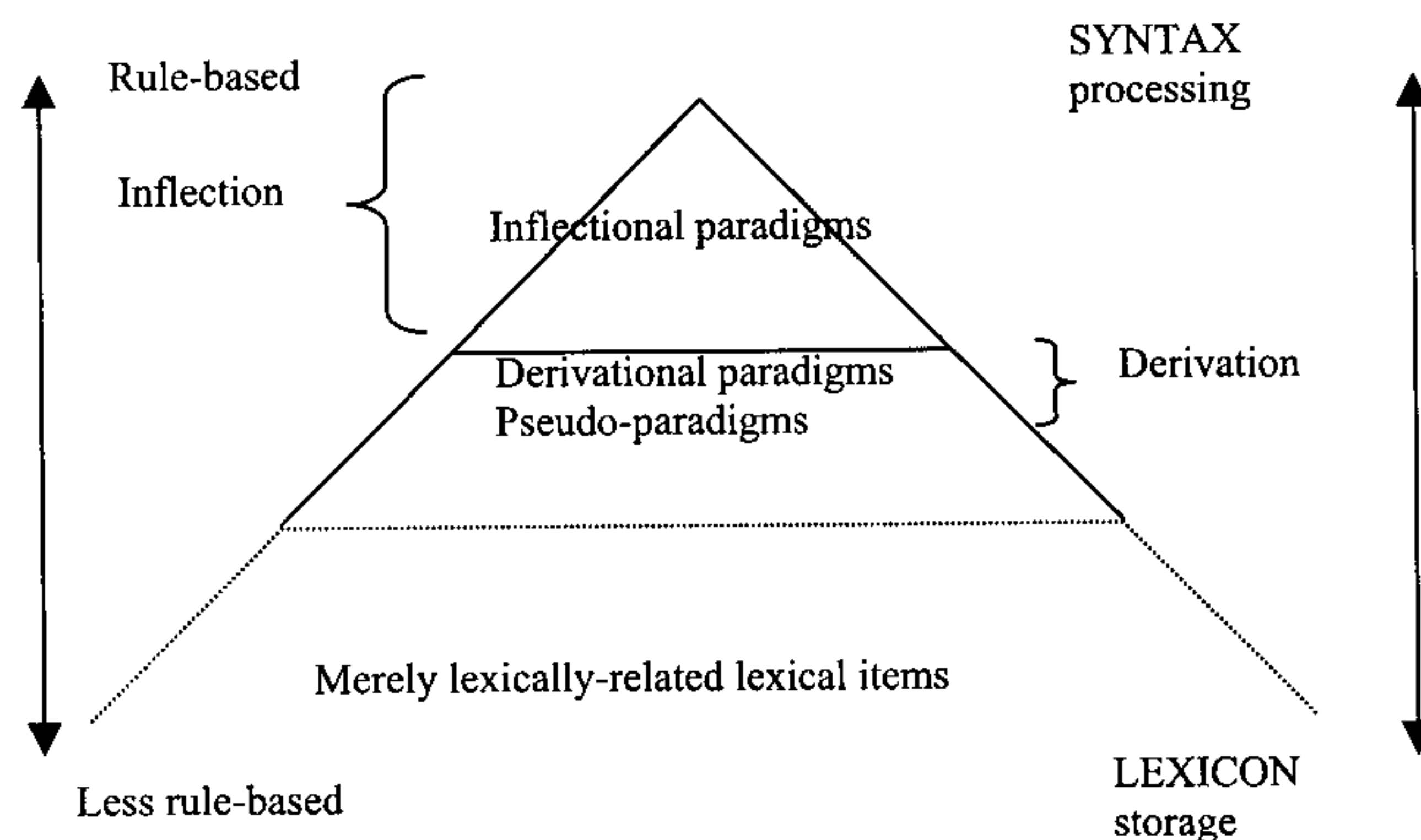
(Cruse 1986: 118-119)

Note that starting from a single “cell”, proportional series can be “extended along both axes simultaneously” (1986: 120).

Given this definition, I further assume that there is a cline between ideal, exemplary inflectional paradigms and mere semantically related groups of items. See Figure 1 for the general organisation of morphology in terms of paradigmaticity:

Figure 1. Organisation of morphology in terms of paradigmaticity

Note that the higher you go the more regular paradigms you get – regular in terms of having both semantic and formal bases.



A. Inflectional paradigms

First of all, I assume that there is a qualitative difference between inflection and derivation in English, which is why there is a solid line between inflection and derivation in Figure 1. As we have seen in 3.2.2 B, inflectional paradigms are motivated by the emicisation of etic grids, whereas such emicisation is not salient in derivation. Due to the pressure caused by the syntactic relevance, inflectional paradigms have to be across-the-board and hence can even accommodate

suppletive forms (see 3.2.2 B). The following is a partial example of inflectional paradigm (the infinitive (INF)-PST pairs):

(6)	INF	PST
a.	<i>study</i>	<i>studi-ed</i>
	<i>occupy</i>	<i>occupi-ed</i>
b.	<i>like</i>	<i>like-d</i>
	<i>lick</i>	<i>lick-ed</i>
c.	<i>serve</i>	<i>serve-d</i>
	<i>perform</i>	<i>perform-ed</i>
d.	<i>think</i>	<i>thought</i>
	<i>catch</i>	<i>caught</i>
	<i>be</i>	<i>was, were</i>
	<i>go</i>	<i>went</i>

B. Derivational paradigms

Derivational paradigms are the part of derivational morphology where etic grids are conspicuous, although they are not exploited syntactically as number or gender. We have already seen their examples in (2) and (3). Other examples include kinship terms, domestic animal terms, etc. What is characteristic about them is that we can get something similar to what Carstairs (1987) calls Inflection Parsimony Principle here. There may be a gap as can be shown in the example of the inhabitant name of the toponym *Edinburgh*, but there is always some compensatory device sought for. And once some form occupies that gap, no other form can stand totally synonymous with that form; alleged cases of synonymity turn out to be always spurious in some sense, as we have seen in 3.2.3 D.

C. Pseudo-paradigms

I assume that there is a certain area of morphology in which no perfectly regular etic grid is recognisable although some sort of irregular grid-like structures can be assumed. I call such structures *pseudo-paradigms*. In addition, I further assume that CAs belong to one of such pseudo-paradigms. There are two types of pseudo-paradigms, one is form-based, and the other is meaning-based.

i. Form-based pseudo-paradigms – primitive phonesthemes, word plays, and rhymes

It is well known that so-called phonestheme, sound symbolism, is found in all languages. In the case of English, we have /fl-/ for “something flying or floating” (e.g. *flee*, *flow*, *fly*); /gl-/ for “something related to light” (e.g. *glass*, *gleam*, *glisten*, *glimmer*); /-amp/ for “falling (of some heavy entity)” (e.g. *plump*, *jump*,

thump); etc. Note that these phonesthemes function as constants in their paradigms.

Interestingly, a certain degree of formal similarity of this kind sometimes leads to some grouping of words, although the relationship between sound and meaning is still very primitive.

Of all the form-based pseudo-paradigms, the commonest type is what Horiuchi (1999: 27) refers to as “convergence of endings”. According to him, endings of different origins tend to make up a group of similar words in terms of their phonetic similarities by the power of association. Especially important in this regard is the rhyme principle functioning as important source of word formation. His examples include *tint* (< *tin*ct, through the association with *print*, *mint*, and perhaps with *taint*, *paint*) and *mog* “mouse (Northern English), cow (dialectal)” (through the association with other *-og/-ag* names such as *hog*, *stag*, *dog*, *frog*, etc.).

What is characteristic about these word groups is that generalisations about their relationship are generally too weak to be productive word-formation processes. However, this sort of generalisation is always operating, and when it comes to word-plays, or headlines, we sometimes find very effective use of form-based pseudo-paradigms, see examples like *doom and gloom*; *King Hussein was known for pluck and luck*; *Stanley Kubrick, film maverick* (Horiuchi 1999: 27); *News at Toon* (a commercial message from Cartoon Network), among others. Indeed, this is where we can find interplay between phonology, morphology, semantics, and pragmatics. The theorisation of these phenomena awaits some future research.

ii. Meaning-based pseudo-paradigms

Secondly, we have paradigms that are meaning-based. Derivational paradigms we have seen in 3.2.5 B are also meaning-based, but they are based on rigid etic grids, whereas meaning-based pseudo-paradigms we are treating here are not. There might be some lexical overlapping, or sometimes gaps; and many of them belong to Pilch’s lexical paradigms. Therefore, polysemy and the existence of satellite words are widely seen in this type of pseudo-paradigms.

I assume that the base noun-CA pairs in English are a good example of a meaning based pseudo-paradigm. We shall look more closely at this particular paradigm in what follows.

a. The pseudo-paradigm between nouns and attributive adjectives

Firstly, the semantic relationship between base nouns and CAs can be thought of as a part of a very general relationship between nouns and their corresponding attributive adjective (AA) counterparts. To put it crudely, it is always the case that whenever there is a noun, there is its AA counterpart.

Many linguists have pointed out the similarities between nouns and adjectives, not only in terms of their usage but also in terms of their grammatical characteristics. For example, Jespersen (1924: Chapter 5) deals with the similarities of these two word classes and concludes that there are not such wide differences between them. According to him, nouns (his “substantives”) and adjectives are different only in their degrees of semantic specificity. Nouns are highly specific in their meanings, while adjectives are less specific. Note that the traditional terminological distinction between *conjugation* (for verb word-forms) and *declension* (for noun and adjective word-forms) also supports the grouping of nouns and adjectives together.

These facts all seem to suggest that adjectives are closer to nouns than to verbs in a crude sense. Indeed, this is the intuition based on which we talk about “adjectival usage” of nouns like *stone* as in *stone wall*.²¹ Interestingly, we normally do not talk about “verbal usage” of nouns like *lunch* as in *let's lunch out*.

As to the relations between nouns and AAs, which are a subcategory of adjectives, I would like to assume further that there is a paradigm-like relation observable between them. The basic idea is that AAs are different from nouns merely in terms of their function as modifiers to the following nouns. Following the lead of Levi (1978), I assume that AAs are essentially no different from nouns, except that they are specialised for attributive, modifying use. To adopt Anderson's (1997) framework of notional grammar, my assumption concerning the categories noun, adjective, and verb can be expressed as something like the following:²²

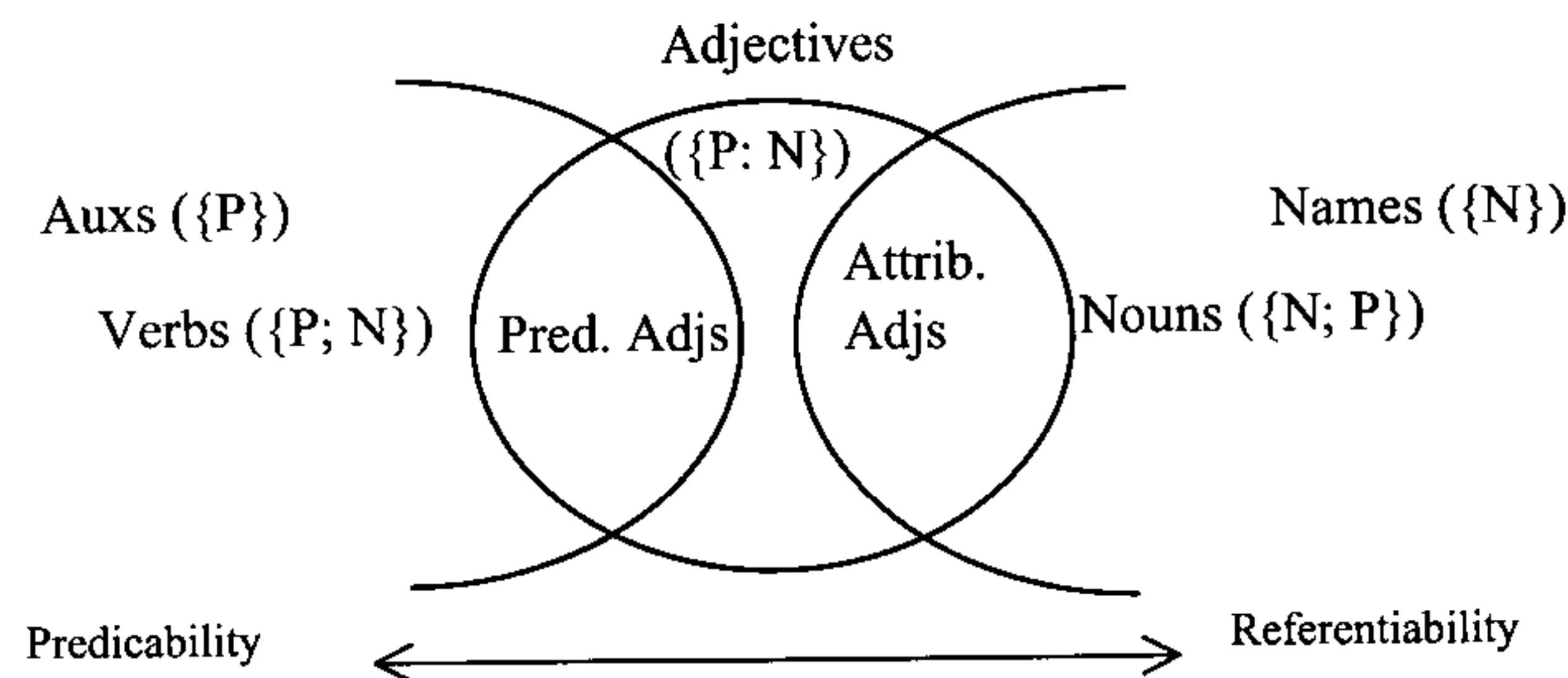


Figure 2. Syntactic categories aligned on the predicability-referentiability scale

In Figure 2, adjectives are assumed to be $\{P; N\}$ and to be placed between verbs $\{P; N\}$ and nouns $\{N; P\}$. If we assume a second-order categories, AAs are probably $\{(N; P); (N; P)\}$ and predicative adjectives are $\{(P; N); (P; N)\}$.

What then motivates this particular paradigmaticity held between nouns and AAs? In my opinion, the following facts constitute arguments for this particular paradigmaticity:

- (i) (There is complete productivity in the formation of noun + noun combinations ($N1 + N2$), which can be considered good examples of $N1$ filling the slot of AAs;
- and:
- (ii) (The relations between nouns and AAs are often expressed by (morpho-) syntactic devices such as inflection (e.g. genitive marking), or particles (e.g. *of*-phrases), which is totally productive in nature.²³

Note that paradigmaticity is not observed between other categories in Figure 2. Verbs are unique in having various valency relations. Conversions to or from verbs involve various types of valency changing; hence it is difficult to assume constant semantic relations based on which paradigmaticity can be defined. Between predicative and attributive adjectives, paradigmaticity is not observed because of the existence of attributive-only adjectives (e.g. *late*, *present*, etc. as in *the late/present president*) and predicative-only adjectives (e.g. *alive*, *asleep*, etc.).

²¹In some dictionaries, this adjectival usage is shown in usage notes. For example, according to *OALD*, *stone* is “often used before nouns or in compounds”.

²²In Anderson's framework, syntactic categories are interpreted as complexes of simplex features. $\{A\}$ means that feature A appears alone in the categorical representation, $\{A, B\}$ means that features A and B combine, $\{A; B\}$ means that feature A governs feature B, and $\{A: B\}$ means that features A and B are mutually dependent. See Anderson (1997) for more details.

²³What is interesting in this connection are typical definitions adopted in dictionaries. For example, *OED*'s typical definition of CAs is something like “of or belonging to X”. For example, *paternal* is defined as “[o]f or belonging to father or fathers;...” (“paternal” *a.* 1.a.).

As is already pointed out by Levi (1978), CAs are predominantly attributive and have very close relationship with nouns. If we assume something similar to Levi's CNs, we can say that every noun has its own AA counterpart – whether it is a noun used attributively (e.g. *stone* in *stone wall*), or an AA (e.g. *presidential* in *presidential election*), or a CA (e.g. *vernal* in *vernal equinox*).

b. Incomplete filling of the grid in pseudo-paradigms

Note, however, that how English fills the slot provided by the grid is not far from perfect, which is the second characteristic of this particular pseudo-paradigm. One of the reasons can surely be ascribed to the fact that the semantic relations between nouns and CAs are not always uniform. It is true that CAs are adjectival counterparts to the base nouns, but they sometimes develop only a subset of the meanings of the base nouns. Take *father-paternal* pair for example. *Father* can mean “god”, or “priest”, but this meaning is not normally reflected on the CA counterpart, *paternal*.

Also problematic is the lack of uniform meaning applicable to all CAs. We cannot assume any single meaning shared by them. See Table 1:

Table 1. CAs and their meanings²⁴

Base nouns	CAs	Meanings
<i>father</i>	<i>paternal</i>	- Relating to or characteristic of a father or fatherhood; fatherly. - Received or inherited from a father:& - Related through one's father:&
<i>spring</i>	<i>vernal</i>	- Of, relating to, or occurring in the spring. - Characteristic of or resembling spring. - Fresh and young; youthful.
<i>arm</i>	<i>brachial</i>	- Of, relating to, or resembling the arm or a similar or homologous part, such as the foreleg, wing, or other forelimb of a vertebrate: &
<i>beach</i>	<i>littoral</i>	- Of or on a shore, especially a seashore: &
<i>day</i>	<i>diurnal</i>	- Relating to or occurring in a 24-hour period; daily. - Occurring or active during the daytime rather than at night: & - <i>Botany</i> . Opening during daylight hours and closing at night.

We could generalise the above meanings and say that although CAs meanings are something like “relating to X”, there are other special meanings as well. This situation presents a striking contrast to inflectional paradigms, where we can assume a completely uniform meaning relation between the items in the paradigms. I would like to return to this problem of semantics in 4.2.1.

For another example of meaning-based pseudo-paradigm, I would like to give the following X – X-phobia pairs:

- (7) X X-phobia
air *anemophobia*
cats *ailurophobia, felinophobia, galeophobia*
clouds *nephophobia*
corpses *necrophobia*
fish *ichthyophobia*

D. Merely lexically-related lexical items²⁵

Merely lexically-related lexical items are located at the bottom of the paradigmaticity hierarchy in Figure 1. This is where various sorts of meaning relations can be found, such as (near-) synonymy (*pail-bucket*), antonymy (*hot-cold*), hyponymy (*dog-animal*), among others. Note that the boundary between these items and items in pseudo-paradigms cannot be clearly defined, which is why the dividing line in Figure 1 is a dotted line. As we have seen in Table 1, some CAs have developed special meanings.

4. The problem of characterising CAs

This section deals with the main syntactic and semantic characteristics of CAs. In 4.1, I review the syntactic properties of CAs and in 4.2, I try to clarify their semantic properties. Here, the keyword is attributiveness of CAs, but we must bear in mind that this term has both syntactic and semantic implications.

4.1. Syntactic properties of CAs

CAs are normally used attributively, i.e. they are put before the head noun to qualify its meaning. Dictionaries differ as to how generously they give such labels like [A[tributive]], [only (or, usually) before noun], etc. to CAs, but the most generous dictionary (*COB*) almost always gives either the grammatical information “ADJ n” or “usu ADJ n” to the extra column of CAs.²⁶

²⁵ “Lexically-related” in this context means “being related in the lexicon”.

²⁶ *COB* makes heavy use of grammatical notations. “ADJ n” means the adjective is always used before a noun (*COB*: xxiv).

²⁴ Meanings listed in the table are taken from *AHD*.

Why are CAs generally used only attributively? In 3.2.5 C ii a, we have seen that adjectives are intermediate between verbs and nouns. In addition, I have suggested that the closeness in terms of referentiability of nouns and AAs enable us to assume pseudo-paradigmaticity between the two categories. This is the basis of our intuition that whenever there is a noun, there is always its AA counterpart.

4.1.1. The nature of loanwords and denominal nature of CAs

It is a well-known fact that loanwords are dominantly nouns because usually novel things, ideas, etc. are conveyed through nouns.

As a matter of fact, nouns are the most efficient part of speech in terms of information theory. This can easily be demonstrated by the predominant use of nouns as keywords for academic papers. These keywords must be nouns because they can instantly give us bird's-eye views of what the papers are about.²⁷

When novel things or ideas are introduced into another language, it is highly probable that their referentiability, i.e. naming function, is very much highlighted; and anything highly referentiable is easily borrowed into the borrowing language. English CAs are precisely a case in point; they have been easily borrowed because of their "nouny" characteristics.

Levi (1978) tries to capture the denominal characteristics of nonpredicating adjectives by posing the cross-categorial notion, CNs. According to her, CNs have the following syntactic properties, all of which can be applied for CAs in general:

- (8)²⁸ a. Nondegreeness (CNs are not modified by degree adjectives):
**very urban riots* (CA) vs. *very destructive riots* (predicating modifier)
- b. Conjunction of like constituents (CNs can be conjoined with nouns but not with true adjectives):
solar and gas heating (CA and N) vs. **a civil and mechanical engineer* (nonpredicating and true adjectives)
- c. Countability (Numerical prefixes can be attached to CNs and Ns, but not to true adjectives):
monochromatic (prefix + CA) vs. **monohigh* (prefix + true adjective)
- d. Semantic classes (CNs constitute the same semantic classes as nouns):
 + definite: *Aberdonian, Punic, Carolingian*, etc.
 – definite: *urban, feline, canine*, etc.
 + concrete: *lunar, aquatic*, etc.
 – concrete: *linguistic, dolorous*, etc.

²⁷ In German, nouns are called *Hauptwörter*, literally "main words", which shows that they are interpreted as the centre of the language, so to speak.

²⁸ Most of the examples here are taken from Levi (1978: 18-37), but I have added some where I think they are appropriate.

- + animate: *feline, canine, equine*, etc.
 – animate: *rural, acoustic*, etc.
- e. Case relations (CNs can express case relations in the same way as nouns do):
 Agentive: *clerical refusal, cosmic expansion*
 Objective: *Cardiac massage, lunar explorations*
 Locative: *marine life, cerebral haemorrhage*
 Dative/Possessive: *feline agility, judicial prerogatives*
 Instrumental: *manual labour, solar generator*
- f. Nominalisation (Nominalisation applies only to predicating adjectives):
mental disease > **the mentality of the disease* (CA)
She is fond of reading > *her fondness for reading* (predicating adjective)
- g. Evidence from Postal (1972) (NPs and corresponding CNs occur in complementary distribution of the surface):
*aural comprehension of Swahili! *using the eyes! *using the ears*
*a judicial attack on bureaucrats! *by bureaucrats! *by judges*

4.2. Semantic properties of CAs

The term *attributiveness* has a semantic implication as well; i.e. not only used as premodifying nouns, but also used for denoting the attributes of something.

It is normally assumed that adjectives are semantically classified into two groups: one is for those describing situation or nature of things ("predicative-meaning" adjectives) and the other for those stipulating things quantitatively or spacio-temporally ("attributive-meaning" adjectives). Interestingly, AAs normally individualise, or specify, the nouns they premodify,²⁹ which means that they belong to the latter group, contributing to the increase of the referentiability of the whole NP. This is exactly what we expect from their "nouny" characteristics derived from their loanword status (see 4.1.1).

4.2.1 Semantic change of CAs

We have seen that CAs are almost always AAs. Note, however, that there are cases in which CAs are used predicatively, e.g. after link verbs. This is remarkable because if we look up CAs in *OED*, we find that the first examples of them are predominantly of attributive use. What semantic change have they undergone? In my opinion, the semantic change they have undergone can be schematised as something like the following:

²⁹ Attributive-only adjectives such as *late/present* as in *the present/late president* enhance the whole naming function of the NP, rather than to describe the nature of the nouns they premodify. According to Anderson (1997: 46), they typically "incorporate deictic or ranking element".

(9) Semantic change of CAs: a general schema

Set phrase of the type CA + N → CA + other N → predicative use of CAs

When CAs are first introduced to English, they are introduced as part of set phrases or compounds of the type CA + N. Then, there comes a stage in which CAs are abstracted from the set phrases and can be attached to other nouns. And finally, there comes a time when they are predicativised and can be used as predicative adjectives.

This is exactly what has happened to the semantics of *vernal*. According to *OED*, the first several examples of *vernal* are all found in the set phrase *vernal equinox* (or *equinoctial*). *OED* dates the very first example back to 1534 (*More Treat. Passion Wks.* 1308/1 The xiiii. daye after theyr vernall Equinoctiall in the euenynge). Then, the use of *vernal* started to be applied to other nouns, as is shown by other examples such as the one dated 1611 (*Beaum. & Fl. Maid's Trag.* i. ii, We must have none here But vernal blasts, and gentle winds appear.), etc. The first example in which this CA was used predicatively is dated 1634 (*Sir T. Herbert Trav.* 4 Such time as the Sunne is vernall, [the Island of Ferro] becomes exceeding hot and scalding.).

Although the result of checking *OED* for first examples of CAs generally confirms this general schema, there are some CAs whose fates are not like (9). For example, *equilibrinous*, has a predicative use not only in the first recorded example but also in other two examples. I think this can be ascribed to the fact that the meaning of the word is something like “proportional to”, rather than “of, or pertaining or belonging to *balance*”.

I am now going into a little delicate problem of the semantic nature of this special pseudo-paradigm. In 3.2.5 C ii, I characterised it as meaning-based, but actually we see considerable cases where the meanings of CAs cannot be characterised as “of, or pertaining or belonging to X”. Unmistakably, this is the basic meaning applicable to many CAs, but it seems to me that the basic relationship held between base nouns and their CAs may be fundamentally metalinguistic in nature. What I mean by this is that this pseudo-paradigm is based on a metalinguistic intuition that whenever there is a noun, there is an AA whose meaning is something like “of, or pertaining or belonging to X”.

4.3. CAs and other similar things

Interestingly, there are other words that are in rivalry with CAs. For example, we have a non-collateral adjective *fatherly*, a POSS noun like *father's*, a combining form *patr-* (*patri-*, *patro-*), and even a noun itself used attributively like *father* in *father figure* in rivalry with a CA *paternal*. What are the differences between them? Although this surely is a topic worth another series of papers, I would like to make some general remarks about it.

4.3.1. CAs and non-collateral adjectives

First of all, non-collateral adjectives like *fatherly* are not limited to attributive use, whereas CAs are predominantly limited to attributive use. As we have seen in 4.1.1, this is because most CAs have been introduced in English as loanwords which were essentially part of names. In the case of non-collateral adjectives, however, we see many examples that have developed further non-attributive meanings. For example, *fatherly* was once almost synonymous with *paternal*, but now its original attributive meaning “[o]f, or pertaining to a (natural or spiritual) father; paternal” is obsolete (*OED*) and the meaning “resembling a father” is predominant.

4.3.2. CAs and POSS nouns

Secondly, as to POSS nouns, there are two areas in which they are preferred to CAs; i.e. those cases where possessive meaning is salient, and those cases where subject of nominalised forms needs to be expressed. Normally, in those areas, CAs are not used.

As to the subject of nominalised forms, I have shown in previous papers (Koshiishi 1990; 1992) that the transition from word grammar to phrase grammar has contributed to the structural parallelism between the sentence and the noun phrase. In addition, the position of so-called external arguments, occupied by POSS nouns, has become more and more important through the history of English.³⁰ Interestingly, POSS nouns have stronger referentiability (i.e. identification power) than CAs. See the following examples:

- (10) a. *Moses' denial of paganism*
b. *Mosaic denial of paganism*

(10a) means that Moses himself is a denier of paganism, whereas in (10b) the denier does not have to be Moses himself. Indeed, what we see here is another version of the noun-adjective distinction seen in 3.2.5 C ii a.

4.3.3. CAs and combining forms

Thirdly, as to combining forms, we have to note that they are more stylistically limited than Latinate adjectives including CAs. According to Marchand (1969: 131), they are “chiefly used in learned or in scientific terminology”.

Combining forms are always used with some other free words (e.g. *Anglo-Saxon*), other combining forms (e.g. *philosophy*), or affixes (e.g. *anarchism*).

³⁰POSS nouns can be used to mean grammatical subjects of passive sentences, as is witnessed by such examples as *come to his assistance*, *at his service* (Jespersen 1924, Chapter 12). In the case of adjectives, this sort of “patient” reading is, though not entirely impossible, not so frequently attested.

Therefore, they have no predicative use in isolation. They all function as part of names and typically enhance some semantic connotations. For example, as to *patri-*, *OED* points out that this combining form is “used in connection with the prominence of males and the importance of relationship on the male side in social organization”. Similar semantic enhancement can be seen in other combining forms such as *Russo-*, *Anglo-*, etc.

4.3.4. CAs and nouns used attributively

Finally, as to the nouns used attributively, the most important thing is the fact that all nouns have a potential to be used as premodifiers of any nouns. Thus, we often hear people talk about *table legs* to mean the legs of a table. Therefore, when there is a gap in the noun-adjective pseudo-paradigm, we can fill the gap by using the same base noun as an adjective. Once the whole expression is conventionalised, it is registered as a compound noun in the lexicon.

5. Sociolinguistic and stylistic properties of CAs

In this section, I would like to consider the sociolinguistic and stylistic properties of CAs. Since CAs belong to Latinate vocabulary, the status of Latinate vocabulary in the history of English is discussed first. After that, I would like focus on the status of CAs.

5.1. Brief review of the history of English word-formation

It is well known that the vocabulary of PDE consists of different etymological layers. This enables English speakers to make use of a “treasure house” of synonyms, so to speak.

According to Kastovsky (1989), the history of English word-formation can be regarded as a kind of liberation from root-based to word-based morphology. Kastovsky’s definitions of the stem and the root are as follows:

Stem: a bound, word-class specific lexeme representation stripped of any inflectional endings, but potentially containing derivational affixes or stem-formatives, which determine the inflectional category of the lexeme in question, ...

Root: the element that is left over when all derivational, stem-forming and inflectional elements are stripped away. Such roots can either be affiliated to a particular word-class, or they can be word-class neutral. In the latter case the word-class affiliation is added by a word-formative process, ...

Kastovsky (1999: 43)

5.1.1. Old English (OE)

Kastovsky (1989) characterises OE morphology as a transition from root-based to word-based morphology. In the case of verb morphology, ablaut is still recognisable in OE strong verbs, which can be regarded as a residue of originally Germanic, root-based patterns. So far as OE weak verbs, weak nouns, and strong feminine nouns are concerned, OE morphology is already very much stem-based (e.g. *feorm-ian*, *gum-a*, *luf-u*). Interestingly, *a*-stem masculine nouns (*cyning*), neuter nouns (*word*), and adjectives (*god*) have no inflectional endings in nominative/accusative singular, which can function as base forms with word status. Therefore, we can see the beginning of the shift to word-based morphology even in OE.

5.1.2. ME (Middle English) and later

The history of English word-formation in ME is basically a continuation of this shift from stem-based to word-based morphology. However, Kastovsky draws our attention to the following two groups of exceptions, both of which are related to borrowing: (A) words derived on non-native, “Neo-Latin basis” (Marchand 1969); and (B) words based on so-called combining forms.

The former group (A) is called the layer of Latinate vocabulary. Words belonging to this layer are generally formed on the basis of stems, rather than words. See the following examples:

(11) *science* ~ *scientist*, *divine* ~ *divinity*, *admit* ~ *admission*, etc.

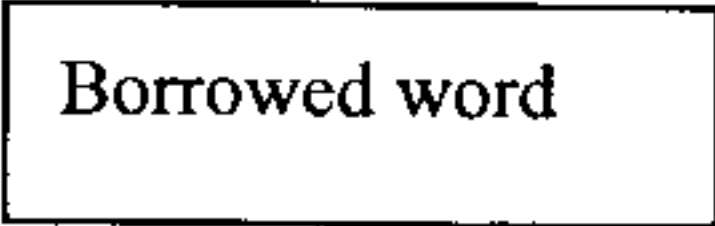
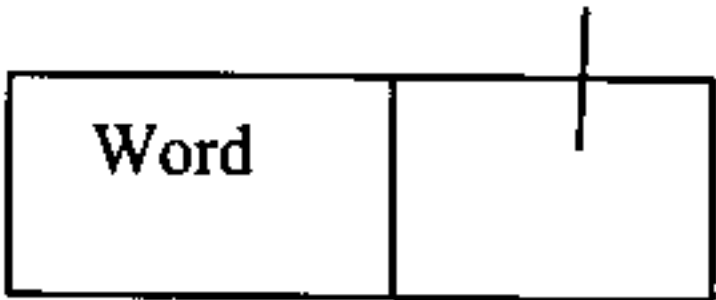
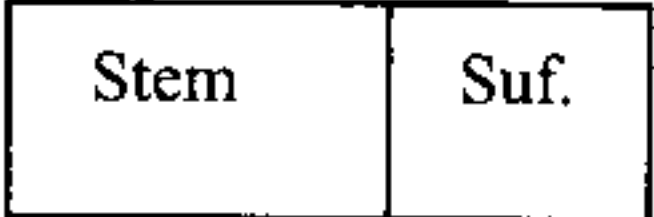
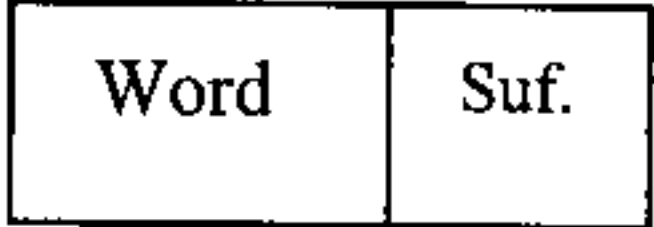
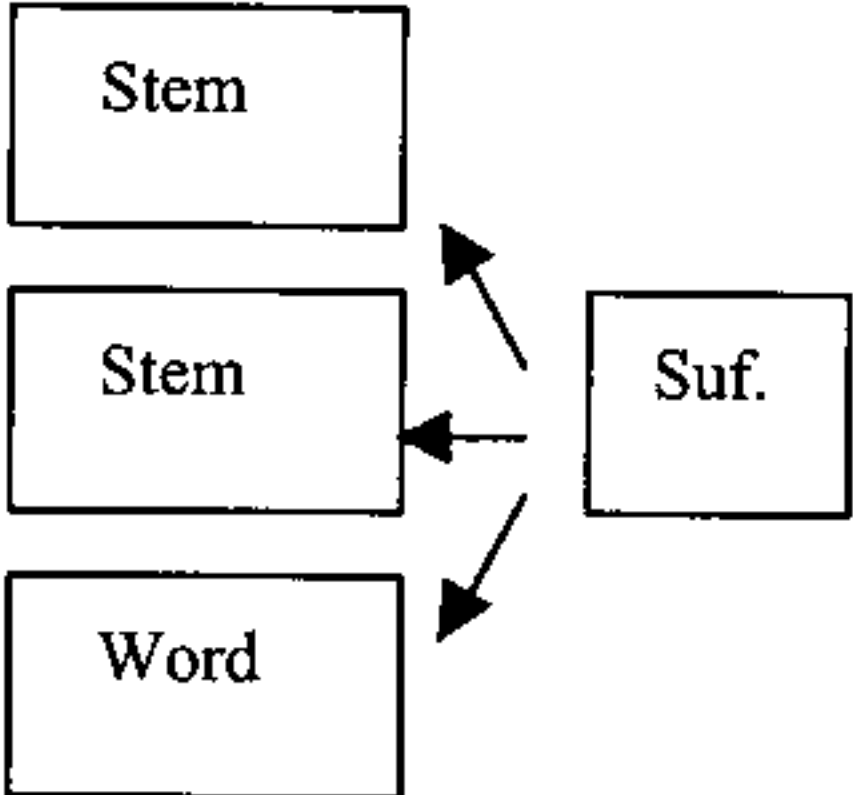
As to (B), I have already mentioned them briefly in 4.3.3. Combining forms are generally borrowed from Greek and/or Latin. Note that the morphology of these languages is known to have root- and stem-based aspects.

Indeed, what seems to be interesting is Kastovsky’s conclusion that these two groups of words are not native in origin. Here what we see is the totally innovative principle of word-formation caused by “wholesale borrowing” (Marchand 1969: 130) from non-native Romance languages and Greek.

5.1.3. Latinate vocabulary and its special status in English morphology

Due to this wholesale borrowing from Romance languages, the morphology of English is largely split into two layers: one the native layer which shifts to word-based morphology, and the other the Latinate vocabulary layer which sticks to root-based morphology. What is interesting is the fact that not only the results (i.e. loanwords) but also the word-formation principles are brought into English. In Koshiishi (1995; 1999), I showed that the following is the general schema of how Latinate morphology takes root in the soil of English morphology:

Table 2. Latinate vs. native morphology in English history³¹

Latinate morphology	Native morphology
<p>(i) </p> <ul style="list-style-type: none"> - Borrowed as an unanalysable, monomorphemic word. - Morphological analysis not yet given. 	<p>(i) Suffix, or phonologically reduced word</p> 
<p>(ii) </p> <ul style="list-style-type: none"> - A suffix abstracted as a result of morphological analysis based on abductive interpretation. - The suffix becoming stylistically distinctive from others.. - The suffix affixed to other Latinate roots. 	<p>- A suffix, or an element having some word-like status existing in the speakers' mind from the first.</p> <p>(ii) </p>
<p>(iii) </p> <ul style="list-style-type: none"> - The suffix affixed even to native stems or words. 	<ul style="list-style-type: none"> - The suffix retaining its status as in (i). - Or, the word-like element becoming a new suffix. - The word status of the base normally kept intact.

Görlach (1997: 110) observes that many words of Latinate origin are what Leisi calls dissociated words. However, he also suggests that as Latinate vocabulary becomes part of English morphology, they become consociated words because many of them are transparent by that time. This is exactly what I have shown in Table 2; abduction-based Latinate morphology constitutes a part of English morphology.

The framework of Lexical Phonology (LP) captures this special status of Latinate morphology by assuming that English phonology is split into at least two strata: one for Latinate words, the other for native words. The basic strategy adopted in LP is to impose various constraints on the phonological and morphological processes assigned to each stratum.

It would be quite nice if everything were perfectly exception-free. However, as Giegerich (1999) observes, the situation is quite complicated because even in the Latinate stratum we see some stem-based, while some word-based.³² Take *-ant* for example, we have stem-based *lubricant*, *stimulant*, *applicant*, etc. as well as word-based *pollutant*, *disinfectant*, *coolant*, etc. Note that the last example is formed on a stem which is Germanic in origin! Therefore, so far as PDE is concerned, an etymology-based analysis, or an affix-driven analysis surely causes problems, which makes Giegerich adopt principles of base-driven stratification in his framework of LP.

However, in terms of etymological layers of vocabulary, I think the following general pattern pointed out by Goldsmith (1990: 247, 273) is still observable: Latinate morphology in general can be regarded as a sort of patching-up device in order to make the word look more like a monomorphemic word, whereas native morphology is just a concatenation of morphemes. This is rightly expected given the fact that Latinate vocabulary is basically composed of loanwords (many of which used to be monomorphemic), and given the observation made by Kastovsky that Latinate morphology is stem-based and is totally outside the realm of native English word-formation processes.

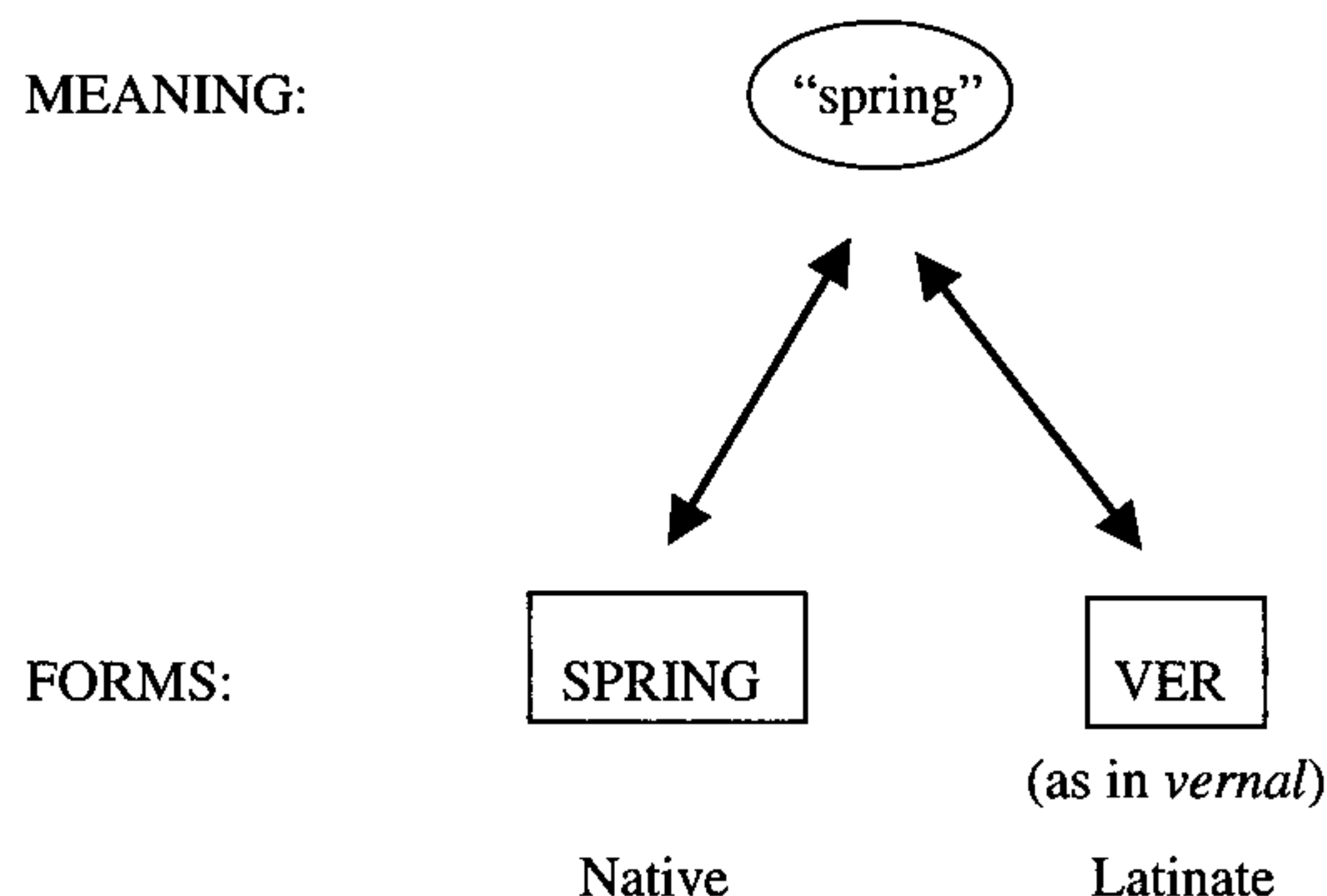
5.1.4. CAs, Latinate morphology, and suppletion types

CAs are still dissociated words which speakers of English have to acquire one by one. This is indeed a great task requiring a tremendous amount of memory on the part of learners; what they do is to connect totally unrelated two forms with one common meaning as Figure 3 illustrates:

³¹ Following Dressler (1985b: 332) who observes that the average length of the words in the world's language is one to three syllables, I assume that the words having more than three syllables are potentially susceptible of this kind of abductive morphological interpretation.

³² Giegerich's (1999) terminology is different from Kastovsky's (1985) in that he adopts "root-based", rather than "stem-based" word formation. Here, I follow Kastovsky's lead.

Figure 3. Relationship between meaning and forms in English



Note that since *vernal* has no corresponding nouns sharing its stem, the relationship between *spring* and *vernal* is direct. Therefore, it is suppletion. However, there are some cases in which suppletion is indirect, as in the *breath-respiratory* pair. In this case, *breath* has a corresponding adjective based on derivation, namely *breathy* and *respiratory* has *respiration* as its base noun. Admittedly, in such a case, we see a fuzzy boundary between pseudo-paradigm and mere semantic relatedness.

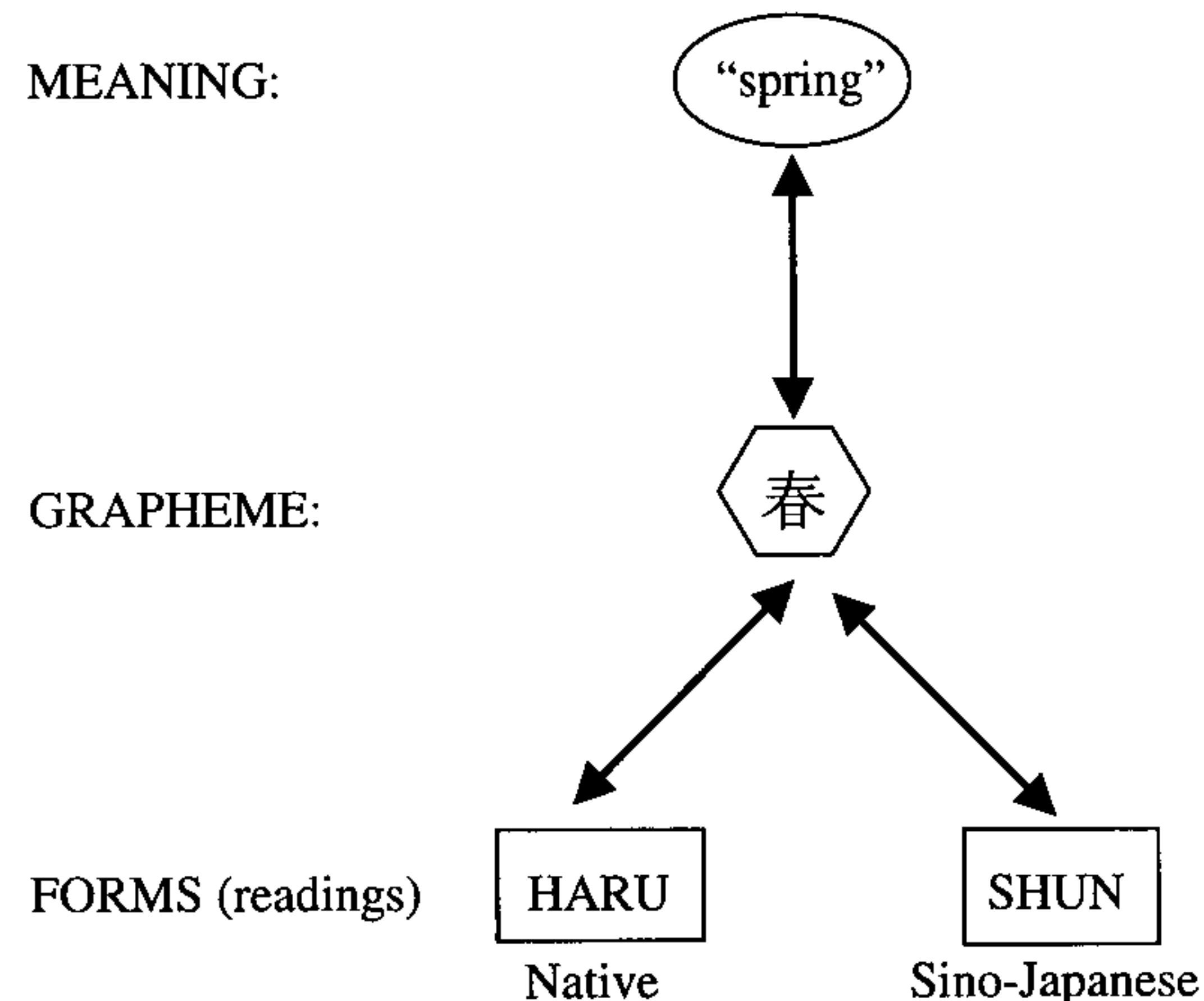
5.1.5. Contrastive studies between English and Japanese

Lipka (1992: 8, fn. 10) introduces G. Pascoe's remark that Persian and Japanese are similar to English because they both have a native vocabulary substratum plus a huge admixture of vocabulary from another source even less closely related than in English. Since I happen to be a native speaker of Japanese, I shall have a brief look at Japanese and make a contrastive study between English and Japanese.

In the case of Japanese, there are at least three different layers in terms of word-formation, i.e. native substratum, and two superstrata, one of which is that of Chinese loanwords and the other that of non-Chinese loanwords. Interestingly, Japanese has developed three letter systems which corresponds to this stratal difference: (A) that of Chinese characters, (B) that of *katakana* syllabary, and (C) that of *hiragana* syllabary. (C) is basically for expressing all native-based function words and (B) is for non-Chinese loanwords.

What is striking is the use of Chinese characters (A). Chinese characters function as mediators between native readings and Sino-Japanese readings (for Chinese loanwords), which can be illustrated in Figure 4:

Figure 4. Relationship between meaning and forms in Japanese



A. Differences between Japanese and English

If we compare Japanese with English, we can note the following four differences. First of all, there is a difference in the importance of borrowed morphology. In Japanese, Chinese loanwords provide by far the most important sources in terms of word-formation, whereas the native vocabulary provides only poor grounds for word-formation processes. This makes a sharp contrast to English word-formation, where native word-formation processes are generally more robust.

Secondly, Japanese manifests a very strong tie between native and Sino-Japanese roots ensured by the existence of Chinese characters functioning as mediators. Nevertheless, we must not forget that this is achieved at enormous educational cost. Indeed, a large part of Japanese education is sacrificed to the learning of Chinese characters connecting these totally unrelated readings. In the case of English, on the other hand, learners can be relatively free from the burden of acquiring Latinate vocabulary. The basic rule is something like this: if you want to enter a university, or a postgraduate school, you should learn Latinate vocabulary.

Thirdly, and even more strikingly, Japanese sometimes allows the cases in which even no remote semantic relations between two readings are possible. The extreme cases are the use of *ateji*, or 'substitute characters', often shown by the use of what is called *rubi*, very small *kana* letters printed alongside of Chi-

nese characters.³⁴ These small letters show how the Chinese characters should be read in each example:

- (12) a. あなた
貴方 (rubi: あなた 'you';
Chinese characters: 貴 'noble', 方 'person')
- おふくろ
母親 (rubi: おふくろ 'mother';
Chinese characters: 母 'mother', 親 'parent')
- b. さすが
流石 (rubi: さすが 'worthy of';
Chinese characters: 流 'rolling', 石 'stone')
- めでたし
目出度 (rubi: めでたし 'lucky';
Chinese characters: 目 'eye', 出 'out', 度 'degree')
- やぼ
野暮 (rubi: やぼ 'uncouth';
Chinese characters: 野 'field', 暮 'nightfall, dusk')

Note that there are still some semantic relations observable between the *rubi* readings and the Chinese characters in (12a). The examples of (12b), on the other hand, show that the *rubi* readings have nothing to do with the meanings expressed by the Chinese characters. Strikingly, to learn these readings is part of knowledge that "fully-fledged" speakers of Japanese have to acquire; it is such ordinary knowledge that normal speakers of Japanese would have no problem in reading them without the aid of *rubi*! We can even say that in Japanese a special paradigmaticity based on the grapheme system enables speakers to connect two lexemes that are not related either formally or semantically.

Finally, English is very special in that its linguistic development has been kept free from the intervention by the authorities. This is striking because other European countries generally have Academies to standardise their languages. In the case of Japanese, we have something similar to the Academy, which is the Japanese Language Council (JLC). Note that even the number of Chinese characters to be learned in schools is determined on the basis of the report submitted

³⁴ The word *rubi* is originally from English word *ruby* meaning "[a] size of type, intermediate between nonpareil and pearl." (*OED* "ruby" *n.* 7.) Note that although the use of *rubi* may not be central in Japanese writing system, it is surely an integral part of the Japanese printing system.

by this organisation.³⁵

B. Similarities between Japanese and English

Although the differences above are remarkable, there are at least two similarities between Japanese and English.

First of all, I would like to point out that both languages are tolerant of absorbing loanwords in general. As to Japanese, it abounds in many non-Chinese loanwords represented by *katakana*, which is often criticised by conservative people. In the case of English, the literature on the mixed nature of its vocabulary is simply boundless. In my opinion, this similarity partially explains why English literature can be translated into Japanese without damaging much of its original flavour.³⁶

Secondly, in terms of morphological typology, both languages tend to develop characteristics of agglutinative languages. It is well known that Japanese is classified as an agglutinative language; but the tendency toward agglutination is surely observed in the case of English as well. We have seen in 5.1.2 that Latinate morphology is one of the two exceptions to the general trend of English morphology because it is still pretty much stem-based. However, even in Latinate morphology, some shift to word-based morphology is under way, as in the following examples from Goldsmith (1990: 261):

- (13) *catholi[k]ism, ?Buddha-ism, ??commune-ism, Indiana-ism, Indian-ism*

Note that here, the suffix *-ism* means "particular ways of speech" (not "philosophy, in a broad sense"), and the word-formation is totally word-based.³⁷ A similar shift is observed in *-ise* suffixation. We have new formations such as *condoise, Judaise, dockise*, etc. with open junctures as well as *criticise, mysticise*, etc. with close junctures. This can be considered a shift from fusional to agglutinative type of morphology because certain meaning element is abstracted and agglutinated to the word.³⁸

³⁵ The JLC report submitted in 1981 selects the total number of 1945 Chinese characters as "Chinese Characters Designated for Daily Use".

³⁶ The well-known conversation between Wamba and the swineherd in Walter Scott's *Ivanhoe*, and that famous Shakespearean phrase, "the multitudinous seas incarnadine" (*Macbeth* 2: 2), or even William Faulkner's modern novels cause no problem when they are translated into Japanese.

³⁷ We even see *ism* used as an independent word (e.g. *Formalism, by being an "ism", kills form by hugging it to death[...]* (*AHD*)).

³⁸ This might sound preposterous, but Hashimoto (ed.) (1980: 286-308) once discussed the possibility of transplanting Chinese characters into European languages. Interestingly, we sometimes see *Xing* for "(pedestrian) crossing", and *E-mail* for "electronic mail", in which the use of *X* and *E* can be regarded as something similar to the usage of Chinese characters.

5.2. Sociolinguistic, or stylistic nature of CAs and Latinate vocabulary in general

As we have just seen in 5.1.4, native speakers of English normally have to memorise Latinate words one by one, which means that the burden of memory on the part of speakers of English in acquiring them is tremendous.

Indeed, this burden of memory CAs impose on native-speakers functions as a social-class divider in English-speaking world. See the enormous number of reference books, vocabulary expanders, and word-study aids displayed in the book-shops! To put it simply, the knowledge of CAs does matter in English-speaking society. When you want to enter a university, you are required to show that you have a good knowledge of CAs. Knowing a lot of CAs is a key to the professional elite, so to speak.

5.2.1. Dictionaries of synonyms, thesauri, etc.

To demonstrate this, first of all, I would like to point out the historical fact that English has cherished a long tradition of publishing good dictionaries of synonyms.

As we have seen in 3.2.3 D, what Pilch (1985) calls satellite words is one of the characteristics of lexical paradigms. Since many pseudo-paradigms are lexical paradigms in Pilch's terminology (cf. 3.2.5 C ii), CAs are often accompanied by satellite words. Since there are no complete synonyms in languages, speakers and writers of English have to face bundles of synonymous words everyday, from which they choose what they think to be appropriate in particular contexts. For the purpose of assisting people about choosing appropriate words, English has had a long tradition of producing dictionaries of synonyms.

As is well known, the first dictionary of synonyms is John Trusler's (1735-1820) *The Difference Between Words Esteemed Synonyms*, published in 1766. This dictionary, however, was a translation of the dictionary of the same title published in France; hence it is generally assumed that the next one, Hester Lynch Piozzi's *British Synonymy; or An Attempt at Regulating the Choice of Words in Familiar Conversation*, published in 1794, is the first dictionary of synonyms in English. Kojima (1999, Chapter 6) observes that the first series of monolingual dictionaries in Britain originated as dictionaries of synonyms giving easier synonyms for hard words.

According to Kajima (1976, Chapter 5), English abounds in dictionaries of synonyms. He also points out that average English-speaking people have a deeper interest in synonyms than Japanese people do. Denning and Leben (1995: 3) estimate that *Webster's Third International Dictionary* contains 460,000 words and conclude that no other language comes close to English in a count of general vocabulary. It is highly probable that the richness in synonyms is partly responsible for this lexical abundance in English.

As to CAs, it is interesting that some monolingual dictionaries dare to deal with them as their subentries, or run-on entries. As I mentioned in 1.1, dictionaries published by Funk and Wagnalls in the 1950's used to put CAs under the entries of their base nouns. See the following description in the "Guide" of *Standard Desk Dictionary*, 1st edition published by Funk and Wagnalls in 1964:

Because of extensive borrowing in English from Norman French and Medieval Latin, we find a good many English nouns which have adjectives closely connected with them in meaning, but not in form, such as *arm* and *brachial*, *horse* and *equine*, *dog* and *canine*, *day* and *diurnal*, etc. These functionally related adjectives are defined in this dictionary in their alphabetic place, but as an added convenience many of them are also shown with their associated nouns. Collateral adjectives follow the sense or senses of the noun to which they apply, and are introduced with a diamond symbol.

Funk – Wagnalls (1964: vi)

Indeed, this is striking because the macrostructure of dictionaries normally obeys the strict alphabetisation principle; and hence it is normally hard to connect words that are different in their forms. Therefore, Funk and Wagnalls' policy of treating CAs as subentries or run-ons, which is an obvious violation of this principle, is eloquent testimony to the exceptional importance of CAs in English-speaking society.

5.2.2. Word games and vocabulary expanders

Secondly, I would like to point out the importance of word games and vocabulary expanders in contributing to sociolinguistic or stylistic elevation of CAs.

As to word games, probably the most well-known one in English-speaking world is unmistakably crossword puzzles. According to vol. 3 of *NEB* (under the entry of "crossword puzzle"), the following is how this word game originates:

The first crosswords appeared in England during the 19th century. They were of an elementary kind apparently derived from the letters read alike vertically and horizontally, and printed in children's puzzle books and various periodicals. In the United States, however, the puzzle developed into a serious adult pastime. The first modern crossword puzzle was published on Dec. 21, 1913, in the New York *World's* Sunday supplement, *Fun*. It appeared as only one of a varied group of mental exercises, but it struck the fancy of the public. By 1923, crosswords were being published in most of the leading American newspapers, and the craze soon reached England. Soon almost all daily newspapers in the United States and Great Britain had a crossword feature of some kind. The *Sunday Times* of London ran perhaps the most well-known puzzle.

(*NEB*, vol.3: 757)

Kajima (1976: 174) points out that this great popularity of crossword puzzles has contributed greatly to a special branch of dictionaries of synonyms, i.e. thesauri.

In early days, clues were basically the definitions of the words to be answered, but gradually, the relationship between clues and the answers became complicated and these days, we often see such metalinguistic clues as "of, or pertaining to the springtime" (for the word *vernal*), or sometimes, "adjective of 'spring'". Evidently, what is tested here is the solver's general knowledge of CAs.

As to vocabulary expanders, we have indeed plenty of them at hand. As we have seen in 3.1.2, the basic strategy adopted in vocabulary expanders is as follows: (A) to appeal to the mechanism of abstract phonology to connect two different forms having the same meanings where possible, (B) to provide reasonably regular sound changes and allomorphy in Latin and Greek morphology, and (C) to provide minimal list of Latin and Greek roots where no such abstract phonology is even remotely plausible. Normally, vocabulary expanders differentiate according to the size of the space they allow for (C). Those targeted at linguistically naïve learners depend heavily on users' brute force of memory and hence (C) occupies a lot of space, whereas those to be used by linguistically trained people tend to allow larger space for (A) and (B) rather than for (C).

6. Summary and conclusions

This final section summarises and concludes the previous discussions.

In sections 1 and 2, I have introduced the term CA and brought up questions related to CAs.

In section 3, after reviewing some theories concerning the notion of paradigm, I have shown that CAs are based on a special meaning-based pseudo-paradigm defined on the basis of general notional similarities between noun and AAs. Then, after defining the scale of paradigmaticity, I have shown further that inflection shows complete paradigmaticity, whereas in derivation paradigmaticity varies considerably in regularity.

In section 4, we have seen the grammatical properties of CAs. First, I have shown that the greater number of them are used attributively. This is because they are first brought to English as part of loanwords which are highly "nouny". *OED*'s descriptions of their earlier examples are shown to confirm this reasoning. I have also considered the differences between CAs on the one hand; and non-collateral adjectives, POSS nouns, combining forms, and nouns used attributively on the other.

In section 5, after reviewing the history of English morphology, I have concluded that the brute force of memory evoked in memorising two unrelated forms with the same meanings, i.e. native and Latinate forms, functions as a sort of social-class divider in English-speaking society. What this means is that the knowledge of Latinate vocabulary of which CAs are part is of great importance

in that society. I have given the immense number of dictionaries, word games, and vocabulary expanders for the demonstration of this fact. I have also given a contrastive study between English and Japanese in this section and concluded that in spite of differences, English and Japanese has developed the same characteristics, i.e. the general tolerance toward loanwords and general tendency toward agglutination.

Dressler (1985b: 343) observes that PDE displays "a very weird typological mix in morphology". According to him, "[i]n a nutshell, it combines weakly inflecting type inflectional morphology (including the tendency towards monosyllabic [Germanic] roots and lack of morphological gender and paradigm distinction) with strongly inflecting (fusional) type derivation morphology in its large Latinate lexical stratum, rather agglutinating Germanic derivational morphology, and polysynthetic aspects of compounding." I have found that these observations characterise English morphology very aptly. And my conclusions in this paper surely support his second (strongly inflecting type) and third (rather agglutinating type) observations.

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