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Category change and gradience in the determiner system

0. Introduction

In this chapter I will explore gradience between adjectives and determiners, part of an ongoing research programme.[1] I begin with some pre-theoretical background. The main thrust is as follows. An account of Present-day English (PDE) morphosyntax cannot easily be made to fit the facts if it insists on Aristotelian categories with necessary and sufficient conditions for membership and hard-and-fast boundaries. An alternative is to admit the idea of prototypes into morphosyntactic categorisation, allowing for gradience within the category and perhaps degrees of membership. A special case arises when increasing distance in one direction from the prototype of one category corresponds to increasing closeness to the prototype of another, which can be the case where different values of the same parameter help to define each of the categories concerned: now we can have gradience *between* two categories. For several examples of this in English, notably across the Adjective ~ Noun boundary, see Denison (2001), and for further accounts along broadly similar lines see the survey in Aarts, Denison, Keizer and Popova (2004, pp.10-12) and works excerpted in Part III of that reader. Fuzzy boundaries between categories turn out to be helpful — in my opinion, necessary — in the description of the history of determiners in English (of which this chapter makes no attempt to be a full account).

Note that allowing for gradience within and between categories does not preclude the employment of categories either in the mental representations of language users or the grammars of linguists. It may well be the case that inter-category gradience is a marked option in the language system: certainly, intermediate forms are often unstable chronologically, as e.g. the transitive adjectives that hover between Adjective and Preposition (Denison, 2001, pp.131-3). Furthermore, gradience need not involve strict adherence to prototype concepts. There are associated ideas, such as **schema-based prototypes** and the **cluster concept** — and indeed the earlier **family resemblance** —which do not require every category to possess at least one wholly prototypical member, since various combinations of condition may in some cases be sufficient for membership without any particular set of

conditions being necessary. See the helpful discussions of the cluster concept and references in Jackendoff (2002, pp.352-6), there largely in relation to conceptual semantics rather than morphosyntax, and of prototypes in Croft (2001).

The consequences for syntax of categorial gradience are less clear, but one possible avenue, if category labels for individual words are no longer always clear-cut, is to abandon syntactic models which require both a unique category label and a single mother node for every single word in a sentence. Some version of Construction Grammar may be a more appropriate model.

I will motivate gradience a little further in the remainder of section 0, then, confining myself to PDE for the time being, look at the major categories involved in the NP in section 1 and their interrelationships in section 1.4. In section 2 I review some approaches to the Determiner category. After that we can turn to the history of determiners in English. Section 3 considers inflectional behaviour, positional syntax and cooccurrence, and in section 4 there is specific evidence for gradience, including a detailed corpus investigation. Section 5 forms a brief conclusion. There follows a list of corpora cited as sources of examples.

0.1. Mainstream morphosyntax

It is widely recognised that:

- any lexical category (N, A, V, etc.) is defined by a basket of properties;
- not all members of a category display every property of that category;
- some items are 'better' (more prototypical) members than others.

Fat is a really 'good' Adjective, whereas *mere, potential, ill, well, woollen* are for various reasons less good. *Mere*, for example, lacks gradability, a comparative (but not a superlative), and cannot occur in predicative function. *Boy* is a really 'good' Noun, being concrete (indeed animate), countable, and morphologically regular, whereas *flour, ridicule, English* are less good exemplars of the category Noun.

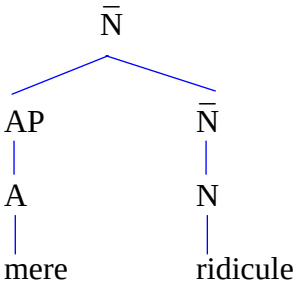
0.2. Mainstream syntax

In most formal and many structuralist approaches we find:

- Aristotelian category membership of lexical items (e.g. no degrees of nouniness);
- no intermediate possibilities between, say, N and A;
- unique constituent analysis of a sentence (± derivational movement and re-analysis).

Tree diagrams, as for example a phrase formed by the adjective *mere* and the noun *ridicule*, don't have percentages or question marks against category labels, whether in constituent or dependency syntax, even if the lexical items concerned are not prototypical members of their category:

(1)



Nor does constituent structure involve degrees of motherhood (lines of variable thickness?) or multiple mothers for one daughter node (upward branching trees).

0.3. Same river?

Are these approaches, which I have cheerfully (but, I hope, fairly) characterised as 'mainstream morphosyntax' and 'mainstream syntax', actually consistent with each other? Here are two possible answers:

- **Yes**. Sentence patterns are stored and processed differently from lexis. For example, a general — if generally unstated — assumption seems to be that even poorer exemplars of a given category 'snap into place' in a particular syntactic structure *as if* they were prototypical members of that category.
- **No**. Gradient category membership for words implies the possibility of constructional gradience for sentences. Consider those sentences where an alternative analysis of the category membership of a word would correspond to a difference in structural position (as with SKT-constructions: see 4.3 below). If the alternative category membership is one of those cases which look like gradience between categories, then the structure ought to be treated as in some way intermediate or gradient as well.

It is the latter option that is implicit in what follows, though I will not explore the syntactic consequences here. A helpful survey of some relevant material on category membership appears in Aarts (2004), though Aarts himself discounts most claimed instances of inter-category gradience.

1. PDE nominal categories in practice

Formal grammars and most modern descriptive grammars of English start with a fixed set of categories which includes D = Determiner. However, it is possible — and desirable — to look at a language without preconceptions about its lexical categories. Ordinary, uneducated language users have no knowledge of non-inflectional categories, and it is not *a priori* obvious that categories are fundamental in language description (see for example Croft (2001, Chapter 2)). What speakers experience is *usage*, from which they no doubt intuit patterns of various kinds. Most linguists attempting to generalise from usage find it a helpful economy to recognise that words generally pattern according to a relatively small number of syntactic categories, but categories are still a secondary phenomenon. Whether categories or constructions have more psychological reality is not clear.

1.1. Determiner

The structuralist tradition derives its categories by distributional means. Suppose it has been decided that the categories N = Noun and A = Adjective are justifiable or indeed necessary for English — and they are almost universally accepted. Where does D = Determiner come from? According to *OED* (the *Oxford English Dictionary*) the term is Bloomfield's (1933), but *article* as a category is much older. In English, the usual route to the postulation of a category D is to argue as follows, exemplified by the *Cambridge Grammar of the English Language*, henceforth *CGEL* (Huddleston and Pullum, 2002, pp.538-40), where the category label used is 'determinative':

- Like A, the articles *a* and *the* can serve as pre-modifiers of N.
- However, they are so different from prototypical A as to justify a separate category label of their own. (Note, however, that Bloomfield defines *determiner* as one kind of 'limiting adjective'.) For example, the articles cannot occur alone in predicative position, unlike pronouns and adjectives.
- *This, that, my, each*, etc. have a similar distribution to the articles and are mutually exclusive with each other and with the articles.
- Overall, *this, that, my, each*, etc. are much more like the articles than they are like A.
- These facts make it handy to put them all in one category, D.

Let me emphasise that this approach seems methodologically defensible and empirically quite successful, and there are many advantages in distinguishing the three categories D, A, N. In an earlier work, Huddleston had first pursued a similar line (1984, pp.97-98), then

conceded that there was insufficient evidence to decide whether or not D is a subclass of A (1984, pp.304-305).

In the generative tradition, D can be a functional category rather than, or as well as, a lexical category. Its semantics are largely to do with definiteness or referentiality, and this provides much of its cross-linguistic justification in the grammatical model. Most determiners with lexical content are members of more specific categories, such as DEM = Demonstrative. However, functional projections serve no purpose outside Minimalism and related theories. The structuralist approach outlined in the previous paragraph only deals with items that have overt phonetic form, and it relies heavily, if not completely, on formal and distributional criteria for the identification of categories. In that approach, therefore, being the locus of definiteness would not be a primary criterion. For an excellent treatment of prenominal categories and the problems of demarcation in Swedish, interested readers are referred to Börjars (1998), whose methodology and indeed conclusions often carry over to English.

1.2. The principal nominal categories

The principal domain of the categories D, A and N is the NP, whose other important possible constituent is Prn = Pronoun. Again we have a problem, because Prn may be a separate category in its own right or perhaps a subcategory of N, since it can — like a noun — act as head of NP (thus *CGEL* (2002, p.327)). The latter point is not valid under the DP Hypothesis, where N is head of NP but D is head of a higher DP node. In fact there is strong distributional evidence both against treating D as a subcategory of A and against treating Prn as a subcategory of N, if I have made a good choice of parameters in the following table:

Table 1: categories in Present-Day English

property	D	A	N	Prn	kind of property
lexical rather than grammatical	**–**	**+**	**+**	**–**	**open/closed class, semantic**
can iterate	**–**	**+**	**(–)**	**–**	**syntactic**
can act as predicate	**–**	**+**	**–**	**?**	**syntactic**

number marking	**(–)**	**–**	**+**	**+**	**morphological**
subjective~objective case marking	**–**	**–**	**–**	**+**	**morphological**
comparison	**–**	**+**	**–**	**–**	**morphological, semantic**

Here the first property is to do with openness of the class, though it has a semantic component, and it is probably related to the second, which is a syntactic property, as is the third. The last three are morphological, though comparison has a semantic component too.

1.3. Rough edges to nominal categories

But not a single one of the 'facts' in Table 1 is straightforward, even in PDE. For example,

- The contrast lexical ~ grammatical is not a clear-cut one.
- Within D some iteration is possible.
- Not all A can act as predicate.
- Number marking is sporadic in D and lacking in some N and Prn.
- Case marking is sporadic in Prn.
- Comparison is not universal in A and conversely *is* possible with some quantificational and degree D.

Remember too that the original argumentation suggested that the articles were very distant from *prototypical* adjectives — and the very possibility of appealing to prototypical membership of a category concedes implicitly that membership of that category is gradient. (For some scholars, a gradient of prototypicality *within* a category is still compatible with an insistence on clear yes-or-no membership of the category (Aarts, 2004).)

1.4. Subcategories of D

Cooccurrence with D should disqualify a word from being D itself, since part of the case for D was that it was a non-iterative category, like M = Modal in standard English. However, there are words which are semantically and syntactically more like D than A, which precede [other] adjectives in the NP, but which nevertheless can co-occur with D. One solution is to subcategorise D into Predeterminer, (central) Determiner and Postdeterminer. Thus we get strings like *both the other movements* (Brown Corpus) and *all its many aspects* (LOB), which suggest that *both, all* are predeterminers and *other*, *many* postdeterminers.

However, there are well-known problems here. One such is *such*. It is incompatible with many central determiners, which suggests that it is one itself. But it is frequent before *a* and after *any*, which implies respectively pre- or postdeterminer. And with *(an)other* there are alternative orders, with a historical change in frequency:

(2) The risk of cancer from normal radiation exposure is simply insignificant compared to *such other causes* as smoking, industrial pollution, and life-style. (Frown)

(3) She was not alone for there were *three other such children* in the big city's special nursery. (Brown)

The conclusion of two recent works is that *such* is not a determiner at all, but an adjective (Huddleston and Pullum, 2002; Spinillo, 2003). Note, for example,

(4) *The latest such gratifying eye-popper* comes from Manhattan (Frown)

where it comes between two adjectives. (We might also be tempted to group predeterminer *such a* with certain other originally multi-word forms like *don't, let's*, and *there's* — all of them tending to behave as invariant particles which signal phrase or clause type in initial position. Johanna Wood provides additional evidence of invariance from the frequent 'error' *a such a*, (2002, p.109).)

There are similar problems with *every*. Is *every* a central determiner — because incompatible with *the* — or a postdeterminer? An apparent example of the latter is:

(5) The stock market leaps and tumbles at *Peking's every smile or frown*. (BNC)

Such postdeterminer usage is rather limited. *Every* in the (5) pattern is described in *CGEL* (2002, pp.379, 469) as having a modifier rather than a determiner function, but with no detail on the limited range of heads it occurs with, apart from the claim that they are 'probably all abstract'. Quirk et al. are similarly unspecific (1985, p.257 n.[c]).

1.5. D and Prn

Another problem concerns whether particular members of the category D need to be used with a following noun. This is usually taken to be an either-or matter. Most of them can, which is part of the argument in favour of the DP Hypothesis, in which D and Prn effectively fall together. But the distinction may be gradient. On the basis of behaviour with gerunds, as in

(6) *This being seduced continually* is kind of fun.

Ross concludes (1973, pp.168-9 [= 2004, pp.372-3]):

> In my speech, there is a hierarchy of "noun-requiringness" of determiners, with those on the left end of the hierarchy occurring in a wider range of contexts than those on the right.

His hierarchy is as follows:

(7) NP's ? > { *this* / *that* } > { *no* / *some* / *much* / *little* } > { *the* / *prior* / *occasional* / *frequent* } > { *careful* / *reluctant* / etc. } > { *good* / *bad* } ? > { *other* / *mere* }

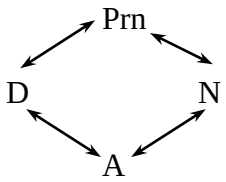
We can recognise some support for the gradedness of the subcategorisation facts without necessarily endorsing every detail of Ross's claims.

2. How to handle nominal categories

2.1. Category space

The four categories D, A, N and Prn, assuming we decide to retain them, all show gradient membership, and there is leakiness of boundary between all four adjacent pairs in the following diagram:

Figure 1: category space



By contrast, there does not appear to be a fuzzy boundary between the categories represented as opposing vertices (D ~ N or Prn ~ A). The diagram simply represents my empirical knowledge of English, and I hesitate to claim any cross-linguistic validity for it.

2.2. Does dependency grammar have a need for D?

Hudson has suggested an analysis of determiners in which D is seen as a type of Prn, thus capturing the similarity of

(8) a. I don't like that.
b. I don't like that pudding.

A range of arguments is given in Hudson (2000), Spinillo (2000). *The* and *every* are categorised as pronouns that require common-noun complements, while *I* and *him* are pronouns that disallow them. Accepting this would solve some of the problems noted in section 1.3 above. Hudson goes on to argue that Prn, like common noun, is merely a kind of noun, thus collapsing three of our four nominal categories under a super-category, N. Although the analysis has some attractive features and offers genuine insights — note that common nouns, like some of Hudson's pronouns, can act as premodifiers of other nouns, as in *hilltop phone transmitters* — common noun and Prn remain distinct labels. And differences of distribution within the super-category still need to be captured.

2.3. Do generative grammar or typology have a need for D?

Working in the Principles & Parameters framework and using a modest sample of cross-linguistic evidence, Giusti (1997) suggests that the category D is too diverse to show uniform syntax across languages, and that a more successful analysis (both cross-linguistically and in the individual languages considered) would split the category up. She focuses on three types of element normally thought of as D: articles, demonstratives and quantifiers. She argues that 'only articles are extended heads of the noun phrase', i.e. truly D. Demonstratives 'occupy specifier positions', while quantifiers are either adjectives or are lexical heads complemented by a full DP. The details would take us too far afield, but these conclusions are not dissimilar to those of scholars working in very different traditions, e.g. Spamer's work on OE (Old English), on which see sections 2.4 and 3.2 below. Several papers in van Kemenade and Vincent (1997) examine accretion to the category D in particular languages (Romance or Germanic) without questioning its status as a linguistic universal. It would be useful to investigate whether there is widespread typological and cross-linguistic support for the category D.

2.4. Category and function

A recurrent concern of this chapter is the boundary between Determiner and Adjective, which leads us to a brief digression on the definition of the latter. Spamer (1979, pp.242-3) makes a distinction between **adjectives** and **adjuncts**, defined positionally. This seems to be a functional distinction rather than a categorical one, though he confusingly uses 'adjective' as a category label as well and has no systematic distinction between functional and categorical facts. In PDE, for instance, he cites from (Jespersen, 1909-49, p.II 328):

(9) a. an eminent Shakespearean critic

b. a learned Dante scholar

In (9), *eminent* and *learned* would be adjectives, while *Shakespearean* (= A) and *Dante* (= N) would be adjuncts. (The difference can also be captured by calling the latter type a **pre-head complement**, since *Shakespearean critic = critic of Shakespeare*.) In PDE both the adjective and the adjunct slots are recursive. Spamer's brief account fails to explain why within his adjunct slot (equivalent, I think, to what Quirk et al. (1985, pp.1338-40) call Zone IV, the prehead zone), A normally still precedes N:

(10) a. Gothic church towers

b. Chinese jade idols

However, it brings out some interesting facts in Old English.

3. Inflection and cooccurrence in history

3.1. Determiner in history

We have already noted some problems with the category D in PDE. The term **Determiner** is retained without comment by all four authors of 'Syntax' chapters in the historical volumes of *The Cambridge History of the English Language* (Hogg, 1992-2001), of whom I was one, but I now realise that the evidence for the existence of D is much shakier in earlier English. For example, it is generally agreed that 'definite article' is a problematic term for the *se / þæt / seo* paradigm ('the, that') in OE. And if in Present Day English the articles, the core of D, are clearly different in their distribution from Prn, this is quite unclear for the apparent precursor of *the*, which has full pronominal function in Old English, and for the etymon of *a*, which is certainly a numeral in many instances and possibly an indefinite article in others (Mitchell, 1985, pp.95-101; Traugott, 1992, p.176). So the very starting point used in the PDE argument (section 1.1 above) is much weaker. Furthermore, inflectional variation is common to the precursors of all four categories D, A, N and Prn, which carry both number and case marking, while the precursors of central determiners permit iteration in ways that have become impossible in late ModE (Modern English). Thus the distributional evidence for separating off a category D is much less clear, or at the very least must be considerably different. Let us look more closely at some of the main NP categories in Old English.

3.2. Inflection in Old English

In Old English, adjectives share parts of their inflectional paradigms with both determiners and nouns. (For the time being, demonstratives and so on will be put under the category label

Determiner for expository purposes, an analysis questioned below.) When D is present in the NP — and also in vocatives and when A is comparative — A is inflected according to the so-called weak or definite or *n*-declension, which is shared with a declension of nouns and is rather different from the kinds of inflectional paradigm found with D. Otherwise A follows the strong or indefinite declension, which is more similar morphologically to the pattern of D (as represented by *se / þæt / seo*) than to any noun pattern; details are given in any handbook of OE grammar. In fact this declensional pattern is virtually identical to the pattern of 3 person Prn. On the strength of this, one might be tempted to recognise three positional slots in NPs containing no more than one prenominal adjective (strings of prenominal adjectives not being especially common in OE (Fischer, 2000, pp.172-4)). The examples in Figure 2 are from the Toronto Corpus, though it is surprisingly hard to find genuine minimal weak ~ strong pairs.

Figure 2: the simple NP in Old English

1	2	3	
D	**weak A**	**N**	***þone soðan dryhten* 'the true lord' (ACC SG)**
strong A		**N**	***soðne drihten* 'true lord' (ACC SG)**
Prn			***þone* 'that one' (ACC SG)**
Prn			***hine* 'him' (ACC SG)**

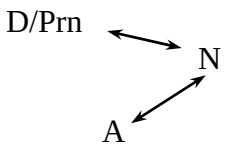
This is not to argue that D = Prn = strong A in category terms, though such arguments have been put forward in the past. What it might represent is a functional similarity between them, however.

In Spamer's account of OE, only A with strong endings are adjectives in the functional sense, whereas A with weak endings are actually adjuncts; but cf. Fischer (2000, pp.165, 172). The distributional facts cited by Spamer support the classification made in Figure 2 on inflectional grounds. For him the adjective slot is non-recursive, unlike in PDE. He goes on from this to argue that weak adjectives in OE are substantivised, while demonstratives and strong adjectives — being mutually exclusive — belong to the same morphosyntactic category. Thus 'the demonstrative was synchronically realized as an

adjective' in OE, or 'both belong to the same form class which I have here called "modifiers"' (Spamer, 1979, p.247). One strong point of Spamer's analysis is that weak adjectives in OE do not appear to undergo degree modification (Fischer, 2000, pp.169, 174)

Rather than equating D and A, it would be easier in distributional terms to justify lumping D and Prn together, suggesting a possible simplification of our category space:

Figure 3: simplified category space in OE

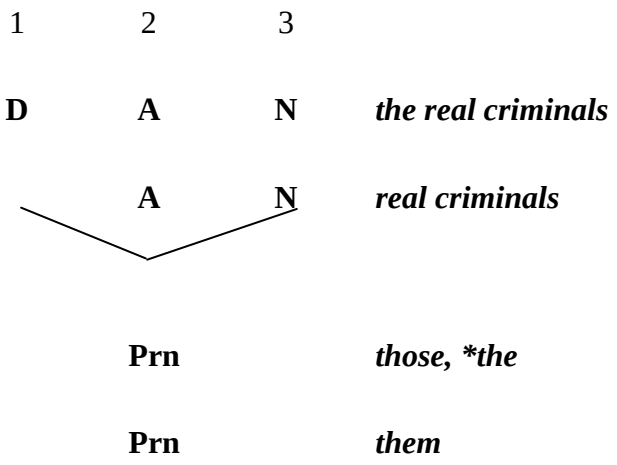


We might also retain some of Spamer's insights by enforcing a distinction between categorial and functional levels, so that his 'modifier' would be seen as a functional slot which could be filled by items from the categories (weak) adjective or noun. However, collapsing the categories D and Prn is actually least convincing for what might be thought of as the central members of Prn. The personal pronouns (and even more so the indefinite pronoun *man*) do not generally co-occur with A or N, unless in apposition.

3.3. Inflection in Middle and Modern English

If there is any merit in the observations encapsulated in Figure 2, it is interesting to note that the break-up of the OE nominal inflectional system included the loss of any inflectional distinction between strong and weak adjectives, and the disappearance of non-clitic *the*, so that position 1 became less well supported. The development of articles is generally dated to the ME (Middle English) period, and the articles — as noted in section 1.1 above — provide the strongest justification for a category D. Arguably the newer dispensation is:

Figure 4: the simple NP in Middle and Modern English



3.4. Cooccurrence in earlier English

It will be recalled that the structuralist conception of D is of a non-iterative category that precedes (A and) N in the NP. Historically there is a great deal to say about the evidence of order and cooccurrence, but I have little space to go into detail. Adjectives occurred more freely post-nominally, but also, occasionally, even before D. Mitchell gives (11) as a rare example from Old English (1985, p.70), while Fischer cites (12) as a nice contrast from the two MSS of Laʒamon's *Brut* in early Middle English (1992, pp.215-16)

(11) on wlancan þam wicge (*Mald* 240)
on proud the horse

(12) a. mid godene heore worden
b. mid hire gode wordes (Lay. *Brut* 334)
'with their good words'

Fischer treats cooccurrence as well, noting such ME combinations as the following (1992, pp.211-14):

- predeterminers *each, many, such, which, what* before *a*;
- *some, any* before *the*;
- *all* + *both* (suggesting that *all* is originally an intensifier, not a quantifier);
- two determiners together: *other* + *some, all, many, more*.

Similarly Mitchell (1985, pp.68-71) and Traugott (1992, p.173) for Old English, Rissanen (1999, pp.195, 205-8) for early Modern English. Another alteration of cooccurrence

restrictions is the loss of the *this my chapter* construction in late ModE (Denison, 1998, pp.114-15; Fischer, 1992, p.213; Rissanen, 1999, p.206)

A cautionary note is needed here: frequency is an important consideration with all such possibilities. There are common patterns and there are patterns which are difficult to find, and they should not be given equal status — though a pattern may be infrequent for many reasons other than marginal grammaticality, including full grammaticality but restricted pragmatic usefulness, and relic status. On the place of frequency in historical change see, for instance, Bybee and Hopper (2001), Krug (2003). All in all, though, the very different cooccurrence restrictions in earlier English make it unacceptable to use without question a set of categories mutually defined for PDE. Furthermore, the evidence of long-term change over many centuries does not support the idea of a sudden, 'catastrophic' switch, whether in the inventory of categories or in the category of individual lexical items, at a single point between OE and late ModE. Rather there has been step-wise change, and part of the input for such diachronic changes has been synchronic gradience.

4. Gradience in history

I give four separate pieces of evidence that gradient categorisation has played a part in the history of determiners.

4.1. Possessives as D or Prn

The first concerns the so-called possessive pronouns. In PDE, the possessive determiner *my* and the pronoun *mine* — and all other such pairs — belong to different categories in conventional (traditional) analysis. The forms like *my* are very similar to the definite article in distribution, acting only as proclitics. I will summarise their history; for a full and careful recent study see now Allen (2002). OE had the following 1 and 2 person pronouns (ignoring dual forms, which only survived into early ME):

Table 2: deictic personal pronouns in OE

	singular		plural	
	1 SG	**2 SG**	**1 PL**	**2 PL**
nominative	***ic***	***þu***	***we***	***ge***
dative (later also accusative)	***me***	***þe***	***us***	***eow***
genitive	***min***	***þin***	***ure***	***eower***

The genitives were formed from the Germanic suffixes *–īno-* in the singular, *-oro-* in the plural (Prokosch, 1939, p.285) and could function as normal case forms, as in (13) after the verb *andbidian* 'wait for', which is construed with a genitive object:

(13) We andbidodon *ðin* halga fæder þæt ðu … (ÆCHom II)
we wait-for(PAST) you(GEN) Holy Father(NOM) that you …

But the 1 and 2 genitive forms could take additional adjectival inflections, as in (14):

(14) astrece *ðine* hand ofer ða sæ. (*ÆCHom* II)
stretch your hand(ACC SG FEM) over the sea

By the end of the morphophonological reductions of the ME period, there were no case inflections left, and genitive was no longer a case used after verbs or prepositions, so that *min* and *þin* were now exclusively possessives. Gradually there developed a phonologically conditioned alternation between forms with and without *–n*, depending essentially on whether the next word began with a vowel or *h-*, or not, as in *thyne oure* 'your hour/time' vs. *thy grete batayle* 'your great battle' (Malory). The same alternation was seen with *one* and *none*, whose *–n* was of very different origin. And this phonological conditioning turned in the course of the eModE (early Modern English) period into a grammatical conditioning for *my ~ mine, thy ~ thine* and *no ~ none* (but not *a ~ an*). Meanwhile other possessives like *our, your, her, their* had developed forms with *–s*; see Mustanoja (1960, pp.157, 164), Allen (2002, p.202). These are historically double possessives, used exclusively as independent (= disjunctive) pronouns apart from brief, occasional interludes as possessive determiners in ME (*hers*), eModE (*ours, yours*) or both periods (*theirs*). The forms without *-s* had wholly lost pronominal function before the end of

the eModE period, thus bringing about the same grammatical alternation, D ~ Prn, for *your ~ yours* as for *my ~ mine*. Only the possessives whose determiner form ends in *–s* already (*his, its, one's, whose*) have failed to develop this grammatical alternation.

Even if one's theory demanded sudden reanalyses, it would be very hard to pin one down in the historical data. The histories sketched above, especially the developments of a phonological conditioning and then of a grammatical conditioning of possessives, seem to me classic cases of a synchronic gradient leading eventually, though not necessarily in a unidirectional fashion, to a diachronic change.

4.2. D and A

The second piece of evidence concerns the D ~ A boundary. We have already looked at Spamer's attempt to group demonstratives and strong adjectives together (section 3.2 above). At the same time as Spamer, but apparently independently, Lightfoot attempted to show that quantifiers at least began life as adjectives in Old English but were reanalysed as determiners in the sixteenth century (1979, pp.167-86).

It is a problem trying to find syntactic tests for distinguishing Determiner and Adjective in OE. An obvious starting-point is the major grammars of PDE. Curiously, Quirk et al. discuss adjectives in relation to various other word classes, but not Determiner (1985, pp.404-16). *CGEL*, however, offers three tests satisfied by D but not A (2002, pp.538-40), adding a fourth subsequently for gradable determiners:

(a) mutual exclusiveness with the articles (**the neither book*);

(b) admissibility of count singular NPs (*neither book*);

(c) the partitive construction (*neither of them*), also called a **fused-head construction** because a constituent is simultaneously a head and a determiner (in their nomenclature, determinative) or modifier;

(d) functioning as pre-head dependent in NP structure when modified by *so,* without having to be a predeterminer before the indefinite article (*so many mistakes*).

Of these tests, none apart possibly from (c) would be appropriate for OE. Lightfoot, however, does not regard headship of a partitive phrase as categorially significant, attributing to Kellner the claim that a number of categories, including adjectives, could govern partitive genitives in (unspecified) earlier English (1979, pp.170-1). But Kellner (1892, p.108) had actually specified comparatives or superlatives as possible adjectival heads of a partitive (and illustrated neither), while Mitchell mentions only superlatives and a limited set of

quantificational forms (1985, pp.545-7, 560). More generally, Dick Hudson finds it hard to imagine a plausible *use* for A as head of a partitive (p.c. 15 Mar. 2004).

So could an ordinary, positive adjective be head of a partitive in early English? I have tested this in the York-Toronto-Helsinki Parsed Corpus of Old English Prose (YCOE) (2003) and in the Penn-Helsinki Parsed Corpus of Middle English (PPCME2) (2003). Partitives can either be an NP marked with genitive case (the norm in OE) or an *of*-phrase (the norm from ME onwards), and they can precede or follow the head. I searched the 1.5-million-word YCOE for NPs consisting of a head which is tagged in the corpus as genitive NP plus quantifier, determiner, numeral or adjective (lexical or phrasal). There were 3634 hits, about 30% of them with genitive NP before head, and all are partitive structures bar at most a dozen. The doubtful cases include some like

(15) seo is ure ealra moder
'she is mother of us all/of all of us'

where the genitive *ealra* could be taken either as an adjective postmodifying genitive *ure* or as the head of a partitive. In OE the construction is naturally rarer with an *of*-phrase: up to 80 examples, some of which may involve *of* in a spatial sense. All in all, the heads of partitives are overwhelmingly the ancestors of what would later be determiners, where they survived. Here are the ones I found, ignoring most spelling and inflectional variants, and with very crude and often etymological glosses given for convenience:

(16) *Ægðer/æghwæðer/aðer* 'either', *ælc* 'each', *ænig* 'any', *nænig* 'not any, no(ne)', *an* 'one', *nan* 'none', *awiht* 'anything, "owt"', *nowiht* 'nothing, "nowt"', *eall* 'all', *efenfela/emfela* 'equally many', *fela* 'many', *fea* 'few', *ane feawa* 'a few', *genog* 'enough', *healfe* 'half', *hwa/hwæt* 'who, what', *æghwæt* 'each/any one', *gehwa/gehwæt* 'each/any one', *hwætwugu* 'something, somewhat', *hwæðer* 'which of two', *gehweðer* 'each of two', *naðer* = *nahwæðer* 'neither of two', *hwon* 'a little', *hwylc* 'which', *gehwylc* 'each', *hwylcehugu* 'some', *læsse* 'less', *lyt* 'little'', *an lytel* 'a little', *unlytel* 'much', *ma* 'more', *monig* 'many', *efenmycel/emmicel* 'of equal size', *medmicel* 'small, unimportant', *oðer* 'other, second', *se* 'the, that', *sum* 'some', *swilc* 'such', *twæde* 'two thirds' and numerals.

I did not find either *un(ge)rim* 'innumerable' or *þes* 'this'. The following examples could be regarded as having an adjectival head, though *frumcenned* 'first-born' in (19) is a kind of

ordinal numeral (or superlative), *æges hwit* 'white of egg' in (18) is arguably quantifying in meaning, and the remainder certainly are:

(17) Wið eagna miste genim *cileþonian seawes cuclerfulne*
(colaece,Lch_II_[1]:2.1.17.173)
'for mistiness of eyes take a spoonful of juice of celandine'

(18) gedo *æges hwit* to (colaece,Lch_II_[3]:59.1.1.4047)
'add white of egg to it'

(19) *þinra bearna frumcenned* þu scealt alysan:(cootest,Exod:34.20.3595)
'firstborn of your sons you shall redeem'

(20) *gehwæde arodes woses* (colacnu,Med_3_[Grattan-Singer]:7.1.32)
'a little juice of arum'

Note in relation to *cuclerful* in (17) that *OED* gives *handful* as the only such compound found in OE (s.v. *–ful* suffix 2); in any event, such compounds have always been used either as determiners or as nouns in English.

A number of examples tagged in YCOE as adjectives involve *midd* or directional and locative forms ending in *-weard*, precisely the group of adjective-like words whose positional behaviour and (in the case of *midd*) choice of weak or strong declension is quite different from any other adjective (Mitchell, 1985, pp.70-71), for example:

(21) on *Israhela bearna middan* (cootest,Deut:32.50.5139)
'amidst the children of Israel'

(22) eallswa we ær on *foreweardan þysre race* rehton.
(cosevensl,LS_34_[SevenSleepers]:721.571)
'as we earlier told in the front part of this narrative'

Although YCOE is only a proportion of the whole Toronto Corpus, the large number of partitives is sufficient to guarantee the rarity of truly adjectival partitive heads — unless, of course, the above forms can be taken as positive adjectives in OE, which would be a circular argument. This strongly suggests that adjectives and (pre-)determiners were already largely distinct in OE.

In the 1.3 million-word PPCME2 the results are as follows. Possessive phrases are rarely used as partitives, except in early ME, where they occur about 18 times in OE-like patterns of the type *ure ech* 'each of us', and in such phrases as *alre earst* 'first of all', *allre læste* 'last of all'. There are some 729 hits with an *of*-phrase, including the strings *last of all,*

wurst of al, most of alle. I spotted 32 obvious non-partitives in this total, and in addition at least three difficult cases like:

(23) a man þat cowþe moch of wycchecraft (CMMIRK,106.2905)
'a man who knew much about witchcraft'

where the *of*-phrase is probably a dependant of *cowþe* 'knew' rather than of *moch* 'much'. Otherwise I found very few non-superlative adjectives as possible head of a partitive:

(24) in *misliche of þeose fondinges* (PPCME, CMANCRIW,II.144.1945)
'into various of these temptations'

(25) to *dyuers of hem* (CMKEMPE,25.548)
'to divers/various of them'

(26) hwer he hefde wið þe cwen iwunet & iwiket *swa longe of þe niht* (CMKATHE,41.348)
'where he had with the queen dwelt and gone so long of the night'

(27) þe gude herde, þat lefte in þe munte *ane wane of a hundrez sep* (CMBENRUL,22.762)
'the good shepherd, who left in the mount one missing of a hundred sheep'

(28) Moni of þan floc manna þe earþon fulieden ure drihten and ec *ȝe-leafulle of þere burh* heo nomen heore claþes and þe beste þat heo hefde (CMLAMBX1,3.23)
'many of the flock of men who earlier followed our Lord and also believing of/from the city they took their clothes and the best that they had'

(29) these weren *myȝti of the world* and famouse men. (CMOTEST,VI,1G.195)
'these were mighty of the world and famous men'

Dyuers in (25) is one of the items discussed in 4.4 below, and *mislich* 'diverse, various' in (24) is semantically very like them. The *of*-phrase in (27) is dependent on *ane* 'one', not the adjective *wane* 'lacking, absent'; that in (28) may be spatial; and that in (29) doesn't look like a partitive and may in any case depend on *men*. The other partitive heads were much more determiner-like; I give modern spellings where I can:

(30) *All, (ever) any, anything, both, each, each one, ei* 'any', *either, enough, every, everyone, fele* 'much, many', *(a) few, half, least, less, little, many, mo* 'more', *more, most, much(el), neither, none, nothing, one, other* [pl.]*, another, ought* 'anything'*, nought, some, somedeal* 'somewhat'*, somewhat* and numerals.

Once again, then, ordinary positive adjectives hardly seem to function as heads of partitives.

If D and A seem to behave differently in OE and ME, so far I have found maybe four examples in OE where *se / þæt / seo* is head of a possible partitive, which reduces the distance between D and Prn:

(31) Þonne þuhte eow þas tida beteran þonne þa, for þon eowre brocu nu læssan sindon þonne *heora þa* wære. (coorosiu,Or_3:7.66.1.1290)
then would-seem to you these times better than those, because your afflictions now lesser are than of-them those were

In ME there were some 14 examples with demonstratives as heads, none with an article:

(32) & þei ben als harde as *þo of ynde*. (CMMANDEV,105.2559)
'and they [diamonds] are as hard as those of India'

This corpus investigation set out to test the demarcation between D and A by means of the partitive head criterion. What came out was not an absolute boundary but a clear *statistical* distinction in both OE and ME. The same test also showed that the incipient distinction between D and Prn was growing stronger.

4.3. Constructional gradience

A third piece of evidence for the gradient boundary of D will be discussed in detail elsewhere (Denison, 2002; Keizer and Denison, 2002). It concerns 'SKT-constructions' involving *sort of, kind of* and *type of,* some of which have determiner-like properties. The most relevant usages can be exemplified as follows:

(33) three *kinds of cheese* (binominal SKT)
(34) He made a *sort of* gesture of appeasement (qualifying SKT)
(35) *those sort of* people (postdeterminer SKT)
(36) She's *sort of* sexy; he *sort of* likes her (adverbial SKT)
(37) and I *sort of* opened the door, and looked out, and I *sort* of saw Richard ... (bleached SKT)

If we just compare the first three patterns mentioned, all of which contain the string D_1 N_1 *of* (D_2) N_2, we find that the post-determiner pattern, (35), shares some properties with the binominal, (33), such as primary stress falling on D_1 or N_2; N_2 being omissible; and occurrence with all of the SKT-nouns. It shares with the qualifying construction, (34), the facts that *of* is not in constituency with N_2; that 'N_1' cannot be plural and is hardly

characterisable as a noun at all; and that the stylistic level is informal. I advocate a Construction Grammar analysis in which the synchronic properties of (35) have a dual inheritance from (33) and (34). Now in (33) *sort/kind* is clearly N, in (34) it is probably not an N, and in (35) it is arguably part of D. There is a complex mesh of interlinked constructions, both within and outside the NP/DP, involving amongst other categories D, N, A and Adv.

4.4. Semantics and syntax of D and A

The fourth piece of evidence comes from some lexicological analyses in *OED*. In my view the difference between the morphosyntactic categories D and A is also a matter of semantics, and I consider now a small selection of rather similar words.

4.4.1. Divers(e)

In *OED* we find separate entries for *divers* and *diverse*, which started off as mere spelling variants but gradually diverged in pronunciation and usage. The meaning 'different or not alike …' occurs from the thirteenth century. It is a typically adjectival meaning, used attributively and predicatively. Developing out of it quite early on — from the early or late fourteenth century, depending whether the notion of variety or number is more prominent — is the meaning 'various, sundry, several; more than one, some number of'. *OED* regards this as a natural semantic change, '[r]eferring originally … to the variety of objects; but, as variety implies number, becoming an indefinite numeral word expressing multiplicity' (s.v. *divers* a. 3). In the newer meanings it is semantically a quantifier and syntactically is not used predicatively, and it develops the partitive 'fused-head' construction, as seen in (25) above; in other words, it looks like a determiner.

For some three centuries both spellings of *divers(e)* show both kinds of use. By about 1700 the forms are strongly divergent, and *diverse* reverts entirely to adjectival uses, while *divers* continues with determiner-like uses. Incidentally, I was surprised to find the following approximate figures for occurrence in *OED* quotations, allowing for <u/v> and <i/y> variation and subtracting obvious instances of *diver* 'one who dives'. For *divers* vs. *diverse* I count 2317 : 860 up to the end of the seventeenth century, and 283 : 155 afterwards. This suggests that until quite recently the more determiner-like *divers* remained more frequent, as might be expected for a grammatical word. But now it is obsolescent; in the British National Corpus of the late twentieth century the figures are about 55 : 1311.

4.4.2. Several

A somewhat similar semantic development occurs with this word. *Several* can mean 'existing apart, separate' from the fifteenth century in predicative use, and from the early sixteenth in attributive use as well. This adjective-like use spreads subsequently into such related senses as 'separate, distinct', 'distinctive, particular' and 'acting separately'. *OED* notes how from the mid-fifteenth century it occurs before plural nouns, where it means 'individually separate; different', at first preceded by a numeral, other quantifier or definite determiner. By the beginning of the sixteenth century this usage occurs, as *OED* puts it, 'without limiting word' in the sense 'a number of different, various, divers, sundry', which then by the beginning of the seventeenth century merges (*OED*'s term) into what is called the chief current sense, 'as a vague numeral'. In this sense, of course, it is hardly used predicatively, and it is generally regarded as a determiner, not an adjective. The partitive construction occurs at least as early as 1598:

(38) hee and several of his fellows (*OED*)

4.4.3. Certain

OED's entry for *certain* shows a similar lexical-cum-categorical split between senses which are 'hardly separable … in a large number of examples' (*OED* s.v. *certain* a. II.7a). The partitive construction occurs at least as early as 1484. Here is a slightly later example:

(39) certain of the most notable and arrant traitours recepted in Scotland (*OED*, 1542)

CGEL (2002, pp.392-3) regards *certain* as a marginal determiner in Present Day English because of its general semantics, non-generic semantics, occurrence in the fused head construction, and its use with *a* in

(40) They must also have had *a certain* influence on my father's outlook. (LOB)

4.4.4. Various

This word is rather less far along the road towards determiner status. The lexical history is similar to some of the previously-mentioned items. *OED* offers its sense 8, '[w]ith pl. n. Different from one another; of different kinds or sorts', from early-to-mid seventeenth century, while its sense 9, '[i]n weakened sense, as an enumerative term: Different, divers, several, many, more than one', is found by the end of the century. Once again *OED* comments: 'It is not always possible to distinguish absolutely between this sense and 8, as the meaning freq. merges into "many different": cf. divers *a.* 3.'

As for the partitive, examples are easy to find:

(41) *Various of the apartments* are of the terrace type (Brown)

This usage only appears to date from the mid-nineteenth century and in the twentieth century to be more American than British.

Sense 8 is a development of the historic meaning 'varied, variable' and is largely adjectival. Sense 9 is more typical of a quantifier and thus of D. In other words, there are two very different lexical senses of *various* which can be argued to be categorially different as well, yet there are many early examples which are equivocal. Similar facts have been pointed out for other words discussed above. It is striking how much of this kind of data is found to be equivocal by the lexicographers. Given that the gradual — or at least **graduated** — nature of semantic change is reasonably widely accepted, why not allow that syntactic change may proceed by small steps too?

4.5. Sudden vs. graduated change

How would this work? We need to discuss various models of change. The conventional mechanism is reanalysis. For the development of a determiner use of *various*, say, we must imagine an earlier grammatical state in which *various* is exclusively categorised as A. Later grammars would have a lexicon which included a D variant of *various* and which would permit at least some structures where *various* functioned as D. We could call this a diachronic reanalysis. It might have come about via an intermediate grammar which entailed synchronic reanalysis as part of the derivation of these new structural possibilities for *various*. In any case, *various* is always clearly either A or D, and any switch between categories is an all-or-nothing affair.

Kroch, Pintzuk and others have developed an approach which retains the all-or-nothing categorisation of conventional generative grammar while explaining the variation that is central to corpus linguistics. The solution for them is system competition: the availability of several grammars at any one time, usually with gradual diffusion of the newer grammar through a population; see e.g. Kroch, Taylor and Ringe (2000), Pintzuk (1995). The obvious problem with this approach is the burgeoning number of grammars needed to explain all the diverse linguistic changes going on at any moment in history, assuming that they cannot all be reduced to variation in a very small number of parameters.

Another approach which allows for gradual change is grammaticalisation. For some proponents of grammaticalisation, the co-existence of different stages of the process

(**layering**) only implies that a given string can have different analyses in different utterances in the same epoch, not that an individual instance is subject to gradient analysis. In any case, grammaticalisation only applies to that subset of syntactic, semantic and morphological changes which move an item away from the lexicon and towards the grammar.

What I am suggesting is different from all of these. We have synchronic evidence that the boundaries between categories may be fuzzy. Categories may be cluster concepts, and it is possible for a given word to possess some subset of the properties associated with a particular category. Diachronically, then, category change may consist of the stepwise acquisition of properties, rather than the wholesale, simultaneous acquisition of 'all-and-only' the definitional properties of the new category. This seems both a more plausible mechanism of change and a more economical account of intermediate stages. Thus *various* and *certain*, while still adjectives, have moved a small way towards acquiring properties more typical of determiners. Arguably their natural position in NPs is already towards the left-hand edge of the adjective sequence — Quirk et al.'s **precentral** position (1985, pp.436-7, 1337-41) — because they are nongradable and non-inherent, and what with their appropriate semantics, often they will be indistinguishable in a particular context from determiners; see Adamson's (2000) work on the relationship between word order and category. The point is that in the equivocal instances we do not have to insist either that they 'are' still adjectives or that they 'have become' determiners. (An alternative account would allow for multiple category membership, although this provides a less satisfying motivation for the development of equivocal examples.)

Note that this is not necessarily an argument for *slowness* of change, merely for graduatedness of at least some changes. One of the insights of Rosch's work on human categorisation is that we tend where possible to strengthen perceived categories, so that hybrid or uncertain categorisations may be disfavoured and hence of relatively short duration in the history of a language (unless exceptionally, like the donkey of Æsop's *Fables*, speakers find equally strong attractions in each direction and the intermediate status persists over time). Warner has discussed the development of the category Modal in terms of category strengthening (1990). That is overall a long-drawn-out process but one with arguably almost continual change from OE to the present.

5. Conclusion

I have tried to point out a number of problems with an excessively clean categorisation of determiners in English. The evidence points rather to fuzzy boundaries between D and adjacent categories and sometimes to stepwise movement from one category to another.

As we have seen, there is at least a case for doing without a separate category Determiner in OE, though it would then have to fall in with Pronoun rather than Adjective, in my opinion. By the end of the ME period it is possible to distinguish Prn and D pretty much in the same way as for Present-Day English. Individual items continue to redistribute themselves among the categories concerned. As Dick Hudson has observed (p.c. 24 Mar. 2004), the development of Aux besides V is analogous to (and largely simultaneous with) that of D besides N. How to represent an incipient morphological category in syntactic structure remains to be worked out. In any case you may get different answers if you insist on the primacy of categories or the primacy of constructions.

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