Cinque (1994) and Scott (2002) propose conceptions of nominal functional structure in which a rigid and highly elaborated series of functional heads regulates the distribution of attributive adjectives according to the class of property that they denote. The following are their proposed adjectival hierarchies:

(1) a. Serialization of adjectives in event nominals
   poss[essive] > cardinal > ordinal > speaker-oriented
   > subject-oriented > manner > thematic
   Serialization of adjectives in object-denoting nominals
   poss[essive] > cardinal > ordinal > quality > size >
   shape > color > nationality
   (Cinque 1994:96)

b. determiner > ordinal number > cardinal number > subjective comment > ?evidential > size > length > height
   > speed > ?depth > width > weight > temperature >
   ?wetness > age > shape > color > nationality/origin
   > material > compound element > NP
   (Scott 2002:114)

The main interest of these heterogeneous and apparently arbitrary hierarchies stems from the hypothesis that the heads regulating adjectival order may form part of the linear functional sequence often assumed to regulate nominal morphosyntactic and semantic properties, a connection that Cinque (1999) investigated with respect to adverbials and clausal functional structure. Viewed in this light, these hierarchies make a clear and testable prediction: movement aside, and disregarding exceptional word orders linked to marked information structures, if two adjectives belong to different classes, only one relative order of the two should be possible. Section 1 tests this prediction against data gathered from www.google.co.uk. The data attest to a far greater freedom of order among multiple adjectives than predicted by the models in (1). Section 2 scrutinizes the wider project of relating adjectival orders and nominal morphosyntax and semantics through a rigidly ordered functional sequence.

1 The Data

The choice of Google as a huge, but unregulated, corpus was made on the basis of the finding that, although the British National Corpus contains 262,838 tokens of pairs of attributive adjectives, over 76% of adjective pairs occur only once, and therefore trivially show only one order (Malouf 2000). For a study that aims to investigate consistency of ordering of adjective pairs, then, even the BNC is not large enough to attribute much significance to the results.

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Searches were carried out on Google for prototypical members, in English, of six classes of adjective—namely, the five lowest classes of Cinque’s object-denoting hierarchy, plus the material class from Scott’s hierarchy. In addition, a number of modal adjectives, which do not have a clear place in either of the taxonomies, were considered. The search terms consisted of pairs of adjacent adjectives from these classes in a specified order. As this squib is concerned solely with canonical Adj-Adj-N constructions, many examples returned by Google were irrelevant, including many cases where, for example, the Adj-Adj sequence does not modify a noun or is disrupted by punctuation (arguably indicating marked prosody and information structure), or the Adj-N sequence is idiomatic (for example, big top or new potatoes). This means that Google is highly problematic as a reliable indicator of relative frequency of different orders: too many of the items obtained must be judged ungrammatical or discarded as irrelevant, and statistical patterns are expected to be too approximate for confidence. Instead, Google was used heuristically in the study reported here, as a potential source of positive evidence for the existence of grammatical examples of certain adjective orders. All examples given below are from Google, representing the tokens judged to be most acceptable from the first 100 hits returned. Furthermore, the sites from which the examples were taken were consulted, to verify that there was no evidence for marked information structures.¹ The grammaticality judgments given do not reflect absence of a sequence of adjectives on Google, then; rather, they reflect absence of grammatical NP constituents. I use ‘‘??’’ to indicate that all attested Adj-Adj-N constituents found on Google are judged unacceptable by the native speakers I consulted, and ‘‘*’’ to indicate that no Adj-Adj-N constituents were found.

One clear division shown in the data is between the two subsective, and the four intersective, classes examined.² The four intersective classes considered are shape (illustrated here with circular), color (red), nationality (French), and material (wooden). Pairs of adjectives drawn from these classes are well attested in any order (see (2)). The same is true of the two subsective classes considered, size (big) and quality (new) (see (3)). However, in all acceptable examples, members of the subsective classes precede members of the intersective classes (compare (4) and (5)).

¹ The majority of examples came from contexts that are clearly neutral with respect to information structure, such as antiques catalogues. Where this was not possible, factors such as contrastive focus affecting adjective order were controlled for.
² For an intersective adjective, such as red, the interpretation of Adj-N is equivalent to the conjunction of the properties denoted by Adj and N. For a subsective adjective, such as big, the interpretation of Adj-N is equivalent to the conjunction of the property denoted by N with the property denoted by Adj relative to a comparison class largely determined by N. Modal adjectives do not allow an inference from Adj-N to N, and so can best be represented as intensional second-order functions taking nominal arguments.
(2) *Free order of intersective adjective pairs*

a. wooden *French* mantel — *French* wooden carriage clock
   clock
b. wooden *red* clogs — *red* wooden clogs
c. *wooden* circular pedestal — *circular* wooden pedestal
d. *French* red doors — *red* *French* doors

e. *French* circular table — *circular* *French* side table
f. *circular* red patch — *red* *circular* patch

(3) *Free order of subsective adjective pairs*

new big cuts — big new cuts

(4) *Subsective adjectives precede intersective adjectives*

a. *big* wooden bridge — *new* wooden piles
b. *big* *French* dog — *new* *French* site
c. *big* red barn — *new* red dress
d. *big* circular lights — *new* circular tables

(5) *Intersective adjectives do not precede subsective adjectives*

a. *wooden* big bridge — *new* *wooden* concrete piles
b. *French* big feline — *new* *French* site
c. *red* big N? — *new* red N?
d. *circular* big flat — *circular* new table lights decorations

A rather less simple pattern emerges with respect to modal adjectives. Although there is a strong tendency for these adjectives to precede the other classes discussed above (for example, possible precedes the six classes of adjective described above in 88% of the hits returned by Google), there are also several examples, particularly from more technical or scientific sources, where the opposite order is quite naturally used.

(6) a. obvious childish writing
   b. potential big letdown

(7) a. childish obvious forgeries
   b. big potential problem

Given that at least modal adjectives are clearly scope-taking elements, we expect that variation in the position of a second adjective with respect to a modal adjective will correspond to a variation in interpretation, all else being equal. Indeed, this is what we find. In example (8), white is clearly meant to be interpreted outside the scope of possible.

(8) a white possible Subaru

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3 This example (http://antiques-internet.com/colorado/antiquesdenver/dynapage/IP240.htm) did refer to red doors from France, rather than *French doors* in the sense of glass double doors.
Note, furthermore, that this interpretation would be unexpected if examples like (8) were due to focusing of the first adjective (here, *white*). Focus movement allows reconstruction for scope, which would allow an interpretation of (8) that was indistinguishable from a possible *white Subaru*. The absence of this reading suggests that orders such as that shown in (8) cannot be due to focus movement.

Overall, then, assuming that precedence reflects dominance in this case, the data from Google give the following pattern of attributive adjective ordering in English:

(9) a. Subsective adjectives dominate intersective adjectives.
   b. Modal adjectives are freely ordered with respect to subsective and intersective adjectives, although they tend to dominate both classes.

It is now clear that both Cinque’s and Scott’s adjectival templates undergenerate with respect to attested adjective orders. The above data show that any order of multiple intersective, or multiple subsective, adjectives is possible, in contrast to their division, in (1), into several rigidly ordered categories. This finding is complemented by Malouf’s (2000) study of the BNC, which showed that ordering relations among pairs of adjectives are not strictly transitive. This fact is unexpected under Cinque’s model: either two adjectives belong to the same category, which is immediately problematic for that model, or they belong to different categories, in which case the rigidity of the functional sequences in (1) leads us to expect transitivity of ordering relations.

There is a residual templatic element in these findings, in that subsective adjectives dominate intersective adjectives. This could suggest the following provisional template:

(10) \[
\begin{array}{c}
\text{[DP D}^0 \text{[XP AdjP}^{\text{subsective}} X}^0 \text{[NP AdjP}^{\text{intersective}} N}^0]\end{array}\]

Multiple adjectives must be able to attach within any of these categories, and modal adjectives must be able to attach within both XP and NP. This amounts to a rejection of Cinque’s and Scott’s assumption that there is a unique specifier in each phrase, and a unique position in the template for each adjectival class. That assumption was tenable, particularly for Cinque, as multiple adjectives referring to color, for instance, are rare, for obvious functional reasons. However, it is incompatible with the above evidence that multiple intersective and multiple subsective adjectives are quite unremarkable.4

4 A related problem was noted by Scott, who only tentatively included many categories, such as *evidential* adjectives, to derive cases of two *subjective comment* adjectives (*a boring famous/famous boring*) book; Scott 2002:108), although, as Scott acknowledges, this problem is not restricted to the *subjective comment* category. Once it is apparent that possible cooccurrence of multiple adjectives in the same class is the norm, the postulation of extra positions in the hierarchy based on dubious semantic distinctions becomes untenable. Such cases could, of course, be handled by analyses based on adjunction, or multiple specifiers, yet such structures are at odds with theories in the Cinquean mold, which aim to derive perceived rigidities in adjective ordering.
A further issue concerns the relation between the provisional template in (10) and nominal functional structure motivated by concerns independent of adjectives. This is addressed in the following section, where it will be claimed that (10) cannot be reconciled with such concerns.

2 DP-Internal Functional Structure

To test the hypothesis underpinning the hierarchies in (1)—namely, that a single, rigidly ordered, linear functional sequence can derive adjective orders in tandem with other nominal morphological or semantic properties—it is necessary to compare $X^0$’s position within such a putative template (i.e., (10)) with the position of independently motivated heads that occur within the same “space” in which attributive adjectives are merged. If the evidence shows that $X^0$ either is rigidly ordered with respect to such heads or is identical to such a head, then the hypothesis behind (1) can be maintained. If, on the other hand, it can be shown that $X^0$ does not occupy a fixed position relative to such heads, then the hypothesis that the same rigid, linear functional sequence regulates core nominal morphosemantics and adjective orders must be abandoned.

Such a comparison can only be made with respect to a particular theory of nominal functional structure. In the cartographic spirit, I propose to compare (10) with highly articulated theories of nominal functional structure. However, given the canonical English order Det-Adj-N, $X^0$ is clearly located below any determiner heads, and, as adjectival phrases can themselves be syntactically complex, I will assume that adjectives are merged above any L-syntactic “little n” heads. Few heads are generally assumed between these two fields. A plausible candidate for such a head, however, is one related to the mass/count distinction, which may be reflected morphologically in the occurrence of classifiers or morphological number marking. One recent analysis that proposes a dedicated head as the locus of these functions is found in Borer 2005, which describes such a head’s function as being to “divid[e] mass” (Borer 2005:101). The following pages will investigate the relation between such a head (referred to below as Count$^0$) and $X^0$ in (10).

Count$^0$ is also relevant to questions of adjective distribution, as certain classes of adjective cannot appear with mass nouns. Any adjective that is infelicitous$^5$ with mass nouns cannot appear, by definition, in the absence of Count$^0$. Such classes of adjective include size (11a) and shape (11b), while classes that can appear with mass nouns include color (11c) and nationality (11d).

$^5$ It is probably inaccurate to label the examples in (11a–b) as ungrammatical. Rather, the usually mass nouns are coerced into a countlike interpretation by the presence of an adjective that requires such a semantics. Where this is feasible, the results are grammatical.
Size and shape adjectives are unremarkable with count nouns, as seen in English in bare plurals.

(12) a. big dogs
    b. circular pools of water

This classification of adjectives cuts across the subsective/intersective divide. Here, size and shape adjectives pattern together, even though size adjectives are subsective and shape adjectives are intersective. The oddness of size and shape adjectives cooccurring with mass nouns is easily explained—namely, both size and shape adjectives presuppose that the object they describe is spatially delimited, while mass semantics is, by definition, associated with the absence of such delimitations. The explanation is, however, beside the point here. For present purposes, the interest of this distinction instead lies in its interaction with the intersective/subsective distinction. We now have four possible classes of adjective, illustrated in (13).

(13) a. Intersective, can occur with mass nouns (e.g., wooden)
    b. Intersective, can’t occur with mass nouns (e.g., square)
    c. Subsective, can occur with mass nouns (e.g., expensive)
    d. Subsective, can’t occur with mass nouns (e.g., big)

The fact that all four logically possible combinations of the two binary distinctions are available already rules out the possibility that Count0 and X0 are identical, as the two would not be predicted to vary independently if they were one and the same.

What is more, it is doubtful that the two heads can be ordered in a linear sequence. To see this, consider the following data from Google, demonstrating a representative sample of the ordering restrictions among these four classes:

(14) a. Class (13d) dominates class (13b):
    big square dish — ??square big stool
    b. Class (13c) dominates class (13a):
    expensive wooden — ??wooden expensive
    recorders
    custom window
    treatments
    c. Class (13d) dominates class (13c):
    big expensive rings — ??expensive big trees
    d. Class (13b) and class (13a) are freely ordered:
    square wooden coaster — wooden square coaster

What these data show is that, in addition to the subsective ≻ intersective ordering, there is a restriction such that adjectives that
cannot occur felicitously with mass nouns precede adjectives that can, but *this restriction only holds among subsective adjectives*. Relative orders of *intersective* adjectives are unconstrained by the ability or inability of these adjectives to occur with mass nouns.

If we were to attempt to accommodate both $X^0$ and $C^0$ within a single rigid functional sequence, the most promising possibility would be the one shown in (15).

(15)  
$$  \begin{array}{c}
DP \\
\downarrow \\
D^0 \\
\downarrow \\
C^0 \\
\downarrow \\
\text{Adj [subsective]} \\
\downarrow [+\text{count}] \\
\text{Adj [subsective]} \\
\downarrow [-\text{count}] \\
X^0 \\
\downarrow \\
\text{Adj [intersective]} \\
\downarrow [\pm \text{count}] \\
N^0 \\
\end{array} $$

However, there are two main objections to this structure. First, there is no reason, other than adequate description of the attested distributional patterns, for the $XP$ and $CountP$ projections to occur in this order. Neither has any clear effect on the other: $C^0$ is necessary for its effect on interpretation of the head noun, while $X^0$ has a purely distributional effect, regulating adjective order within the noun phrase. What is more, in many cases (those with mass nouns, or with no subsective adjectives) only one or the other will be present, and so the stipulation that $CountP$ dominates $XP$ in (15) merely restates the observations in (14).

Second, there is a discrepancy between the way that $C^0$ may be assumed to convert mass into count semantics, and the adjectival restrictions in terms of cooccurrence with mass nouns. The mass/count distinction among nouns is binary, with $[+\text{count}]$ interpretations above $C^0$ and $[-\text{count}]$ interpretations elsewhere. For adjectives, on the other hand, the mass/count distinction is a selectional restriction on the type of noun certain adjectives can modify, and this only corresponds to a distributional restriction for a proper subset of those adjectives in which the selectional restriction is active, namely, for subsective adjectives. There is a three-way distinction among adjectives with regard to $[\pm \text{count}]$, then: some adjectives do not subcategorize for
count or mass nouns; some adjectives do, but this subcategorization does not restrict adjective orders; and some (subsective) adjectives do, and this subcategorization does correspond to an ordering restriction. It is hard to see how all these patterns could fit into a single hierarchy in any principled way, without damaging the coherence of any conception of the function of the heads in question.

3 Conclusion

This squib has addressed a class of theories that aim to motivate multiple adjective orders on the basis of the same rigid, linear functional sequence that is also taken to derive morphosyntactic and semantic properties of noun phrases unrelated to attributive adjectives. The evidence given here indicates that not only do the specific instantiations in (1) of this class of theory undergenerate with respect to attested orders of multiple adjectives, but in fact the whole project—reducing adjective ordering restrictions and nominal morphosyntax and semantics to a single linear functional sequence—is problematic.

No decisive evidence has been offered here for the structural nature of attributive adjectives: the above data are, in principle, compatible with analyses of attributive adjectives as specifiers, as adjuncts (if the structural relation between adjuncts and their sisters is distinct from that between specifiers and their sisters), or (following Abney 1987) as heads. Cinque’s (1994) and Scott’s (2002) assumption that a single adjectival specifier position is associated with each head has been disconfirmed, but analyses admitting either multiple specifiers within a given projection, or XP-shell structures, are quite conceivable.

Equally, the data presented here do not show that adjective orders are completely free. One robust restriction emerges—namely, that subsective adjectives dominate intersective adjectives. However, whatever is responsible for this restriction, even if it should turn out to be related to a property of some head, cannot also be part of any rigid, linear functional sequence containing Count$^0$. This is, in a sense, unsurprising. All the evidence for the reality of Count$^0$ comes from concerns unrelated to adjective orders, and it has only a secondary effect on adjective orders. Meanwhile, X$^0$ exists only to regulate orders of multiple adjectives. Therefore, the evidence presented in this squib implies that two central components of the theories that derive (1) must be abandoned—namely, that attributive adjectives occupy unique specifier positions in functional projections, and that a single, highly articulated yet rigidly ordered, functional sequence can derive adjective orders in addition to morphosyntactic and semantic properties of nonadjunct elements in noun phrases.

References


