

Structural analogy and universal grammar

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There seem to have been debates in the grammatical literature about the role of ‘analogy’ vs. ‘anomaly’ in linguistic structure for about as long as those surrounding ‘nature’ vs. ‘nurture’. And the two issues are of course related. While both debates are initially associated with the development of early Greek and of Roman theorising, the former has subsequently received rather less attention than the latter. But it can be argued that the attitudes underlying this debate remain as substrata to more recent divergences in views concerning the nature of linguistic structure, though these attitudes are often intertwined with considerations pertaining to the other debate, concerning the richness or poverty of the specifically linguistic genetic endowment to be attributed to ‘homo loquens’. This will be evident in what follows, where I shall discuss the status of an ‘analogue’ principle that I have called elsewhere the **structural analogy assumption (SAA)**.

I am thus concerned here with only one manifestation of the ‘analogue’ attitude, which latter on its widest understanding posits regularity and homogeneity as essential to language. Clearly such a position cannot be maintained globally, as the ancient ‘anomalists’ demonstrated even in relation to the more specific claims of ‘analogue’ such as Aristarchus, who were primarily concerned with the regularity with which particular grammatical categories were expressed: there are manifest irregularities in this and other respects in any natural language. But particular ‘analogue’ assumptions, as part of general grammar, can limit the scope for anomaly in various ways. From the mid 80’s several researchers have deployed (a version of) one such particular assumption, the SAA, in a number of works concerned with various aspects of linguistic structure, and in particular with the generalisability to different linguistic domains of some basic structural properties (see particularly J.M. Anderson 1985, 1986a, 1992, Anderson and Durand 1986, Anderson and Ewen 1987: §8.1, Durand 1995: §6). This assumption is formulated as an injunction on linguistic structure by Anderson (1992: 2):

structural analogy assumption (SAA)

Minimise (more strongly, eliminate) differences between levels that do not follow from a difference in alphabet or from the nature of the relationship between the levels concerned

Let me try to elucidate what I see as the motivations for this injunction, as well as the notion of ‘level’ invoked therein.

Firstly, note that I lay aside consideration of the ‘lexicon’ here: as such, it does not constitute a ‘level of representation’ as envisaged here, in so far as the constructional principles involved in its contents are minimal. Its alphabets are drawn from different ‘levels of representation’, and its contents arbitrarily associate representations from these different ‘levels’; and it feeds these ‘levels’.

The recognition of ‘levels’, as in the above formulation, is in itself ‘counter-analogical’: we recognise different structural **levels** of representation, in one respect, on the basis of differences in the principles which govern the construction of the levels. In this sense, stratification into levels arises from the modularisation of certain principles of construction. The architecture of grammars is largely based on the structure of stratification invoked therein.

Thus, for example, Chomsky (1957: 107) summarises a central part of his discussion with the following:

We consequently view grammars as having a tripartite structure. A grammar has a sequence of rules from which phrase structure can be reconstructed and a sequence of morphophonemic rules that convert strings of morphemes into strings of phonemes. Connecting these sequences, there is a sequence of transformational rules that carry strings with phrase structure into new strings to which the morphophonemic rules can apply. The phrase structure and morphophonemic rules are elementary in a sense in which the transformational rules are not. To apply a transformation to a string, we must know some of the history of derivation of this string; but to apply non-transformational rules, it is sufficient to know the shape of the string to which the rule applies.

The phrase structure and the morphophonemic rules, though both non-transformational, determine distinct levels, given that the alphabet of morphophonemics is at least partly distinct (in being phonological) from that manipulated by the phrase structure rules. Indeed, they manifest a difference in **plane**, on this account, in recognition of a particular kind of difference in level: a plane is a (set of) level(s) constructed out of a distinctive alphabet; distinctiveness of alphabet necessitates a difference in level. In terms of the SAA, there are two places in which we can look for motivations for structural differences between these two levels: variation intrinsic to the different alphabets (e.g. simply their relative sizes), and discrepancies occasioned by the relationship between the levels (e.g. an interpretive role of one vis-à-vis the other). Differences between the levels determined by the phrase structure and the morphophonemic levels can potentially be accounted for in either or both these places.

The transformational rules posited by Chomsky apparently do not introduce a difference in plane with respect to the objects determined by the phrase structure rules, in that they manipulate objects constructed out of the same basic alphabet. But, given the formal differences between them and phrase structure rules described by Chomsky, they do appear to construct a different level. In this respect, grammars should be viewed as having not a tripartite structure, as suggested here by Chomsky, but a basic bipartite structure, with the levels determined by the phrase structure and transformational rules constituting a plane distinct from the level constructed by the morphophonemic rules. The former plane in turn shows a partition into levels respectively determined by the phrase structure rules and by the transformational rules. And this articulation is confirmed in Chomsky (1965), wherein the ‘base’ (roughly corresponding, leaving aside different treatments of ‘subcategorization’, to the ‘phrase structure rules’) and ‘transformational subcomponent’ are grouped together as the ‘syntactic component’. There, too, the levels determined by the two subcomponents are distinguished as ‘deep structure’ and ‘surface structure’.

Much work subsequent to Chomsky (1965) – central here is perhaps Emonds (1976) – conspired to suggest that the objects created by ‘phrase structure’ and ‘transformational’ rules were after all very similar: ‘surface structure’ was governed, to an overwhelming extent, by the same principles as hold at ‘deep structure’. ‘Transformations’ are rules which map one level onto another one constructed out of the same kinds of object governed by the same, or minimally different, principles. Whatever differences there might be between the two levels – differences which would indeed motivate the recognition of them as distinct levels – can be attributed to the asymmetrical relationship between them, mediated by the transformational rules. However, one direction in which such a recognition of principles in common between ‘deep’ and ‘surface’ could lead was to the collapse of the ‘deep’/‘surface’ distinction and the positing of a single syntactic level governed by the same (‘phrase-structure’) principles. This is familiar from e.g. the

tradition(s) associated with Gazdar et al. (1985) and Pollard & Sag (1994). But even in the traditions that continued to draw a distinction between ‘deep’ and ‘surface’ structure – or (terminological or substantive) modifications thereof (‘D-structure’, ‘S-structure’ – e.g. Chomsky 1981) – there eventually developed a recognition that attempts to motivate well-defined levels of ‘D(eep)-structure’ and ‘S(urface)-structure’ are misguided. Chomsky has alleged that ‘the empirical justification’ for the recognition of a level of ‘D-structure’ and the ‘evidence’ for ‘S-structure’ are in both instances ‘substantial’ (1995: 187, 192). But he goes on to argue that the postulated role of ‘D-structure’ as an interface between lexicon and grammar is problematical, and that the principles of grammar that allegedly apply thereat ‘are dubious on conceptual grounds’ (Chomsky 1995: 187); and that it seems to be unnecessary to propose that there are conditions that apply at the hypothesised level of ‘S-structure’ (Chomsky 1995: §3.4). It is thus conceded that, despite several decades of insistent defence of these shibboleths, it is unnecessary to postulate these ‘internal’ levels in addition to the ‘external interface levels’ of ‘logical form’ and ‘phonological form’. As far as the distinguishing of levels is concerned, we arrive, on the basis of this argument, at a conception very reminiscent of proposals made much earlier in the twentieth century, when there was recognised a basic planar distinction between ‘content form’ and ‘expression form’ – see e.g. Hjelmslev (1954), as well as other Saussurean developments.

Other things being equal, one would expect inter-planar application of the SAA to be limited only by differences between the alphabets of the two planes of content and expression and by the character of the relationship between the planes. And many grammatical traditions and sub-traditions have apparently proceeded on the basis of some such understanding, even if it remains intuitive and unexpressed as such. Hjelmslev (e.g. 1948: §7, 1953) explicitly argues for an even stronger interpretation of the SAA than is envisaged above, amounting to ‘isomorphism’. This is succinctly expressed as follows in Hjelmslev (1953: 101) as:

It turns out that the two sides (the planes) of language have completely analogous categorical structure, a discovery that seems to us of far-reaching significance for an understanding of the structural principle of a language or in general the ‘essence’ of a semiotic.

(See for discussion Kuryłowicz 1949.) And Siertsema (1965: 207-11) attempts, on the basis of disparate writings of Hjelmslev, to reconstruct in some detail the nature of the structural analogies envisaged by the latter. Martinet (1957) registers a reservation with respect to the proposed ‘isomorphism’ which is equivalent to the clause in the formulation given above which recognises that there may exist differences due to the relationship between the levels. As Martinet puts it (1957: 105): ‘on parle pour être compris, et l’expression est au service du contenu’. And Bazell (1949a: 86) adopts an even more cautious position: ‘though it has now become axiomatic that either plane must be judged with reference to the other, a real equality of treatment remains an ideal still far from fulfilment’; and Bazell (1952: §IX) is even more critical of glossematic theory and practice. But he still appears to recognise the transplanar applicability of some version of the SAA. A recent alternative implementation of ‘isomorphy’ is provided by Mulder (2000).

The position of Hjelmslev, as well as being made explicit, thus represents perhaps the most extreme interpretation of the SAA. But, for example, Pike’s multi-level deployment (without there being any emphasis laid on the analogy) of the ‘emic’/‘etic’ distinction and of ‘hierarchies of units’ (see e.g. 1967), and Halliday’s trans-planar analogies of ‘category’, ‘function’, ‘system’ and ‘rank’ (see e.g. 1961, 1967, 1967-8), are almost as extensive as those reconstructed from Hjelmslev’s works by Siertsema. I cite these as familiar exemplars of an (implicit or explicit) attitude, not necessarily as desirable

analogies. Indeed, the spread of the ‘-eme’ notion had in my view something of the same scale of undesirable effects on the study of language as the adoption of the universal grammar hypothesis (see below). Some of this emerges from the series of *-eme*-articles by Bazell (1949b, 1954, 1956). If the *-eme* has been pursued to implausible ends, the pursuit of the universal grammar hypothesis, I shall argue has rendered plausible analogies between syntax and phonology apparently inexplicable.

Anderson (1987) gives a little more detailed attention than I can afford them here to these and some other major manifestations of ‘analogism’. And he also notes, concerning traditions invoking more sporadic analogies, that early in the development of transformational-generative grammar rules in both syntax and phonology came to be seen as applying ‘cyclically’. Pullum (1992: 209) moves at the beginning of his discussion from talking about the origin of ‘the cyclic principle’ in phonology (Chomsky, Halle & Lukoff 1956) to a consideration of what he calls ‘the analogous principle in syntax’, without to be sure making much of the use of this adjective in this context. This reflects a willingness within this tradition at this period to expect and indeed look for such analogies between syntax and phonology.

The most overt ‘analogs’ in developments associated with generative phonology, however, emerge in rather later work within the government-phonology framework (Kaye et al. 1985, 1990) and in the tradition leading to radical CV and head-driven phonology (van der Hulst 1994, 2000, van der Hulst and Ritter 1999). Carr (2000: §4.3) disputes the appropriateness of the analogies proposed in such work, in so far as, where they are not simply trivial (‘syntactic and phonological objects both possess arboreal structure’ – Carr 2000: 92), and thus ‘of no particular scientific interest’ (2000: 90), the phonological interpretation of them invokes perceptual characteristics not relevant to the syntax, and the formal characterisations of the proposed analogical properties are indeed not analogous at the two levels.

However, before giving more careful attention to Carr’s discussion and its consequences, we should note that these developments are not typical of latter-day work in the transformational-generative tradition. Indeed, increasingly more typical of that tradition is the explicitly ‘anti-analogist’ attitude defended by Bromberger and Halle (1989), who announce that ‘a major result of the work of the last twenty years’ is ‘that syntax and phonology are essentially different’ (1989: 69). They claim, in support, that ‘syntax is concerned with the relations among representations that encode different types of notation’, whereas ‘phonology is concerned with the relationship between representations that encode the same type of information’. It seems to me that a major result of the work of the last how many years is that both these characterisations are very controversial. Even within the core transformational-generative tradition, the developments associated with Chomsky (1995) can be seen as calling into question the first of them. And the second fails to confront issues to do with the relationship between phonology and phonetics. Even in terms of a view they espouse elsewhere, a phonological derivation is conceived of as involving ‘a kind of transubstantiation ... through which mnemonic elements were converted into articulatory ones’ (2000). The other main support for their contention that ‘syntax and phonology’ are essentially different depends on the assertion that only phonological rules apply in an arbitrarily stipulated order. But the analyses in §§2 & 3 of their paper that are intended to illustrate this are not well-grounded: see e.g. Anderson (1992: 8-10) and Durand (1995: §§4-5). What is of interest here, however, is the relationship between the claim ‘that syntax and phonology are essentially different’ and the development of the **universal grammar hypothesis** (UGH), which is a major concern of Carr’s discussion.

It is true that many of the claimed parallels between syntax and phonology are also manifested in other domains, as with the property of ‘arboreality’, or ‘consisting of

component parts' (Carr 2000: 90). But this is unsurprising: phonology, syntax and other domains are structured by the same cognitive-perceptual principles. And it does not mean that these parallels are thereby necessarily 'of no particular scientific interest' (ibid). Carr also claims that the alleged more detailed formal parallels are inexact, and that, for instance, the 'complement' relation of syntax has no strict analogue in phonology (2000: 90-2). But before considering this let us confront the other, possibly more basic, main area of objection to the positing of such parallels. This is entirely dependent on acceptance of the UGH, which must now receive our attention.

Concerning the UGH, Carr maintains (2000: 87):

There is only one sustainable conception of UG, one that takes it to be *radically internal*, in the sense that it is an innate endowment that does not consist of perceptual capacities, behavioural dispositions, general cognitive capacities, or capacities that are not species-specific.

This 'radically internal' view seems to be somewhat at odds with a conception of UG wherein the naming of principles of syntax as 'greed' or 'procrastination' (Chomsky 1995) is apparently not merely whimsical but can be seen as reflecting the cognitive basis for the principles. But let us ignore this. I take what I understand of Carr's 'radically internal' characterisation as instantiating the UGH for purposes of the present discussion.

In relation to the notion 'head' often invoked in relation to both syntax and phonology, Carr goes on (2000: 91) to say concerning the interpretation of heads in phonology as involving phonological salience (attributed to Anderson and Ewen 1987, Kaye et al. 1985, 1990, and van der Hulst 1994, 2000):

... there are two reasons why this interpretation of headhood precludes its inclusion in UG.

First, it is often offered as an interpretation that concerns sensory perception. For instance, the acoustic effect of palatality may be said to be more salient than the effect of lowness in a high-mid vowel, and vice versa in a low-mid vowel, and the 'head' nucleus of a foot may be said to be perceptually more salient than the other nuclei in the foot. It is thus inappropriate for inclusion in UG because it is a perceptual relation. And the parallelism fails since the notion 'head' in syntax is quite different from this: it does not make any reference to salience, let alone *perceptual* salience.

Secondly, the relation 'perceptually-more-salient-than' is general-cognitive: it is the figure-ground relation. That relation cannot be said to constitute part of UG, since UG, by definition, excludes general cognitive capacities. One could, of course, argue that perceptual prominence and 'semantic prominence' could be subsumed under a more general category of cognitive salience. But, in doing so, one is, again, emptying the notion UG of any content if it is said to subsume anything as general as this.

But suppose one takes the view that 'the notion UG' is indeed empty of such specific content as is often attributed to it, that 'universal grammar', or what I called above general grammar (perhaps to be identified with Burton-Roberts' (2000: §2) 'generic' vs. 'realist/naturalistic' conception of 'universal grammar'), is concerned with the relative universality of properties that can be seen to have a cognitive basis, in both syntax and phonology. The evidence for such a notion as is envisaged by the UGH is far from overwhelming, as I shall try to indicate in a moment. And if one wants to maintain the UGH, the question arises of how one is to account for the undoubted formal parallels

between syntax and phonology. In the absence of the UGH, the parallels in expression between semantic and perceptual prominence in the case of heads are much more readily accounted for: dependency is a trans-planar analogy. As indicated, I return to Carr's objections to such formal parallels below.

Basic to the motivating of the UGH is the so-called 'acquisition problem', specifically as embodied in the 'poverty of stimulus' that is provided for the acquiring child. Lightfoot (1999: §3.3) recognises three levels of 'poverty of stimulus'. Firstly, the child hears all sorts of utterances which do not represent well-formed sentences of the language. Secondly, 'a child encounters only a finite range of expressions, but she comes to be able to produce and understand an infinite range of novel sentences, going far beyond the sentences heard in childhood' (1999: 60). Thirdly, 'people come to know things subconsciously about their language for which no direct evidence is available in the data to which they are exposed as children learning to speak (1999: 61). Lightfoot concludes (*ibid*):

This third deficiency is quite crucial. The first two, the imperfection and finiteness of the stimuli, are not decisive kinds of data deficiencies. They do not deny that relevant experience for language learning is available: they simply assert that the experience is 'degenerate', hard to sort out. The fundamental deficiency is the third, which says not that relevant experience is degenerate but that in certain areas it does not exist at all. This deficiency shapes hypotheses about the linguistic genotype.

We can paraphrase the claim being made here as 'how else, in the absence of stimulus, does the child acquire certain universal aspects of knowledge of a language, if they are not innate?' However, usually in such 'poverty-of-stimulus' arguments little attention is indeed paid to 'how else?', and a premature appeal to the UGH is made. But surely the UGH is a last resort strategy; it is a sign of desperation. Supporters of the UGH seem to get desperate very readily.

Consider the two familiar sentence types invoked by Lightfoot in this section of his book as relevant to type-three 'poverty of stimulus', the 'crucial' deficiency:

- (1) a. * Who do you wanna go?
b. * Kim's happier than Tim's

For many speakers these contrast in acceptability with (2):

- (2) a. Who do you want to go?
b. Kim's happier than Tim is/Kim's happier than is Tim

'Contractions' which otherwise seem to be quite general are inhibited in these examples. Compare with (1a) the viable sentences with 'contracted' forms in (3):

- (3) a. Do you wanna go?
b. Who do you wanna see?

alongside:

- (4) a. Do you want to go?
b. Who do you want to see?

In the preceding section of the book (§3.2) Lightfoot introduces the principles of ‘universal grammar’ which enable the child to know, in the absence of stimulus, that (1 a) but not (3) is ill-formed, as is the second ‘contraction’ in (1b) but not the first.

‘Clitics and their behavior are predefined’ (1999: 58). Specifically, in terms of behaviour, in the first place, the contractee and its host must be in a ‘government’ relation syntactically. In (3) and (4), for instance, *want* ‘governs’ *to*, and contraction may occur. There is considerable uncertainty in Lightfoot’s discussion as to what ‘government’ involves (cf. p.56, p.75 n.2, p. 241), but in this instance it seems to amount to the ‘head-complement’ relation (cf. p.56). In (5), however, the *to* following *want* is not ‘governed’ by it, is not its complement, and contraction is ruled out:

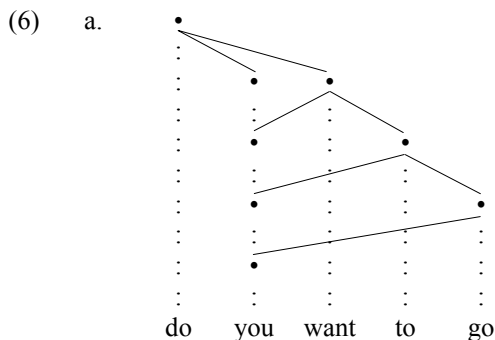
- (5) a. They don’t want to win games to be their only goal
 b. * They don’t wanna win games to be their only goal

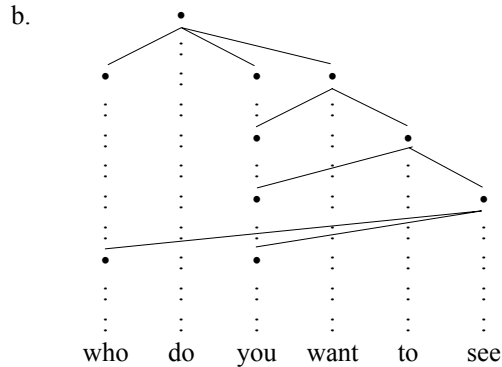
Further, ‘when an understood element intervenes between *want* and *to*, *wanna* does not occur in the speech of most people’ (1999: 57). This is what prevents (for most people) the contraction in (1a) corresponding to (2a). Thus, ‘part of what a child developing a grammar needs to do is to determine the clitics in his or her linguistic environment, knowing in advance of any experience that these are small, unstressed items left- or right-attached to an adjacent element under a structural relation of government, with no other (phonetic or “understood”) element intervening’ (ibid).

I ignore here the problem that not all children seem to know in advance that ‘no other (phonetic or “understood”) element’ can intervene – namely those for whom (1a) is quite acceptable.

More crucially, it seems to me that the way that the conditions on contraction are formulated here tends to obscure the fact that none of the knowledge involved is as ‘austerely’ linguistic as entry into Carr’s conception of UG requires of it. Notice firstly that the so-called ‘clitics’ involved here are forms that are semantically light and phonologically reduced, thus identifiable in cognitive terms. Secondly – and this is true of much of syntax – the constraints on ‘contraction’ reduce to a close-connectivity condition, and (degree of) connectivity is a general cognitively-based relationship.

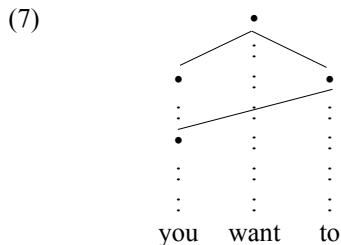
Consider in this respect the representations that we might provide for the sentences in (3/4) within the system advocated in Anderson (1997):





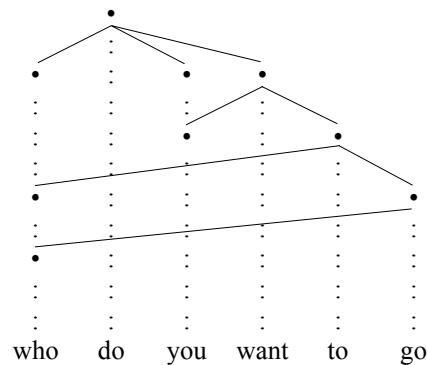
These representations simplify in various ways. In particular, in order to highlight the structural relations involved, the representations omit category information, in favour of simply expressing the government/dependency relations which project the categorial specifications. Each solid line in (6) joins a governor/head, the higher node, to its dependent(s), lower in the tree. Long distance dependencies are represented as such, and, together with argument sharing (where a single item is associated with more than one node in the tree, as with *who* in (6b)), these express relationships which elsewhere have been allowed for by ‘movement’. Thus, *you* in both (6a) and (6b) is a dependent of all four predicators (*to* is taken to be a non-finite ‘auxiliary’ – see e.g. Anderson 1997: §3.6.2). The upper attachments involve the equivalents of ‘raising’ and ‘control’ (cf. e.g. Anderson 2001), and it satisfies the subcategorisational requirements of *see*.

What the representations in (6) crucially share, as far as the legitimating of ‘contraction’ is concerned, is the sub-configuration in (7), in which *want* and *to* share an argument, as well as being linked in dependency:



And it is this which is lacking in (5), where the immediately following *to* is not dependent on *want*, and in (1a/2a), where it is, but where another component of the sub-configuration, the argument sharing, is lacking:

(8)

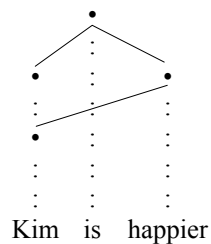


You is not an argument of *to* in (1a/2a/8). Crucial to the availability of ‘contraction’ is argument-sharing between the contractee and its host. If *to* is not analysed as a predicator, then the formulation would have to be slightly different, though not in ways relevant to the main point at issue.

Viability of ‘*wanna*-contraction’ is associated with a connectivity condition, manifesting a cognitively desirable circumstance: the ‘contraction’ pair, host and contractee, those to be connected phonologically, are closely, multiply connected, iconically, in their syntactic representation. And the crucial connectivity involved embodies the dependency relation, a manifestation of cognitive salience. ‘Contraction’ itself is manifested phonologically. At all levels general-cognitive capacities are invoked. Notice too that connectivity is relative, and it is unsurprising if there are speakers for whom this condition does not apply, who accept (1a).

The legitimate vs. illegitimate ‘contractions’ in (1b) can be related to a version of the same connectivity condition. The sub-configuration in (9), with argument-sharing between contractee and host, allows ‘contraction’:

(9)



The second *is* in (1b) is not associated with such a sub-configuration, and there can be no ‘contraction’. The two conditions differ in that while in (7) the contractee is dependent, in (9) it is the host which is dependent.

Lightfoot suggests (1999: §3.2) that, as well as in this, the *to* and *is* ‘contractions’ differ in that whereas *to* is a ‘leftward clitic’ *is* is ‘rightward’: *to* attaches to *want* in (7), *is* attaches to *happier* in (9), rather than to *Kim*, its phonological host. On the present analysis it is unnecessary to posit such a discrepancy between ‘syntactic cliticisation’ and its phonological manifestation: the contractee in these cases uniformly contracts with the element to its left, as is signalled by the phonology, even if, as in examples like (10), this element is null:

(10) ’s cold in here

(Lightfoot 1999: 57-8). The host is the doubly-dependent argument in the configuration (9). This removes another unnecessarily abstract aspect of the syntax of these phenomena as envisaged by Lightfoot and others.

Apart from those involving connectivity violations, there are other alleged manifestations of UG that illustrate violations of locality, thus again violations that are prime candidates for a cognitively-based explanation. Consider e.g. the conditions for *that*-retention in English discussed again by Lightfoot (1999: §9.3), which, moreover, however they are formulated, serve to ensure parsability. I do not pursue this here, however. Given the limitations of space on the present paper, my aim has been merely to suggest that syntax as well as phonology is pervaded by cognitively-based principles which in a number of cases, at least, can replace allegedly autonomous syntactic ones, and that, extrapolating from this, syntax can thus be seen as an equally promising candidate for exclusion from the ‘austere’ UG envisaged by Carr. But we shall shortly encounter some further, and fundamental, reasons why neither syntax nor phonology can be accommodated by the ‘radically internal’ UHG.

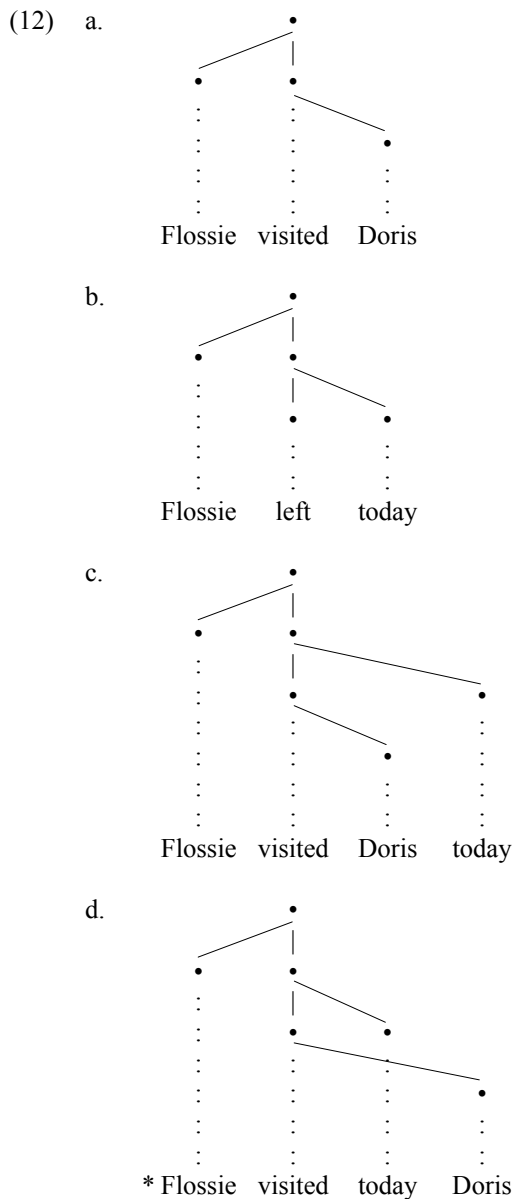
As we have seen, Carr (2000) objects to the postulation of the dependency relation as a trans-planar analogy. Headhood in the phonology is reflected in ‘perceptual salience’ (Anderson & Ewen 1987). But, according to Carr (2000: 91), ‘the notion “head” in syntax is quite different from this: it does not make any reference to salience, let alone *perceptual* salience’. He does concede (*ibid*) that headhood in syntax could be associated with ‘semantic prominence’, and this could be subsumed with ‘perceptual prominence’ as manifestations of ‘cognitive salience’, for him an undesirable move, given its incompatibility with the UGH. But arguments for the analogy are based not just on this alleged shared substantive (cognitive) property but, despite Carr’s claims, on shared formal characteristics, as I shall now show. On this basis, the notion of head, though indeed it cannot be a part of UG, as envisaged by Carr, is a trans-planar analogy.

In both syntax and phonology the head of a construction is the essential identifying component of the construction: verb phrases are identified by the presence of a verb, rhymes by the presence of a core. A head may be associated with a complement/adjunct distinction. Thus, in (11a) the transitive verb is accompanied by a complement, which satisfies its ‘subcategorisation’ requirements, whereas the adjunct in (11b) is not subcategorised for by the intransitive verb of that sentence:

- (11) a. Flossie visited her aunt
 b. Flossie left today
 c. Flossie visited her aunt today
 d. * Flossie visited today her aunt

(11c) contains both a complement and an adjunct, in that order – cf. the at best awkward (11d), with the order reversed.

We can represent the appropriate structures as in (12), which representations include nodes linked by some dependency relations, those represented by the vertical lines, which do not correspond to linearity differences (unlike the dependency lines we have encountered thus far), so that a single item, here the verbs, may be simultaneously head of more and less inclusive constructions, in (12a) ‘sentence’ and ‘VP’ (cf. e.g. Anderson 1992, 1997 on subjunction vs. adjunction):



Again, these representations ignore categorial specifications in the interest of displaying the structural relations. The complement in (12a) and (12c) attaches to the lowest node associated with the verb; the adjunct in (12b) and (12c) is represented as attaching to a non-terminal node. These representation involve an 'inner' and an 'outer' 'VP'. (11d) would involve an unmotivated 'tangling', as shown in (12d).

Carr claims that 'the adjunct/complement distinction, widely attested in syntactic organisation, is simply absent in phonological organization' (2000: 92). I shall shortly argue that this 'attestation in syntactic organization' is far from being as wide as Carr implies. And the application of the distinction is far from straightforward. It certainly cannot be reduced to: 'complements of verbs are said to be obligatorily present' (Carr 2000: 91). Consistently with what I shall argue here, it seems to me that the distinction can

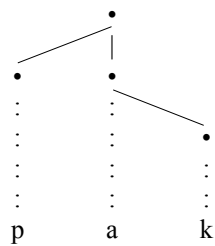
usefully be drawn only in semantic terms, i.e. in terms of semantic complements vs. semantic adjuncts.

On the other hand, to return to the alleged absence of such notions from the phonology, there is a clear analogue to the syntactic set in (11) apparent in the phonological phenomena of (13):

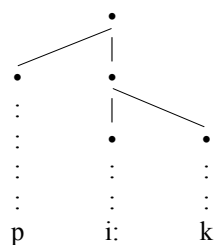
- (13) a. pack
- b. peak
- c. pact
- d. *patc

The accented checked syllabic core in (13a) requires a complement: */pa/ is not a monosyllabic item of English. Whereas the free core of (13b) does not: *pea*. Complement and adjunct are combined in (13c), in that order – cf. (13d), which, like (11d), would involve ‘tangling’. Exactly analogous representations to those in (12) are arguably appropriate:

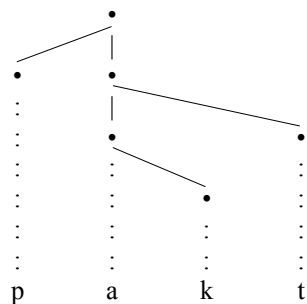
- (14) a.

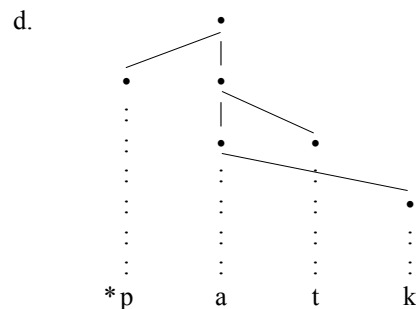


- b.



- c.





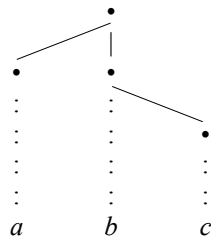
(12) and (14) involve respectively syntactic and phonological manifestations of the trans-planar cognitively-based relation of dependency, including the complement/adjunct distinction.

Of course, it seems that various structural properties are elaborated further in the syntax than in the phonology. This is unsurprising, given the difference in the size of vocabulary which is available as realisations of the respective alphabets of categories, and given the relationship between the planes, such that, to repeat the words of Martinet (1957: 105), ‘on parle pour être compris, et l’expression est au service du contenu’. However, there is a need for caution in dismissing from phonology properties alleged to be characteristically syntactic. Carr, in an aside (2000: 90), claims that ‘recursion’ is absent from phonological structures. But phenomena associated with cyclicity, however they are to be treated, have been associated by different investigators with both the syntax and the phonology (cf. e.g. the contributions to Denton et al. 1992), and various researchers (cf. e.g. Anderson 1986b) have argued for nesting of tone units within one another. Certainly, physical limitations impose an obvious constraint on the elaboration of nestings in a way that they can be regarded as not directly impinging on potential nestings in the syntax. But this again is a reflection of the relationship between the planes and of the more circumscribed cognitive domain inhabited by phonology. Likewise, the fact that syntax is structurally more elaborated than phonology is not in itself a problem for Carstairs-McCarthy’s (1999) view that syntactic organisation has its source in phonology, given a shared ‘core’ of properties. But that is a whole other debate...

It is important to recognise that we are still in a poor position (perhaps no better than Bazell’s – recall the comment (1949a: 86) cited above) to fully evaluate the extent of syntax/phonology analogy. Thus, it is unsafe to assume that any particular allegedly syntactic property necessarily lacks a phonological analogy.

Take, for instance, the notion ‘specifier’. I’m not sure that, as deployed in various syntactic analyses, this is a coherent notion. This is even more the case than with ‘complement’ or ‘government’. There is not a lot of clarity or detail in proposed characterisations I am aware of beyond an agreed association with the first-dependent place in (the equivalents of) a representation such as (15), i.e. *a*, where the uppermost node is the maximal projection of the head category *b*:

(15)

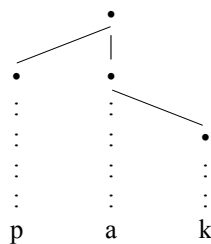


Apart from, for many scholars, the ‘specifier’ being ‘non-recursive’, not much more seems to be agreed on, and the identification of the ‘specifiers’ of different head categories is very variable. Interestingly, the ‘specifier’ of VP, which is identified as being instantiated in English by *all* in *The detectives have all read the letters in the garden shed after lunch* in the textbook treatment by Haegeman (1991: 83, 1994: 91-2), following Sportiche (1988), and which is the instance of ‘specification’ used to first introduce the notion in these books, is not mentioned, as far as I am aware, in the textbook of English grammar of Haegeman and Guéron (1999), though a number of other instances of ‘specification’ are elaborated upon. – Though it may be that this reflects different pedagogical aims. However, if we consider relatively uncontroversial cases like the ‘specifiers’ of adjectives and prepositions in English (*very aware of the problem*, *right at the back*), we can perhaps say that the archetypical ‘specifier’ also belongs to a small class that is particular to the head it ‘specifies’ (though there may be overlaps).

Say we can motivate some such notion for the syntax. It is not obvious that there is an analogue to ‘specifier’ in the phonology. And there shouldn’t be if ‘specifier’ is part of UG and UG does not include phonology. But it may be that this particular property has not been elaborated in the phonology, without this being evidence that ‘specifier’ is part of UG. Or it may be that in the absence of serious consideration of the question of possible analogues we should suspend judgment. Let us contemplate here, in a preliminary way, the character of a potential analogue.

Now, we have already met with a configuration such as (15) applied to certain phonological sequences, viz. as in (14a), repeated here:

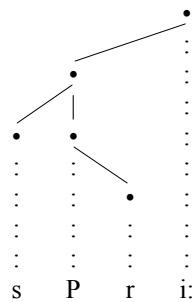
(14) a.



And we can say that the onset of the syllable is a kind of ‘specifier’ analogous to the ‘subjects’ in (12). But in neither case do we have archetypical ‘specifiers’, as I have just characterised them. What we would be more interesting than this (fairly simple) analogy would be the determination of a phonological analogue to the more specific notion of archetypical ‘specifier’.

A possible analogue might be the structure that Anderson (1986b: §7) proposes for such syllable onsets as that in (16), which represents English *spre*:

(16)



Dependency within consonant clusters is argued by Anderson (1986a) to be anti-sonority: the optimal consonant, and thus the head of the cluster, is the one that contrasts most with the vowel. This depends on the assumption that salience in phonology, no more than in syntax (see below), cannot necessarily be associated with just one particular substantive property, like ‘most sonorous’.

If we look only at the relation between the head and a following consonantal segment, we can perhaps say that the relation between /P/, representing the neutralisation of /p/ and /b/, and /r/ is at least adjunct-like. Various classes of head may be extended by the adjunct, and some heads impose further, complement-like, restrictions: /pr, pl, br, bl, fr, fl, θr, *θl/ etc. But are there any grounds for considering the pre-head /s/ to be a ‘specifier’. Well, as occupant of this position, /s/ doesn’t just belong to a small class, it is unique in English. And it identifies the following head as belonging to the stop-neutralisation class, and the cluster as being the class of cluster with such a head. This may turn out to be an inappropriate analogy. But rejection of the possibility of a phonological analogue to ‘specifier’ would be premature, I suggest, given the present state of our understanding.

We should observe, too, that, as well as there being differences in the extent to which particular structural properties are elaborated in the syntax and phonology, a particular property may not be equally exploited in different domains of the syntax. Different syntactic domains, ‘VP’, ‘NP’, ‘S’, are not as homogeneously structured as is often supposed. Consideration of this brings me, inevitably, to what seems to me to be an inappropriate intra-planar analogy – inappropriate, at least, if applied in a wholesale fashion. This is the X’ theory of syntactic structure, as developed from early work of Chomsky (1970) and Jackendoff (1977).

The complement/adjunct distinction may have a limited applicability in phonology; though (13/14) provide a plausible analogue to the syntactic phenomenon; but also in the syntactic plane, once one moves away from the relatively safe territory of verbs, the applicability of the distinction is either unclear or clearly different from what seems to be involved with verbs. It is not clear, for instance, that the complement/adjunct distinction is relevant to English adjectives and prepositions. Adjectives are either ‘intransitive’ (*old, red*) or they take an optional dependent (*proud (of his achievements), happy (with the results)*); the former set take only lexicalised dependents (*red in tooth and claw, red in the face*). The adjective ± dependent combination does, however, provide, as noted, the paradigm case of the characteristic pre-modifier often referred to as a ‘specifier’: *very*, etc. Prepositions take a dependent that is either obligatory (*It was at the window*) or optional (*It flew in (the window)*), and they show a limited capacity for apparent nesting of the head (*It flew in at the window*), as well as plausible instances of specification (*It flew right in the window*). We can perhaps treat some ‘adverbs’, such as *away*, as prepositions that are obligatorily ‘intransitive’, but these adverbs typically incorporate some deictic element (and one might want to worry about the analysis of the sequence initiated by *away* in *It flew away from the window*). None of this relates very easily to the verbal complement/adjunct

distinction illustrated above. And, though adjectives and prepositions may each be associated with a fairly obvious lexical class of specifiers, the same can scarcely be said of verbs.

Nouns introduce yet other problems. There seems to be a small set of ‘relational’ nouns that normally require a complement: *mother*, *side*, etc.; in the absence of an overt dependent, they are interpreted as elliptical. Nouns which are (overtly or covertly) derivative of verbs manifest the pattern of dependents associated with the corresponding verb, though in their case the equivalents of the verbal complements, including the subject, are generally omissible. Compare (17):

- (17) a. (His) desire (for unlimited pleasure) [overcame him]
 b. The (bishop’s) pilgrimage (to India) [was exhausting]

with (18):

- (18) He desires unlimited pleasure

Only the de-verbal noun in (19a) allows a complement, and not the noun-based item in (19b), even though the ‘same’ suffix is involved - unsurprisingly, since the base noun lacks a complement:

- (19) a. [He is a] painter (of landscapes)
 b. [He is a] potter *(of ?)
 c. [He is a] murderer (of little children)

And (19c) illustrates again that the nominal dependent may be absent even when the base verb, in this case *murder*, is insistently transitive (despite literary uses such as: *Besides, what could he, a stranger, say to Miss Pantil, Mr Newey and young Maude to convince them that in fact it was one of their friends who had murdered?* – Graham Greene, *The Ministry of Fear*, ch.4).

A de-verbal noun also allows for an additional distinction compared with the corresponding verb, involving a dependent which is not the equivalent of either a verbal complement or adjunct. (20a) shows nominal dependents equivalent to the post-verbal complement and adjunct in (20b), and the respective statuses of the two dependents is arguably manifested in the anomaly of (20c):

- (20) a. [He is in love with] a student of physics at Glasgow
 b. S/he studies physics at Glasgow
 c. * [He is in love with] a student at Glasgow of physics

The complement-equivalent must be nearer to the head than the adjunct-equivalent. Again, otherwise, we would have an unmotivated tangling, as in (13d). But the noun allows for other dependents that are not available to the verb:

- (21) a. [He is in love with] a student of physics at Glasgow from Surrey
 b. * S/he studies physics at Glasgow from Surrey

The only way I can make any sense of (21b) is if the student is construed as pursuing a distance-learning course at Glasgow University while resident in Surrey, which is not the sense of (21a). We can distinguish this kind of dependent by the traditional term *attributive*, which is apparently a relation available to noun-dependents that is distinct from

both complement(-equivalent) and adjunct(-equivalent). The attributive is awkward at best if placed closer to the head than the other dependents:

- (22) a. * [He is in love with] a student from Surrey of physics at Glasgow
 b. * [He is in love with] a student of physics from Surrey at Glasgow

The attributive may also be used with non-verb-based nouns, which are either ‘relational’ (23a) or are the archetypical nouns that lack anything that might be said to be equivalent to a complement (23b):

- (23) a. [He is in love with] a mother of 10 from Surrey
 b. [He is in love with] a girl from Surrey

But archetypical non-‘relational’, non-verb-based nouns lack complements, in particular.

The proposed dependents of the verb-based noun in (24) are ambiguous between an adjunct(-equivalent) reading and an attributive one:

- (24) a. [He is in love with] a Glasgow student of physics
 b. [He is in love with] a Surrey student of physics

The lovee is understood to be either a student at Glasgow or Surrey University or to come from Glasgow or Surrey. Likewise, we can associate the ambiguity in (25a) with whether the adjective is an adjunct-equivalent (cf. *Bobbie dances beautifully*) or an attributive:

- (25) a. Bobbie is a beautiful dancer
 b. Bobbie is a former dancer

On the attributive interpretation Bobbie is beautiful irrespective of his/her dancing. (Cf. the discussions of this distinction by e.g. Bolinger (1967), Kamp (1975) and Siegel (1980); Anderson (1997: §3.7.2) offers a rather different analysis from that suggested here.) ‘Tensed’ adjectives that cannot be predicative, such as that in (25b), allow only the adjunct-equivalent reading: cf. *Bobbie formerly danced/Bobbie was formerly a dancer*. This is so even with nouns that are not obviously verb-based, as in *She is a former nun*. The ‘tensing’, however, is suggestive of some sort of predicative base for the construction.

Thus, to sum up, the equivalents with nouns of verbal complements and adjuncts behave rather differently from the verbal elements, and nouns are associated with a distinct class of dependents traditionally called attributives.

Notice too that there is nothing parallel with verbs to the complex word-order conditions associated with pre-nominal dependents/attributives in English. There are particular pragmatic circumstances for preferring a particular order of the adjuncts in (26):

- (26) (with Mary)
 Bill left (on Tuesday)
 (by bus)

But the conditions associated with pre-nominal attributives are of quite another order. A phrase like that in (27), which, I suggest, instantiates the ‘unmarked’ sequence, illustrates something of this:

- (27) [the] same crass retired English provincial high-court judge

The conditions on these sequences are examined by, among others, Bache (1978), Goyvaerts (1968) and Vendler (1968). Bache, who offers the most comprehensive study, makes a preliminary distinction (1978: §0.3) between orders that are reversible and those that are not, between reversible orders where the variation is semantically distinctive and those where it is not, and between non-distinctive reversible orders where one possibility is preferred and those where there is no preference. And he goes on to elaborate a rich and detailed analysis of the order possibilities. Whatever conditions are involved here seem to be specific to pre-nominal attributives. According to Chomsky (1973: 275), this phenomenon is 'inexpressible in any natural way in a transformational grammar'.

The syntax of nouns and verbs is radically different; the representations of the structures in which they occur will diverge considerably. This difference and this divergence follows from their semantics (as argued in e.g. Anderson 1997). As the heads of constructions they manifest different kinds of cognitive salience. The archetypical verb, as a label for an event-type, is relational and dynamic: it entails participants of different types, reflected in its subcategorisation, and it attracts secondary categories such as tense and aspect (S.R. Anderson 1985: §2.2.1). The archetypical noun, as a label for an entity-type, is discrete and stable: it is not subcategorised, but permits further sub-classification by attributivisation, and it attracts 'inherent' secondary categories like number and those to do with non-transient classifications (gender) and with reference (cf. S.R. Anderson 1985: §2.1.1). The atoms of syntax, those properties that identify syntactic categories, are semantically based, just as the atoms of the phonology are perceptually based (cf. e.g. the references in Anderson and Durand 1987). If this means that both syntax and phonology, as cognitively-based constructs, are incompatible with the 'radically internal' UGH, then so be it.

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