

Against N-raising and NP-raising analyses of Welsh noun phrases

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Welsh noun-adjective and noun-possessor orders are widely analysed as involving movement of the noun to the head of a functional projection above the adjective or possessor. This account is consistent with the claim that Welsh adjectives appear in a universally prescribed order similar to that laid down for English. This paper considers the order and interpretation of adjectives in Welsh in more detail, arguing that the ordering data for Welsh adjectives is more complex than this, with both ‘universal’ and ‘mirror-image’ orders appearing under certain circumstances. A straightforward implementation of an N-raising approach is therefore not possible. Possible amendments, supplementing or replacing N-movement with phrasal movement within the DP are also considered, but are shown to run into severe problems of implementation.

Keywords: Welsh, noun phrases, adjective order.

1 INTRODUCTION

It is widely assumed that the noun-adjective and noun-possessor orders characteristic of the noun phrase in Welsh and in other Celtic languages are derived by head-movement (N-raising) of the noun to a position before the adjective or possessor (cf. Cinque, 1994: 87, 1996: 454; Longobardi, 2001: 595–597).¹ This type of analysis is often linked, implicitly or explicitly, to the claim that adjectives in Celtic languages appear in the same universal fixed order as that found in English, and not in a ‘mirror-image’ order.² Standard cases where Welsh conforms to this order are illustrated in (1).

- (1) a. cwpan mawr gwyrdd Sieineaidd
cup big green Chinese
‘a big green Chinese cup’ (Rouveret, 1994: 213)
- b. ci mawr du Dafydd
dog big black Dafydd
‘Dafydd’s big black dog’

The orders in (1) are expected if adjectives universally occupy left-adjoined or left specifier positions, and are attached in a consistent order across languages, with variation limited to the extent of leftward movement of the noun.

Such approaches to noun phrase structure are grounded in the theoretical context of recent work in comparative syntax. This programme of research attempts to limit syntactic differences between languages to differences in the extent of movement operations. It involves two distinct hypotheses. The first is that the merged position of elements is not subject to

¹ A noun-raising analysis for Celtic languages goes back originally to Guilfoyle (1988: 195) and Sproat & Shih (1991: 586–587) for Irish, and Rouveret (1994: 207–240) for Welsh, and is further defended for Welsh by Roberts (2004, Ch. 3, section 1) and for Breton by Stephens (1993).

² This observation is first made by Sproat & Shih (1991: 586–587) and Rouveret (1994: 212–213), and is repeated, for Celtic, by Cinque (1994: 100 fn. 20), for Irish, by Duffield (1996: 320, 1999: 132), and, for Welsh, by Fassi Fehri (1999: 108, 147–8), Longobardi (2001: 578) and Sichel (2000: 571).

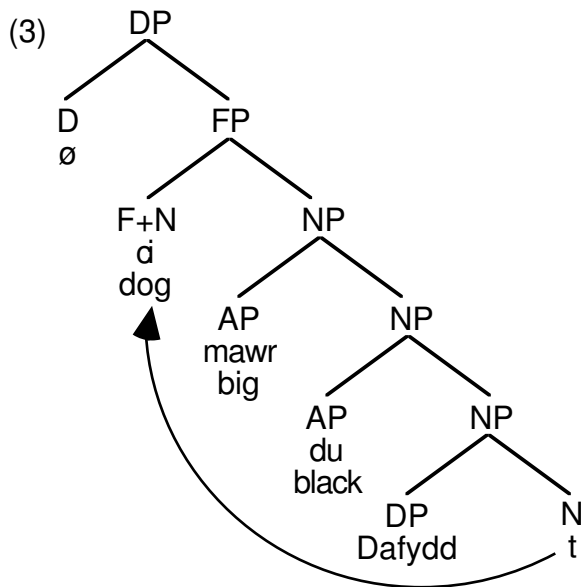
variation between languages, and is specified universally by selectional requirements or argument structure, both represented in the lexicon. A second, independent, stronger hypothesis is that not only is underlying syntactic structure invariant across languages, but also that there are no parameters specifying linear order (for instance, no directionality parameters, however instantiated). Instead, linear order is computed directly from hierarchical relations, cf. Kayne's (1994) Linear Correspondence Axiom (LCA), which effectively requires all specifiers and adjuncts to be ordered to the left of their heads, and all complements to be ordered to the right of their heads. Variation between languages is then limited to variation in the movement operations that apply to these universal structures.

In accordance with the first of these hypotheses, a natural goal is to try to establish, perhaps on semantic grounds, universal positions for the merger of adjectives and other elements within the noun phrase (Alexiadou, 2001: 220; Bernstein, 2001: 547–550; Cinque, 1994; Shlonsky, 2004: 1469). A universal hierarchy of adjective ordering would be posited, part of which might consist of (2) (where > means 'occupies a syntactically higher position than' or, effectively, given the LCA, 'precedes'), reflecting the order of the adjectives in (1a).

(2) SIZE > COLOUR > PROVENANCE

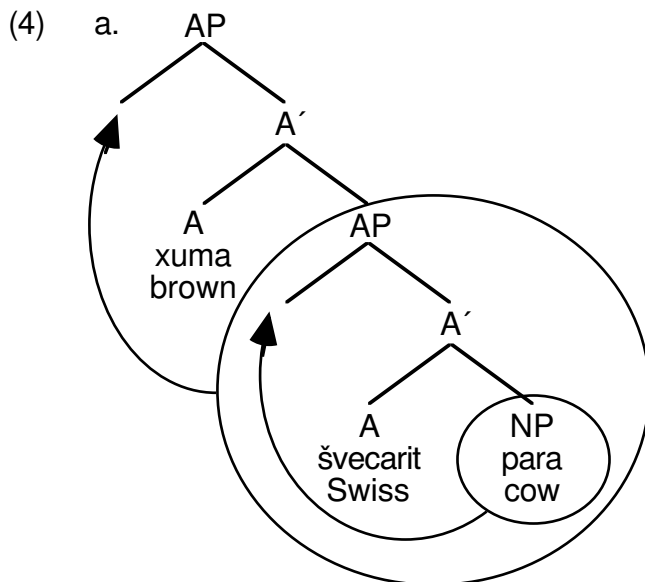
If it is observed that the order in (2) is consistent across languages, irrespective of whether adjectives precede or follow their noun, then the simplest way to account for variation in the position of adjectives is to postulate movement of the noun to the head of a functional projection to the left of the adjectives in noun-adjective languages such as Welsh, but not in adjective-noun languages like English. This is illustrated in (3).³ Given the data in (1), this approach seems attractive. No movement of the adjectives is necessary, and all adjoined and specifier positions are on the left of the phrase in accordance with the LCA. Originally developed for Romance languages (Cinque, 1994), N-raising analyses of noun-phrase structure have had wide currency for Welsh (see the references in footnote 1). One of the main pieces of evidence in their favour comes from adjective ordering (see Rouveret, 1994: 212–213; Sproat & Shih, 1991: 586–587). If adjectives were instead right-adjoined in Welsh, both hypotheses would apparently have to be abandoned: the order of adjunction would have to be non-universal, and directionality of adjunction would have to be specified extrinsically.

³ For simplicity, restrictions on adjective order are depicted as restrictions on order of adjunction in (3), with adjectives of colour adjoining to NP lower than adjectives of size. Since order of adjunction is free, fixed order could, in a fully articulated analysis, only be enforced by dedicated functional projections for each adjective, with the adjective phrase occupying the specifier of the relevant functional projection, and the head noun moving via its head.



Cases of ‘mirror-image’ adjective ordering, reversing (2), would not be straightforwardly compatible with N-raising. They could be derived either by relaxing the LCA, allowing right-adjunction of adjectives, or, maintaining the LCA, by multiple phrasal movement within the DP.

This paper examines some empirical and theoretical difficulties for an N-raising approach caused by the position and interpretation of demonstratives and adjectives. Possible revisions to N-raising analyses are considered. Among other proposals, this involves considering the additional possibility that there may be phrasal movement (of NP and AP) to successive specifier positions within the noun phrase, along the lines suggested by Cinque (1996), Shlonsky (2004) and Sichel (2000). This is exemplified for Hebrew, a ‘mirror-image’ adjective-ordering language in (4).⁴



⁴ The structure given in (4) is a simplified version of that developed by Shlonsky (2004), who uses agreement projections above the adjectival functional projection, and who puts adjectives in specifier positions rather than in the head positions found in (4).

- b. para švecarit xuma
 cow Swiss brown
 ‘a brown Swiss cow’

‘NP-raising’ analyses allow both universalist claims to be maintained.⁵ However, it is shown that adopting phrasal movement within the noun phrase leads to further theoretical and typological difficulties, and that this is not a plausible solution to the problems faced by N-raising approaches. This leads to the conclusion that, in their most extreme forms, neither an N-raising approach nor a phrasal movement (‘NP-raising’) approach can be maintained.

The paper is set out as follows. Sections 2 and 3 give a general overview of Welsh noun phrases and the motivation for an N-raising analysis. Section 4 sets out some empirical problems for N-raising from adjective and demonstrative ordering. Section 5 considers possible solutions to the position of demonstratives. Section 6 considers the possibility that the predicative-attributive distinction for adjectives within the noun phrases may provide a solution to the empirical problems posed by adjective ordering. It argues that, although predicative-attributive distinctions can be maintained for adjectives within the noun phrase in Welsh, recognition of the distinction does nothing to resolve the difficulties posed by ordering. On the contrary, it makes things worse. This leads to the conclusion that the empirical objections raised in section 4 are indeed well-founded, and that a pure N-raising approach cannot be maintained. Section 7 considers the NP-raising approach illustrated in (4) as a possible alternative. It argues that, although this approach can succeed in deriving the semantics of postnominal adjectives in Welsh, the feature specifications required to drive movement are themselves highly problematic. Having rejected both NP-raising and pure N-raising accounts, section 8 briefly outlines two possible alternatives: a non-antisymmetric account and a mixed account with only partial N-raising. It is concluded that approaches of the latter type provide the best hope of descriptive adequacy.

2 BASIC DATA AND ORDERING RESTRICTIONS

Word order within the noun phrase in Welsh is subject to fairly strict ordering restrictions. Welsh noun phrases are strongly head-initial. The noun itself may be preceded only by the definite article (5a), numerals (5a) and quantifiers (5b), possessive (‘genitive’) clitics (6), and a small class of prenominal adjectives such as *hoff* ‘favourite’ and *hen* ‘old’ in (6) (see also Thomas, 1996: 203–204; Thorne, 1993: 134). There is no indefinite article.

- (5) a. y pedwar ci
 the four dog
 ‘four dogs’
 b. llawer gŵn
 many dogs
 ‘many dogs’
- (6) fy hoff hen gi
 1S.GEN favourite old dog
 ‘my favourite old dog’

All other elements follow, including possessive noun phrases (7), most adjectives (as in (1) above), demonstratives (8), complements (9), and adjuncts of all kinds, including relative

⁵ NP-raising is a convenient term for this type of analysis, but it should be borne in mind that the movement category need not always be NP. In (4), for instance, AP is also moved.

clauses, (10). Welsh has no morphological case marking on lexical nouns, so a possessive noun phrase in (7) is identified only by its position within the phrase.

- (7) ci Dafydd
 dog Dafydd
 ‘Dafydd’s dog’
- (8) y ci ’ma / hwn
 the dog this
 ‘this dog’
- (9) stori am Ffrainc
 story about France
 ‘a story about France’
- (10) a. dinasoedd yng Nghymru
 cities in Wales
 ‘cities in Wales’
- b. pobl sy ’n gweithio mewn addysg
 people be-REL PROG work.VN in education
 ‘people who work in education’

Adjectives and demonstratives are subject to limited (often optional) agreement for gender and number. The surface order of elements relative to one another is generally fixed as in (11).

- (11) Det – Num – N – Adj – Poss/Dem – Complements/Adjuncts

As stated in (11), adjectives (Adj) precede possessor noun phrases (Poss), as illustrated in (12).

- (12) a. ci mawr Dafydd
 dog big Dafydd
- b. *ci Dafydd mawr
 dog Dafydd big
 ‘Dafydd’s big dog’ (grammatical as ‘big Dafydd’s dog’)

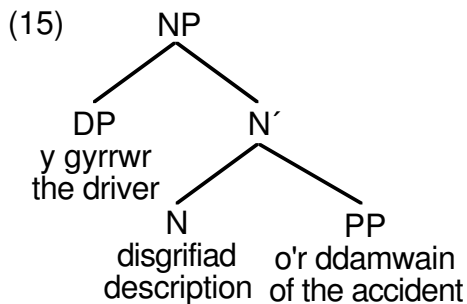
Both possessor noun phrases and adjectives must precede complements, as in (13) and (14).

- (13) a. disgrifiad (manwl) y gyrrwr o ’r ddamwain
 description (detailed) the driver of the accident
- b. *disgrifiad o ’r ddamwain y gyrrwr
 description of the accident the driver
 ‘the driver’s description of the accident’ (cf. Rouveret, 1994: 193)
- (14) a. stori newydd am Ffrainc
 story new about France
 ‘a new story about France’
- b. *stori am Ffrainc newydd
 story about France new
 ‘a new story about France’ (grammatical as ‘a story about a new France’)

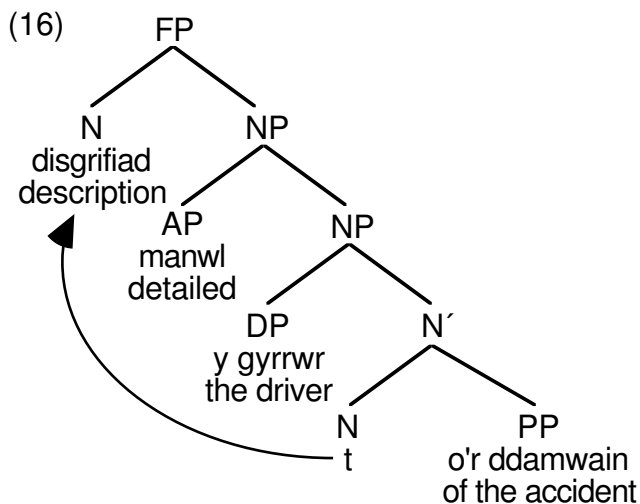
3 MOTIVATING THE N-RAISING ANALYSIS

These restrictions fall out straightforwardly from an N-raising analysis. It is natural to assume that possessors are merged into a nominal subject position [Spec, NP] on the basis of such

cases as picture nominals or event nominals. In (13a), the subject-possessor *y gyrrwr* bears an agent theta-role, satisfying the theta-requirements of the head noun *disgrifiad*. Similarly it is natural to suppose that *o'r ddamwain* satisfies the (optional) theme theta-requirement of the same noun. Hence, the merged structure of the NP is:



These fairly natural assumptions seem to force us to the conclusion that the head noun raises out of NP to some higher head position, and that (nonthematic) adjectives occupy a position between the ultimate landing-site of raising and the original NP, adjoined to NP (Rouveret, 1994) or as the specifier of a dedicated functional projection (Duffield, 1999). This is illustrated in (16), where, for simplicity, the adjective phrases are adjoined to NP.

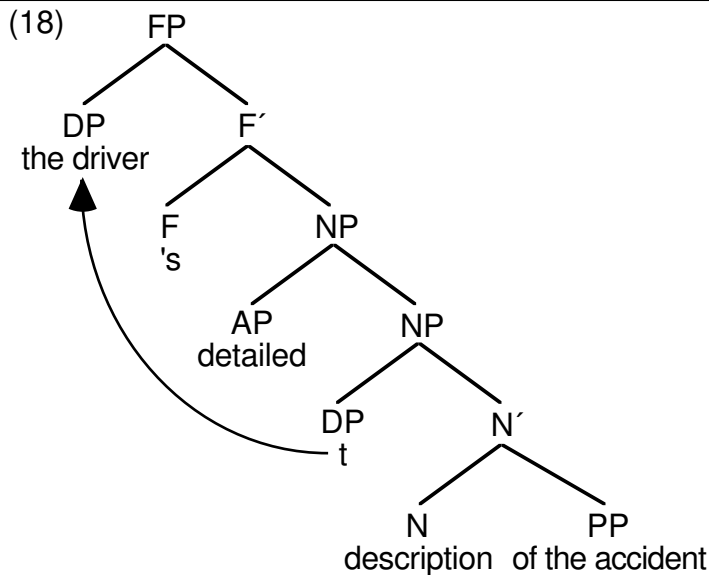


This view entails that there are (at least) two sources of crosslinguistic parametric variation, an N-raising parameter, and a possessor-raising parameter. In Welsh, the head noun raises overtly to F, and the possessor remains *in situ*. Contrast this with English, illustrated in (17) and (18), where the subject-possessor raises from its theta position [Spec, NP] to [Spec, FP] in the overt syntax, whereas the head noun remains *in situ*.^{6, 7}

(17) the driver's detailed description of the accident

⁶ This raises the question of what happens in Semitic languages, where, in construct state constructions, adjectives must follow possessors (Shlonsky 2004: 1504). In free genitive constructions in these languages there is variation: Hebrew disallows possessor-adjective order, whereas Maltese allows it (Duffield 1996: 321). Possessor-adjective order in Maltese seems to instantiate both N-raising and possessor-raising, in which case a slight elaboration of the functional structure will be required in order to ensure that the site targeted by N-raising is higher than that targeted by possessor raising.

⁷ F has been identified as Num (Rouveret, 1994, following Ritter, 1988, 1991).



As well as providing a constrained account of crosslinguistic variation, this approach seems also to account successfully for parallels between Welsh nominal and verbal syntax. Example (13a) seems to parallel the equivalent clause, which must be verb-initial:⁸

- (19) Disgrifiodd y gyrrwr y ddamwain.
 described the driver the accident
 'The driver described the accident.'

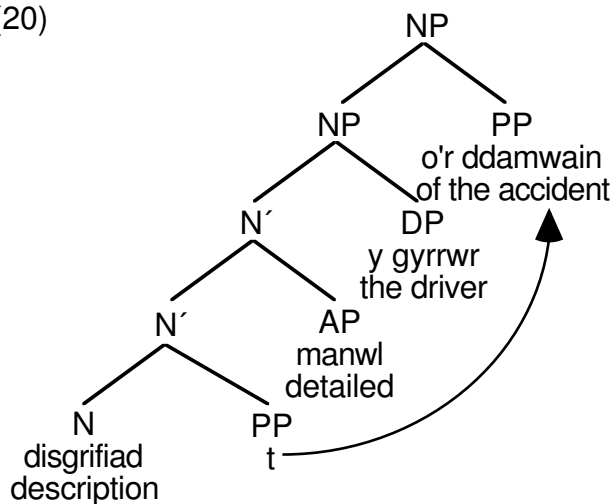
On the simplest analysis, ignoring negation and adverbs, (19) involves raising of the verb out of VP, crossing the subject in [Spec, VP] in a manner apparently equivalent to N-raising.

Since elements can intervene between the head (noun or verb) and its complement (possessors in (13) and adjectives in (14)), any analysis which requires a head and its complement to be generated adjacent to one another will involve movement. The N-raising analysis sketched so far does this exclusively by leftward raising operations. If the Linear Correspondence Axiom were to be abandoned, however, an analysis could be entertained in which movement of the head noun was eliminated in favour of rightward movement of the complement. Such an analysis is offered, within Lexical Functional Grammar, by Sadler (2001). An analysis of this type is given in (20) (cf. Sadler, 2001: 94). Since LFG does not countenance movement, Sadler generates elements like *o'r ddamwain* as NP-adjuncts rather than as complements to N. I have replaced this with extraposition in (20) to maintain the thematic relation with the head noun, and also to allow anaphoric relations to be determined structurally through reconstruction, as required in minimalism, but not in LFG. For details of anaphoric relations within noun phrases, see Rouveret (1994: 203).

⁸ The parallelism does not extend to adverbs, which follow complements:

- i. Disgrifiodd y gyrrwr y ddamwain yn fanwl.
 described the driver the accident PRED detailed
- ii. *Disgrifiodd y gyrrwr yn fanwl y ddamwain.
 described the driver PRED detailed the accident
 'The driver described the accident in detail / carefully.'

(20)



Here, the subject-possessor is merged into its thematic position [Spec, NP], but is projected to the right in violation of the Linear Correspondence Axiom. The major empirical drawback of such an analysis is that it requires obligatory extraposition of PP-complements (Roberts, 2004, Ch. 3, Section 1.1). Rightward exposition processes (such as English heavy NP shift) will be ruled out in principle given the Linear Correspondence Axiom. Even if we adopt a theoretical position on which such movement is permitted, the obligatory nature of the movement is problematic, since, such processes are generally optional (cf. also arguments against extraposition analyses of noun-subject-complement orders in Italian, Cinque, 1994: 85–87). Again, this seems to provide support for an N-raising account.

4 ORDERING OF ADJECTIVES AND DEMONSTRATIVES

As was seen in the Introduction, one of the major claims of a noun-raising analysis is that it allows a very straightforward account of adjective ordering crosslinguistically. It seems, in principle, to offer the prospect of maintaining both a fixed merged position for adjectives crosslinguistically, and a fixed merger order of adjective groups relative to one another. Instances can certainly be cited where the order of adjectives relative to one another is identical to that found in English, the only difference being that the entire adjective sequence is postnominal in Welsh but prenominal in English. Further examples are given in (21).⁹

- (21) a. cwpan mawr gwyrdd Sieineidd
 cup big green Chinese
 'a large green Chinese cup'
 b. buwch ddu gorniog
 cow black horned
 'a black horned cow'
 c. y ferch fach dawel hon
 the girl little quiet this
 'this little well-behaved girl'

(Rouveret, 1994: 213)

If the order of attachment of adjectives is universal, then cases such as (21) are expected under

⁹ The claim that there is equivalence of word order between Welsh and English in (21c) is based on Rouveret's translation of it into English as 'this little well-behaved girl'. Another translation, namely 'this quiet little girl', would be at least as natural, and, with this translation, parallelism of word order is not maintained.

an N-raising analysis, but not, for instance, under the complement extraposition analysis described above in section 3, which would predict mirror-image ordering of adjectives in Welsh as compared to English.

A closer look at the ordering restrictions on adjectives shows that things are not so straightforward, and that adjective ordering in fact raises a series of problems. Although there are many cases where the order of adjectives in Welsh is the same as in English, there are also many cases where it is not.

4.1 Adjectives of age and quality

Thomas (1996: 318) gives the following unmarked order for postnominal adjectives in Welsh:

- (22) head noun > NOUNS > NON-GRADABLE > SIZE > COLOUR > PROVENANCE >
 DEVERBAL ADJ. > AGE > QUALITY > *arall* ‘other’

Compare this with a similar schema for English adjectives (Sproat & Shih, 1991: 565):

- (23) QUALITY > SIZE > SHAPE > COLOUR > PROVENANCE > head noun

The greatest similarity between Welsh and English is that the order SIZE > COLOUR > PROVENANCE is the default order in both. However, in other areas, order relative to the head rather than left-right order seems to play the decisive role, and mirror-image ordering of adjectives results. For instance, adjectives of quality appear close to the head in both languages. A clear contrast emerges where adjectives of age and adjectives of quality combine in the two languages. In English the order is QUALITY > AGE, but in Welsh it is AGE > QUALITY. Compare the Welsh phrases in (24) with their English translations. In all cases the order given is strongly preferred for the language in question.¹⁰

- (24) a. *caneuon newydd gwyh*
 songs new great
 ‘great new songs’
 b. *athro ifanc hoffus*
 teacher young likeable
 ‘a likeable young teacher’ (CEG 17.3.21)

The main attraction of the argument that Welsh adjective order is the same as English is that it allows us to postulate a universal order of adjunction. It seems clear though that a straightforward postulation of a universal base ordering of adjective adjunction will not produce the attested data on its own.

4.2 Comparison classes and scope

A further difficulty for the noun-raising account concerns relative scope of adjectives. Wherever one adjective has scope over both the head noun and another adjective, the adjective with wide scope is found furthest from the head noun. The result is the reverse order to that

¹⁰ The comments in this section are based partially on an investigation of the first hundred instances of noun phrases modified by multiple adjectives in the Welsh corpus, *Cronfa Electronig o Gymraeg* (Ellis, Ó Dochartaigh, Hicks, Morgan & Laporte, 2001, henceforth *CEG*).

found in English. These reverse orders are by no means exceptional, and the interpretation of the noun-adjective sequence does not have to be idiomatic, nor does the sequence have to be a fixed expression.¹¹ Examples are given in (25).

- (25) a. acen Saesneg gref
 accent English strong
 ‘strong English accent’
- b. bardd ifanc addawol
 poet young promising
 ‘a promising young poet’ (CEG 17.87.6)
- c. ryg Twrcaidd coch
 rug Turkish red
 ‘a red Turkish rug’ (CEG 8.104.12)
- d. to crwn uchel
 roof round high
 ‘a high round roof’ (CEG 8.103.35)

A noun-raising structure encounters problems in deriving the correct interpretation of these adjectives, in particular for correctly deriving the comparison class by reference to which the truth of the function expressed in the adjective is determined (on comparison classes, see Klein, 1980). The sentence in (26) is felicitous and noncontradictory, because in each of the noun phrases the second adjective takes scope over the first, that is, *acen Saesneg gref* is an accent that is strong *for an English accent*, not simply strong for any accent, and *acen Rwsieg ysgafn* is an accent that is mild by the standards of Russian accents.

¹¹ The same in fact also applies to idiomatic noun phrases, where the interpretation is entirely noncompositional. In *tŷ bach* ‘toilet’ (lit. ‘small house’) and *llygoden Ffrengig* ‘rat’ (lit. ‘French mouse’), *bach* ‘small’ and *Ffrengig* ‘French’ must be kept adjacent to the head noun (*tŷ bach gwyrdd* ‘green toilet’ and *llygoden Ffrengig fawr* ‘large rat’) for an idiomatic interpretation. However, it is possible that these idioms are listed as a single N in the lexicon, and, if so, they do not pose a problem for an N-raising account.

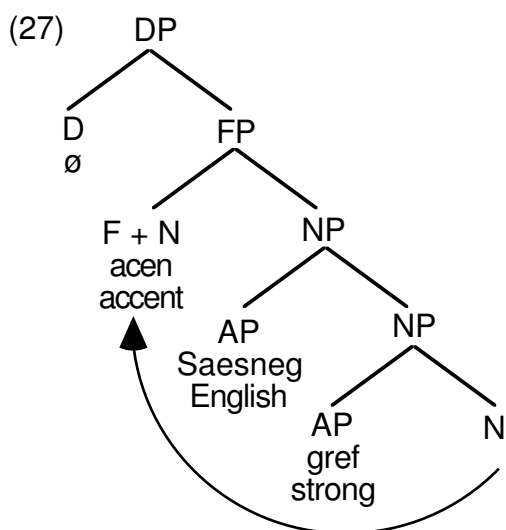
Noun-adjective ‘compounds’, such as *cyfarfod cyhoeddus cenedlaethol* ‘a national public meeting’ or *anghenion addysgol arbennig* ‘special educational needs’ also have inverse order of adjectives. They are not idiomatic in the same way, their meaning being compositional, so, at first sight, they seem to be incompatible with a noun-raising approach. However, as in other languages, they sometimes seem to act as a single, indivisible unit syntactically, and can hence be argued to be heads. For instance, the noun in these compounds is not accessible to pronominalization with *un* ‘one’ and *rhai* ‘ones’ (see Cinque, 1994: 103):

- i. ??rhai cyhoeddus cenedlaethol
 ones public national
 ‘national public ones’
- ii. ??rhai addysgol arbennig
 ones educational special
 ‘special educational ones’

These counterarguments do not apply to the scope examples discussed in (25).

- (26) Mae acen Saesneg gref yn haws i 'w deall
 is accent English strong PRED easier to 3SF.GEN understand
 nag acen Rwsieg ysgafn.
 than accent Russian mild
 ‘A strong English accent is easier to understand than a mild Russian accent.’

It is natural to suppose that the standard for the interpretation of the adjective is read off from the sister of the adjective phrase (for instance, as part of theta-identification, Higginbotham, 1985). However, on an N-raising analysis, the structure of *acen Saesneg gref* is, in simplified form, as in (27), and here the sister of *gref* ‘strong’ is the trace of the head noun alone, and therefore the expected interpretation is an accent that is strong by general standards of accents, and not English-specific (cf. Svenonius, 1994: 450–452 on this problem in Italian).¹²



4.3 Adjectives with fixed positions

Although there is some degree of freedom with respect to the relative ordering of adjectives of size, provenance, age and quality, certain other types of adjectives have much more rigidly fixed positions within the phrase. Wherever Welsh shows rigid adjective order within the noun phrase, the pattern is always the reverse of that found in English. There are two very clear-cut cases.

The first concerns the position of comparative and superlative adjectives. In English these must precede almost all other adjectives, whereas in Welsh they must follow almost all other adjectives (Thomas, 1996: 319–320):¹³

- (28) a. y cwpan gwyrdd Sieineaidd mwyaf
 the cup green Chinese biggest
 b. *y cwpan mwyaf gwyrdd Sieineaidd
 the cup biggest green Chinese
 ‘the biggest green Chinese cup’

¹² It is worth noting here in connection with the data in section 4.1 that, whereas adjectives of quality are typically interpreted with scope over adjectives of age, such interactions are probably less frequent with the other types of adjectives in (22) and (23).

¹³ The phrase in (28b) is marginally grammatical with the meaning ‘the greenest Chinese cup’.

Secondly, *arall* ‘other’ must (with limited exceptions, see below) come last in a series of adjectives in Welsh, but first in a series of adjectives in English:

- (29) a. y cwpan gwyrdd Sieineaidd arall
 the cup green Chinese other
 b. *y cwpan arall gwyrdd Sieineaidd
 the cup other green Chinese
 ‘the other green Chinese cup / *the green Chinese other cup’

These two types of adjective are also notable in that they have to be interpreted with an implicit standard of comparison argument. In (28), the cup is the biggest member of a set of green Chinese cups (not of a set of cups); and in (29) the cup is a cup other than some different green Chinese cup that is presupposed to exist, and not merely some different cup that is presupposed to exist.

Comparative and superlative adjectives and *arall* ‘other’ are also unusual in splitting away from other adjectives in certain constructions with numerals (see section 6.3 below).

4.4 Demonstratives

Finally, demonstratives, which in many ways behave syntactically as adjectives in Welsh, appear very late in the noun phrase, following *arall*:

- (30) y cwpan gwyrdd arall ’ma / hwn
 the cup green other this / this
 ‘this other green cup’

This is unexpected compared to English, where demonstratives precede the adjectives.

5 ANALYSING MIRROR-IMAGE ORDERS: DEVELOPING THE N-RAISING APPROACH

Consider first the case of demonstratives. If demonstratives are late in Welsh, and early in English, and we want to posit a universal merged position, there seem to be two ways out while still maintaining N-raising.

5.1 A demonstrative-raising analysis

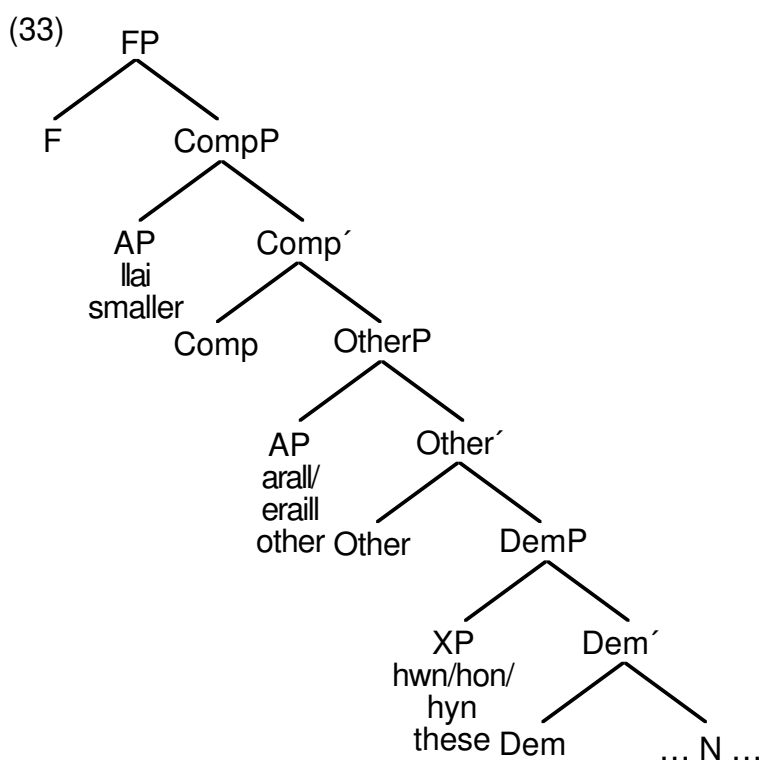
One way (suggested by Cinque, 1996: 454, fn. 16) is to suggest that the demonstrative phrase (DemP) is actually low in the structure universally. Prenominal demonstratives are specifiers of DemP that themselves undergo a raising operation. Welsh would therefore represent the default, no-movement case, and the result would be a relatively straightforward analysis of Welsh. This would come at the price of positing movement of demonstratives in English from this low [Spec, DemP] position to some higher specifier position, presumably [Spec, DP]. However, the nature of this movement would be rather mysterious. Some uninterpretable (unvalued) feature would need to be posited on the head of D, and Dem would need to bear the interpretable version of this feature in order to form a configuration in which movement from [Spec, DemP] to [Spec, DP] would be permitted in minimalism. Agree between the uninterpretable feature of D and the interpretable feature of Dem would be accompanied by movement from [Spec, DemP] to [Spec, DP] due the presence of a feature forcing movement

(EPP-feature) on D.¹⁴ An agreement feature here seems unlikely, since determiners do not obviously agree with demonstratives. Some kind of definiteness or specificity feature seems the most likely option. The feature driving movement is clearly not present in Welsh. The correct Welsh order will be derived if DemP is located at the bottom of the cluster of functional projections hosting adjectives, with no movement.

Pursuing this line, we are forced to say much the same thing for the two mirror-image adjective groups too. We must posit CompP and OtherP to host comparative and superlative adjectives, and *arall* ‘other’ respectively. Ordering examples are given in (31) and (32), with the relevant (partial) structure in (33). In (33), the head noun raises successively through all intermediate head positions, stopping eventually at F.

(31) y blaid arall hon
 the party other.SG this.FEM
 ‘this other party’

(32) y pleidiau llai eraill
 the parties smaller other.PL
 ‘the other smaller parties’



Although this produces the correct outcome for Welsh, we are left to wonder about the crosslinguistic implications of such an analysis. We are forced to say that, in an English example like (34), both *other* and *those* raise to a position higher than *bigger*. In order to create a landing site for *other*, a new functional projection will need to be posited, for instance OtherP₂ (with relabeling of the lower projection as OtherP₁), with some features (presumably

¹⁴ Movement from [Spec, DemP] to the head of D might also be a possibility, if, under Bare Phrase Structure, the demonstrative is a non-branching head, and therefore, simultaneously a head and maximal projection. This would also automatically prevent demonstratives from co-occurring with articles in English (**this the building*). Incidentally, it would predict that languages with postnominal demonstratives never have such a cooccurrence restriction.

comments, Cinque, 1994: 93, fn. 12). We therefore need to establish whether the Welsh problem cases that have been discussed so far involve attributive or predicative adjectives.

Canonically, predicative adjectival modification within the DP involves an adjective phrase merged to the right of the noun head, with a intonational break between the AP and the rest of the noun phrase, for instance, the Italian example in (36).

- (36) la loro aggressione all' Albania, improvvisa e brutale
 the their aggression against Albania sudden and brutal
 'their aggression against Albania, sudden and brutal' (Cinque, 1994: 92)

Some adjectives cannot appear in predicative position (for instance, **This reason is main / *Questo motivo è principale*), and so cannot appear in predicative position within the noun phrase (**the reason for his departure, main / *il motivo della sua partenza, principale*).

The definition of predicative is widened somewhat when Cinque discusses French and Italian examples such as the following (Cinque, 1994: 102):

- (37) un fruit orange énorme
 a fruit orange huge
 'a huge orange fruit'
 (38) una macchina rossa bellissima
 a car red lovely
 'a lovely red car'

In these cases, Cinque treats the adjectives as being predicative and therefore not subject to restrictions imposed (only) on attributive adjectives. He tests for this by giving the noun a complement. If the noun has a complement that follows the adjectives, the order in (39) is ungrammatical. In such cases, the adjectives must either follow the complement, with the introduction of the relevant intonational break, as in (40a), or else the adjectives must be used in an attributive way, in which case the ordering reminiscent of English reappears, as in (40b).

- (39) *una macchina rossa bellissima da corsa
 a car red lovely for racing
 'a lovely red racing car'
 (40) a. una macchina da corsa(.) rossa(.) bellissima
 a car for racing red lovely
 'a lovely red racing car'
 b. una bellissima macchina rossa da corsa
 a lovely car red for racing
 'a lovely red racing car'

Even so, it is not clear how predicative adjectives escape these restrictions, but perhaps they are right-adjoined to DP, in violation of the LCA. This would also allow them to follow complements, as in (40).

There are a number of reasons to believe that the adjectives in the Welsh data discussed above are not predicative. First of all, some of the adjectives with fixed late positions in Welsh cannot be used predicatively in other contexts. The clearest case of this is *arall* 'other', which cannot be used predicatively at all:

- (41) *Mae 'r bachgen yn arall.
 is the boy PRED other
 'The boy is other.'

Nevertheless, as was seen above, it occupies a fixed position in a mirror-image order. This is clear evidence that in (32) above, *eraill* ‘other (pl.)’ is not predicative.

A similar case is the adjective *bach*. *Bach* can either be an adjective of size ‘small’, or can indicate speaker attitude (either endearment or contempt) ‘little, dear, contemptible’. Only the former interpretation is available when it appears in predicative position, compare ambiguous (42), with attributive *bach*, with unambiguous (43), with predicative *bach*.

- (42) Ieuan bach
Ieuan small
‘small / little / dear Ieuan’
- (43) Mae Ieuan yn fach iawn.
Is Ieuan PRED small very
‘Ieuan is very small.’; not: ‘Ieuan is very dear, lovely.’

Nevertheless, speaker-attitude *bach* appears early in the Welsh adjective sequence, in contrast to its English equivalents, as shown in (44). If it were being used predicatively, we would expect the speaker-attitude meaning to disappear in non-DP-final position.

- (44) y llechgi bach busneslyd
the sneak little interfering
‘the interfering little sneak’ (Roberts, 1936: 56)

Secondly, the predicative view predicts that any adjective sequence that reverses the English order will be final within the noun phrase. However, this is not the case. For instance, in (45a), the mirror-image adjectives precede a complement. This test is analogous to the Italian data in (39) and (40), but leads to a different conclusion. Similarly, in (45b), a sequence of mirror-image adjectives precedes a possessor noun phrase.

- (45) a. addasiad Cymraeg newydd o ddrama Thomas Middleton
adaptation Welsh new of play Thomas Middleton
‘a new Welsh adaptation of Thomas Middleton’s play’
(www.bangor.ac.uk/cyf/newyddion0203.htm)
- b. car coch newydd Ieuan
car red new Ieuan
‘Ieuan’s new red car’

Finally, there is good evidence that Welsh has predicative / indirect modification in another context. As seen above, comparative and superlative adjectives, followed by *arall* ‘other’, are normally the final elements within the postnominal adjective sequence. One exception to this though is the adjective *posib* ‘possible’, which may precede or follow *arall*, but with different interpretative possibilities. When it occurs to the left of *arall*, *posib* has a modal meaning ‘potential’; when it occurs to the right, it has an implicit infinitival relative reading (cf. Larson, 2000; Svenonius, 1994: 450–451 on this in English; Cinque, 2003 on Italian). In (46a), Siôn has many friends, and has invited every one ‘that it was possible for him to invite’ (perhaps every friend in town). In (46b), the people Siôn has invited may not actually be his friends; he may have invited everyone he thinks could become his friends. The same effect is evident in (47) with a superlative adjective and *posib*.

- (46) a. Mae Siôn wedi gwahodd pob ffrind arall posib i’w barti.
is Siôn PERF invite.VN every friend other possible to-his party
‘Siôn has invited every other friend possible (every friend that it was possible for him to invite) to his party.’

- (47) b. Mae Siôn wedi gwahodd pob ffrind posib arall i'w barti.
is Siôn PERF invite.VN every friend possible other to-his party
'Siôn has invited every other potential friend to his party.'
- a. Hwn yw 'r safle gorau posib.
This is the site best possible
'This is the best possible site (the best site that there could possibly be).'
- b. Hwn yw 'r safle posib gorau.
This is the site possible best
'This is the best possible site (best of the potential / available sites).'

In English, with prenominal adjectives, an adjective with an implicit relative reading precedes one with a modal reading (Larson, 2000). In Italian, with postnominal adjectives, the reverse order holds (Cinque, 2003). We see from the data in (46) and (47) that, not unexpectedly, Welsh patterns here with Italian: modal *posib* precedes *arall* and *gorau*, whereas implicit relative *posib* follows. Cinque analyzes the interpretation in (46a) and (47a) as reflecting indirect / predicative modification.¹⁵ Assuming this to be correct, then the position for indirect / predicative modification adjectives is to the right of *arall*. Cinque identifies two adjective clusters in Italian: one indirect / attributive modification cluster in postnominal position nearest the head noun, and one indirect / predicative modification further from the head noun.

If we can identify *arall* as an adjective that can participate only in direct / attributive modification of the noun, then it seems to be the case that adjectives to the left of *arall* are direct modifiers, and adjectives to the right are indirect modifiers. However, mirror-image adjective sequences can precede *arall* / *eraill*:

- (48) caneuon newydd gwy ch eraill
songs new great other.PL
'other great new songs'

It therefore seems that the problems raised by mirror-image adjective orderings cannot be resolved by a straightforward appeal to the idea of predicative or indirect adjectival modification, with those adjectives manifesting mirror-image appearing exclusively in the indirect-modification cluster.

6.2 Multiple distinctions among adjectives

The previous discussion leads to the conclusion that there are at least three types of adjective

¹⁵ A similar effect may be observed with differences in interpretation (restrictive, non-restrictive) of other adjectives in relation to *arall*. Consider the following:

- i. Symudodd Megan ei mab i ysgol Saesneg (ei chyfrwng) arall.
moved.3SG Megan her son to school English its medium other
- ii. Symudodd Megan ei mab i ysgol arall Saesneg (ei chyfrwng).
moved.3SG Megan her son to school other English its medium
'Megan moved her son to another English(-medium) school.'

Saesneg 'English' is restrictive when it precedes *arall*: in (i), Megan's son's first school was English-medium, as is his second. When *Saesneg* follows *arall*, it is nonrestrictive: in (ii), nothing is said about the language of instruction in the first school. It is stated only that English is the language of instruction in the second school, and lack of specification will be taken to imply that the language of the first school was Welsh rather than English.

modification in Welsh. First, we have indirect modification, such as that found with implicit relative *posib* in (46a) and (47a). The position for this type of modification is after *arall* and after superlative and comparative adjectives.

A second type of predicative modification also seems to occur in Welsh. Welsh has an overt marker of predication, *yn*, which appears in precisely the sorts of contexts that exemplify prototypical cases of predication within the noun phrase like (36). These adjectives always appear in absolute DP-final position, following possessors and complements, as illustrated in (49). To distinguish these two types of modification, I shall refer to the former as indirect modification and to the latter as predicative modification.

- (49) ...buddsoddi ym mhensaernïaeth fy ngwlad, yn hen ac yn newydd.
 invest.VN in architecture my country PRED old and PRED new
 ‘...to invest in the architecture of my country, old and new.’
 (www.bbc.co.uk/cymru/celf/eisteddfod03/artist/laura-clark.shtml)

This gives us an ordering for three postnominal adjective clusters in Welsh, with *arall* and superlative adjectives standing at the end of the direct modification cluster and thereby dividing it from the following indirect modification cluster. These in turn are separated from predicative adjectives by complements and possessors:

- (50) N – direct modification adjectives – *arall*/superlative adjectives – indirect modification adjectives (reduced relative *posib*) – possessors – *yn* + predicative adjective

It is tempting, although ultimately oversimplistic, to suggest that adjectives in the direct modification cluster observe English-like word order, and that adjectives in the indirect modification cluster are ordered according to scopal relations, resulting in mirror-image ordering. Unfortunately, as we saw in (48), mirror-image ordering is possible even within the direct modification cluster.

6.3 Complex numerals

Complex numerals may allow us to make even finer distinctions between adjective clusters. Complex numerals may (but need not) be used to express almost all numerals higher than ten, for instance, *tri ar ddeg* ‘thirteen (literally “three on ten”)', *pedwar ar bymtheg* ‘nineteen (literally “four on fifteen”)' or *dau ar hugain* ‘twenty two (literally “two on twenty”)''. With these numerals, the first part, a numeral ten or lower, precedes the noun, and the rest of the numeral follows. An example is given in (51). In (51), although it follows the head noun, the postnominal part of the split numeral must precede a possessor noun phrase. Thomas (1996: 313, 320) notes that it also precedes *arall*, as in his example (52).

- (51) pedwar llyfr ar bymtheg Wyn
 four book on fifteen Wyn
 ‘Wyn’s nineteen books’ (Sadler, 2001: 80)
- (52) pedair cân Gymreig ar hugain arall
 four song Welsh on twenty other
 ‘twenty four other Welsh songs’ (Thomas, 1996: 320)

Other cases of adjectives following the second element of a complex numeral can also be cited. Comparative and superlative adjectives seem to follow the second element of a complex numeral exclusively:

- (53) y pedair ysgol ar ddeg fwyaf yng Nghymru
 the four school on ten biggest in Wales
 ‘the fourteen biggest schools in Wales’

Other adjectives generally precede, as with *ddawnus* ‘talented’ in (54), but can follow if the adjective has wide scope. Contrast the pair of phrases in (55).

- (54) y tair merch ddawnus ar hugain hyn
 the three girl talented on twenty these
 ‘these twenty-three talented girls’ (Thomas, 1996: 313)
- (55) a. y pedwar mesur ar hugain traddodiadol
 the four meter on twenty traditional
 ‘the twenty-four traditional (poetic) meters (sc. “it is traditional to divide Welsh meters into twenty-four types”)’
 b. pedwar mesur traddodiadol ar hugain
 four meter traditional on twenty
 ‘(any) twenty-four traditional meters’

In this way, the second part of the complex numeral splits postnominal direct-modification adjectives into two groups. The ones further from the noun seem either to be inherently scope-bearing, or else scope-bearing in context, and follow a mirror-image order determined by scopal relations, whereas those closer to the noun seem to be non-scope-bearing and receive an intersective interpretation, and follow (broadly) an English-style order.

To test whether this impression is justified, we would need to consider cases with mirror-image order among adjectives but no obvious scope effects (that is, cases of multiple adjectives like those in section 4.1 above). A relevant case is illustrated in (56). In (56), we have the mirror-image adjective sequence *newydd wych* ‘new great’. Does this precede the second part of the complex numeral because the adjectives receive an intersective interpretation? Or does it follow because the adjective appear in mirror-image order? Unfortunately, native speakers find multiple adjectives in complex numeral constructions marginal whatever the order, and prefer instead some entirely different numeral construction, either using *o* ‘of’ (*pedair ar ddeg o ganeuon newydd gwych*¹⁶) or placing the entire numeral in front of the head noun (*pedair ar ddeg cân newydd wych*).

- (56) a. ??pedair cân newydd wych ar ddeg
 four song new great on ten
 b. ??pedair cân newydd ar ddeg wych
 four song new on ten great
 c. ??pedair cân ar ddeg newydd wych
 four song on ten new great
 ‘fourteen great new songs’

The syntax of complex numerals leads us to elaborate our schema in (50). The order of postnominal elements can now be listed as:

¹⁶ Native speakers consulted expressed a preference for the form *gwych* here, rather than the mutated form *wych* which would normally be expected with a feminine head noun. If this finding were repeated with other native speakers, it might suggest that *gwych* was functioning predicatively here, and that gender mutations tend not to extend to predicative adjectives.

- (57) N
 adjectives in noun-adjective compounds e.g. *cyfarfod cyhoeddus* ‘public meeting’
 non-scope-bearing direct-modification adjectives e.g. *ci mawr du* ‘big black dog’
 second part of complex numerals
 scope-bearing direct-modification adjectives (incl. obligatorily *arall*, superlatives)
 demonstratives / indirect-modification adjectives (reduced relative *posib*)¹⁷
 complements, possessors
 predicative adjectives preceded by predicate marker *yn*

The problems raised in sections 4 and 5 for N-raising analyses are not resolved by adopting this more finely grained schema. In particular, since scope-bearing direct-modification adjectives occur obligatorily in mirror-image order, some potentially rather complex and poorly motivated reordering movements will still be necessary, of the type illustrated in (35), either for English or for Welsh.

7 NP-RAISING ANALYSES

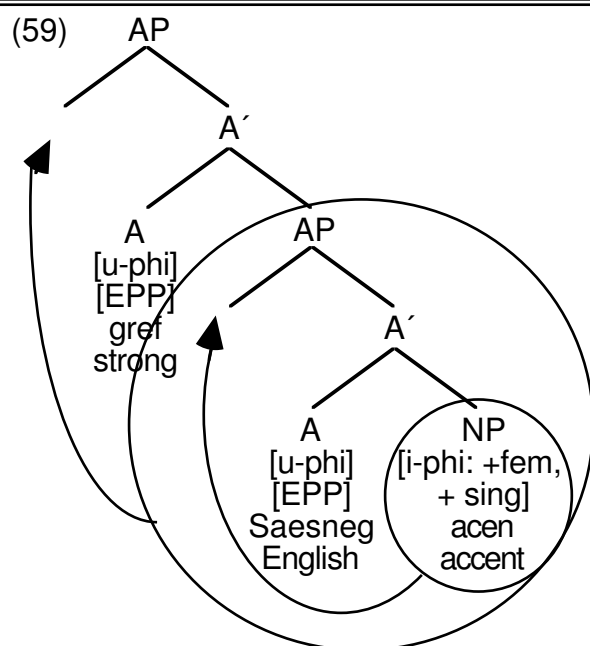
Having rejected a pure N-raising approach, we should consider other approaches that conform to the LCA. Another such approach would be to say that the merged order of elements is the same as that in English (thereby establishing the correct scope effects), but that, instead of noun-raising, we have a process of NP-raising which successively moves first the NP (that is, the noun without any accompanying adjectives) and then noun + adjective sequences leftwards. Such an approach is proposed by Sichel (2000) and Shlonsky (2004) for mirror-image attributive adjective sequences in such Hebrew phrases as the one in (58) (cf. also (4) above).

- (58) ha-mexonit ha-amerika’it ha-aduma
 the-car the-American the-red
 ‘the red American car’ (Sichel, 2000: 569)

Cinque himself adopts a version of NP-raising to derive the order of numerals, demonstratives and adjectives in postpositional languages like Basque. However, he specifically rejects it for prepositional, head-initial languages like Welsh for the typological reason that NP-raising is a type of phrasal movement that is specifically characteristic of head-final / SOV languages (Cinque, 1996: 456, fn. 20).

The relevant cases to consider are those where mirror-image order is due to scope effects. The structure that an NP-raising analysis would attribute to the phrase in (25a) is illustrated in (59).

¹⁷ The position of demonstratives with respect to indirect-modification adjectives is impossible to determine, since they cannot co-occur.



The adjectives here are merged in their universal (English-style) order as heads of adjectival (AP) projections.¹⁸ When the lowest adjective, *Saesneg*, is merged into A, it must value its uninterpretable phi-features, in this case a gender-number feature. It values them as [+fem, +sing] from the lower NP, and, since its phi-features bear an EPP-feature, the NP *acen* moves to [Spec, AP]. This procedure is repeated when the second adjective, *gref*, is merged, except that, this time, the nearest phi-features are those on [AP *acen Saesneg*], so this element moves to the higher [Spec, AP].¹⁹ Such movement is repeated for however many adjectives the structure contains. On this account, the difference between Welsh and English is either that phi-features on Welsh adjectives bear an EPP-feature, whereas English ones do not, or that English adjectives lack phi-features (lacking any morphological agreement), hence the question of whether their phi-features bear an EPP-feature is irrelevant.

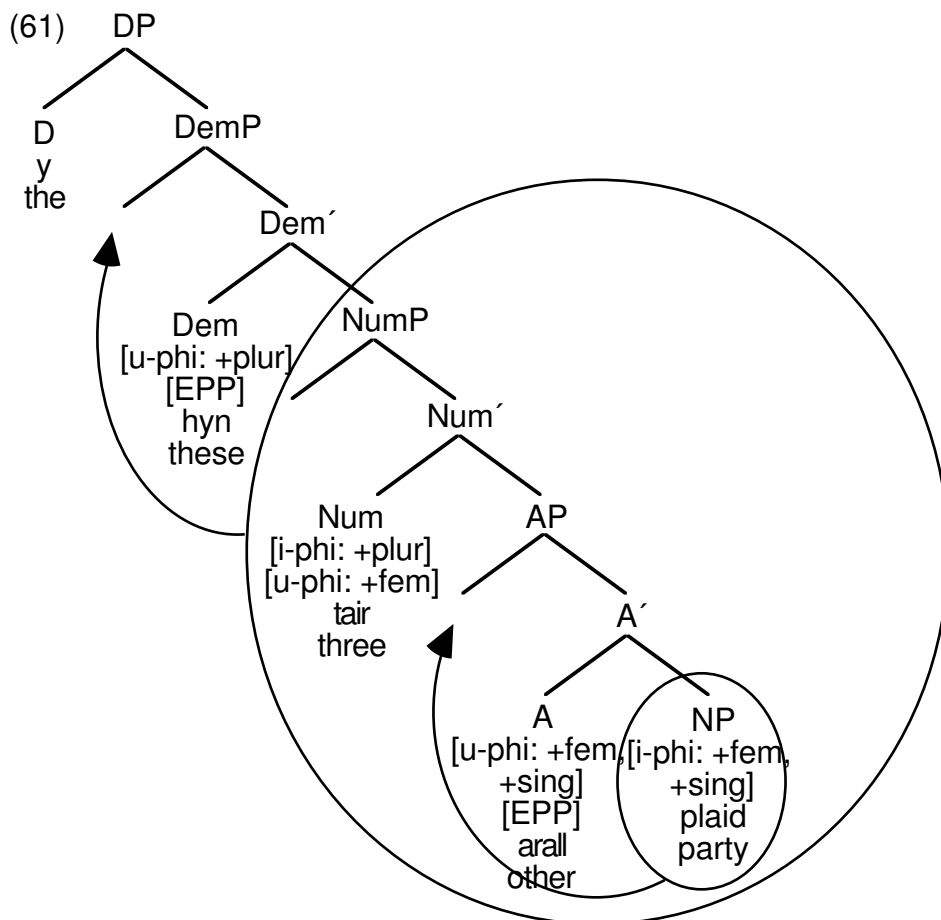
The same approach will be adopted for demonstratives, again assuming universal dominance relations, Dem > Num > Adj > N (see Cinque, 1996: 456, fn. 20 on this for Basque):²⁰

¹⁸ I follow Sichel (2000) in assuming that adjectives are heads of AP. This ignores the fact that postnominal attributive adjectives may be modified e.g. *acen* [AP *gref iawn*] *arall*, with *iawn* ‘very’ modifying *gref* ‘strong’ (cf. Svenonius, 1994: 445–446). Shlonsky (2004) avoids this problem by assuming that adjectives are specifiers of a functional projection, with movement to the specifier of a higher functional projection. Most of the problems of the analysis are not greatly affected by the choice between the two options. Note also that the analysis sketched out here motivates movement explicitly using features, rather than implicitly. Many of the problems arise from the details of the otherwise implicit system of features that it is necessary to adopt.

¹⁹ Actually, it is not clear what forces movement of AP, and prohibits movement of NP to the higher [Spec, AP], given that either would satisfy the relevant feature.

²⁰ In (61), I take the [+plur] number phi-feature on Num to be interpretable, but the gender phi-feature of Num to be uninterpretable. This makes intuitive sense, and is necessary in order to give the correct agreement morphology, with plural demonstrative, feminine numeral, and singular adjective.

- (60) y tair plaid arall hyn
 the three party other.SG these.PL
 ‘these three other parties’



Again, I assume that the system is driven by an Agree relation that values an uninterpretable gender-number phi-feature on a head. A, Num and Dem all have their phi-features valued in this way. Parametric variation will amount to stating which of these functional heads have EPP-features triggering movement of their complements to their specifiers in a given language, and which do not. For Welsh, then, we would have to state that Dem and (some) A-heads have an EPP-feature, whereas D and Num do not.²¹

There are empirical problems, nevertheless. Since the whole NP is raised, any complements and possessor noun phrases will (wrongly, cf. (45b)) raise with it (cf. Fassi Fehri, 1999: 120 on this as a reason for rejecting an NP-raising account of Arabic noun phrases). It will have to be assuming that N undergoes partial head-raising to a low functional projection F, in order to precede a possessor in [Spec, NP], before FP itself undergoes phrasal movement. This the head noun N raises to F to give [FP N [NP Poss t_N Comp]], then this moves to the specifier of AP, giving [AP [FP N [NP Poss t_N Comp]] Adj]. After merger of numerals in Num (triggering no phrasal movement), we form up [NumP Num [AP [FP N [NP

²¹ Note that, in (60), the presence of a numeral complicates the agreement patterns: the demonstrative must be plural in form, whereas adjectives must be singular. The NP-raising account could probably be made to cope with this successfully though, the relevant generalisation being that all Agree-relations before the merger of the numeral into the tree result in the spread of [+fem, +sing] from the head noun, whereas all Agree-relations after merger of the numeral result in the spread of [+plur] from the numeral. I leave the details of feature copying, since they are not directly relevant to the argument.

Poss t_N Comp]] Adj]]. Finally, after merger of the demonstrative head, NumP moves to [Spec, DemP], giving [Dem [NumP Num [AP [FP N [NP Poss t_N Comp]] Adj]] Dem].

Given all this, we predict the order in (62), rather the actually attested pattern for Welsh in (11), repeated here as (63).

(62) Det – Num – N – Poss – Comp – Adj – Dem

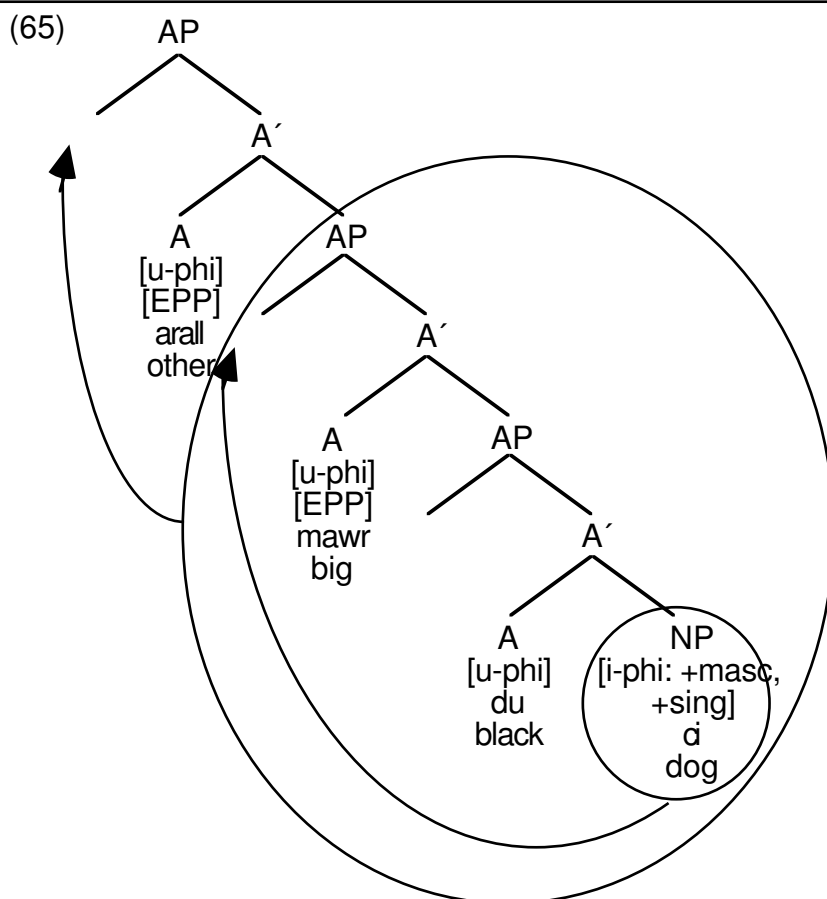
(63) Det – Num – N – Adj – Poss/Dem – Comp

This problem is more or less insurmountable (although see Sichel, 2000: 578–560 for an attempt at a solution). Even if we assume that complements are actually specifiers of the lowest functional projection above NP, any movement of any constituent larger than NP will move the complement out of its rightmost position. The only way out seems to be rightward extraposition of complements and possessors, but, being in contravention of the LCA, this would fatally undermine the whole analysis.

A further problem concerns the syntax of complex numerals. Although a full exposition is not possible here, it is difficult to conceive of a satisfactory analysis of complex numerals within an NP-raising approach, while preserving a crosslinguistically uniform base.

Finally, the nature of the EPP-feature triggering movement to [Spec, AP] is not at all clear. It will have to be present on some adjectives but not all, and, worse still, a given adjective will vary in this respect, appearing in some structures with an EPP-feature, in others without one, depending on the semantics of other adjectives in the structure. For instance, the derivation of (64), assuming universal merged order [AP other [AP big [AP black [NP dog]]]], will be as in (65). Here, the adjectives *mawr* ‘big’ and *arall* ‘other’ must bear an EPP-feature to force movement to their specifier, whereas *du* ‘black’ must not (although in the absence of the other adjectives, it would need this feature to force N-Adj order). Furthermore, the EPP-feature of *mawr* ‘big’ must be satisfied by movement of NP, not AP, to its specifier, whereas the EPP-feature of *arall* ‘other’ must be satisfied by pied-piping movement of AP, not NP. All this behaviour seems odd for what is apparently a purely syntactic feature, and, in any case, it will be impossible to encode it in the lexicon.

(64) ci mawr du arall
 dog big black other
 ‘another big black dog’



Furthermore, the movement of the lower AP to the higher [Spec, AP] itself seems dubious on theoretical grounds. As Pesetsky & Torrego (2001: 362–3) note, movement of a head's complement to its specifier position amounts to remerger, in that it achieves exactly the same effect as if the phrase had been merged directly into the specifier position. That is, it is theoretically uneconomical, effectively reintroducing a directionality parameter in hidden form, and may be impossible for this reason (their Head Movement Generalization).²²

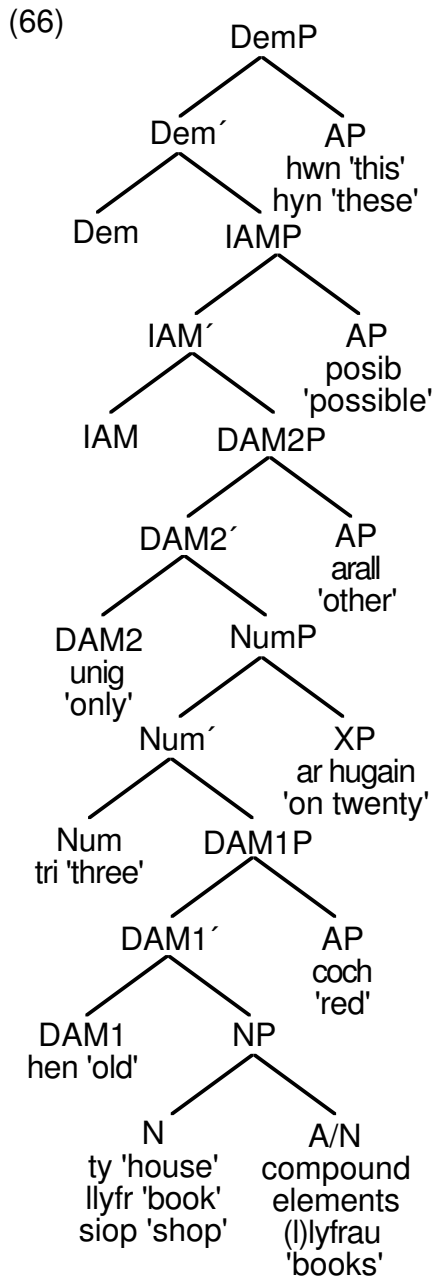
Finally, the typological problems noted by Cinque (1996: 456 fn. 20) still hold. Leftward XP-movement is precisely the sort of operation that is typically found in head-final languages. Welsh is strongly head-first, so it is odd to posit extensive use of such movement.

8 POSSIBLE ALTERNATIVES

Given the extensive empirical difficulties faced by both N-raising and NP-raising antisymmetric accounts of Welsh noun phrases, it is worth returning to the non-antisymmetric account discussed at the end of section 3, to ask whether it could be modified to account for the observed order of adjectives. If antisymmetry is abandoned, and the possibility of rightward-projecting specifiers is considered, then a structure like (66) can be entertained, which will account for most of the observed adjective data. Although the structure in (66) raises the obvious typological objection that this is not the sort of structure that is expected in a head-initial VSO language (or, perhaps, in any language), it is a remarkably good approximation to the data in (57), and needs to be considered seriously for this reason alone. In (66), adjectives are merged into the rightward-projecting specifier positions of three adjectival projections, two direct-adjective-modification projections (DAM1P and DAM2P)

²² This problem can be avoided by the introduction of dedicated adjective-agreement projections above each AP, as in Shlonsky (2004), but this is surely only a technical fix.

and one indirect-adjective-modification projections (IAMP). I assume that each of these heads potentially allows multiple specifiers, with universal order of merger in DAM1P, and order of merger free in DAM2P and IAMP but interpreted as reflecting scope directly.²³ The assumption that order of merger is the same in Welsh and English will produce mirror-image order in Welsh. I take the two parts of complex numerals to be head and specifier respectively, a natural assumption, and one which allows the observed word order to be read directly off the merged structure provided that Num projects its specifier to the right. An alternative, less radical, view would be that the rightward-projecting positions were, in fact, adjoined positions rather than specifiers.

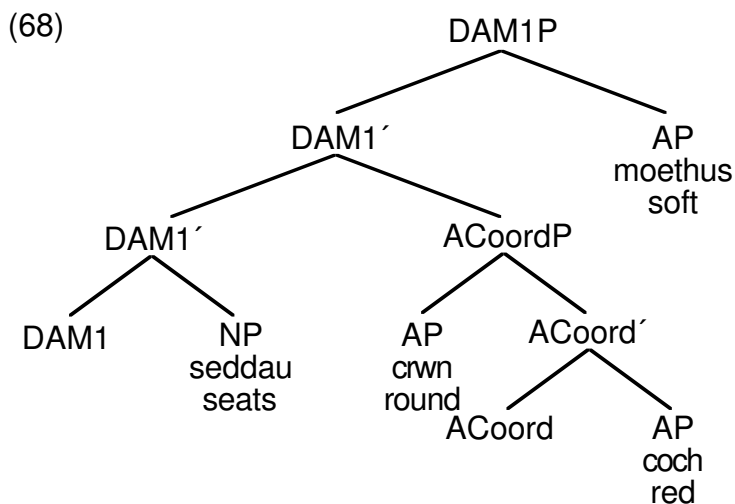


There are two possible ways to account for observed English-style orders within the lowest direct-modification cluster (DAM1P). One solution is to allow adjectives to join together to form a larger constituent (for instance, an adjective-coordination phrase ACoordP)

²³ As ever, proliferation of dedicated functional projections for each adjective would avoid stipulation of order of merger.

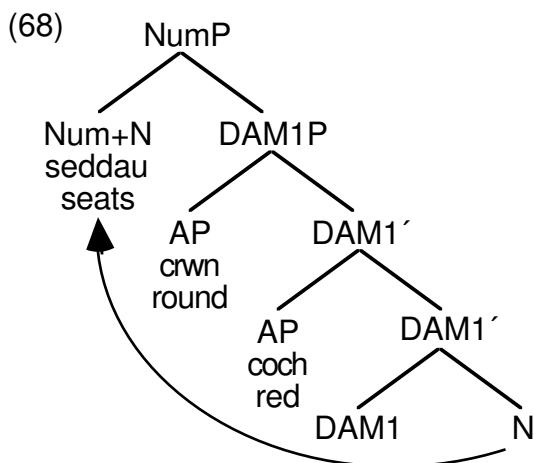
which modifies the noun, with restrictions on these constituents paralleling those found in English. This is effectively equivalent to a multiple-branching structure of a type that might be envisaged, for example, in HPSG. Thus a noun phrase such as (67) with both English-style order (*crwn coch* ‘round red’) and mirror-image order (*coch moethus* ‘soft red’) would have the structure in (68).

- (67) *seddau crwn coch moethus*
 seats round red soft
 ‘soft round red seats’ (CEG 8.5.6)



One advantage of this approach is that it provides a natural account of the few prenominal adjectives such as *hen* ‘old’ (cf. (6) above). They are instantiations of the direct-modification head DAM1. The head DAM2 also has overt realization in adjectives *unig* ‘only’ and *un* ‘same’, which, unlike most other prenominal adjectives, precede both numerals and nouns (cf. *yr unig dri bachgen* ‘the only three boys’).

Alternatively an N-raising approach may be envisaged for the lower part of the structure, with the head noun raising to Num via DAM1, around non-scope-bearing direct-modification adjectives in a leftward-projecting [Spec, DAM1P]:



Although the division of the phrase into a lower lexical domain with N-raising and a higher functional domain with no N-raising and rightward-projecting specifiers as in (66) seems attractive, it is not clear how to incorporate cases of mirror-image direct modification, such as that found with *moethus* in (66), into such an analysis without resorting to the sort of NP-movement discussed in section 7.

Both of these accounts need to assume that subjects of event nominals and possessors raise from their theta-position, [Spec, NP], to a rightward-projecting [Spec, DP], and that complements and *by*-phrases right-adjoin to DP. Rightward-projecting specifiers are of course not typical of head-initial languages, where specifiers, at least in the verbal system, tend to project leftwards, even on non-antisymmetric approaches. Nevertheless, it is worth pointing out the other approaches considered here face the same difficulty: NP-raising approaches are forced to posit leftward XP-movement to specifier positions, reminiscent of head-final languages, and in any case need rightward extraposition (cf. (62) and (63)); and N-raising analyses end up positing arbitrary head-to-head movement that reintroduces crosslinguistic variation in merged positions.

Although obligatory right-adjunction of complements to DP is not ideal theoretically, it is worth noting that the logical conclusion of an N-raising approach is that Welsh has some form of object-shift. To account for the alternation between nominal syntax in (69) and verbal syntax in (70), it seems that, on an N-raising approach, we must posit that, in (70), the adverb *yn fanwl* ‘carefully’ is in a leftward-projecting specifier position, and that the object *y ddamwain* ‘the accident’ moves over it. This is also far from ideal for typological reasons, since it would be odd for a head-initial language with no morphological case system to have such an operation.

- (69) disgrifiad manwl o'r ddamwain.
described careful of the accident
'the careful description of the accident'
- (70) Disgrifiodd y ddamwain yn fanwl.
described.3SG the accident PRED careful
'He, she described the accident carefully.'

9 CONCLUSION

The simple statement that Welsh adjective order is identical to that of English, although widely disseminated (cf. footnote 3), is far from selfevidently correct. Mirror-image adjective orders are common in Welsh, and are obligatory where adjective order indicates scopal relations. These mirror-image orders are not limited to cases of predicative or indirect modification. Five postnominal adjective clusters can be distinguished on syntactic grounds:

- (i) adjectives in noun-adjective compounds;
- (ii) non-scope-bearing direct modification adjectives;
- (iii) scope-bearing direct modification adjectives;
- (iv) indirect modification adjectives;
- (v) predicative adjectives preceded by a predicate marker.

Although types (i) and (ii) pose few problems for an N-raising analysis, it has difficulty in coping with the mirror-image orders found with (iii) and (iv) while still maintaining a coherent, motivated account of crosslinguistic variation. The syntax of demonstratives poses similar problems.

On the other hand, NP-raising analyses fare no better. Although they can be made to cope with scope effects, this is only at the expense of arbitrary feature specifications. They also present theoretical difficulties by, explicitly or implicitly, remerging complements into the specifier position of selecting heads.

In the light of these difficulties, non-antisymmetric approaches, which virtually eliminate movement, apart from raising of possessors and extraposition of complement PPs, present a viable alternative, providing a realistic possibility of maintaining the first hypothesis

set out in the Introduction, namely universal order of merger, with straightforward establishment of adjective scope.

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