

# Welsh Prenominals: at the Syntax-Morphology Interface

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Welsh is a strongly head-initial VSO language: within a variety of projections only a very limited range of elements may appear in pre-head position. This paper is concerned with the *prenominal* field within noun phrases, and discusses a set of elements which occur in this position and which also exhibit a number of quite puzzling restrictions on their syntactic behaviour.

We present the data drawing together observations from standard descriptive grammars, examples from corpus searches of reputable sites and work with informants, and show that the observed picture departs in some respects from the standard view in descriptive grammars. Data from the interaction with NP-internal coordination throws up some intriguing challenges.

The restrictions on the prenominal domain which we explore appear to place the problem squarely at the interface of syntax and morphology: are we dealing with morphological constructions, cases of phrasal affixation, or some form of restricted lexical constructions? What weight should be given to tests such as the Coordination Criterion (Miller, 1992a)? In sum, we consider that the data we discuss pose a challenge to linguistic analysis, which we explore within the context of existing work and the assumptions adopted in lexicalist constraint-based formalisms.

This paper is structured as follows. We start by outlining the data in section 1. Section 2 reviews existing work relevant to some of the data described. In section 3 we briefly present arguments in favour of recognising the existence of lexical level coordination in Welsh, and hence the conclusion that the restrictions which we observe in the data, which involve elements failing to take scope over (putative) cases of lexical coordination, cannot be attributed to the non-availability of lexical level coordination in this language. We then turn to previous work on the nature of lexical level constructions in section 4, and conclude that there is nothing in that literature which provides any particularly helpful leverage on the problem at hand: that is, there is no basis from existing work to conclude that coordination is not permitted in lexical constructions. A final section starts out from the premise encapsulated in the coordination criterion, namely that the failure to scope over a coordination should provide evidence for a morphological treatment of the element in question, and considers some alternative analyses in the light of that criterion.

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## 1 Restrictions on Prenominal Material

The elements which come before the head noun are fairly few and include the definite determiner *y* and its variants *yr*, *'r*,<sup>1</sup> other determiners such as *pob* 'every', *pa* 'which' and *sut* 'what kind of', a set of pronominal possessive markers, a handful or so of adjectives (most occur postnominally) and numerals in Numeral-Noun constructions. The following examples illustrate this range of elements.

- (1) a. *y tair cath ddu*  
 the three.F cat black  
 'the three black cats' (Borsley et al., 2007, 152)
- b. *y bedwaredd wobr*  
 the fourth.F prize  
 'the fourth prize' (Borsley et al., 2007, 156)
- c. *fy nghar i*  
 1S car me  
 'my car' (Borsley et al., 2007, 156)
- d. *y tair gwahanol iaith*  
 the three.F various language  
 'the three different languages' (Borsley et al., 2007, 156)

In common with the other Celtic languages, Welsh uses a construction highly reminiscent of the Semitic construct state construction to express possession, in which only the highest possessor in the construction is marked for definiteness. Non-pronominal possessors appear postnominally and will be separated from the head by any adjectival modifiers of the head but will precede any complements.

- (2) *siop mab chwaer y meddyg*  
 shop son sister the doctor  
 'the shop of the doctor's sister's son' (Borsley et al., 2007, 184)

If in contrast the possessor is pronominal, a prehead possessive marker additionally occurs, as *fy* in (1c). The posthead (dependent) pronoun (*i* in 1c) may in fact be dropped (and must be absent under certain binding conditions).<sup>2</sup> There is persuasive evidence (see Sadler, 1997; Borsley, 2009, for extensive discussion) that the prehead pronominal marker (generally referred to as a clitic in the theoretical literature on Welsh) is part of the agreement system in Welsh, in which the majority of lexical heads agree with their pronominal arguments. In outline, finite verbs inflect showing agreement with their pronominal subjects, prepositions inflect to agree with their

<sup>1</sup>Welsh has no indefinite determiner and uses just the bare noun. A complex set of considerations govern selection of the correct form of the definite article, a matter which is extensively discussed in Hannahs and Tallerman (2006), and briefly reviewed below.

<sup>2</sup>The prehead marker (or its mutation effect on the following word) is sometimes absent in non-standard speech.

pronominal objects, nouns are preceded by agreement clitics coding their pronominal possessors and non-finite verbs take the same set of clitics agreeing with their pronominal objects. As such, and as Borsley (2009) observes, although it is natural to view them as affixes realizing agreement, the fact that they can be separated from the head by (a restricted set of) intervening elements, is problematic for this view.<sup>3</sup>

- (3) ei hen lyfr (o)  
 3SGM old book he  
 'his old book'

(Borsley, 2009, 234)

The standard position for attributive adjectives is postnominal, and the vast majority of adjectives are limited to this position in non-literary Welsh. A small number of adjectives occur only before the noun (and a very few alternate with a difference in meaning according to their position: e.g. *unig blentyn* 'an only child' vs. *plentyn unig* 'a lonely child'): there is then, a strong degree of lexical selection here. The list of adjectives which precede the noun include the following (Borsley et al., 2007; Thomas, 1996): *dewis* 'chosen', *dirprwy* 'deputy', *diweddar* 'deceased', *gwir* 'true, real, genuine', *hen* 'old', *hoff* 'favourite', *cas* 'nasty', *mân* 'minor', *prif* 'main', *unig* 'only', *uchel* 'high'. Such adjectives are in general non-gradable, occur in a fixed order, and are not modifiable by adverbial intensifiers such as *rhy* 'too' or *iawn* 'very'.<sup>4</sup>

Turning now to pronominal numerals, the usual pattern for complex numerals in the traditional vigesimal system is that a simple (lower) numeral precedes the noun (if one is present). The noun is followed by either or both of two components: first the remainder of the complex numerals between '11' and '19' (*ar ddeg* 'on ten' or *ar bymtheg* 'on fifteen'); second, one of the vigesimal numerals '20', '40', '60' or '80', preceded by either *ar* 'on' ('20' only) or *a* 'and' ('40', '60', '80'). In the modern decimal system, all parts of the numeral precede the nominal. Examples are given in (5). A notable aspect of this construction is that the numeral is followed by a *singular* noun as in (5) (for an LFG analysis of this construction, see Mittendorf and Sadler, 2005).

- (4) 11, 13-14 = [Simple Num] N ar ddeg ['+10']  
 16-19 = [Simple Num] N ar bymtheg ['+15']  
 21-39 = [Simple Num] N (ar ddeg/ar bymtheg) ar hugain ['+20']  
 41-59 = [Simple Num] N (ar ddeg/ar bymtheg) a deugain ['+40']  
 61-79 = [Simple Num] N (ar ddeg/ar bymtheg) a thrigain ['+60']  
 81-99 = [Simple Num] N (ar ddeg/ar bymtheg) a phedwar ugain ['+80']

- (5) a. tri dyn  
 three.M man.M.SG  
 'three men'

<sup>3</sup>Borsley does not provide an explicit analysis of the prehead material or of the prehead clitic which he suggests (without further discussion) might be taken as a phrasal affix in the sense of Anderson (1992).

<sup>4</sup>*Hen* 'old' can be adverbially modified but in that case must be postposed: *hen ddyn* 'an old man' but *dyn rhy hen* 'a too old man' (Thomas, 1996, 210).

- b. un deg tri dyn  
 one ten three.M man.M.SG  
 'thirteen men'
- c. tri dyn ar ddeg  
 three.M man.M.SG on ten  
 'thirteen men'

There is also a second, (pseudo-)partitive construction in which the numeral is followed by *o* 'of' and a plural noun. Examples are given in (6) but this construction is not further discussed in the paper; it is the pattern numeral followed by a singular noun which is of relevance here.

- (6) a. tri o ddynion  
 three.M of man.M.PL  
 'three men'
- b. un deg tri o ddynion  
 one ten three.M of man.M.PL  
 'thirteen men'
- c. tri ar ddeg o ddynion  
 three.M on ten of man.M.PL  
 'thirteen men'

Particular restrictions on the prehead material begin to emerge when we consider its behaviour in combination with coordination. Thomas (1996, pp. 209, 265) notes that (some) pre-nominal material cannot take scope over a following coordination. For example, in (7) the definite article must be repeated.

- (7) y dynion a'r merched vs. \*y dynion a merched  
 the men and=the girls vs. \*the men and girls  
 'the men and girls' (Thomas, 1996, 265)

- (8) y tadau a \*(r) meibion  
 the fathers and the sons  
 the fathers and sons

As shown in the following example, the same is true of the proclitic possessive pronoun. In (9) the clitic pronoun *ei~'i*<sup>5</sup> must be repeated, but the post-nominal pronoun *hi*, which doubles the prenominal clitic(s) occurs only once and thus scopes over the coordination.

<sup>5</sup>Note that the 3SM and 3SF clitic pronouns *ei~'i* are homophones (and homographs) but trigger different Initial Mutations: *tad* 'father', *ei dad* (/t/ ⇒ /d/) 'his father', *ei thad* (/t/ ⇒ /θ/) 'her father'.

- (9) ei ffagots a'i phys hi  
 3SF faggots and=3SF peas 3SF  
 'her faggots and peas' (Thomas, 1996, 209)
- (10) ei wasanaeth, ei gyflog, ei weision, ei lywodraeth, ei gwmni  
 3SM services, 3SM wages, 3SM servants, 3SM government, 3SM company  
 a'i wlad  
 and=3SM country

In the pseudo-partitive construction, the numeral can take wide scope over a coordination but this seems to be impossible in the numeral noun construction.

- (11) pump o fechgyn a merched  
 five of boy.PL and girl.PL  
 'five boys and girls'
- (12) \*pum bachgen a merch  
 five boy.SG and girl.SG  
 'five boys and girls'

Thomas (1996) also mentions prenominal adjectives as being subject to this same restriction, but the examples that he provides (13) to demonstrate repetition of the pre-nominal adjective are problematic since they also contain clitic pronouns or the definite determiner, for which it is independently established that these must be repeated. Since the adjective intervenes between the clitic/determiner and the noun by necessity it must also be repeated. To establish this point more firmly further investigation is necessary to show that pre-nominal adjectives are independently unable to occur with a nominal coordination.<sup>6</sup>

- (13) a. ei hunig fab a'i hunig ferch  
 3SF only son and=3SF only daughter  
 'her only son and daughter'
- b. yr hen ddefaid a'r hen foch  
 the old sheep.PL and=the old pigs  
 'the old sheep and pigs'

However, this simple generalization, that no prenominal material can take scope over a coordination within the noun phrase, turns out to be not completely accurate. We base this view, which partly contradicts descriptions given in Thomas (1996, pp.

<sup>6</sup>In our data work, one informant did accept *hen ddefaid a moch* for 'old sheep and [old] pigs', but this informant exceptionally also accepted a number of other examples with wide scope numerals, and thus these judgements cannot be taken to establish the grammaticality of such structures more widely. The judgements of this (*bona fide*) native speaker were curiously at odds with those of other speakers on a number of data points concerning the behaviour of prenominal numerals, for which we have no explanation.

209, 265) on searches in the *Cronfa Electroneg o Gymraeg* (CEG, Ellis et al. (2001)) and work with native informants. The main points to emerge would seem to be as follows:

Although the definite article and possessive clitics, both arguably determiners, must be repeated as in (7) and (9) the same rule does not apply to the determiner *pa* 'which', which can take wide scope over a coordination. The scoping issue therefore has nothing to do with determiners per se:

- (14) *pa unigolion a sefydliadau*  
 which individuals and institutions  
 'which individuals and institutions'

Contra the assumption above, text data and native speaker information suggest that a pre-nominal adjective can take wide scope over a coordination:

- (15) *prif gylchgronau a phapurau newydd Cymru*  
 main journals and papers news Wales  
 'the main journals and newspapers of Wales'

Where the article (or a possessive) precedes Adj + [N + N], it is **not** repeated.

- (16) a. *yr unig feirdd a llenorion*  
 the only poets and men-of-letters  
 'the only poets and men of letters'
- b. *yr hen Aztecaid a Sbaenwyr hynny*  
 the old Aztecs and Spaniards those  
 'those old Aztecs and Spaniards'
- c. *y gwahanol afiechydon a chlefydau*  
 the different illnesses and diseases

Wherever we found examples of pre-nominal adjectival coordinations, the article and possessives are repeated with each conjunct. (Note: one informant was unhappy with 17a).

- (17) a. *yr unig a'r prif gymeriad*  
 the only and=the main character  
 'the main and only character'
- b. *y prif gymeriad a'r unig un*  
 the main character and=the only one

If a numeral in the plain construction is separated from a N-coordination, it apparently can take wide scope over the coordination:

- (18) \**pum [llyfr a ffilm]*  
 five [book.SG and film.SG]

- (19) pum hoff [lyfr a ffilm]  
 five favourite [book.SG and film.SG]
- (20) y pum prif nod ac amcan  
 the five main aim.SG and objective.SG  
 ‘the five main aims and objectives’

On the other hand, if the first coordination in the NP is one of ordinal numbers numerals, the determiner appears on each conjunct (21). (A similar coordination of pre-nominal adjectives is unacceptable for many speakers, but where it occurs, or is accepted, the pattern is the same as for (21).)

- (21) y trydydd a \*(’r) pedwerydd mis  
 the third and the fourth month

This section has presented some quite complex restrictions on the prenominal position within the Welsh noun phrase. Having first noted that the only elements which occur preminally are a small set of determiners, a handful of adjectives, a set of pronominal markers and numerals in Numeral-Noun construction, we have then shown that this material is subject to further restrictions which are apparent when we consider the behaviour of such prenominal material in interaction with coordination.

## 2 Previous Analyses

### 2.1 Previous Analyses of the Definite Determiner

As noted above, the Welsh definite determiner has three forms *y*, *yr*, *’r* and the selection of the correct form is determined by a complex interplay of phonological and other factors. This matter is discussed extensively in Hannahs and Tallerman (2006) and we briefly present their approach in this section. The analysis in Hannahs and Tallerman (2006) is essentially concerned only with the matter of explicating this choice of forms, and does not address the nature of the constituent structure in any detail or provide any discussion or proposal as far as the coordination facts are concerned. As for the choice of form for the definite determiner, firstly, *yr* precedes a V- or *h*-initial element, *y* precedes a C-initial element, as in *yr afon* ‘the river’, *yr haul* ‘the sun’, *y dyn* ‘the man’. This holds irrespective of whether the immediately following material is a noun or an adjective or numeral:

- (22) y brif ddinas  
 the main city  
 ‘the capital city’ (Hannahs and Tallerman, 2006, 783)
- (23) yr unig blentyn  
 the only child  
 ‘the only child’ (Hannahs and Tallerman, 2006, 783)

Secondly, 'r follows a V-final element and satisfaction of the environment for 'r overrides selection of the other two.

(24) a. o'r            llyfr  
           from=the book  
           'from the book'

b. yn    canu'r    emyn  
       PROG sing=the hymn  
       'singing the hymn'

(Hannahs and Tallerman, 2006, 783)

Thirdly, with respect to *yr/y* alternation, the **post-mutation** form of the following element determines the selection of the article form, even though the article itself actually provides the environment governing soft mutation (of FSG forms). Thus, FSG forms appear in soft mutated form after the definite article, and the effect of soft mutation on an initial *g* is to remove the segment, so that in soft mutated for, a *g*-initial word may be vowel initial. In this circumstance, the prevocalic variant *yr* is selected:

(25) a.    glasog            y lasog  
           gizzard.FSG    the gizzard  
       b.    gardd            yr ardd  
           garden.FSG    the garden  
       c.    glo                y glo  
           coal.MSG        the coal

(Hannahs and Tallerman, 2006, 785)

Hannahs and Tallerman (2006) establish that (i) the alternation between the three article forms is not amenable to a straightforward phonological treatment (it is not a simple case of allomorphy), and (ii) in terms of overall architecture, they treat the article as a syntactic word (occupying a c-structure node) but as phonologically enclitic onto the previous word (in the case of 'r). Note that this phonological encliticization is promiscuous as to host and therefore quite un-affixlike. In order to account for the fact that the post-mutation form of the following element determines the choice between *y/yr*, Hannahs and Tallerman (2006) adopt an architectural assumption which does not sit well with a standard lexicalist approach, in that they permit tiered insertion of lexical items into already generated trees, with different elements entering the tree at different points in a derivation.

## 2.2 Possessor Agreement Markers

Sadler (1997) considers the morphosyntactic status of the phonologically proclitic pre-head pronominal forms which encode possessors in nominal structures (26), objects of non-finite verbs (27) and the SUBJ of non-finite *bod* ('be') in I, as exemplified in (28).

(26) *fy mhen (i)*  
       1s head (1s)  
       'my head'



(27) Wyt ti'n meddwly bydd y brenin am *ein lladd ni*?  
 be.PRES.2S you=ASP think PT be.FUT.3S the king ASP 1P kill 1P  
 'So you think that the king will wish to kill us?'

(28) Dywedodd Gwyn *ei fod ef yn ddiog*.  
 say.PT.3S Gwyn 3SM be 3SM PT lazy  
 'Gwyn said he is lazy.'

The fact that these weak forms are generally referred to as clitics in the theoretical literature does not settle their analysis. As is well known, some (pre-theoretical) clitics turn out to be canonically positioned *affixes*, combining with their structural (and prosodic) host in the morphology, subject to the rules of the word-formation component and of the lexical phonology. Such (pre-theoretical) clitics, when correctly viewed as affixes turn out to display no mismatch whatever between their structural (morphosyntactic) and phonological or prosodic behaviour. The affixal status of such 'clitics' may be evidenced by the existence of lexical exceptions and idiosyncratic allomorphic variation, haplology, suppletion, ordering with respect to other affixes, indeed, by any behaviour symptomatic of a lexical origin. A clitic which is in fact a word-internal affix will, given Lexical Integrity, have no syntactic representation at all. An analysis along these lines, within a lexicalist framework, is proposed for the French (object) clitic pronouns in Miller (1992a).

At the other end of the spectrum are clitics which turn out to be (true) *syntactic clitics* or *bound words*. A syntactic clitic is a syntactic  $X^0$  element which forms a transparent syntactic construction with its (syntactic or structural) host, but which does not have the phonological status of a word. Bound word clitics involve interactions at the boundary between syntax and the phrasal phonology. A syntactic clitic (bound word) will show no morphological or lexical phonological interaction with its (structural or prosodic host), since its phonological and its constructional (structural) attachment is post-lexical. It can be expected to participate as other  $X^0$  categories do in syntactic processes. As is well established, a single bound word may have different syntactic and prosodic hosts, being for example, (syntactically) proclitic and thus initial in its syntactic constituent, and prosodically enclitic on the preceding word.<sup>7,8</sup> Sadler (1997) argues that the Welsh pronominal clitics should be treated as combining syntactically with their host: that is, as elements which occupy a c-structure node. There are no lexical exceptions to the availability of pre-head (prefixal) cliticisation in Welsh (although the choice of forms may be phonologically conditioned by surrounding elements), and

<sup>7</sup>It has been argued that a number of (pre-theoretic) clitics do not fit into this simple picture. Essentially these clitics (variously termed *lexical clitic*, *phrasal affix*, *edge inflection*) appear to show a mixed behaviour, combining the morphophonological interactions of an affix with the syntactic positioning and low selectivity of a syntactic clitic. A series of articles (Zwicky, 1987; Lapointe, 1992a,b) suggest that the English possessive marker is one such element: a typical account is Halpern (1995)'s analysis which uses two sorts of feature, a *trigger* and a *marker* feature to introduce and spell out the possessive.

<sup>8</sup>Unambiguous evidence of a syntactic relationship/attachment of clitic and host is evidence for a (phonologically) bound word analysis over an affixation analysis, since the clitic-host relationship is syntactically transparent, but this sort of evidence is difficult to find. Tests such as low selectivity do not distinguish properly between phrasal affixation and syntactic cliticisation, since obviously phrasal edge phenomena are not sensitive to their host in syntactic terms.

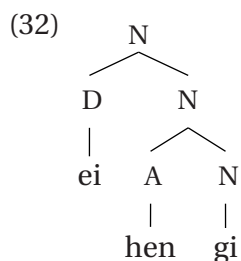
as shown above in (26-28), the (same) clitic forms occur both with nominal and non-finite verbal heads. This widespread and exceptionless distribution is suggestive of a syntactic rather than a morphological source. In sum, we argue that there is substantial evidence that the morphosyntactic relation between the pronominal form and the head is syntactic rather than morphological, from the interpolation of lexical material between the pronoun, namely numerals and those adjectives which may occur pronominally. Note in particular the form with disjoined numerals in (30).

(29) ei hen gi mawr (hi)  
 3SF old dog big (3SF)  
 'her big old dog'

(30) ei ddwy neu dair cyllell  
 3SM two or three knife  
 'two or three knives'

Working within LFG, Sadler (1997) proposes expanding Bresnan (2001) configurational structure-function mapping principles to admit lexical adjunction to lexical heads, where such lexically adjoined elements may map either to an argument function (under certain conditions) or to an adjunct function, and hence adopting a c-structure analysis along the lines of (32) for an example such as (31).

(31) ei hen gi  
 3SM old dog

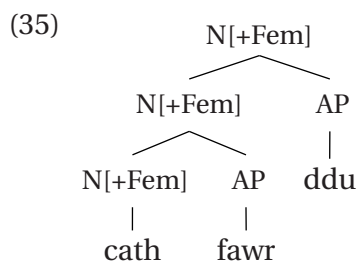


In a recent paper, Borsley (2009) is concerned with the analysis of agreement phenomena in Welsh more broadly, and hence with the analysis of the pronominal clitics. The main thrust of Borsley's argument is that agreement is governed by linear order in Welsh, rather than by configurational structure or by grammatical functions/predicate argument relations: a head inflects to show agreement with an immediately following pronominal NP. In Welsh, N, P and V heads all show agreement with pronouns: (33) provides examples showing prepositions inflecting for a following pronominal object. He treats agreement at the superficial level of linear structure encoded in the HPSG DOM feature.

(33)	arnaf	i	arnon	ni	(Borsley et al., 2007, 199)
	on.1S	me	on.1P	us	
	arnat	ti	arnoch	chi	
	on.2S	you	on.2P	you	
	arno	fo	arnyn	nhw	
	on.3MS	him	on.3P	them	
	arni	hi			
	on.3FS	her			

In the case of pronominal possessors, agreement shows up in the form of the prenominal clitic doubling an optionally expressed pronominal possessor in postnominal position. It will be recalled however, that in the case of nominal agreement, there is an additional complication in that postnominal adjectives intervene between the nominal head and the pronominal agreement controller. Given that postnominal APs do in fact intervene, he assumes that “adjectives are adjoined to a preceding noun, forming a complex nominal constituent” (Borsley, 2009, 236). The constituent structure which he adopts is shown in (35) (note that the nodes are complex data structures which are highly abbreviated here). It is assumed that the nominal and any following APs undergo ‘compaction’ in the DOM feature so that they occur together as a single element directly preceding the pronominal argument in the linear order.

- (34) cath fawr ddu  
 cat(FS) big black  
 ‘a big black cat’



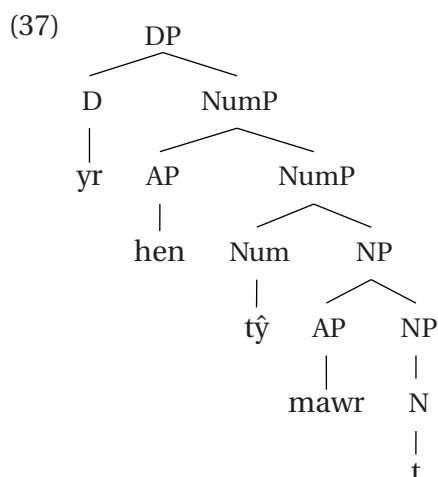
As for the exponence of agreement itself, that is, the prehead clitic, Borsley does not address this matter in any detail at all (the abbreviated representation of *ei dad o* ‘his father’ shows *ei dad* as a N), beyond remarking in passing that his assumption is that such clitics are phrasal affixes in the sense of Anderson (1992). Beyond this remark, the account is not very explicit on the issue of pronominal material intervening between the clitic exponent of agreement and the nominal head: ‘I am assuming that noun phrases contain a possibly complex head. If numerals and pre-nominal adjectives.... are part of this head, then the head will always be domain initial’ (Borsley, 2009, 257).

In summary then: Sadler uses lexical structures for the possessive clitic but this does not capture the coordination restriction. Borsley does not give an explicit analysis but suggests that the possessive clitics might be phrasal (agreement) inflections. Again, no analysis is provided of the coordination restriction.

### 2.3 Prenominal Adjectives and Numerals

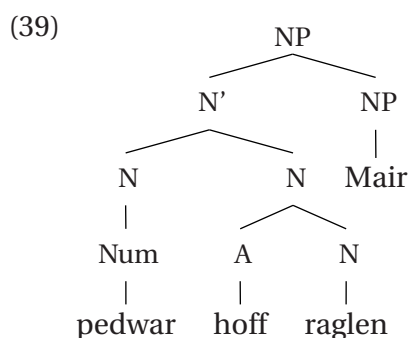
The vast majority of attributive adjectives in Welsh occur postnominally, occurring directly after the head noun, preceding any complements of that noun. Much of the derivationally-based syntactic literature on the structure of the Welsh (and Irish) noun phrase adopts some form of N movement analysis, and is principally concerned with accounting for this N > Adj word order (see Rouveret, 1994; Duffield, 1996, for example): a typical approach is that of Rouveret (1994) which proposes an analysis in which N moves to a Num projection intervening between D and N. In this analysis, pronominal adjectives are assumed to be APs adjoined to NumP rather than to NP:

- (36) yr hen dŷ mawr  
 the old house big  
 'the big old house'



Both Sadler (2003) and Willis (2006) point out a number of significant empirical and theoretical problems with the head raising analysis, and adopt non-head raising analyses in which postnominal adjectives are right-adjoined: Sadler (2003) is explicit in adopting a lexical adjunction structure along the lines illustrated in (32) for the prenominal material (see 39). None of these accounts, however, provide an analysis of the interaction of prenominal material with coordination.

- (38) pedwar hoff raglen Mair  
 four favourite programme Mair  
 'Mair's four favourite programmes'



In conclusion then, previous work provides a range of approaches to at least some of the prenominal data, and suggests that at least some of these constructions might be best treated using lexical level constructions, but it seems that none of the existing accounts provides any real analysis of the restrictions we observe, particularly as far as the interaction with coordination is concerned. Most work had adopted a syntactic approach but there are some underdeveloped suggestions in the existing literature that agreement clitics might be treated as phrasal affixes.

In the following section we turn to the question of the existence (or otherwise) of lexical level coordination, first reviewing and accepting the arguments of Abeillé (2006)

in defence of lexical coordination and then providing evidence that lexical level coordination exists in the grammar of Welsh. If this is correct, then the observed restrictions do not follow from the unavailability of lexical coordination.

### 3 Lexical Coordination

Although previous literature does contain some suggestions to the contrary, Abeillé (2006) gives clear and extensive evidence for the existence of lexical level coordination, showing *inter alia* that you can lexically coordinate weak forms such as French definite determiners (*Paul cherche le ou la responsable* ‘Paul is looking for the(M) or the(F) person responsible’), and that weak forms (which are  $X^0$  categories) occur as sister to a lexical coordination as in *Ce malade mange et boit mieux depuis quelques jours* (‘That sick person has been eating and drinking better for a few days now’).<sup>9</sup>

Additionally, she provides interesting evidence for French that at least some instances of lexical level coordination are subject to semantic constraints, evidence which may well be relevant to an analysis of the Welsh data. For example, coordinated  $V^0$  must be of the same type and need to assign the same semantic role to the arguments which they share, similar to a requirement that they form a natural coordination. In respect of verbs, she states “with an additive conjunction [as opposed to RNR:IMLS], the two coordinated verbs must be understood as forming a natural activity, or a natural class of process, so that they denote one (possibly complex) event” (Abeillé, 2006, 17).<sup>10</sup> Similarly, “there is a semantic constraint on lexical additive coordination of As, similar to that on Vs, namely that lexically coordinated adjectives must denote one (possibly complex) property” (Abeillé, 2006, 24).

- (40) une belle        et grande piscine  
       a beautiful and large swimming-pool

Moreover putative  $X^0$  coordinations may occur in some positions which are known to be (in her terminology) ‘light’ - an example is the Danish syntactic noun incorporation (SNI) construction discussed by Asudeh and Mikkelsen (2001) where the syntactically incorporated N can be an N coordination (but not a normal phrase). In summary, then, we have every reason to assume that in principle, lexical level coordination is possible in Welsh.

Examples of the type illustrated in (16c) and (19) (those in which, unexpectedly, a definite determiner, numeral and/or adjective **can** take wide scope over a nominal coordinateion) above would appear to involve lexical level coordination, as do the following examples with *prif* ‘main’ (unless otherwise noted, examples are taken from CEG and the UK Welsh language websites):

- (41) a. o’r            prif ddigwyddiadau a symudiadau  
           from=the main events            and movements

<sup>9</sup>The use of data involving elements which are known to combine only with  $X^0$  categories is crucial in defending a lexical coordination analysis over an alternative analysis using RNR.

<sup>10</sup>In this connection she contrasts *cinq voitures et camions* with *cinq voitures et maisons* which is permitted given the right sort of context: *les cinq voitures et maisons qui ont été saccagées la nuit dernière*. (Note however, that she also observes that this argument is weakened by the fact that this sort of constraint appears also to be true of  $N'$  coordination in French, and so is perhaps not a decisive argument.)

‘from the main events and movements’

- b. y prif ddatganiadau a dehongliadau  
 the main statements and perceptions  
 ‘the main statements and perceptions’

Though we wholeheartedly agree with the position advanced in Abeillé and see absolutely no reason to exclude it in principle, it remains nonetheless true that lexical level coordination is actually quite difficult to establish in Welsh in general, partly because of the very close connection between preverbal particles and the following verbal elements. So, for example, the progressive marker *yn* must in general be repeated before a verb noun (cf. Jones, 1976, p. 86): “With a chain of verb-nouns, if *yn* is placed before the first verb-noun, it is required also before all the others ...”.

- (42) Yr oeddynt yn bwyta, yn yfed, yn prynu, yn gwerthu  
 PRT were.3PL PROG eat PROG drink PROG buy PROG sell  
 (Lk 17:28, quoted from Jones, 1976)

In principle, (42) could involve phrasal (VP or AspP) coordination, or lexical level coordinations matching in PROG. In order to establish that this is lexical level coordination, one would need first to establish that the particle and the (non-finite) verb form a lexical level construction (see below).<sup>11</sup> What is of interest, then, is that even in a (moderately) conservative text such as the recent 1988 (rev. 2002) Welsh Bible translation *Y Beibl Cymraeg Newydd*, while the requirement to repeat the particle generally holds, a few exceptions can be found, and these would seem to indicate lexical level coordination:

- (43) a. fel llew yn rheibio a rhuo  
 like lion PROG raven and roar (Ps 22:13)  
 ‘like a ravening and roaring lion’
- b. y mae ’n mynd a dod fel cysgod  
 PRT is PROG go and come like shadow (Ps 39:6)  
 ‘he comes and goes like a shadow’
- c. Bûm yn disgwyl a disgwyl wrth yr ARLWYDD  
 was.1S PROG wait and wait for the Lord (Ps 40:1)  
 ‘I was waiting and waiting for the Lord’

Having accepted, then, that not only is there no reason in principle to exclude lexical coordination but also that there is evidence within the grammar of Welsh for the existence of such a phenomenon, the question becomes that of determining what the constraints are on when and where lexical coordination is permitted in the prenominal field (and elsewhere). It is striking that these biblical examples involving a shared

<sup>11</sup>Note however that assuming a VP or AspP analysis does not in fact capture the requirement to repeat the PROG particle: Asp would be blind as to how many verbs there were within its complement VP.

PROG particle fully meet the characterisation proffered by Abeillé for  $V^0$  coordination in French (“understood as forming a natural activity, or a natural class of process, so that they denote one (possible complex) event” (Abeillé, 2006, 17). These cases and very possibly also the examples of putative lexical level coordination within the noun phrase (19), (16c), (41) might then be viewed as cases of natural coordination. and seem to involve describing a single complex event in the manner of Abeillé, so while there is nothing in principle ruling out lexical level coordination it might well be the case that it is subject to some restrictions. A good deal of further research would be required to establish whether this really is a syntactic restriction of the first order on the distribution of lexical level coordination in Welsh: at this stage it is no more than suggestive that the best examples that we have do indeed appear to be analyzable as natural (or otherwise semantically restricted) coordinations.

#### 4 On the Nature of Lexical Constructions

Having established that there is no good reason to exclude lexical coordination either crosslinguistically or in the grammar of Welsh, we move on to consider the question of the nature of lexical constructions (in relevant formalisms) and whether this might afford an analysis of the observed restrictions on the prenominal field in Welsh. Lexical level constructions are recognised in both LFG and HPSG but we will see that neither framework rules out the existence of coordination within such constructions. We start by briefly reviewing the treatment of lexical constructions in these formalisms.

Building in part on previous work, including Sells (1996) and Sadler (1997), Toivonen (2003) provides an articulated theory of small or lexical constructions in LFG, in her study of the phrase structure of Swedish particle verb constructions. She argues that Swedish particles are appropriately viewed as words that cannot be modified, do not project a phrase (“non-projecting words”) and head-adjoin to the finite verb. Toivonen introduces a distinction between projecting and non-projecting categories (the later now standardly notated as  $\hat{X}$ , and allows for multiple adjunction at the same hierarchical level).

$$(44) X^0 \rightarrow X^0, \hat{X}$$

Toivonen suggests a different status for the particle in Swedish than in English: Toivonen (2003)’s own work on particles actually draws a clear distinction between Swedish verbal particles, on the one hand, and the English particles which occur in preverbal position (in examples like *John picked up the money*, *Peter turned off the light*.) For T, English *pre-object* particles, on the other hand, “form a single lexical item” with the verb (Toivonen, 2003, p. 176) with which they “are lexically combined” (Toivonen, 2003, p. 171). The evidence is mostly concerned with coordination, in that in English, but not in Swedish, the verb and the particle can be gapped together, compare *Gary looked up Sam’s number*, and *Mittie, my number* and *\*Gary looked up Sam’s number*, and *Mittie, up my number*.

Asudeh (2002) applies these notions to the analysis of preverbal particles in Irish, in an attempt to capture both the insight of Sells (1984) that the preverbal particles are head-adjoined to a finite verb and the idea that they are complementisers (McCloskey,

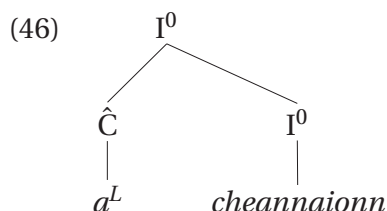
1979). Reconciling these notions, Asudeh argues, means postulating a functional head (C) which does not appear as the c-structure head of its own projection, but rather, lower in the tree (this is a little reminiscent of the Det lowering notion one finds elsewhere).

In the following example, the particle used in gapped relative clauses must be repeated (the superscripted L on the particle denotes that this particle causes soft mutation (or Lenition) of the following element).

- (45) a. an fear a<sup>L</sup> cheannaionn agus a<sup>L</sup> dhíolann tithe  
 the man PTC buys and PTC sells houses  
 ‘the man that buys and sells houses’
- b. \*an fear a<sup>L</sup> cheannaionn agus d(h)íolann tithe  
 the man PTC buys and sells houses  
 (Irish; adapted from Asudeh (2002, p. 6) citing Sells (1984, p. 131))

Sells takes two properties to be crucial to the distribution of preverbal particles: the fact that they are inseparable from the verbal head, and the fact that there must be a particle in each conjunct in VP coordination.<sup>12</sup>

Asudeh (2002) suggests that Irish complementizers are head-adjoined non-projecting words, building both on Toivonen (2001, 2003)’s work on the phrase structure of Swedish verbal particles, and on Sells (1984)’s lexical adjunction proposal for the Irish particle data. (46) shows a simplified partial tree for *a cheannaionn* ‘who buys’ in (45) along these lines.



For reasons that are not strictly relevant to our concerns here, Asudeh wishes to require that the “lowered”  $\hat{C}$  projects (and heads) a CP rather than simply an IP. This is the purpose of the annotations associated with the  $\hat{C}$  node in the rule in (47), which require the CP itself to be projected. The function CAT is defined as shown in (48), using the label function ( $\lambda$ ) and the inverse mapping from f to c ( $\phi^{-1}$ ) to give the set of category labels of the c-structure nodes that map to a given f-structure (see Dalrymple (2001) for detailed explanation of LFG notation and the projection architecture).

- (47) I  $\rightarrow$   $\hat{C}$  I  
 $\uparrow = \downarrow$   $\uparrow = \downarrow$   
 CP  $\in$  CAT( $\uparrow$ )

- (48) CAT(f) = { c |  $\exists n \in \phi^{-1} \wedge \lambda(n) = c$  } (Dalrymple, 2001, 171)

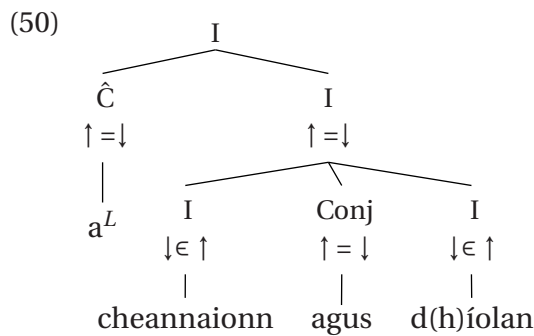
<sup>12</sup>But in fact the latter property is not explicitly accounted for on the present account, although such a requirement could be added.



The adjoined non-projecting  $\hat{C}$  actually serves as the (extended) head of the CP projection, by virtue of the definition of extended head shown in (49).

- (49) Given a c-structure containing nodes  $\mathcal{N}$ ,  $\mathcal{C}$  and c- to f-structure correspondence mapping  $\phi$ ,  $\mathcal{N}$  is an extended head of  $\mathcal{C}$  if  $\mathcal{N}$  is the minimal node in  $\phi^{-1}(\phi(\mathcal{C}))$  that c-commands  $\mathcal{C}$  without dominating  $\mathcal{C}$  (Bresnan, 2001, 132)

As noted above, Sells (1984) argues that two properties are key, the inseparability of particle and I and the fact that the particle must be repeated in cases of coordination. The first property follows straightforwardly from Asudeh’s c-structure assumptions, as does repetition of the particle in cases of phrasal coordination (if both I and  $\hat{C}$  are obligatory daughters of I). But if lexical coordination is available, the non-projecting word analysis does not on its own contribute the requirement that the particle be repeated. That is, the structure in (50) does not seem to be ruled out in principle by an approach based on non-projecting words.



As is evident from the annotations on the nodes in (50), a coordinate structure maps to a set of f-structures, with each conjunct contributing an f-structure to the set corresponding to the coordinate structure as a whole (hence the annotation  $\downarrow \in \uparrow$  on the daughter I nodes). Information associated with the lexical entry for a particle (such as *goN* ‘that’ in 51; cf. Asudeh, 2002, p. 13) is associated with the coordinate structure as a whole and hence will be contributed to the set (and whether it is then distributed to members of the set will depend on whether the feature in question is a distributive or non-distributive feature). The lexical entry in (51) defines the value of MOOD to be AFFIRM for the set (corresponding to the coordinate structure) and requires the value of the TENSE feature to be not PAST.

- (51) *goN*  $\hat{C}$  ( $\uparrow$  TENSE)  $\neq$  PAST  
 ( $\uparrow$  MOOD) = AFFIRM

We note in passing that the non-projecting word approach of Asudeh (2002) could in principle (given appropriate subsidiary assumptions) account for the obligatory repetition of the particle in cases of phrasal (IP or VP) - as opposed to lexical - coordination, as in the Welsh example (52). This is because a particle attached to the I in the first clause will contribute its f-structure information only to one member of the coordinate structure, because of its c-structure position. Should any such information be necessary for the second conjunct, then it would be missing in the second conjunct.

- (52) Mae Gwyn yn dweud na ddaw o i Lundain ac \*(na)  
 be.PRES.3S Gwyn PROG say NEG come.FUT.3S he to London and NEG  
 welith o Megan.  
 see.FUT.3S he Megan.

‘Gwyn says that he won’t come to London and see Megan.’  
 (Welsh; adapted from Borsley et al., 2007, p. 37)

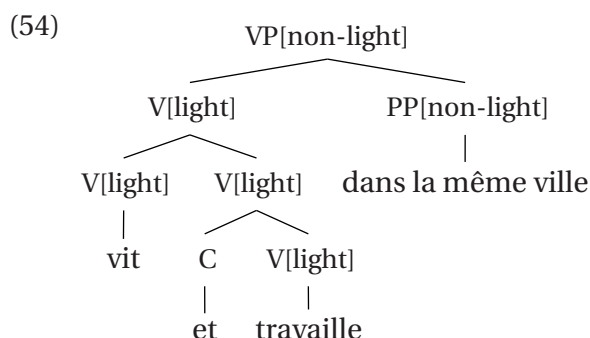
The analysis of lexical level (or ‘light’) constructions (the correlate of LFG’s lexical adjunction of non-projecting words) is well established in HPSG, notably through the work of Abeillé and Godard (Abeillé and Godard, 2000, 2004) (see also Sadler and Arnold, 1994). Far from excluding coordination from lexical level or light constructions, much of this work explicitly establishes the existence of lexical coordination within ‘light’ constructions, and also addresses cases which involve particles and other non-projecting elements taking scope over lexical level coordinations. A representative sample of such examples from Abeillé (2006) is in (53).

- (53) a. les deux ou trois premiers volumes  
 the two or three first volumes
- b. il continuait à lire et relire sans cesse le même livre  
 he continued to read and reread without stopping the same book
- c. il continuait à le lire et le relire sans cesse  
 he continued to it read and it reread without stopping
- d. Paul vit et travaille dans la même ville  
 Paul lives and works in the same town
- e. un film de et avec Woody Allen  
 a film by and with Woody Allen

Note that the obligatory repetition of the clitic object in (53c) follows for Abeillé on the assumption that it is an affix and thus expected neither to coordinate nor to take scope over a coordination. (53b) and (53c) also show that the marker *à* can be shared by a coordination of V (while it is repeated for a coordination of VPs<sup>13</sup>).

The theory of lexical constructions in HSPG involves introducing a feature WEIGHT which serves to distinguish phrases which behave like words from those that do not. This feature takes values *light* and *non-light*: the default value for phrases is *non-light*. Words can be underspecified or have either value, depending on whether they project a phrase on their own or not. A light phrase can only be made up of light daughters. It should be readily apparent that this does not prevent light elements taking scope over an entire light phrase, of course.

<sup>13</sup>The same applies to the marker *de*. — It is not clear that Abeillé’s analysis actually accounts for this restriction.



We conclude, then, that recent approaches to lexical level constructions in relevant constraint-based formalisms, such as the recognition of a notion of ‘weight’ in HPSG or the recognition of non-projecting categories in LFG do not provide a straightforward mechanism for accounting for the restrictions on the prenominal field (and in particular the interaction with coordination) outlined in section 1.

Have we now reached an impasse? If this is syntactic material, it seems that it should be treated by light or lexical constructions. Yet coordination is not excluded in such constructions (although lexical coordination may be limited to natural coordinations in a given language).

## 5 Scope and the Coordination Criterion

Interaction with coordination is classically used in lexicalist frameworks to distinguish affixes from elements which occupy syntactic nodes and are therefore syntactically transparent<sup>14</sup>: if an element fails to take scope over a coordination, by Miller’s coordination criteria it is considered an affix:

- (55) a. If an item must be repeated on each conjunct in a coordinate structure, then it must be an affix and cannot be a PLC. [= postlexical clitic]
- b. If an item must fail to be repeated on each conjunct in a coordinate structure, then it must be a PLC and cannot be an affix. (Miller, 1992b, 385)

As Miller further observes, for this to be a reasonable and valid conclusion, it must first be shown that there is not some more general prohibition on the relevant type of coordination. If the considerations given above are correct, then this has been shown for the Welsh cases under consideration.

The question then is, should the interaction with coordination be taken as evidence that the definite article and pronominal possessor marker are affixes? An argument along these lines is made by Wintner (2000) for the Modern Hebrew definite article which similarly must appear on each conjunct in the case of nominal coordination: “[The Modern Hebrew definite article] *ha-* cannot have wide scope over the coordination, but rather must be repeated for each of the conjuncts. [...] An omission of one of the occurrences of *ha-* results either in ungrammaticality or in a different reading, in

<sup>14</sup>It should be noted that the existence of phrasal affixation or edge inflection complicates this simple picture.

which the article has a narrower scope” (Wintner, 2000, p. 336). The Modern Hebrew article differs, however, in several respects from the Welsh definite article and possessive markers.

However there are also a number of difficulties with interpreting the failure to scope over a coordination as evidence that the determiner and possessive are affixes. Firstly, evidence for lexical interaction with the host is extremely scant, and what there is concerns the initial mutation system alone and is not therefore prime evidence of lexical interaction. The basic mutation rules are: if the head noun is FEM SG, the article is followed by Restricted Soft Mutation (SMR), otherwise (MASC SG, gender-indifferent PL) by the radical form.<sup>15</sup> The following lexical irregularities are found within the prenominal field (i) the plural of *gefell* ‘twin’ irregularly shows Soft Mutations (SM), not the radical, after the article: *yr efeilliaid/\*y gefeilliaid* (Thomas, 1996, p. 154); (ii) both the MASC and FEM forms of the numeral ‘two’ (*dau* M, *duw* F) are subject to SM after the article. In line with other numerals (which count as PL both on their own and in numeral-noun constructions) the radical would be expected (cf. Thomas, 1996, p. 304); (iii) pre-nominal adjectives in an NP headed by a FSG noun, as well as adjectives having a FSG noun as referent, are not subject to SMR (not affecting *ll/rh*) but ‘plain’ SM (affecting *ll/rh*): *y lwyd wawr* ‘the grey dawn’ (Jones, 1976, 127; *llwyd* ‘grey’, *gwawr* ‘dawn’).<sup>16</sup>

Second, as we have seen, both the possessive marker and the definite determiner can be separated from the head noun by various intervening elements (numerals and a restricted set of adjectives). Thus affixation is, at the very least, relatively promiscuous as the definite article would then affix not only to the nominal but equally to prenominal adjectives and numerals.<sup>17</sup>

Third, the fact that, although the definite article immediately preceding a noun cannot take wide scope over a nominal coordination, the definite determiner can precede to a prenominal adjective material which itself may take scope over a coordination of Ns (as in (16) somewhat undermines the whole logic of the position whereby failure to take scope over a coordination is a sufficient and key criterion motivating a lexical affixal analysis. For these reasons, then it does not seem ideal to maintain that the definite determiner and the pronominal possessive marker are lexical affixes (akin to the Romance clitic pronouns).

Before rejecting the affixal route, we should consider the possibilities afforded by a further possibility, that is, that we are dealing not with standard affixation but with some form of lexical cliticisation or phrasal affixation. The notion of phrasal affixation

<sup>15</sup>(Plain) Soft Mutation (SM) and Restricted Soft Mutation (SMR) differ in the treatment of initial *ll-* and *rh-*. SM: *ll* /*ʎ*/ → *l*, *rh* /*r̥*<sup>h</sup>/ → *r*; whereas SMR: *ll* and *rh* remain. Otherwise SM and SMR are identical.—The following are examples of definite determiner + noun, showing the different mutational effects depending on gender/number of the head noun.

FSG	<i>merch</i>	<i>yferch</i>	‘(the) girl’	SMR (likewise SM) <i>m</i> → <i>f/v</i>
FSG	<i>llong</i>	<i>y llong</i>	‘(the) ship’	SMR <b>not</b> <i>ll</i> / <i>ʎ</i> / → <i>l</i> (and <i>rh</i> / <i>r̥</i> <sup>h</sup> / → <i>r</i> )
MSG	<i>bachgen</i>	<i>y bachgen</i>	‘(the) boy’	Radical
PL	<i>merched</i>	<i>y merched</i>	‘(the) girls’	Radical
PL	<i>bechgyn</i>	<i>y bechgyn</i>	‘(the) boys’	Radical

<sup>16</sup>According to Thomas (1996, p. 689) this rule is now only observed in conservative Welsh, otherwise the adjective may optionally be subject to SMR like nouns.

<sup>17</sup>Similar patterns to those found in Welsh may also occur in Romanian Ortman and Popescu (2001) and Albanian Dobrovie-Sorin and Guirgea (2006). The realization of the Albanian definite article also appears to be lexically determined to some extent.

is most familiar from the work of Anderson (e.g. Anderson, 1992), where it is proposed as an approach to special clitics, that is elements marking properties of the phrase and realized at the edge of the phrase. In Anderson's approach, phrase-edge realization is determined by OT-style constraint ranking and such elements are realized by "the (post-lexical) operation of the phrasal equivalent of a Word Formation Rule" (Anderson et al., 2006, 3), and hence are free of the normal lexical interaction with the host. However, such an approach to phrasally determined affixation would appear to make the wrong prediction, in that the phrasally affixed element would be expected to take wide scope over a coordinate structure to which it attached.

A subtly different analysis of such elements is provided in approaches which follow Lapointe (1992a,b); Halpern (1995); Miller (1992a) in using edge features (typically pairs of TRIGGER and MARKING features) to phrasally introduce the relevant morphosyntactic requirement, to transport it to the lexical host and to spell it out lexically.<sup>18</sup> The use of edge feature machinery avoids the violation of lexical integrity which the alternative phrasal affixation analysis would appear to entail. In fact, however the use of edge features also permits quite subtle control of the interaction of edge-expressed properties with coordinate structures, for in principle lexical realization (on the edge of a word) may be combined with wide scope contribution of the associated property (in LFG this may be achieved by the use of inside out functional equations, and by HEAD feature percolation in HPSG - on the latter see Fokkens et al. (2009) for some relevant discussion). Nonetheless, in the absence of such (additional) machinery, an edge inflection approach would contribute the property locally, that is, with narrow scope.

To return to the problem posed by the Welsh data, the determiner placement observations are summarised in (56).

- |      |    |   |                                 |
|------|----|---|---------------------------------|
| (56) | a. | [y tadau] a [’r meibion]<br>the fathers and the sons                              | N[DET+] + N[DET+]               |
|      | b. | [y gwahanol] [[afiechydon] a [chlefydau]]<br>the different illnesses and diseases | A[DET+] [N[DET-] + N[DET-]]     |
|      | c. | [y trydydd] a [’r pedwerydd] [mis]<br>the third and the fourth month              | [Ord[DET+] + Ord[DET+]] N[DET-] |
|      | d. | [yr unig] a [’r prif] [gymeriad]<br>the only and the main character               | [Adj[DET+] + Adj[DET+]] N[DET-] |

(56a) involves the determiner with a simple coordination of Nouns: a determiner occurring as an edge inflection (or in the terminology of Halpern as a lexical clitic) will take scope over only one conjunct: given the possibility of interpreting bare nouns as indefinites, it should in principle be possible for a string such as *y dynion a merched* to mean 'the men and (some) girls', whereas it seems that this is excluded. Nonetheless such a proposal would account for the failure of the determiner to take wide scope. In (56b) the determiner is affixed to the Adj, outside the coordinate structure and thus its scope will correspond to that of the adjective. The explanation for the examples in

<sup>18</sup>In an interesting intervention Anderson et al. (2006) discuss some differences in predictions between phrasal affixation and lexicalist edge feature accounts and draw attention to a number of cases which appear to show the sort of lexical interaction which supports an edge feature account for these particular sets of data.

(56c-d) would be along the same lines: the determiner appears within the conjunct and therefore cannot scope widely over the whole coordinate structure. In principle, then, an edge inflection treatment would provide some traction on this set of data.

There are however some problems which at the very least serve to decrease the attractiveness of this intuitively appealing solution. Chief among these is perhaps that there is very little evidence of the sort of lexical interaction between “inflection” and “host” which one might wish to see in the case of an edge inflection.

Further, and somewhat surprisingly, it appears that an example such (30) repeated here as (57), is grammatical. On an edge inflection approach, it is difficult to see why this is so, given that the pronominal marker would be expected to contribute its information only within the one conjunct, leading to incoherence.

- (57) ei ddwy neu dair cylllell  
 3SM two or three knife  
 ‘his two or three knives’

Something akin to the reverse issue might be thought to arise with cases which look like natural coordination - an example of this sort might be (9), repeated here as (58) and in which again the pronominal marker must be repeated

- (58) ei ffagots a'i phys hi  
 3SGF faggots and=3SGF peas 3SGF  
 ‘her faggots and peas’ (Thomas, 1996, 209)

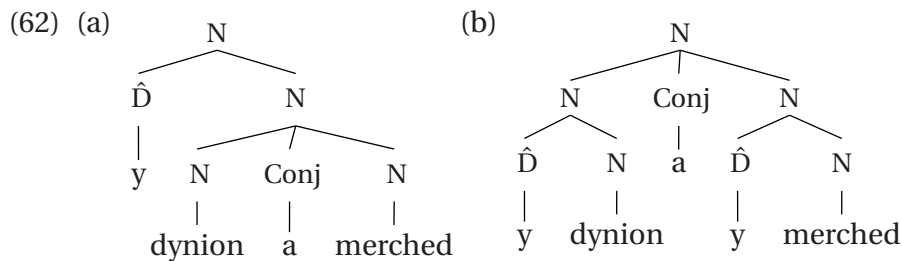
If Dalrymple and Nikolaeva (2006) are correct in proposing that natural coordination structures differ from accidental coordination in essentially projecting a single f-structure as in (59), rather than a set of f-structures as shown in (60) (for the accidental coordination ‘my house and your cottage’), then the requirement to repeat the possessive marker also in cases of natural coordination (in order that it might scope over both conjuncts) is unexpected.

- (59) 
$$\left[ \begin{array}{l} \text{CONJ AND} \\ \text{ADJ [ PRED 'MAIN' ]} \\ \text{CONJ1 [ PRED 'IDEAS' ]} \\ \text{CONJ2 [ PRED 'CONCEPTS' ]} \end{array} \right]$$
- (60) 
$$\left[ \begin{array}{l} \text{CONJ AND} \\ \left( \left[ \begin{array}{l} \text{PRED 'HOUSE< POSS>'} \\ \text{POSS [ PRED 'PRO' ]} \\ \text{PERS 1} \\ \text{NUM SG} \end{array} \right] \right) \\ \left( \left[ \begin{array}{l} \text{PRED 'COTTAGE< POSS >'} \\ \text{POSS [ PRED 'PRO' ]} \\ \text{PERS 2} \\ \text{NUM SG} \end{array} \right] \right) \end{array} \right]$$

In the light of these observations, a syntactic account, in which the definite determiner and the possessive marker do occupy a c-structure node as light or non-projecting elements should not, perhaps, be dismissed out of hand, the Coordination Criteria notwithstanding.

Taking *y* (and also possessive markers such as *fy*, *ei* and so on) to be non-projecting words the issue for a syntactic account is that of ruling out (62a) and allowing only (62b).

- (61) *y* *dynion a'r merched* vs. \**y* *dynion a merched*  
 the men and=the girls vs. \*the men and girls  
 'the men and girls' (Thomas, 1996, 265)

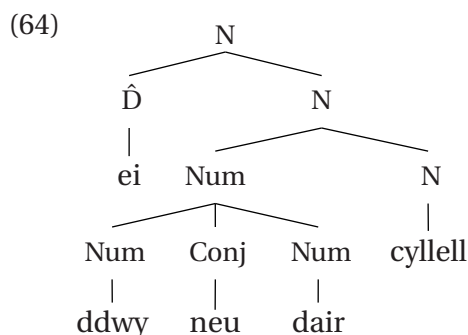


The observations summarised in (56) might be interpreted as follows:

- (63) a. Welsh non-projecting determiner forms (the definite article and the possessive) appear as sister to Adj and N:  
 $X^0 \rightarrow \text{Det}^0 \hat{X}$  where  $X = \{ \text{Adj}, \text{N} \}$
- b. N coordination and Adj coordination is subject to a restriction such that conjuncts must agree in determinedness.

Note that it is only lexical level coordination of N (or Adj) which is subject to the categorial, feature matching restriction in (63 b). Thus a string such as *y dynion a merched* (as in (61) is perfectly grammatical with the interpretation 'the men and some girls' as a NP/DP coordination, and similarly a string such as *pum bachgen a merch* (in (12) is grammatical as a phrasal coordination, in which case it means 'five boys and a girl'.

Finally this brings us to the vexing matter of the very puzzling examples involving numerals. Here we seem to be left with two observations. The first is the wellformedness of (57). If (63) is along the right lines, this follows. The structure is as given in (64).



The cardinal numerals are members of the category Num, rather than adjectives: the  $\hat{D}$  combines with the entire lexical phrase, which is a lexical construction headed by a N. Since this structure does not involve the coordination of nouns or adjectives, all the conditions of (63) are satisfied.

The failure of numerals to take wide scope over a nominal coordination remains puzzling, however, especially given that it appears that the acceptability of such examples is considerably improved by the intercalation of a prenominal adjective. It is a relatively simple matter to add this stipulation into the c-structure grammar, but this of course does not provide an answer as to why things should be so.

- (65) a. \*pum [llyfr a ffilm]  
       five [book.SG and film.SG]
- b. pum hoff [llyfr a ffilm]  
       five favourite [book.SG and film.SG]

## 6 Conclusion

This paper has been concerned with some quite puzzling restrictions on the prenominal field in Welsh which emerge especially when date concerning coordination below the phrasal level is considered. We have defended the view that Welsh does permit lexical level coordination, and hence conclude that these restrictions do not simply follow from the non-availability of lexical level coordination within the relevant categorial projections. We have suggested that while it is in principle possible to give an account of (at least some of) the data considered here in terms of some sort of phrasal affixation (of the prenominal material in question), one should not in fact rule out a syntactic treatment. Under such an approach, the restrictions on determiners, possessive markers, adjectives and prenominal numerals would have to follow from particular requirements of various sorts on lexical level constructions: one such restriction suggested is that lexical level N and Adj conjuncts must agree in definiteness.

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