4

Noun Phrase Structure in Welsh

Louisa Sadler

4.1 Introduction

Several aspects of Celtic noun phrase structure have attracted analytic attention. The first is the strongly head initial surface word order pattern, which closely parallels the head initial clause structure of these languages: for example, in Welsh, the head noun is generally preceded only by a determiner (if present), while in clause structure, the finite verb is preceded only by an initial sentential particle. The second is the expression of possession by means of a possessor NP in close construction with the head noun in a pattern somewhat reminiscent of the Semitic construct state construction.

These word order considerations provide a motivation for the application of head movement analyses to the (Celtic) nominal domain. Head movement accounts appear at first sight to offer a descriptively adequate approach to the word order facts of nominal structure in Welsh and the other Celtic languages. Several analyses of Welsh and Irish nominal projections are based on the raising of the nominal head to a dominating functional projection, variously equated with D, Agr and Num (Guilfoyle 1988, Rouveret 1994, Duffield 1996).
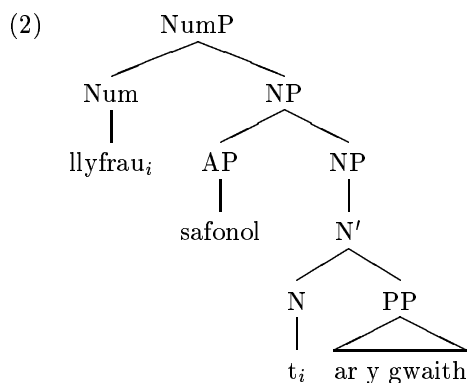
The present article critically examines this idea, and presents an alternative approach in the framework of LFG. I first provide a detailed discussion of the head movement account of Welsh noun phrases in Rouveret 1994, and point out several serious theoretical and empirical shortcomings of this analysis. In the last two sections I develop an alternative analysis which makes quite radical assumptions about the argument structure of nominals and which accommodates the previously problematic data, and argue that this is to be preferred.

4.2 Rouveret's Head Movement Analysis

We begin by presenting the analysis of the syntax of the Welsh noun phrase developed in Rouveret 1994. This proposes a variant of the head movement analysis of noun phrase structure familiar from work on Semitic (for example, Ritter (1988, 1991)), in which N moves to occupy in S-structure a dominating functional head position — in this analysis, a Num projection.
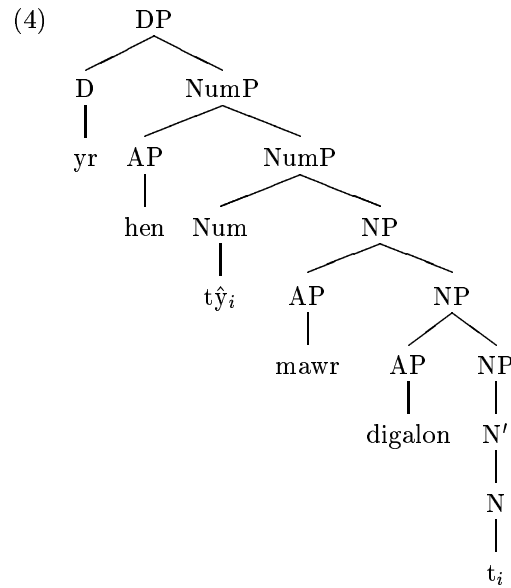
In Welsh noun phrases, the head noun precedes the possessor phrase, any PP complements and modifiers and the overwhelming majority of adjectival modifiers: only determiners, some numerals and a select bunch of adjectives precede the head noun. Postnominally, adjectival modifiers intervene between the head noun and any possessor or complement, and possessors precede prepositional complements. To account for this basic word order pattern, Rouveret (1994) proposes that the head noun obligatorily undergoes head-to-head movement, raising from N to the head of the Num projection, intervening between D and N. If AP is left-adjoined to NP, this immediately accounts for the relative position of adjectival modifiers and PP complements, as shown in (1).

(1) llyfrau safonol   ar y   gwaith
     books standard on the work
     'standard books on the work'

(2)

```
                    NumP
                 /        \
              Num          NP
               |         /     \
           llyfrau_i   AP       NP
                       |         |
                    safonol      N'
                               /     \
                              N       PP
                              |      /  \
                             t_i   ar y gwaith
```

Those adjectives which appear prenominally, between N and Det, are assumed to adjoin to NumP rather than to NP. The set of adjectives which occur in this position are rather few in number and include *gyfaill*, 'dear', *hen*, 'old', *prif*, 'chief', *raglan* 'favourite', *unig*, 'only', and several others.

(3) yr   hen dŷ   mawr digalon
     the old house big   sad
     'the big sad old house'

(4)
```
              DP
          ┌────┴────┐
          D       NumP
          │     ┌───┴───┐
          yr   AP     NumP
               │    ┌───┴────┐
              hen  Num       NP
                   │      ┌───┴───┐
                  t$\hat{y}_i$  AP      NP
                       │    ┌───┴───┐
                     mawr  AP      NP
                           │        │
                        digalon    N'
                                    │
                                    N
                                    │
                                   t$_i$
```
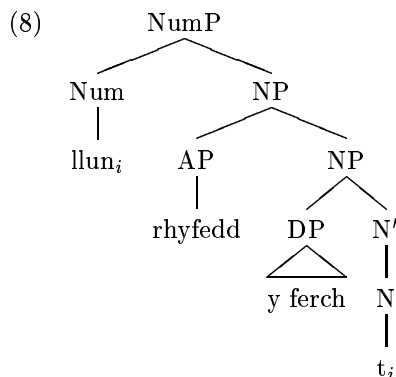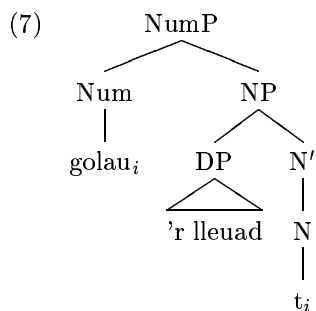
Possession is generally expressed in Welsh noun phrases by means of a bare DP/NP following the head noun and preceding any PP complements and modifiers: I will refer to this as the possessor construction.[1]

(5) llun   rhyfedd y   ferch
     picture strange the girl
     'the strange picture of the girl'

(6) golau'r   lleuad
     light-the moon
     'the light of the moon'

According to Rouveret (1994), DP/NP possessor phrases are in [Spec,NP] and N to Num raising accounts for the observed surface word order.

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[1] The possessor construction bears some superficial similarity to the construct state of Semitic languages, for which several authors have proposed a head movement analysis (Ritter (1988, 1991) and others), and indeed Duffield (1996) explicitly motivates his head movement account of Irish nominal structures by drawing parallels with the Semitic constructions, providing a head movement account of both within the minimalist framework. There are several serious problems with this account, however. Moreover there are interesting and significant differences in status between the Semitic construct state, which is more restricted in distribution and often involves a morphologically distinct form of the head noun and the Celtic construction, which is completely general in distribution.

(7)

```
              NumP
           ╱        ╲
        Num          NP
         │         ╱    ╲
      golau_i    DP      N′
                ╱╲       │
             ’r lleuad   N
                         │
                         t_i
```

(8)

```
                NumP
             ╱        ╲
          Num          NP
           │         ╱    ╲
        llun_i     AP      NP
                   │      ╱   ╲
                rhyfedd  DP     N′
                         ╱╲     │
                      y ferch   N
                                │
                                t_i
```

4.3 Critique of this Account

4.3.1 The Num Projection

We begin by considering the nature of Rouveret's functional category Num and the theory-internal motivation for the (obligatory) application of syntactic head movement within nominal projections. For Rouveret, the category Num is essentially the syntactic reflex of the morphology of number marking, containing *"l'affixe de nombre, singulier ou pluriel, associé à l'expression nominale"* (Rouveret 1994:208).[2],[3] N must then raise to Num for essentially morphological reasons: the Number affix associated with the Num projection must be supported by a lexical category: *"La montée de la tête nominale dans Num est imposée par le Principe des Affixes, excluant les représentations de S-structure contenant un affixe non supporté morphologiquement"* ((Rouveret 1994:215).[4] This principle is "morphological"

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[2]'the number affix, singular or plural, associated with the nominal expression'

[3]We shall see below, in discussion of the possessor construction, that the case feature [+genitive] is also associated with Num.

[4]'The raising of the nominal head into Num is required by the Principle of Affixes, which excludes S-structure representations containing an affix which is not morphologically supported.'

only given some very abstract notion of what it means to be a morpho-logical affix. For most Welsh nominal lexemes one can distinguish a plural affix but no singular affix (pluralization involves affixing the plural affix to the singular noun as stem), while a small set of Welsh nominal lexemes pluralize by removal of an explicitly singular affix. That is, it is not the case that both singular and plural forms of a specific lexeme are produced morphologically by affixation.

The idea, if we abstract away from the syntactic reification of mor-phological formatives and translate into a straightforward feature theoretic approach, would seem to be that nouns have to bear specifications for the morphosyntactic feature NUM (with the set {SING,PLUR} as values), a feature which, by stipulation, is associated with a particular functional projection.[5] But what is problematic for this account is that it is unclear what evidence there could be that the association of these features with nominals *is* associated with a particular functional category or structural position, since by the nature of its very motivation (to explain surface word order facts), N movement has to be obligatory for all Ns. This is quite un-like the case with verbal projections in Welsh, where it is very clear that tensed verb forms occur in I and non-finite verb forms in V.

Beyond this, there are further complications. Consider the following data:

(9)   y   tri   dyn
        the three man
        'the three men'

(10)   pedair cainc y   Mabinogi
       four   branch the Mabinogi
       'the four branches of the Mabinogi'

(11)   tri   o ddynion
       three of men
       'three men'

Certain simple numerals (essentially, numerals up to ten) may occur prenominally, as in (9) and (10), preceding a singular noun.[6] Alternatively, (all) numerals may occur in a partitive construction, as illustrated in (11). Rouveret argues that the numerals themselves are heads in both the parti-tive construction and the Numeral-Noun construction. Noting certain par-
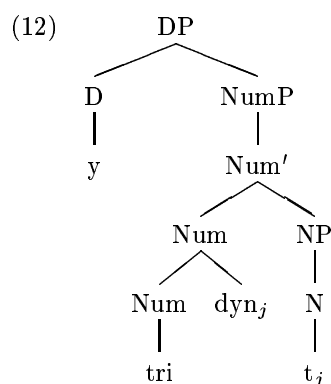
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[5]More precisely, in Rouveret 1994 the requirement seems to stated the other way round: the affixes must exist, and then must be supported.

[6]Welsh, in common with the other Celtic languages, is characterized by a system of initial consonant mutations which are triggered in certain lexical, syntactic and morpho-logical environments. Some prenominal numerals trigger ICM on the following N.

allels between the numerals and functional categories (they form a closed class, they select a single NP complement, and, he claims, lack significant content), Rouveret first argues that the numeral is the head in the Numeral-Noun construction, placing much significance in the fact that the nominal is singular in the Numeral-Noun construction:

> *"le fait...que le nom ne soit porteur d'aucune marque mor-phologique et en particulier, ne soit pas spécifié pour le nom-bre, pourrait indiquer qu'il n'est pas lui-même l'élément syn-taxiquement dominant dans l'expression. Il est donc plausible d'assigner au numéral un statut de tête."* (Rouveret 1994:222).[7]

In this construction, the N appears in a position consistent with raising to Num and Rouveret (1994) proposes that N raises to adjoin to Num, as in the following structure:

(12)

```
                    DP
              _____|_____
             D            NumP
             |             |
             y            Num'
                      _____|_____
                    Num         NP
                   __|__         |
                 Num  dyn_j      N
                  |             |
                 tri           t_j
```

A fundamental question that arises is whether or not there is an abstract number affix in Num when a numeral is inserted in the Num projection. According to Rouveret, in this case there is no number affix (Rouveret 1994:223)[8], and yet the N must still raise: *"la tête N doit être adjointe á Num pour recevoir une spécification de nombre"* (Rouveret 1994:223)[9]
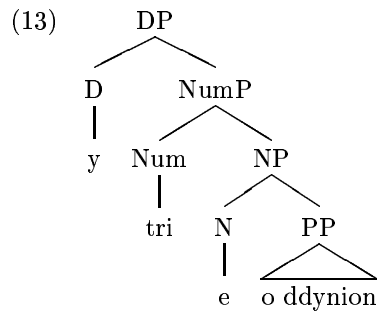
This raises several problems. The first is that we now have a difficulty with the premise that movement is required by the *Principe des Affixes*: it is difficult to see how N movement in this instance can be motivated by the need for affixes to be supported, since even if there was an (abstract) affix present, it would be supported by the Numeral base-generated in the Num

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[7]'The fact...that the noun is not morphologically marked and in particular, is not specified for number could indicate that it is not itself the syntactically dominant element in the expression. It is therefore plausible to assign the status of head to the numeral.'

[8] *"aucun affixe de nombre n'est alors présent dans cette catégorie"*: 'no number affix is thus present in this category'

[9]'the head N must be adjoined to Num to receive a number specification.'

head and moreover, Rouveret explicitly maintains that there is no number affix in this case. The second problem is that, according to the reversal in the logic apparent at this point, the N must raise to receive a number specification in some manner from the numeral itself. This suggests that in fact Rouveret wants to view movement as driven by the requirement for nouns to be specified for some notion of (semantic?) number. But this in turn makes it quite mysterious why the partitive construction in which the N head does not raise to Num to receive a number specification should be well-formed. The partitive construction is analysed as in (13) by Rouveret — the postulated [NP e] permits Rouveret to maintain the idea that the functional category Num subcategorises for an NP complement.

(13)

```
              DP
           ╱      ╲
         D         NumP
         │       ╱      ╲
         y    Num        NP
              │        ╱    ╲
             tri     N       PP
                     │      ╱  ╲
                     e   o ddynion
```

Thirdly, there is a very significant empirical problem in that the data simply do not support the analysis. Prenominal adjectives intervene *between* numerals and the head noun, but Rouveret's analysis predicts that they precede the Num-Noun adjunction (see (4)).

(14)   y   ddau hen greadur
       the two   old creature
       'the two old creatures'

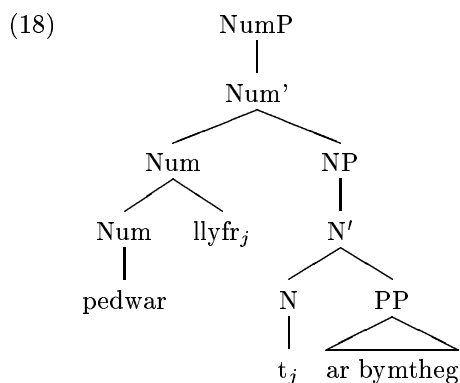(15)   pedwar hen lyfr   Wyn
       four   old book Wyn
       'Wyn's four old books'

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

The analysis of Rouveret (1994) also appears to be inconsistent with a further set of data, in which one part of a complex numeral occurs prenominally while the rest occurs postnominally.

(17) pedwar llyfr ar bymtheg
      four   book on fifteen
      'nineteen books'

Recall that on the structure which Rouveret gives us, the complement of the functional Num head is an NP, headed by the trace of the raised N (or by [NP e] in the partitive construction). This suggests something like (18) for (17), which treats the PP as the complement of the N rather than as part of the numeral. This is peculiar, because the PP *ar bymtheg* is clearly part of the numeral, and *llyfr* certainly does not take a complement. But there is no plausible alternative structure consistent with the twin assumptions that that numerals are functional heads, and that functional heads subcategorise for single (NP) complements:[10]

(18)

```
                    NumP
                      |
                    Num'
                   /    \
                Num      NP
               /   \      |
            Num   llyfr_j  N'
             |            /  \
          pedwar        N    PP
                        |    /\
                       t_j  ar bymtheg
```

Moreover this analysis predicts that a possessor will occur between Num-N and PP, which is not the case:

(19) pedwar llyfr ar bymtheg Wyn
      four   book on fifteen   Wyn
      'Wyn's nineteen books'

(20) dau dudalen a   deugain y   llyfr
      two page   on forty   the book
      'the book's forty pages'

(21) tair merch ar ddeg y   meddyg
      three girl   on ten   the doctor
      'the doctor's thirteen girls'

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[10]The only alternative seems to be to treat the PP along the lines of an AP modifying (and adjoined to) the NP but nothing seems to motivate such an analysis [NP AP/PP [NP Spec   t]].

To summarize, Rouveret's analysis of NP structure in Welsh involved postulating obligatory N to Num movement in all noun phrases. We have argued that there are conceptual problems with this concerning what enforces movement, and a number of empirical problems concerning the interaction of the analysis with numerals. In the following subsection we turn to specific problems with the analysis of the possessor construction.

4.3.2 Possessors and Spec of NP

Recall that in the possessor construction in Welsh, an argument of the head noun is expressed as a bare DP, NumP or NP immediately following the head noun and any post-modifying adjectival phrases.[11] This word order follows if N raises to Num, on the assumption that the possessor occupies the [Spec,NP] position, initial in the NP projection (see (7) above for the structures involved). In an alternative to the possessor construction the same argument may surface as a PP marked by the preposition *gan* 'by' or *o* 'of' (depending on its semantic role). In this section and the following we discuss several aspects of the analysis of this alternation between DP/NP possessor and PP.

A key claim of Rouveret (1994) is that his structural assumptions are supported by the binding data concerning noun phrases with possessors. We begin, therefore, by reviewing this data. An NP containing a possessor constitutes a domain for the binding theory: a reflexive within an oblique PP may be coindexed with the possessor NP, but not with an argument outside the domain, and pronouns are disjoint within this domain. A reflexive possessor phrase may not be bound by an oblique PP within the NP domain.

(22) Mae Wyn$_i$ wedi prynu lluniau Picasso$_j$ ohono ei hun$_{*i/j}$
      is   Wyn PERF buy   pictures Picasso of-3SM 3SM self
      'Wyn has bought Picasso's pictures of himself'

(23) Mae Wyn$_i$ wedi prynu lluniau Picasso$_j$ ohono e$_{i/*j}$
      is   Wyn PERF buy   pictures Picasso of-3SM
      'Wyn has bought Picasso's pictures of him'

(24) * ei lun   ei hun$_i$ gan Rembrandt$_i$
        3SM picture 3SM self   by Rembrandt

(25) * ei lun   ei hun$_i$ o Rembrandt$_i$
        3SM picture 3SM self   of Rembrandt

The DP possessor (unlike a PP argument) may itself be syntactically bound by an argument upstairs:

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[11]Welsh has a definite article but no indefinite article. Rouveret treats indefinite noun phrases as DPs headed by a null determiner.

(26) Mae Siôn$_j$ wedi prynu ei   lun   ei   hun$_j$ gan Picasso$_i$
     is   Siôn PERF buy   3SM picture 3SM self by Picasso
     'Siôn has bought the picture of himself by Picasso'

In a configurationally based theory of binding, involving a notion of superiority defined in terms of c-command, the data briefly reviewed above suggests the hierarchical superiority of the possessor phrase over its syntactic co-arguments, as in a structure along the lines of (7). Of course for this argument to go through, it must be the case that the binding relationship holds between the entire PP and the co-argument. If, contrary to this hypothesis, it is the NP within PP that is relevant, then the binding facts discussed above are equally consistent with the following sort of flat structure (since the existence of the PP node itself brings about a c-command failure).
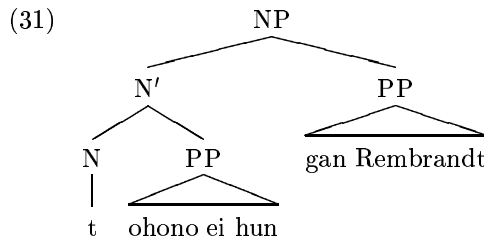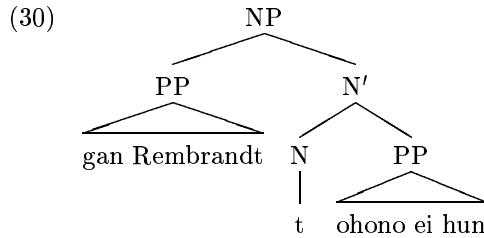
(27)
```
          N′
        ⟋ | ⟍
     N   DP   PP
             ⟋ ⟍
            P    NP
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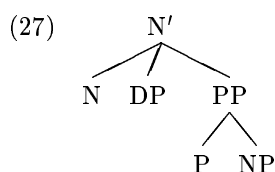
Therefore Rouveret (1994) seeks to establish that it is the entire PP which "counts" as the anaphor (or antecedent) from the perspective of the Binding Theory, and it is in this connection that he discusses the alternative to the possessor construction, in which all arguments are prepositional. Rouveret argues that evidence for this view (and therefore for the hierarchical structure in (7) over the flat structure in (27)) comes from the fact that syntactic binding can occur between PP co-arguments in this alternative construction, as in (28) and (29). If the relevant nodes were the NPs within the PPs, there would be a failure of c-command, and ultimately of binding.

(28) llun   gan Rembrandt$_i$ ohono ei   hun$_i$
     picture by   Rembrandt of-3SM 3SM self
     'a picture of himself by Rembrandt'

(29) llun   ohono ei   hun$_i$ gan Rembrandt$_i$
     picture of-3SM 3SM self by   Rembrandt
     'a picture of himself by Rembrandt'

The data in (28) and (29) show that there are binding asymmetries between PP arguments: whatever its linear position it is the agent phrase which binding the theme/patient phrase and never vice versa. In order to explain this in configurational terms, Rouveret has to posit structures in

which the *gan*-PP is structurally higher than the *o*-PP, whether it is linearly to the right or to the left of the *o*-PP. This requires several additional stipulations. Rouveret assumes that the *gan*-PP may be inserted into the SpecNP (possessor) position (see (30) for (28)) or generated as right sister to N′ (see (31) for (29)). The *o*-PP is always inserted as complement to N!.

(30)

```
                    NP
              _____|_____
            PP             N′
        ____|____       ___|___
   gan Rembrandt      N        PP
                      |      ___|___
                      t    ohono ei hun
```

(31)

```
                    NP
              _____|_____
            N′             PP
         ___|___        ___|___
        N       PP    gan Rembrandt
        |     __|__
        t   ohono ei hun
```

To summarize, Rouveret takes as a premise that syntactic binding theory is expressed in terms of configurational structures and depends on the structural notion of c-command. He then interprets the fact that the NP possessor may serve as antecedent for PPs within NP but not vice versa, and the fact that an NP possessor anaphor is externally bound, as evidence for the structural assumption that the possessor DP is in [Spec,NP] and thus that N raises to Num. To rule out an alternative flat structure (while still maintaining the same assumptions about structural conditions on binding) requires a subsidiary argument that PP nodes do not "count" for establishing structural configurations for binding (that is, the PP itself serves as antecedent or anaphor).

Clearly, the argument that the binding data supports his N raising analysis of noun phrases is only as secure as the premise on which it is based, namely, the assumption that syntactic binding is expressed over configurational structures. I would suggest that this premise is not as firmly established as Rouveret would have us believe. On the one hand, picture NPs are notoriously permissive and therefore we need to exercise some caution in interpreting the distribution of anaphoric elements within picture NPs as evidencing syntactic binding conditions in general. More crucially, several robust arguments against configurational binding theories have been

advanced (see Pollard and Sag 1994 and Dalrymple 1993). In section 4.5.3
I sketch out how the observed behaviour of anaphoric elements described
above may be accounted for within one non-configurational binding theory,
that of Dalrymple (1993).

Furthermore, no formulation of a binding theory for Welsh is given in
Rouveret 1994 and therefore no account of binding within NPs. In particu-
lar, there is no formulation of how the PPs (rather than the NPs) serve as
antecedents and anaphors, though this is crucial to his argument against
the flat structure. Equally, the data in (26) shows that the possessor po-
sition provides an escape hatch from local binding for reflexives, but he
makes no proposal as to how such cases are to be handled. Further work is
required to establish whether a reflexive possessor is *exempt* (in the sense
of Pollard and Sag (1994)) from syntactic binding or whether the domain is
defined in this case to include the arguments of the dominating predicate.
Finally, the binding possibilities among PP arguments of nominal heads re-
quire both the postulation of a special adjunction position for *gan*-PP*s* and
the assumption that *gan*-PP*s* (but not o-PPs) can appear in the possessor
position [Spec,NP] on this account. It seems reasonable to conclude, there-
fore, that while Rouveret's structural assumptions may well be consistent
with a (unspecified) configurational theory of syntactic binding, they are
not strongly motivated by the such a theory.

I now turn to some fundamental problems with the analysis of the
DP/PP alternation.

4.3.3   Possession and the Genitive Feature

Recall that Rouveret (1994) argues that the Spec,NP position may contain
either a DP/NumP/NP or a *gan*-PP. This alternation is attributed presence
or absences of Genitive Case. Rouveret proposes that the Num head may
be specified as [+genitive].[12] Adjunction of N to Num creates a structure
in which the chain (Num, N, e_N) has the feature [+genitive], a feature
which is checked (under Spec-Head agreement) against the Spec of the
lowest projection (NP): by hypothesis, Welsh is a language in which Case is
assigned (under agreement) to the lowest Spec position. If the Num head
is projected with the feature [+genitive] a bare DP/NumP possessor will
occur. If the Num head is projected without the feature [+genitive], an
overt preposition Case marks the possessor, in the specifier position of (28)
or the position in (29). The account of the alternation thus comes down
to the optional introduction in the phrase structure of an intrinsic and

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[12]I interpret this to mean that he assumes a theory (of phrase structure constraints)
in which certain morphosyntactic features (attribute-value pairs) are declared as appro-
priate for nodes of certain types, but as such matters are not further elaborated in the
book, it is possible that this is an incorrect interpretation.

invisible (putatively morphosyntactic) feature [+genitive] on the functional head Num.

Unfortunately, this account is weakened by the fact that the distribution of the abstract feature [+genitive] cannot be related to any overt case morphology. Although at an earlier period, Welsh did show case marking, there is no evidence at all of case marking synchronically in Modern Welsh. This removes any possible empirical motivation for the feature itself in Welsh: what we are left with is a stipulation that possessor DPs and *gan*-PP*s* alternate in the [Spec,NP] position: reasonable enough, but a stipulation nonetheless. Furthermore, there is some reason to be somewhat doubtful about the criticality of the role of a [+genitive] feature in determining this alternation in related Celtic languages which do show morphological case marking. For Scottish Gaelic, MacAulay (1992) reports that genitive marking is sometimes found only on the most deeply embedded possessor.[13] In Irish Gaelic, possessors within noun phrases are often genitive (and grammars generally mandate genitive marking), but there is in fact some variation between genitive and direct (or nominative) case. For example, Duffield (1996) reports that although indefinite possessors are generally dispreferred in Irish, both genitive indefinite possessors and nominative indefinite possessors are possible:

(32) teach fhir
      house man.GEN
      'a man's house'

(33) teach fear
      house man.NOM
      'a man's house'

It seems, therefore, that even in those Celtic languages with morphological case, we cannot maintain the position that possessors are always genitive.

4.3.4 Excluding Determiners in the Possessor Construction

A crucial aspect of the possessor construction is that overt determiners and possessor phrases are in complementary distribution: a head noun cannot be accompanied by both. In the possessor construction, the definiteness specification for the entire noun phrase comes from the possessor phrase.

The broad outline of Rouveret's (1994) account is as follows. He assumes that in order to function as a semantic argument all nominal domains

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[13]However, care must be taken with this claim since definiteness may in any case only be marked on the most deeply embedded possessor, and the direct/genitive alternation is sometimes only visible in definite phrases. I am grateful to an anonymous reviewer for clarifying my view of the Gaelic data.

headed by a common noun must contain a logical determiner (operator). Welsh has three "basic" determiners, only one of which is overt: (i) the definite article, which is never expletive;[14] (ii) the null determiner $[_D$ e] with a default existential interpretation, occurring in indefinite noun phrases; and (iii) the null expletive determiner $[_D$ $\delta]$, which is not marked for the feature [± definite], but is marked for category [+determiner]. Possessor phrases are inserted into structures with the feature [+determiner], and D is obligatorily projected and filled at S-structure in Welsh.

The analysis of possessor constructions under these essentially stipulative assumptions is as follows. The S-structure is assumed to be as in (34). The possessor phrase raises to [Spec,DP] at LF, where it is interpreted as the logical determiner, and the expletive element, which is not interpreted, is eliminated. The possessor phrase in [Spec,DP] transmits its definiteness feature to the D node, with which it is in Spec-Head agreement (and thence to the dominating DP node).

(34) $[_{DP}$ Spec $[_D$ δ $[_{NumP}$ ... $[_{Num}$ N-Num$_j$] $[_{NP}$ DP $[_N$ e$_j$]]]]
                [+Det]   [+Det]

For this analysis to go through, two things must follow. First, the possessor phrase ([+determiner]) must be required to raise to [Spec,DP], and second, it must be incompatible with the occurrence of an overt determiner or $[_D$ e]. It is logically necessary therefore that because it is inserted into structures with the specification [+determiner], the possessor phrase counts as a logical determiner: movement would then be assured as logical determiners are licit at LF only in the D projection. Given the assumption that overt determiners are never expletive, and therefore always logical determiners, the complementary distribution of definite determiners and possessor phrases follows.

There are several aspects of this account worthy of some comment. First, as noted above, it requires the feature [+determiner] associated with the possessor phrase to make it count as the logical determiner, while the same feature specification on the expletive determiner is explicitly *not* associated with logical determiner status: it is therefore rather unclear what the status of this feature actually is. Second, there is significant unclarity as to whether the specification [+determiner] is associated with the *structural position* of [Spec,NP], or with the lexical material (the possessor phrase) which fills this position. On the one hand, the fact that the feature forces

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[14]The assumption that overt determiners are never expletive is crucial to this account. However, as Rouveret acknowledges, this is not uncontroversial for Welsh given that prenominal adjectival modification of some place names forces the appearance of a definite article, as in the pair (*Iwerddon* 'Ireland', *Yr Iwerddon dawel*, 'a peaceful Ireland').

the material to move to [Spec,DP] suggests that it is viewed as intrinsic to the element rather than to the position, while on the other, there is no empirical basis for viewing these (possessor) DP/NPs as different from their object, subject and prepositional object counterparts. Third, the account is based on the very simple idea that determiners and possessor phrases cannot cooccur because they are alternative instantiations of the same feature or element (here logical determiner), but the implementation of this idea (in the absence of any noticeable feature logic) is convoluted in the extreme, requiring the assumption of an obligatory DP projection and a null expletive determiner. The observation of complementarity, on the other hand, is quite straightforward.

I note further that the observed complementarity, which is robust in Welsh, is less so in Irish, where there are attested examples of the definite article co-occuring with a definite possessor in the presence of a demonstrative adjective. These examples are discussed in section 4.5.1, and are seriously problematic for any account which assumes that a possessor phrase co-occurs *only* with a null expletive determiner in D, while admitting the existence of overt expletive determiners would undermine the whole analysis.

Turning to coordinate structures, we note that coordinate possessor *must* show definiteness agreement between the conjuncts, although coordinate structures in general are not subject to such a constraint.

(35) Gwelais plentyn a'r   athrawes
      saw-1S child   and the teacher
      'I saw a child and the teacher'

(36) cân Deborah a   Barac
      song Deborah and Barac
      'Deborah and Barac's song'

(37) *adroddiad ysgrifennydd a'r   trysorydd
       report   secretary   and the treasurer
       'the report of a secretary and the treasurer'

On Rouveret's analysis, the coordinate possessor is raised to [Spec,DP]. It is not clear that it *is* required to have a value for the definiteness feature (a logical determiner [+determiner] is required, but this is distinct from the feature [± definite]). In any case it transmits any definiteness feature it does have to D (and thence to DP): recall that the null expletive is *not* itself marked for definiteness. What is absent is any analysis of how the definite features of the conjuncts relate to that of the coordinate structure as a whole, given that conjuncts are not in general required to match in
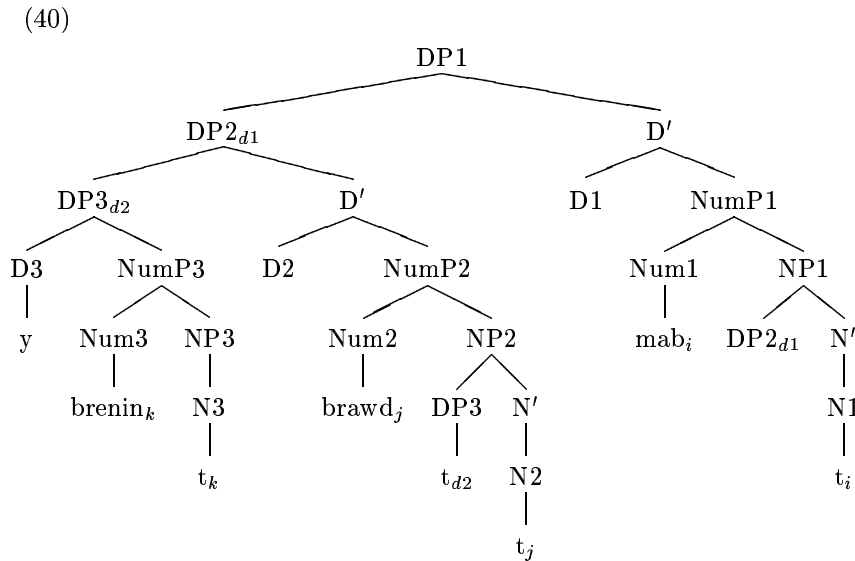
definiteness. This implies that definiteness may vary across the conjuncts, which is not the case.

Possessor phrases themselves may be recursive, containing further possessors, and in this case, the definiteness value for the entire noun phrase is that of the most deeply embedded possessor.

(38) mab brawd y   brenin
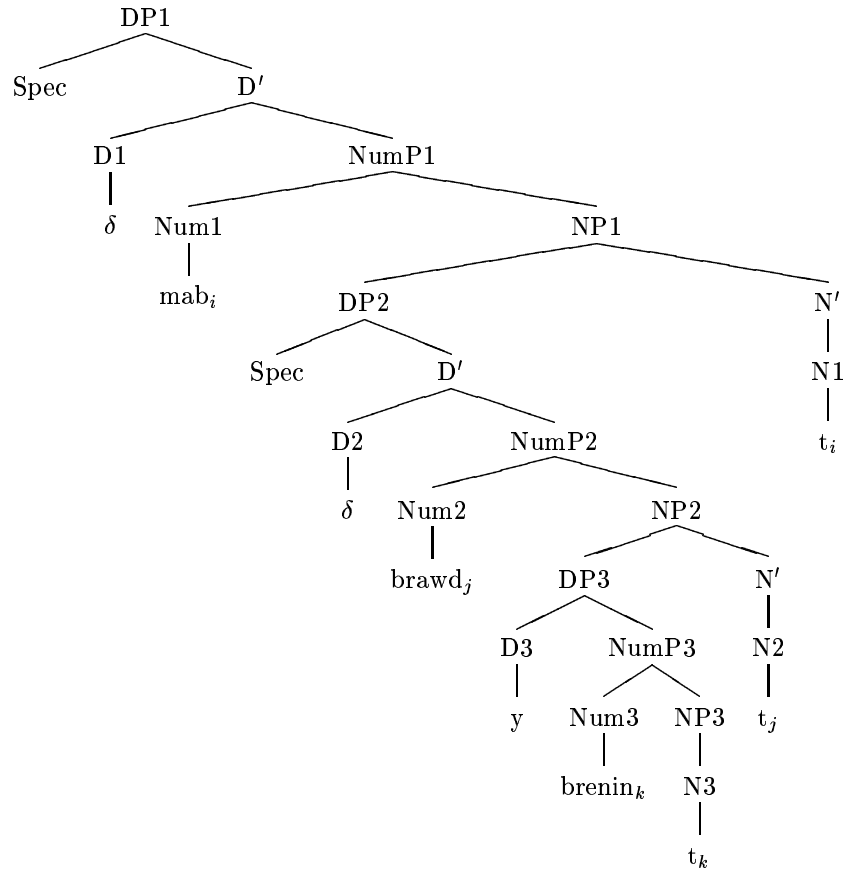   son brother the king
      'the king's brother's son'

(39) sail   tŷ   mab brenin Lloegr
      foundation house son king   England
      'the foundation of the house of the king of England's son'

Under Rouveret's head movement analyses, examples such as these involve extremely complicated center-embedded structures in which each nominal raises from N to Num and each D (except the most deeply embedded) involves the null expletive determiner. During the course of the derivation at LF, the null expletive determiners (which, recall, cannot remain at LF) are eliminated and the logical determiners raise to the [Spec,DP] positions. In the first (DP2) cycle, the logical determiner DP3 raises to [Spec,DP2] and the δ null expletive deletes. In the second, DP2 raises to [Spec,DP1]. The LF and S-structure representations are given below.

(40)

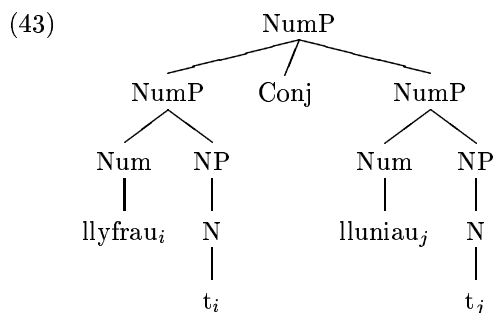(41)

```
                              DP1
                     _____/    _____
                  Spec                      D′
                                     _____/  _____
                                   D1                 NumP1
                                   |          _____/    _____
                                   δ       Num1                      NP1
                                           |              _____/    _____
                                         mab_i          DP2                        N′
                                                  _____/   \_____                  |
                                               Spec             D′                 N1
                                                         _____/  _____          |
                                                       D2                NumP2     t_i
                                                       |          _____/   _____
                                                       δ      Num2                  NP2
                                                              |              _____/   \_____
                                                           brawd_j         DP3             N′
                                                                      ____/   \____         |
                                                                    D3          NumP3       N2
                                                                    |         __/  \__       |
                                                                    y      Num3    NP3      t_j
                                                                           |        |
                                                                        brenin_k   N3
                                                                                   |
                                                                                  t_k
```

4.3.5 Coordination and Possessors

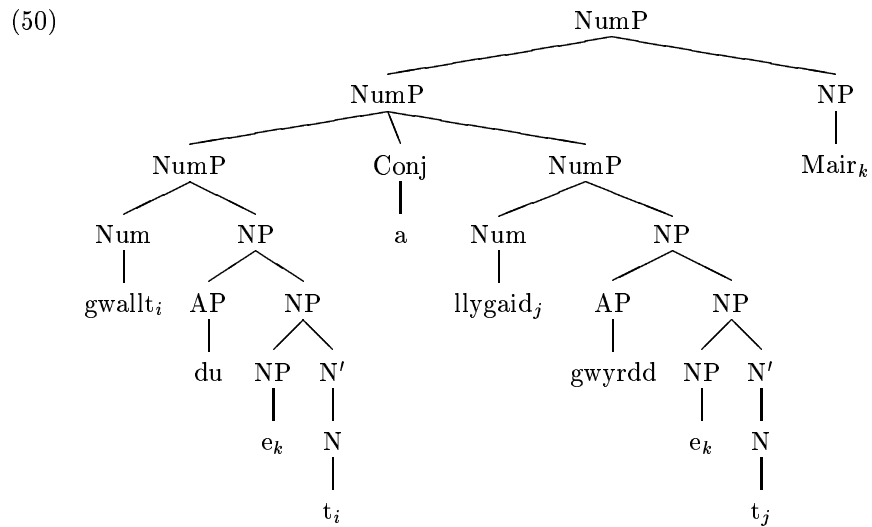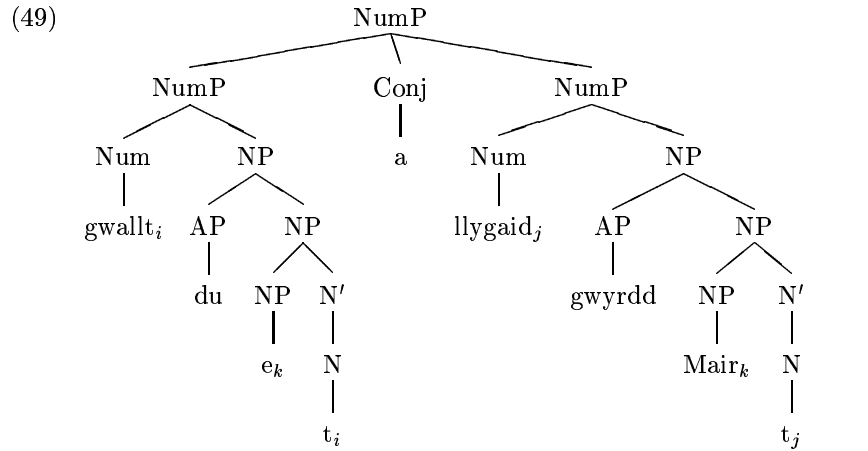The head movement analysis implies the structure shown in (43) for a coordinate noun phrase.

(42) llyfrau a   lluniau
      books and pictures
      'books and pictures'

(43)

```
                        NumP
               _____/ /_____
            NumP      Conj      NumP
            /  \               /   \
         Num    NP          Num     NP
          |     |            |      |
       llyfrau_i  N       lluniau_j  N
                  |                  |
                  t_i                t_j
```

A possessor can take scope over a coordination of head nouns, and over a coordination of adjectivally modified head nouns. In neither case does the phrase have the sort of intonational pattern typically associated with gapping or right node raising structures, and hence it seems unlikely that these are anything but basic, straightforward coordinate structures.

(44) llyfrau a   lluniau Wyn
     books and pictures Wyn
     'Wyn's books and pictures'

(45) llenorion, haneswyr na gwleidyddwyr y   dyfodol
     authors,   historians nor politicians   the future
     'future authors nor historians nor politicians'

(46) Gwallt du   a   llygaid gwyrdd Mair
     hair   black and eyes   green Mair
     'Mary's black hair and green eyes'

(47) merch bert   a   mab hardd   y   brenin
     girl   pretty and son handsome the king
     'the king's pretty daughter and handsome son'

(48) brawd hyna' a   chwaer ienga' Sioned
     brother older and sister younger Sioned
     'Sioned's older brother and younger sister'

Under the head movement analysis, however, the only way in which this data can be accommodated is by assuming the sorts of left conjunct gapping or right node raising structures illustrated in (49) and (50). In the following section, we will see that if we abandon the head raising analysis a much more straightforward structure suggests itself for these coordinate structures.

(49)

```
                          NumP
            ┌──────────────┼──────────────┐
          NumP           Conj           NumP
        ┌───┴───┐          │          ┌───┴───┐
       Num      NP         a         Num      NP
        │     ┌──┴──┐                 │     ┌──┴──┐
    gwallt_i  AP    NP           llygaid_j  AP    NP
              │   ┌──┴──┐                   │   ┌──┴──┐
              du  NP    N'                gwyrdd NP   N'
                  │     │                      │     │
                 e_k    N                    Mair_k  N
                        │                            │
                       t_i                          t_j
```

(50)

```
                                  NumP
                    ┌───────────────┴───────────────┐
                  NumP                               NP
        ┌───────────┼───────────┐                     │
      NumP        Conj         NumP                 Mair_k
    ┌───┴───┐       │       ┌────┴────┐
   Num      NP      a      Num        NP
    │     ┌──┴──┐           │       ┌──┴──┐
gwallt_i  AP    NP     llygaid_j    AP    NP
          │   ┌──┴──┐                │   ┌──┴──┐
          du  NP    N'            gwyrdd  NP   N'
              │     │                     │    │
             e_k    N                    e_k   N
                    │                          │
                   t_i                        t_j
```

4.4   No Head Movement

In the previous section we have discussed a range of problems with the head movement analysis of Welsh noun phrases proposed in Rouveret 1994. The analysis of Welsh noun phrases by means of head movement is basically motivated by considerations of word order and lacks the sort of clear, empirical motivation involved in more established applications of head movement to functional positions. These analyses embody one or both of the follow-

ing claims. Firstly, the functional projection itself can be distributionally motivated as the structural position for certain closed class, functional elements, and secondly, in some cases a strong argument can be made for an inflectionally defined class of substantive (lexical) heads appearing in a functional position on clear morpho-syntactic grounds — a typical example would be a case in which *finite* verbs appear in I or C while *non-finite* verbs appear in V. But there is no morphosyntactic basis of this sort for head raising in Welsh NPs: it (putatively) takes place irrespective of the presence of determiners (so does not follow from the need to host affixal determiners), and of number marking on the noun (so does not to follow from the need to host an overt number affix), and is independent of the occurrence of adjectival modification and various forms of complementation. As we have seen, attempts to relate head movement to a putative abstract number feature run into several problems and empirical difficulties concerning the expression of numeral phrases. Furthermore while the head movement analysis provides a structural basis to assimilate the possessor construction in Welsh to standard configurational assumptions, it encounters difficulties with coordinate structures, with the statement of complementarity between determiners and possessors and with the DP/*gan*-PP alternation, relying, *inter alia*, on the postulation of an abstract Case feature without surface realization. In the absence of any synchronic morphosyntactic evidence of case it is difficult to see how a child could learn the distribution of the genitive feature postulated on this account.[15] It therefore seems reasonable to reject the head raising analysis of Welsh noun phrase structure.

In the rest of this paper, I will explore an alternative analysis within LFG which avoids the proliferation of functional categories found in head raising accounts to Celtic noun phrases (Rouveret 1994, Duffield 1996) and covers the range of data presented above. This analysis builds on the hypothesis that basic word order in noun phrases follows not from head movement but from the fact that nouns in Welsh systematically lack structural complements. That is, the apparent word order paradox, with specifiers intervening between head and complements, and adjectives between head and specifier, indicates that the "complements" are not syntactic complements at all, but adjuncts. If they are not sisters of the lexical head, then the fact that possessives and adjectives may intervene between head noun and "complement" is not in any way puzzling. This analysis is fully consistent with standard X′ assumptions, but embodies the claim that the possessor-PP order reflects not head movement but the projection into the syntax of nominal argument structure. The following example illustrates this.

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[15] I am grateful to an anonymous reviewer for pointing out this additional difficulty to me.

(51) hanes bywiog Wyn am   yr ymfndwyr
      story lively   Wyn about the emigrants
      'Wyn's lively story about the immigrants'

(52)
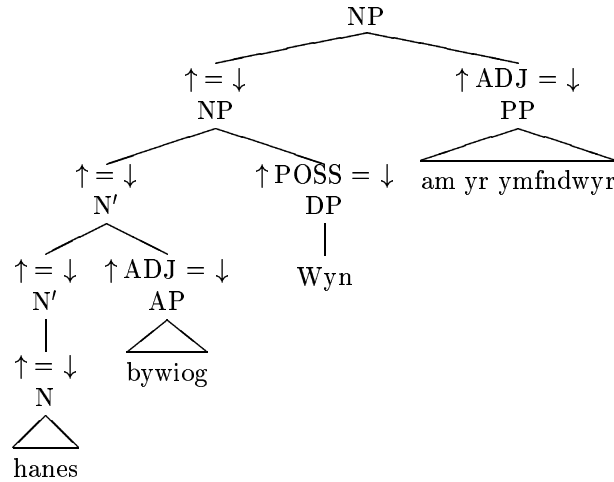
A structure such as (52) is fully consistent with the structure-function mapping principles for configurational constructions proposed in Bresnan 2000.

Although the relationship between semantic role and syntactic complement for nominal dependents has been much less well studied than for verbal dependents, there are several reasons for believing that PPs dependents of nouns do not map to complement functions, and this sort of claim is not without precedent in the literature (see Zucchi (1993), Grimshaw (1990) for some discussion).

The PP dependents of nominals in Welsh show the relative freedom of position with respect to each other characteristic of adjunct rather than complement status, but are fixed in order with respect to the possessor NP/DP. This relative freedom is exemplified in (53) and (54) and follows straightforwardly from the recursivity of adjunction.

(53) y   disgrifiad gan y   gyrrwr o'r   ddamwain
      the description by the driver of-the accident
      'The driver's description of the accident'

(54) y   disgrifiad o'r   ddamwain gan y   gyrrwr
      the description of-the accident   by the driver
      'The driver's description of the accident'

Unlike the case in many languages, one cannot look to differences in extraction possibilities to distinguish bewteen OBL and ADJ functions in Welsh: long-distance PP extraction is generally impossible, though some short-distance extraction of PPs, whether OBLs or ADJs, is possible. Extraction from a PP is always impossible and the language has recourse in these cases to the use of a (generally incorporated) resumptive pronominal.

The expression of the semantic arguments of deverbal nominals, including the verb-noun in its nominal usage, is optional. The optionality of the semantic arguments of nominals in Scottish Gaelic is discussed in Ramchand (1997), who argues that verb-nouns in nominal contexts (that is, where they correspond to deverbal nominals) can neither project nor assign case to (internal) arguments, despite the fact that in verbal contexts (that is, where they correspond to non-finite verbs), verb-nouns project and case mark (internal) arguments through the intervention of an aspectual marker.

For Scottish Gaelic, Ramchand (1997) argues that the nominal VN assigns only genitive case (i.e., in the possessor construction), which it may assign to any one of its semantic arguments: (56) shows the genitive corresponding to the object of the predication and (57) to the subject of the predication.

(55) Chunnaic Iain an sgrios
      see.PT   Iain the destruction
      'Ian saw the destruction.'

(56) Chunnaic Iain sgrios   a'bhaile
      see.PT   Iain destruction the town.GEN
      'Ian saw the destruction of the town.'

(57) Chunnaic Iain sgrios   nan saighdearan
      see.PT   Iain destruction the soldiers.GEN
      'Ian saw the destruction of the soldiers.'

Ramchand comments:

> Unlike the class of English 'process' nominals, the verbal noun in SGaelic never seems to show obligatoriness with respect to any of its arguments. Moreover, there do not seem to be any restrictions on the semantics of the nominal which appears as complement to the verbal noun. I take these facts to be an indication that the verbal noun does not independently command an argument structure in these nominal contexts (although of course, it may still have an LCS). (Ramchand 1997:149).

According to Ramchand, the interpretation of these nominals is as result

nominals rather than event nominals (although they can be modified with phrases such as "took a long time", like simple event nominals). She argues that the eventive (as opposed to the manner) reading of "The singing of that song was surprising" is absent in the corresponding Gaelic (nominal context) verb-noun, and must be rendered by means of a (verbal) periphrasis.

My claim is that a similar situation holds in Welsh: nominals, even deverbal nominals and the nominal use of the verb-noun, systematically fail to have obligatory syntactic complements (although they may have semantic arguments at a level such as LCS). The syntactic specifier position (mapping to a POSS function under the structure-function mapping principles of Bresnan (2000)) may code a variety of semantic arguments. With the verb-noun, care must be taken to distinguish between the nominal and verbal instances of this category: "verbal" verb-nouns may appear in nominal contexts (e.g., as subjects): the verbal nature of the verb-noun subject in the following example being indicated by the adverbal modification by *yn galed* 'hard':

(58) Y   mae gweithio'n galed yn   angenrheidiol.
      PRT is   work-PRT hard PRT necessary
      'Working hard is necessary.'

(59) Mae sgrifennu llyfrau yn plesio   Mair.
      is   write.VN boks   at please.VN Mair
      'Writing books pleases Mair.'

(60) Blinodd   Ifor ar ddarllen llyfrau.
      tired-3SG Ifor on read.VN books
      'Ifor tired of reading books.'

Note that this is in sharp contrast to a clearly nominal use of the verb-noun, where it may be modified by an adjective but not by an adverb:[16]

(61) Clywais   i'r   sŵn   (*yn) hyfryd.
      heard-1SG 1SG-the sound (PRT) pleasant
      'I heard the pleasant sound.' (Borsley 1993:46)

(62) Clywais   i'r   canu   (*yn) hyfryd.
      heard-1SG 1SG-the sing.VN (PRT) pleasant
      'I heard the pleasant singing.' (Borsley 1993:46)

To summarize, there is strong evidence from the Celtic languages that even the verb-noun, in its nominal usage, does not project obligatory arguments in the syntax, and that in its nominal usage, it appears to lack an

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[16]Most adverbs in Welsh take the form of an adjective preceded by the aspectual particle *yn*.

eventive reading. This is highly consistent with the proposal that only the possessor is projected as a syntactic argument function in nominal structures in Welsh.

This analysis poses no particular structural difficulties and embodies three main claims: (i) postnominal APs are adjoined to intermediate projections; (ii) the specifier of NP maps to POSS, a SUBJective function; (iii) the possessor-PPs order reflects not head movement but the failure of nominals to project syntactic complements.

In the following section I outline the analysis of the range of data introduced in the previous discussion of the head movement account of Welsh nominal structure.

4.5 Developing the Analysis

4.5.1 Possession and Determination

The analysis that I am advancing here shares with the head movement analysis of Rouveret (1994) the proposal that the possessor DP/NP is structurally the specifer of NP (see (52)). Semantically, the possessor can correspond to a wide range of possible different roles: as noted above, both agent and theme arguments (e.g., of a derived nominal) can be expressed as possessors and virtually every head noun may take a possessor argument in the syntax, corresponding to a range of semantic (argument and non-argument) roles. In short, the bare NP/DP possessive codes both intrinsic and extrinsic possession in the sense of Barker (1997). Concretely, we assume semantic forms as shown below, with POSS a SUBJective and discoure-oriented function structurally associated with the specifier position of NP in Welsh and optionally subcategorised by all nominal predicates.[17]

(63) 'llyfr < > ($\uparrow$ POSS)' 'book'

(64) 'disgrifiad < ($\uparrow$ POSS) >' 'description'

Recall that the definite determiner and the possessor phrase are in complementary distribution while in the possessor construction the definiteness of the nominal projection as a whole is determined by the presence

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[17]According to Bresnan (2000) the discourse-oriented functions are canonically associated with specifier of functional categories. This would suggest an alternative, in which the POSS function is associated with the specifier of DP:

[DP [DP [D′ D [NP NP AP]] DP/NP] PP]

Under this analysis, PP dependents (of the nominal head) would adjoin to DP rather than to NP. Demonstratives follow all other APs and require the presence of the definite determiner (and hence, are in complementary distribution with possessors), and might also be accommodated under this alternative analysis as specifiers of DP. Since it is not clear what the discourse function of the demonstrative would be I do not pursue this hypothesis further here, but it is consistent with the rest of the analysis developed here as far as I can see.

or absence of a definite determiner within the possessor phrase itself. On Rouveret's (1994) analysis, definite determiners and possessives are in competition for a certain *structural* position (D).

One alternative to this is to suggest that the possessor and the determiner are alternative exponents of the same *function*, SPEC: clearly functional uniqueness will then ensure that they do not co-occur. This analysis is proposed in Williford 1998, which apart from this detail essentially adopts the analysis of noun phrase structure of the present paper, as sketched out in Sadler 1997, 1998. There are several considerations which argue against this proposal, however. One drawback, in my view, is that it entails the postulation of an f-structure attribute SPEC which is purely grammatical in the case of the definite article, but which takes a subsidiary f-structure as value in the case of the possessive, that is, it requires an attribute to alternate between being a grammatical feature and a grammatical function. Furthermore, since determiners and possessors are alternative exponents of one function, there is a fundamental difficulty in accounting for the limited breakdown of complementarity which is attested in Irish which I discuss briefly below. There is an additional problem with this view, as it concerns embedded possessors, which I also return to below.

I will adopt a different view, under which the complementarity (between the possessor and the overt article) arises through the incompatibility of constraints over the f-structure. I propose that it is a lexical fact about the Welsh definite article that it excludes the POSS function from its own f-structure.

(65) *y(r):* 'the'
$\neg \ (\uparrow \text{POSS})$ $(\uparrow \text{DEF}) = +$

Just as the definite article excludes the POSS function, the demonstrative adjective requires the presence of the definite determiner: this too can be stated as a lexical fact:[18]

(66) *(y) dynion hyn
        the men   these
        'these men'

(67) *hwn, hon, hyn:* 'this'(M), 'this'(F), 'these'
$\neg \ (\uparrow \text{POSS})$ $(\uparrow \text{DEF}) =_c +$

Recall that the definiteness of the construction as a whole is that of the most deeply embedded possessor. This suggests that a possessor contributes

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[18]Notice that the demonstrative must exclude a POSS, by means of the constraint $\neg \ (\uparrow \text{POSS})$ on the assumption that a possessor defines a definiteness feature for the f-structure as a whole and can therefore satisfy $(\uparrow \text{DEF} =_c +)$.

a value for definiteness to the f-structure of the noun phrase as a whole, by means of a definiteness agreement equation $(\uparrow \text{DEF}) = (\downarrow \text{DEF})$ associated with the [Spec,NP] node. There are several pieces of evidence for this. In Welsh, there are syntactic environments which select for indefinite or definite noun phrases respectively. Given the locality of subcategorisational and selectional requirements, the behaviour of the possessive construction in these environments constitutes evidence in favour of the matching requirement. For example, the predicative construction in Welsh requires an indefinite noun phrase in the attributive position, and indefinite possessors define indefinite noun phrases:

(68) Mae hwn yn   lyfr   /*y llyfr/ lyfr   bachgen /*lyfr   y   bachgen
      is.3s this PRT book /the book /book boy   /*book the boy
      'This is a book/*the book/a boy's book/*the boy's book.'

(69) Y   mae Arthur yn   fab brenin /*fab y   brenin
      PRT is   Arthur PRT son king   /son the king
      'Arthur is a king's son/*the king's son.'

Conversely, the identificational copula requires the pre-copula noun phrase to be definite, and again, noun phrases with definite possessors are grammatical in this construction:

(70) Mab y   brenin yw Arthur.
      son the king   is Arthur
      'Arthur is the king's son.'

(71) Llyfr y   bachgen yw hwn.
      book the boy   is this
      'This is the boy's book.'

Note crucially that it is the definiteness or indefiniteness of the most deeply embedded possessor which counts in determining the definiteness of the structure as whole, and thus, (72) is perfectly wellformed.

(72) Cath merch   rheolwr y   banc yw hwn.
      cat   daughter manager the bank is   this
      'This is the bank manager's daughter's cat.'

Given $(\uparrow \text{DEF}) = (\downarrow \text{DEF})$ on the [Spec,NP] node, the noun phrase in (70), for example, has the following f-structure, and the identificational copula places a local requirement that the f-structure of the attributive (pre-copula) phrase is definite.

(73)
$$
\begin{bmatrix}
\text{PRED} & \text{`son<}\uparrow\text{ POSS>'} \\
\text{DEF} & + \\
\text{POSS} & \begin{bmatrix} \text{PRED} & \text{`king<>'} \\ \text{DEF} & + \end{bmatrix}
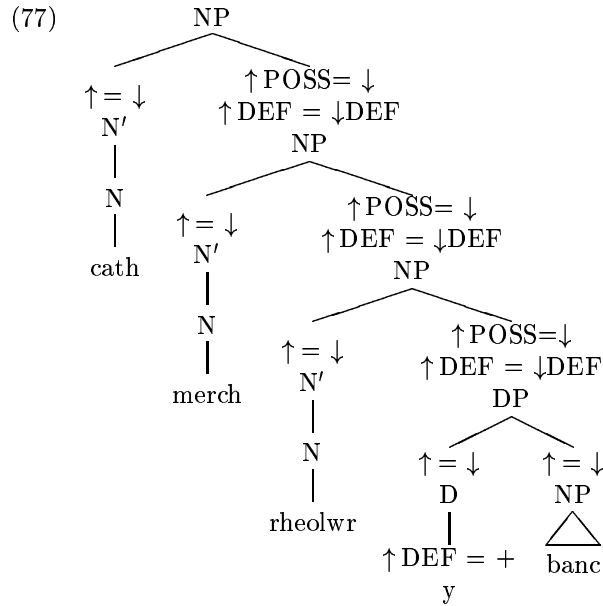\end{bmatrix}
$$

On the other hand, if DEF values are not shared, the definiteness/indefiniteness requirements in these constructions can only be captured at the expense of a great deal of inelegant disjunction (with a constraint essentially specifying that whatever the most deeply embedded POSS is, it must be definite, or indefinite, respectively). The same difficulty would arise in the single function (SPEC) analysis of Williford (1998) where disjunctive reference to the paths ($\uparrow$ SPEC), ($\uparrow$ SPEC SPEC), ($\uparrow$ SPEC SPEC SPEC), and so on, would be required, as can be illustrated by the following structure for (70):

(74)
$$
\begin{bmatrix}
\text{PRED} & \text{`son<}\uparrow\text{ POSS>'} \\
\text{SPEC} & \begin{bmatrix} \text{PRED} & \text{`king<>'} \\ \text{SPEC} & \text{salient} \end{bmatrix}
\end{bmatrix}
$$

On our account, then, the fact that the most deeply embedded possessor within the possessive construction determines the definiteness of the entire noun phrase follows without any further specification. In particular, the account, involving one f-annotation associated with a single structural position, is very much more straightforward than the series of specifier movement operations required in Rouveret 1994.

(75) cath merch   rheolwr y   banc
      cat   daughter manager the bank
      'the bank manager's daughter's cat'

(76)
$$
\begin{bmatrix}
\text{PRED} & \text{cat<>}\uparrow\text{ POSS'} \\
\text{DEF} & + \\
\text{POSS} & \begin{bmatrix}
\text{PRED} & \text{`daughter< (}\uparrow\text{ POSS)>'} \\
\text{DEF} & + \\
\text{POSS} & \begin{bmatrix}
\text{PRED} & \text{`manager <> (}\uparrow\text{ POSS)'} \\
\text{DEF} & + \\
\text{POSS} & \begin{bmatrix} \text{PRED} & \text{`bank'} \\ \text{DEF} & + \end{bmatrix}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

(77)

```
                        NP
          ┌──────────────┴──────────────┐
        ↑=↓                        ↑POSS=↓
         N′                        ↑DEF = ↓DEF
         │                              NP
         N               ┌───────────────┴───────────────┐
         │             ↑=↓                           ↑POSS=↓
        cath            N′                           ↑DEF = ↓DEF
                        │                                 NP
                        N              ┌───────────────────┴──────────────┐
                        │            ↑=↓                              ↑POSS=↓
                      merch           N′                             ↑DEF = ↓DEF
                                      │                                  DP
                                      N              ┌────────────────────┴────────┐
                                      │            ↑=↓                          ↑=↓
                                    rheolwr          D                           NP
                                                     │                           △
                                                 ↑DEF = +                       banc
                                                     y
```

We are now in a position to consider the limited breakdown of complementarity in Irish Gaelic, where definite determiners and demonstratives sometimes occur alongside definite possessor phrases.

(78) (an) mothú sin   an tsaighdiúra
      the feeling DEM the soldier
      'that feeling of the soldier'

(79) lámh seo an fhir
      hand this the man
      'this hand of the man'

These cases pose problems for the accounts of both Rouveret (1994) and Williford (1998). For example, Rouveret (1994) gives no account of the demonstrative's definiteness restriction, and the existence of a definite article in D essentially contradicts the analysis of possessor raising. On our account, the Irish demonstrative may be treated as differing marginally from the Welsh demonstrative in that the latter excludes co-occurrence with a possessor phrase while the former do not. The demonstrative requires the feature DEF = + to be defined in its f-structure, either by the definite article *or* by the definite article of the possessor phrase.

(80) *seo:*
      $(\uparrow \text{DEF}) =_c +$

As for the definite article, it bears a disjunctive specification under which *either* it assigns a DEF = + feature to its f-structure *or* it has a possessor which is constrained to be definite:

(81) *an:*
      $(\uparrow DEF) = +$ OR
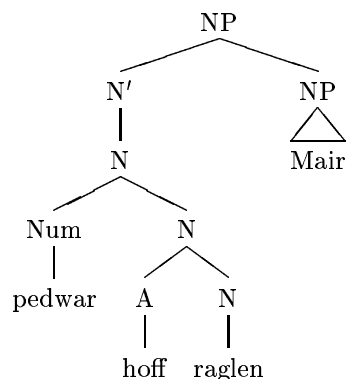 $(\uparrow POSS) \Rightarrow (\uparrow POSS\ DEF) =_c +$

4.5.2 Numerals

Recall that the head movement account runs into several problems with numerals. Firstly, Rouveret (1994) assumes that prenominal APs are adjoined to NumP, with prenominal numerals in Num and N raising to adjoin to Num. As we noted above, there is a serious empirical difficulty with this account, in that it predicts the wrong ordering of prenominal material, since numerals *precede* prenominal adjectives (see (14), (15), (16)). Furthermore, AP adjunction to NumP is problematic, since prenominal placement of AP is *not* a general syntactic process: it is lexically restricted to a very small set of adjectives, and no adjectives with their own complements occur in this position. In short, there is a lack of empirical evidence to support the postulation of *phrasal adjunction* to NumP. In addition, prenominal position is available only for simple numerals — those showing evidence of internal phrasal structure are placed postnominally. These sorts of severe constraints on prenominal position are highly reminiscent of the restrictions on prenominal position in English,[19] and thus raise the possibility that prenominal numerals and adjectives form lexical level constructions with the element they modify, as shown here for example (16), repeated as (82).[20]

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

---

[19]A proposal that English prenominal modification involves lexical level small constructions is made in Sadler and Arnold 1994 .

[20]For expository purposes, I use the label Num as a categorial shorthand, without commitment to the categorial status (as Adj or N) of numerals.

(83)

```
                    NP
              ┌──────┴──────┐
             N′            NP
              │           ╱╲
              N          Mair
         ┌────┴────┐
        Num        N
         │       ┌──┴──┐
      pedwar     A     N
                 │     │
                hoff raglen
```

Prenominal adjectives and numerals may be preceded by possessor clitics, as shown in (84):[21]

(84) fy   nhair merch
      my three girl
      my three girls

Pronominal possessor clitics such as these are sometimes, but not always, accompanied by full pronominals in canonical possessor position. There is some evidence, then, that lexical level adjunctions in Welsh introduce both arguments and modifiers of the lexical head. Sadler (1997) argues that pronominal clitic host structures in nominal and verbal projections in Welsh are also syntactically transparent "small" (X^0) constructions, and proposes an extension to the c-structure model of Bresnan (2000) and the associated c- to f- mapping to accommodate such constructions:

(85) A language may make use of a lexical adjunction structure to express argument functions. The argument functions which can be so expressed are limited to those which the c-head may project as DPs in phrasal structure under the (universal) endocentric mapping principles

An intriguing aspect of the numeral system is that prenominal numerals may take postnominal complements or modifiers, which, like adjectival modifiers, intervene between the nominal head and the possessor phrase:

---

[21] Note that there are strict ordering constraints which must be specified in the grammar: the possessive clitic always comes first, then any numeral and then the prenominal adjective.

(86) pedwar llyfr ar bymtheg Wyn
      four   book on fifteen   Wyn
      'Wyn's nineteen books'

(87) dau dudalen a   deugain y   llyfr
      two page   on forty   the book
      'the book's forty pages'

What may be going on here is some sort of predicate formation, with the N essentially inheriting the argument of the numeral, perhaps in a fashion similar to the English *an easy mistake to make* (compare **an easy to make mistake*). Our structural assumptions accommodate the fact that the complement of the prehead numeral intervenes before the possessor, for if the analysis of basic noun phrase structure is correct, these are in fact the *only* complements to N (other putative complements being adjunctions to NP).

(88)

```
                      NP
              ┌───────┴──────┐
             N'              DP
          ┌───┴────┐         △
          N        PP       Wyn
        ┌─┴─┐      △
       Num   N   ar bymtheg
        │    │
     pedwar llyfr
```
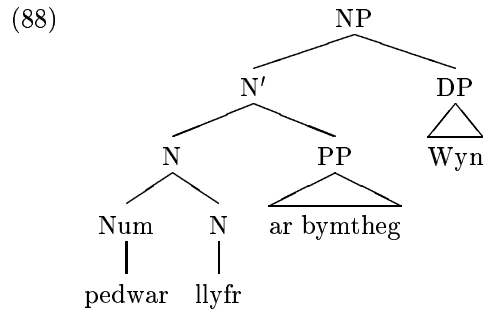
4.5.3 Anaphoric Data

Recall that Rouveret (1994) argues for the structure that he assumes for Welsh noun phrases, and in particular for the structural superiority of possessor DPs on the basis of the fact that the possessor phrase may serve to bind other arguments within the NP domain and is itself accessible to binding outside the NP domain itself. These facts are consistent with a configurational binding theory, although Rouveret does not in fact develop an analysis of syntactic binding in Welsh. On the other hand, they are equally consistent with a non-configurational binding theory, and therefore with the structural assumptions made in this paper.

Dalrymple (1993) develops a lexical approach to syntactic binding in which binding domains are defined in terms of a small number of core, non-configurational, notions. These binding domains are the root domain, the minimal finite domain, the minimal complete nucleus and the co-argument

domain. Within this approach, anaphoric elements are lexically associated with constraints which specify the domains within which they must be bound or disjoint: these constraints make reference to f-structural, rather than c-structural, notions.

The Welsh reflexive pronoun, when subject to syntactic binding, appears to be subject to binding within the minimal complete nucleus (that is, the anaphor finds its antecedent within the minimal f-structure containing a PRED and a SUBJECT argument). This constraint is formulated in the framework of Dalrymple (1993) by means of an inside-out equation

(89)   *Minimal Complete Nucleus Condition*
       $((\text{DomainPath GF} \uparrow) \text{ AntecedentPath })_\sigma = \uparrow_\sigma$
       $\neg \ (\rightarrow \text{SUBJ})$

The f-structure denoted by (DomainPath GF $\uparrow$) contains both the antecedent (pointed to by the path AntecedentPath) and the anaphor ($\uparrow$). The off-path constraint $\neg \ (\rightarrow \text{SUBJ})$ on DomainPath should be read as saying that the f-structure which is the value of DomainPath may not contain a SUBJ. This means that the anaphor must be bound within the closest f-structure containing a SUBJ:[22]

The accessibility of the possesor NP to an antecedent outside the NP raises a number of interesting issues. Unless something more is said, the Minimal Complete Nucleus Condition, as formulated above (e.g., for English *himself*) would rule out the data in (26), for the anaphor may be bound outside the minimal domain containing a subject, just in case *it is* the subject (further superiority conditions ruling out the possibility of one of its co-arguments serving as antecedent).

One possibility is that the possessor NP position is in fact an exempt position in the sense of Pollard and Sag (1994), who argue that least oblique arguments are exempt from syntactic binding. They propose that the English *self* reflexive is subject to discourse point of view constraints governing its appearance in exempt positions. Dalrymple shows however that such a simple position, which effectively equates long-distance anaphora with exemption from syntactic binding constraints, cannot be generally maintained. An alternative possibility is that the MCN constraint is expressed disjunctively as requiring an anaphor to be bound within the minimal complete nucleus containing a SUBJ distinct from itself. Technically, this can be achieved by replacing the constraint above the following disjunctive statement, one for the case in which the anaphor appears in subject position (and the bottom of the path is specified as GF SUBJ $\uparrow$) and one for the

---

[22]The off-path constraint specifies that no f-structure in DomainPath may have a value which has a SUBJ attribute.

case when it is not a subject (and the bottom of the path is specified as any GF except SUBJ, GF-SUBJ ↑) — as is standard, we take POSS to be a SUBJective function.

(90) *Minimal Complete Nucleus: ei hun*
     ((DomainPath {GF-SUBJ | GF SUBJ } ↑) AntecedentPath)$_\sigma$ = ↑$_\sigma$
     ¬ (→ SUBJ)

The behaviour of anaphors in non-finite embedded subject position is consistent with this formulation:[23]

(91) Disgwyliodd y   merched i'w   gilydd warchod y   plant.
     expect.PT   the women for-3s other watch   the children
     'The women expected each other to watch the children.'
     (Hendrick 1988:56)

Since much further work must be done on the question of the domain of syntactic binding (and the notion of exempt anaphor) in Welsh, as well as the question of what specific constraints hold in picture noun phrases in Welsh, I leave this in this somewhat speculative condition. The important point which has been established is that the binding facts, as they appear to be, are equally consistent with the sort of structural assumptions being proposed here, given that there are well worked-out alternatives to a configurational binding theory.

Note further that, given his commitment to a configurational binding theory, Rouveret (1994) must interpret the binding asymmetries between PPs as evidence in favour of structural asymmetries, as shown in (30) and (31) above, in which a leftward *gan*-PP is assumed to occupy the [Spec,NP] position. I have shown above that this is problematic. There are, of course, alternatives to a structural account of the observed asymmetry: the fact that, irrespective of word order, a *gan*-PP can serve as antedent for an anaphoric *o*-PP may suggest some form of thematic superiority. Again, Dalrymple (1993) shows that in some languages, antecedency within the group of OBLique functions is determined by the thematic hierarchy (while all direct functions are superior to OBLique functions).

(92) Mary talked to John$_{goal}$ about himself$_{theme}$
     mary talked about John$_{theme}$ to himself$_{goal}$

Although I have not provided a fully articulated account of syntactic binding conditions in Welsh, the present section should serve to show
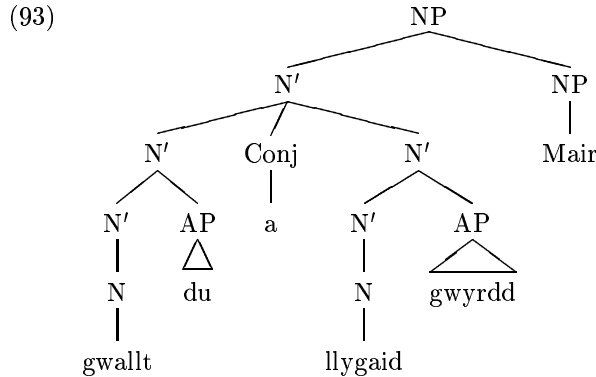
---

[23]The behaviour of anaphors in subject position is subject to some dialectal variation — see Hendrick 1988 for some discussion.

that there are several alternatives to a configurational theory of syntactic binding of the sort assumed by Rouveret (1994), and hence to the configurational assumptions that he makes.

4.5.4 Coordinate Structures

Finally, it should be noted that this analysis extends gracefully to the coordination data which were problematic for the head movement account. The coordination of head nouns, and of N-AP constructions, is straightforwardly captured as coordination at the level of N′.

(93)

```
                              NP
                          ／       ＼
                       N′              NP
                    ／    ＼              |
                 N′    Conj    N′        Mair
               ／  ＼    |    ／  ＼
             N′   AP   a   N′    AP
             |    △       |    △
             N    du      N    gwyrdd
             |            |
          gwallt        llygaid
```

Moreover, recall that a coordinate possessor must show definiteness agreement between the conjuncts, although coordinate NPs in Welsh are not generally subject to this restriction. The present account predicts that this will be the case. We have argued that the [Spec,NP] node (where possessor NPs appear) is associated with the annotation $(\uparrow \text{DEF}) = (\downarrow \text{DEF})$. Under the LFG analysis of coordination, features which hold of an f-structure which is a set distribute to the members of that set, with the consequence that in just this environment, coordinated NPs are required to share the same definiteness value.

4.6 Conclusion

This paper has argued against the head movement analysis of Welsh noun phrase structure, and has provided an alternative analysis compatible with the approach to internal and external configurational structure outlined in Bresnan 2000. We hold that functional categories must be motivated by clear morphosyntactic properties, and have argued that no such properties define Celtic nouns, and therefore that they should not be associated with a functional Num projection. Furthermore, several of the key stipulations required in the head movement account are problematic. The complemen-

tarity of possessors and determiners relies on postulating an abstract [+Det] feature on possessors, but the precise status of this feature is very unclear, and, unlike the lexicalist account presented here, the analysis cannot extend to cover cases where this complementarity breaks down. The alternation between the bare NP possessor and a *gan*-PP likewise follows from the postulation of a wholly abstract (and, presumably, unlearnable) genitive feature, while this alternation follows from alternative lexical specifications in the LFG account. In addition, we have discussed several empirical difficulties for the head movement account of Rouveret (1994) which lead us to prefer the LFG analysis presented here. The head movement account incorrectly predicts that prenominal adjectives will precede prenominal numerals, cannot straightforwardly account for the structural position of the PP part of complex numerals, which intervenes between N and possessor phrase in a manner incompatible with the structural assumptions, and must associate implausible structures with standard coordinate NPs in which possessor phrases have scope over coordinated Ns and N-Adj combinations. The account which eschews head movement suffers none of these difficulties.

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