On a family of Welsh constructions

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Abstract

Research on unbounded dependency constructions (UDCs) has focused mainly on the properties that are shared by all UDCs, but a satisfactory theory of syntax also needs to capture the properties that distinguish specific UDCs and the properties that are shared by some but not all of them. Three Welsh unbounded dependency constructions – *wh*-interrogatives, free relatives, and cleft sentences – are of interest here because they show a challenging array of similarities and the differences. However, given a slightly expanded hierarchy of phrase types, HPSG can capture both the similarities and the differences in this area.

1. Introduction

A satisfactory theory of syntax needs to be able to capture the properties that are shared by all members of a family of related constructions, but it also needs to be able to deal with the properties that distinguish specific members of the family and the properties that are shared by a subset of them. Particularly interesting in this context are unbounded dependency constructions (UDCs), which have been a major focus of research since Ross (1967) and Chomsky (1977). Research into these constructions has naturally concentrated on their shared properties, especially island phenomena, and, in some languages, resumptive pronouns. However, it is also necessary to capture the properties of specific UDCs and the properties that characterize some but not all of them. Building on Sag (1997) and Ginzburg and Sag (2000), Sag (2010) shows how an appropriate hierarchy of phrase types allows this to be done within HPSG. In this paper, I will look at three Welsh UDCs, which show a challenging array of similarities and the differences: *wh*-interrogatives, free relatives, and what I will call cleft sentences (although they are superficially rather different from English cleft sentences). I will show that it is not difficult, given a slightly expanded hierarchy of phrase types, to capture the properties which they all have, the properties which two of them have, and the properties which distinguish each from the other two.

The paper is organized as follows. In section 2, I outline the basic facts of the three Welsh UDCs. Then, in section 3, I consider the analytic issues in a preliminary way. Building on this in section 4, I set out basic HPSG analyses for the constructions, and then in section 5, I propose a system of types

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and constraints, which license just the right structures and capture both the similarities and differences among the three constructions. Finally, in section 6, I summarize the paper.

2. Basic data

In this section I will outline the main properties of Welsh *wh*-interrogatives, free relatives, and clefts. They share certain properties. However, they also differ in important and interesting ways.

We can deal with *wh*-interrogatives fairly briefly. They are rather like their counterparts in English and many other languages and involve an initial *wh*-phrase and a following gap, as in (1a), or a resumptive pronoun, as in (1b):[1]

(1) a. Pwy weloch chi?
who see.PAST.2PL you.PL
'Who did you see?'
b. Pa ddynion cytunodd Gwyn â nhw?
Which men agree.PAST.3SG Gwyn with them
'Which men did Gwyn agree with?'

The verb precedes the subject in these examples because Welsh is a VSO language with verb-subject order in all finite clauses. Like their English counterparts, *wh*-interrogatives allow a variety of *wh*-phrases, but, as we would expect, the nature of the *wh*-phrase has no influence on their distribution. A *wh*-interrogative with an adverbial *wh*-phrase has the same distribution as a *wh*-interrogative with a nominal *wh*-phrase:

(2) Gofynodd Gwyn [beth naeth Megan].
ask.PAST.3SG Gwyn what do.PAST.3SG Megan
'Gwyn asked what Megan did.'
(3) Gofynodd Gwyn [lle aeth Megan].
ask.PAST.3SG Gwyn where go.PAST.3SG Megan
'Gwyn asked where Megan went.':

They may be finite, as in (1)–(3), or non-finite, as in (4):

(4) Gofynnodd Gwyn [pa lyfr i 'w ddarllen]
ask.PAST.3SG Gwyn which book to 3SGM read
'Gwyn asked which book to read.'

[1] Roughly gaps appear in more accessible positions and resumptive pronouns in less accessible positions. See Borsley, Tallerman and Willis (2007: chapter 4) for discussion, and Borsley (2013) for an HPSG analysis.

Free relatives are also rather like their English counterparts with a *wh*-word and optionally the element *bynnag* ‘ever’, and a following gap or a resumptive pronoun:

(5) a. Naeth Gwyn [beth (bynnag) naeth Megan].
do.PAST.3SG Gwyn what ever do.PAST.3SG Megan
‘Gwyn did what(ever) Megan did.’

b. Mae o ’n gwneud ffrindiau da efo [pwy
be.PRES.3SG he PROG make friends good with who
(bynnag) mae o ’n gweithio efo nhw].
ever be.PRES.3SG he PROG work with them
‘He makes good friends with whoever he works with.’

The initial constituent may be nominal, as in the examples in (5), or adverbial, as in (6):

(6) Aeth Gwyn [lle (bynnag) aeth Megan].
go. PAST.3SG Gwyn where ever go.PAST.3SG Megan
‘Gwyn went where(ever) Megan went.’

The distribution of free relatives depends on the nature of the initial constituent. A free relative with a nominal initial constituent can only appear in positions where nominal constituents appear, and a free relative with an adverbial initial constituent can only appear in positions where adverbial constituents appear. Thus, the free relatives in (5a) and (6) are not interchangeable:

(7) *Naeth Gwyn [lle (bynnag) aeth Megan].
do.PAST.3SG Gwyn where ever go.PAST.3SG Megan
(8) *Aeth Gwyn [beth (bynnag) naeth Megan].
go.PAST.3SG Gwyn what ever do.PAST.3SG Megan

This makes the initial constituent look like a head. It also has the main properties of the gap like a filler. It is nominal if the gap is nominal and adverbial if the gap is adverbial. Thus, it looks likes both a head and a filler. Unlike *wh*-interrogatives, free relatives are always finite:

(9) *Naeth Gwyn [beth (bynnag) i ’w neud].
do.PAST.3SG Gwyn what ever to 3SGM do

For the sake of completeness, we should note that Welsh also has constituents which look like free relatives with *bynnag* but which are in fact something else. Consider, for example, the following:

(10) Naeth Gwyn ei waith, [beth bynnag naeth
do.PAST.3SG Gwyn 3SGM work what ever do.PAST.3SG
Megan].
Megan
'Gwyn did his work, whatever Megan did.'

Free relatives with *bynnag* can be paraphrased with *unrhyw* 'any'. Thus, the following are paraphrases of the versions of (5a) and (6) with *bynnag*:

(11) a. Naeth Gwyn [unrhyw beth naeth Megan].
do.PAST.3SG Gwyn any thing do.PAST.3SG Megan
'Gwyn did anything Megan did.'
b. Aeth Gwyn [unrhyw lle aeth Megan].
go. PAST.3SG Gwyn any where go.PAST.3SG Megan
'Gwyn went anywhere Megan went.'

(10) cannot be paraphrased in this way:

(12) *Naeth Gwyn ei waith, [unrhyw beth naeth
do.PAST.3SG Gwyn 3SGM work any thing do.PAST.3SG
Megan].
Megan

However, a different type of paraphrase is available:

(13) Naeth Gwyn ei waith, [dim ots beth naeth
do.PAST.3SG Gwyn 3SGM work no odds what do.PAST.3SG
Megan].
Megan
'Gwyn did his work, no matter what Megan did.'

(10) is what the literature on English has called an exhaustive conditional (Huddleston and Pullum 2002: 761-5, 985-91, Arnold and Borsley 2014) or an unconditional (Rawlins 2008, 2013), and like its English counterparts, it appears to be a type of interrogative. I will not offer an analysis of this construction here.

Finally, we turn to cleft sentences. They involve a clause-initial focused constituent and a following gap or a resumptive pronoun.[2]

(14) a. Y dynion welodd ddraig.
the men see.PAST.3SG dragon
'It's the men that saw a dragon.'

[2] This discussion of clefts is largely based on that in Borsley (2015: section 2).

b. Y dynion cytunodd Gwyn â nhw.
the men agree.PAST.3SG Gwyn with them
'It's the men that Gwyn agreed with.'

They look rather like *wh*-interrogatives. This led Tallerman (1996) to propose a transformational analysis in which the initial constituent is the result of movement to Spec CP just like the initial *wh*-phrase in a *wh*-interrogative. However, there is evidence that the initial constituent in a cleft is not a filler. Unlike a filler, it may differ from the gap in important ways.

Firstly, the gap is third person, even when the initial constituent is first or second person. Thus, the examples in (15) have a third person verb form and not the first and second person forms, which appear in the examples in (16):[3]

(15) a. Fi welodd / *welais ddraig.
I see.PAST.3SG see.PAST.1SG dragon
'It was I that saw a dragon.'
b. Ti welodd / *welaist ddraig.
you.SG see.PAST.3SG see.PAST.2SG dragon
'It was you(SG) that saw a dragon.'

(16) a. Gwelais i ddraig.
see.PAST.1SG I dragon
'I saw a dragon.'
b. Gwelaist ti ddraig.
see.PAST.2SG you.SG dragon
'You(SG) saw a dragon.'

Secondly, the gap behaves like a non-pronominal NP, even when the initial constituent is a ponoun. Welsh verbs agree with a pronominal subject but not with a non-pronominal subject. The following illustrate agreement with a following pronominal subject:

(17) a. Gwelodd o.
see.PAST.3SG he
'He saw.'
b. Gwelon nhw.
see.PAST.3PL he
'They saw.'

With a following non-pronominal subject, singular or plural, the third person singular form, which is a default form, appears:[4]

[3] The verbs in (15) lack the initial *g-* as a result of so-called soft mutation, but this is not important in the present context.

[4] For detailed discussion and an analysis of Welsh agreement, see Borsley (2009).

(18) a. Gwelodd y bachgen.
see.PAST.3SG the boy
'The boy saw.'
b. Gwelodd / *Gwelon y bechgyn.
see.PAST.3SG see.PAST.3PL the boys
'The boys saw.'

In a cleft sentence where the initial constituent is understood as a subject, the finite verb is singular**,** whether the initial constituent is pronominal or non-pronominal:

(19) a. Nhw welodd / *welon ddraig.
they see.PAST.3SG see.PAST.3PL dragon
'It was they that saw a dragon.'
b. Y bechgyn welodd / *welon ddraig.
the boys see.PAST.3SG see.PAST.3PL dragon
'It was the boys that saw a dragon.'

It looks, then, as if the gap is non-pronominal, whatever the nature of the associated initial constituent.

Cleft sentences are always finite. This is naturally the case when they are main clauses. But they can also appear as subordinate clauses introduced by a special complementizer *mai* (or *ai* if interrogative), and they are also finite in this situation:

(20) a. Dywedodd Gwyn [mai llyfr (a) ddarllenodd Megan.
say.PAST.3SG Gwyn that book PRT read.PAST.3SG Megan
'Gwyn said that it was a book that Megan read.'
b. *Dywedodd Gwyn [mai llyfr i 'w ddarllen].
say.PAST.3SG Gwyn that book to 3SGM read

Thus, the three constructions are similar in some ways but also show important differences. A satisfactory analysis needs to accomodate both the similarities and the differences.

3. Towards an analysis

We will now consider in a preliminary way what sort of analyses are appropriate for the three constructions. We can deal with *wh*-interrogatives very briefly. Free relatives and clefts require a lengthier discussion.

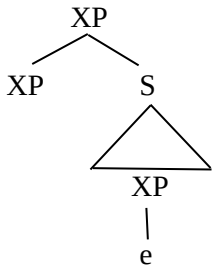
As we have noted, Welsh *wh*-interrogatives are a lot like their counterparts in English and many other languages. They can be analyed in essentially the

same way. Within HPSG, this means that they are fairly ordinary head-filler-phrases.

Turning to free relatives, we have seen that the initial constituent behaves like both a head and a filler. In work on English free relatives, it has commonly been assumed either that it is a head and not a filler or that it is a filler and not a head. Both positions have their drawbacks.

The position that the initial constituent is a head and not a filler goes back at least to Bresnan and Grimshaw (1978). It involves structures of the following form, where XP can be at least NP (or DP in some frameworks) or AdvP:

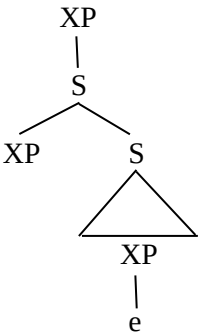
(21)



The drawback of this approach is that it cannot attribute the property sharing between the initial constituent and the gap to the mechanism that is responsible for property sharing between a filler and a gap because the initial constituent is not a filler. Hence, it needs some other mechanism for this purpose. It would not be difficult to provide a mechanism within HPSG, but the fact remains that this would not be necessary if the initial constituent were a filler.[5]

The position that the initial constituent is a filler and not a head was developed by Groos and van Riemsdijk (1981) and Grosu (2003) among others. It involves structures of the following form:

(22)



[5] In a transformational framework, this approach might involve an empty filler (a so-called 'empty operator'). This necessitates a mechanism to ensure that this empty filler shares properties with the preceding head.

Since the initial constituent is a filler, there is no problem about it sharing properties with the gap, but some mechanism is required to ensure that it shares properties with the construction, and this is non-trivial given that the the initial constituent is not a daughter of the construction. In his HPSG analysis of German free relatives, Müller (1999: 94) introduces a special feature RP-HEAD to make information about the initial constituent available in the mother node. This will probably work, but no such feature would be necessary if the initial constituent was a head.[6]

The alternative to these analyses is an analysis in which the initial constituent is both a head and filler, as it appears to be. An analysis of this kind was proposed in Payne, Huddleston, and Pullum (2007: 1.1), and also in Huddleston and Pullum (2002: 1073), and in Citko (2008) within a transformational framework.

In English, certain types of example are problematic for a simple version of this approach. Consider, for example, the following from Wright and Kathol (2002: 374), where both the free relative and its initial constituent are bracketed:

(23) [[Whoever's dogs] are running around in the garden] is in big trouble.

Here, the free relative is singular, but the initial constituent is plural. Rather similar is the following from Grosu (2003: 254):

(24) I will fire [[whoever's signature] appears on this list].

Here, *whoever's signature appears on this list* is understood as *the person whose signature appears on this list*. Examples like (23) and (24) are problematic for the idea that the initial constituent is a head if head and mother must have exactly the same properties. However, there appear to be no Welsh examples like these. As (25) shows, a Welsh sentence resembling (23) means that the dogs are in big trouble, not the owner.

(25) Mae cwn pwy bynnag sy 'n rhedeg
be.PRES.3SG dog who ever be.PRES.3SG PRED run
o gwmpas yn yr ardd mewn trwbl.
around in the garden in trouble
'Whoever's dogs are running around in the garden are in big trouble.'

Similarly, as (26) shows, a Welsh sentence resembling (24) refers to sacking the name, and not the person:

[6] In a transformational framework, this approach might involve an empty head. This requires a mechanism to ensure that this empty head shares properties with the following filler.

(26) Mi na' i roi 'r sac i enw pwy bynnag
PRT do.FUT.1SG I give the sack to name who ever
sydd ar y rhestr.
be.PRES.3SG on the list
'I will fire the name of whoever is on the list.'

Thus, at least in Welsh, an analysis of free relatives in which the initial constituent is both a head and a filler seems the obvious approach.[7]

Turning to clefts, we have seen that the facts suggest that the initial constituent is not a filler. In fact, they suggest that it is not even coindexed with the gap/resumptive pronoun since coindexed elements, e.g. a pronoun and its antecedent, normally have the same person features. Interestingly, the kind of person mismatch that we have in Welsh clefts is also found in English clefts. Consider e.g. the following from Akmajian (1970:150):

(27) It's me who *is* responsible.

Such examples are no problem if we assume that they involve an identity predication since there is no requirement of person identity in identity predications, as the following show:

(28) a. I am the teacher.
b. You are the teacher.

I want to suggest that Welsh clefts are rather like their English counterparts. That is, they involve an identity predication, but one that is associated with the construction and not with any lexical item. In Welsh, as in English, there is no requirement of person identity in identity predications:[8]

(29) a Yr athro ydw i.
the teacher be.PRES.1SG I
'I am the teacher.'
b Yr athro wyt ti.
the teacher be.PRES.2SG you.SG
'You are the teacher.'

[7] Examples like (23) and (24) may be no problem for the idea that the initial constituent is a head within HPSG if one assumes with Ginzburg and Sag (2000: 33) that head and mother have the same syntactic and semantic properties by default but may differ in certain ways if some constraint requires it. But this assumption seems unnecessary in Welsh.

[8] These examples show an unusual word order, but this is not important in the present context. See Borsley (2015: section 3) and especially Borsley (2019: section 6) for disussion.

Some evidence for this approach comes from examples like the following (where *nid* is more formal Welsh, and *dim* more colloquial Welsh):

(30) Nid/dim nhw welodd ddraig.
NEG they see.PAST.3SG dragon
'It wasn't they that saw a dragon.'

Here, it seems that it is the hidden identity predication that is negated. This type of negation is not possible in a *wh*-interrogative. Thus, the following cannot be a *wh*-interrogative, but can only be an echo question based on a cleft:

(31) Nid/dim pwy welodd ddraig?
NEG who see.PAST.3SG dragon
'It wasn't who that saw a dragon?'

It seems then, that the idea that Welsh clefts involve a hidden identity predication is quite well motivated.

Middle Welsh is relevant here. Meelen (2016: 119) notes that early Middle Welsh clefts looked a lot like their Modern English counterparts wth a form of the copula preceding the focused constituent.[9] Here is a relevant example:

(32) Ys mi a 'e heirch.
be.PRES.1SG me PRT 3SGF seek.3SG
'It is me who seeks her'

Thus, in early Middle Welsh, as in English, the identity interpretation could be attributed to a lexical element. Now, however, it must be attributed to the construction.

Having looked more closely at the three constructions, we have the following basic conclusions about their properties:

- *Wh*-interrogatives are head-filler-phrases, in which a phrase which is a filler is followed by a clause containing a gap or a resumption ponoun, and the clause is a head.
- Free relatives are phrases in which a phrase which is a filler is followed by clause containing a gap or a resumption ponoun, but the filler and not the clause is a head.
- Clefts are clauses in which the initial constituent is followed by a clause containing a gap or a resumption ponoun, and the clause is a head, but the initial constituent is not a filler but one term of a hidden identity predication.

[9] The complementizers *mai* and *ai*, mentioned in section 2, derive from forms of the copula.

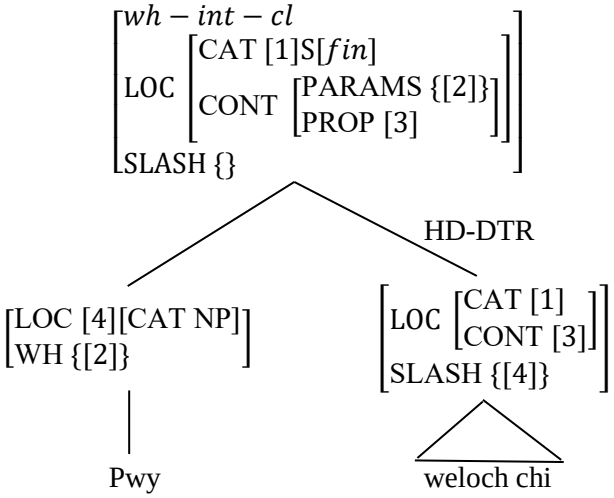
In the next section, I will outline some basic HPSG analyses incorporating these conclusions.

4. Basic HPSG analyses

Welsh *wh*-interrogatives can be analyed in essentially the same way as their English counterparts. Free relatives can be analyed as involving an initial constituent which is both a filler and a head. For clefts we need an analysis in which the initial constituent is not a filler and the two constituents are the two terms of an identity predication.

Assuming the general approach to *wh*-interrogatives developed in Ginzburg and Sag (2000: chapter 4), we can propose an analysis of the following form for (1):[10]

(33)



Here, the first daughter is a filler with a local feature structure which appears in the SLASH value of the second daughter, and the second daughter is a head. The semantic analysis is that developed in Ginzburg and Sag.

For free relatives, Payne, Huddleston, and Pullum (2007: 1.1) capture the dual nature of the initial constituent by proposing an analysis in which it has two mothers. For the example in (5a), this would mean the following structure:

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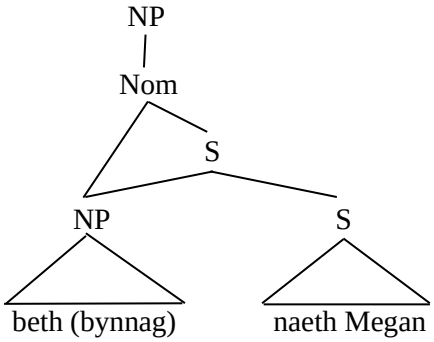
[10] Here and subsequently, I use NP and S[*fin*] as abbreviations as follows:

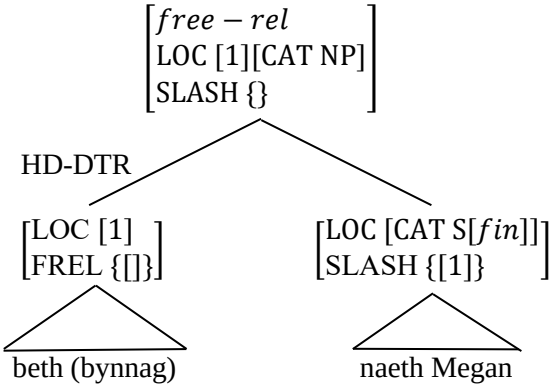
(i) NP = $\begin{bmatrix} cat \\ \text{HEAD } noun \\ \text{SUBJ } <> \\ \text{COMPS } <> \end{bmatrix}$ S[*fin*] = $\begin{bmatrix} cat \\ \text{HEAD } \begin{bmatrix} v \\ \text{VFORM } fin \end{bmatrix} \\ \text{SUBJ } <> \\ \text{COMPS } <> \end{bmatrix}$

(34)



Essentially, the initial constituent is a head because it is a daughter of Nom and a filler because it is a daughter of S. It would be not be easy to implement such an analysis in HPSG. But there is no need to. Within HPSG, the initial constituent can be a head and a filler without having two mothers. (5a) can have the following structure:

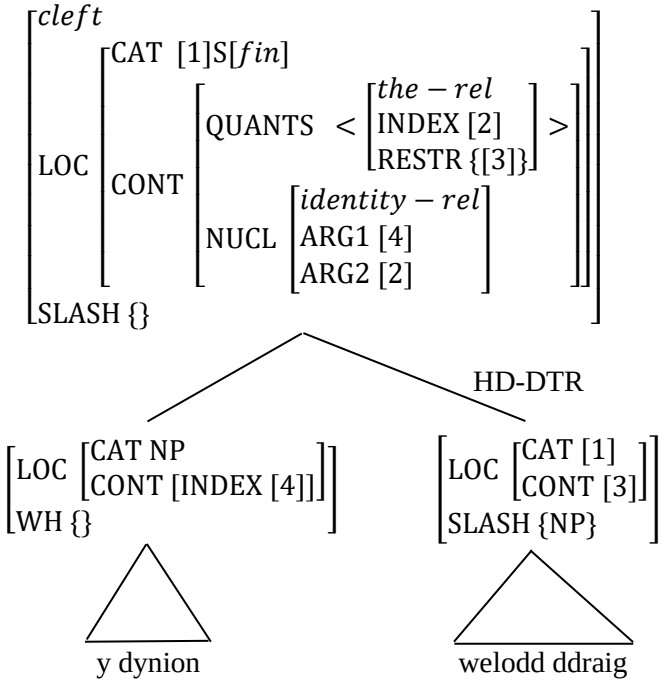
(35)



Here, the first daughter is both a filler and a head. I ignore CONTENT values, but any semantic analysis of free relatives could be included here.

Turning finally to cleft sentences, we can propose the structure in (36) for the example in (14a). Here, the first daughter is a not a filler since its local feature structure does not appear in the SLASH value of the second daughter, but the second daughter is a head, as in (34). The CONTENT value of the mother makes it clear that the second daughter is interpreted as a definite description and identified with the first daughter.

(36)



5. Types and constraints

We now need to develop a system of phrase types and associated constraints which license just the right structures and capture both the similarities and differences among the three constructions.

The main facts about the three constructions are summarized in the following table:

	First daughter		Second daughter	
	Filler	Head	Contains gap/RP	Head
Wh-interrogatives	✓	x	✓	✓
Free relatives	✓	✓	✓	x
Clefts	x	x	✓	✓

Table 1: Properties of the two daughters

We see here the following similarities:

- All three constructions have a gap or resumptive pronoun within the second daughter, whether the second daughter is a head or not.

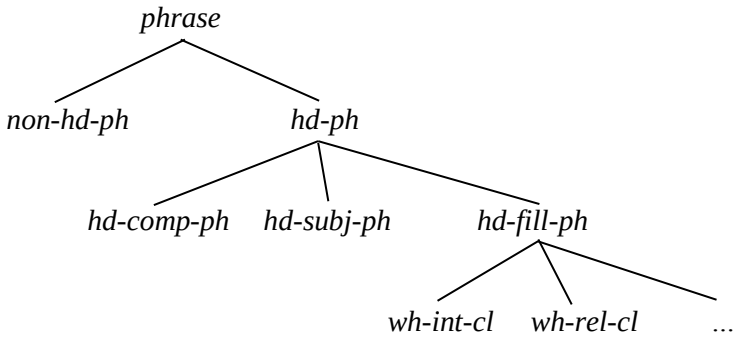
- *Wh*-interrogatives and free relatives are similar in having a first daughter which is a filler.

- *Wh*-interrogatives and clefts are similar in having a second daughter which is a head.

A satisfactory analysis needs to capture these similarities.

To see what is necessary, we can consider the following fairly standard system of phrase types, in which head-filler-phrase is one of a number of subtypes of headed-phrase:

(37)



To accommodate free relatives and clefts, we need *free-relative* and *cleft-clause* types. We might add these as further subtypes of *headed-phrase* with constraints imposing the properties seen in (35) and (36). This would license the right structures, but it would miss the similarities that we have identified. We need something more complex. We can capture the facts if we postulate a type *slashed-daughter-phrase* with subtypes *filler-phrase* and *slashed-head-phrase* giving the system in (38). Ignoring *hd-comp-ph* and *hd-subj-ph*, there are four maximal types here, one for each of the constructions that we are focusing on, and one for *wh*-relative-clauses, which we have not discussed.[11] All four constructions are instances of the type *slashed-daughter-phrase*, and their shared properties can be expressed as a constraint on this type. Clefts and head-filler-phrases are subtypes of the type *slashed-head-phrase*, while head-filler-phrases and free relatives are subtypes of the type *filler-phrase*. Hence,

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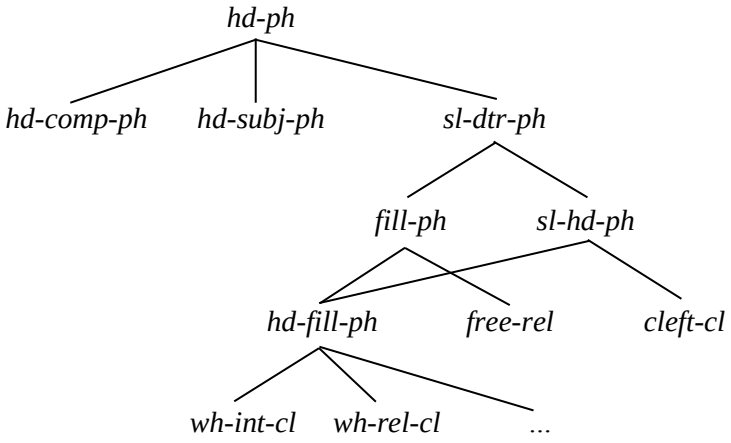
[11] Most Welsh relative clauses are not *wh*-relatives and not head-filler phrases. However, Welsh has relative clauses with the *wh*-words *lle* 'where' and *pam* 'why' as fillers. The following from Borsley, Tallerman and Willis (2007: chapter 4) illustrates the first of these:

(i) yr ardal lle gafodd ei fagu
the district where get.PAST.3SG 3SGM raise
'the district where he was brought up'

we have a basis for capturing both the similarities between clefts and *wh*-interrogatives and the similarities between *wh*-interrogatives and free relatives.

(38)



The most basic constraint that we need is the following constraint on slashed-daughter-phrases:

(39) *sl-dtr-ph* $\Rightarrow \begin{bmatrix} \text{SS}\,[\text{SLASH}\,[1]] \\ \text{DTRS} < [phrase], \begin{bmatrix} clause \\ \text{SS|SLASH}\,\{[local]\} \cup [1] \end{bmatrix} > \end{bmatrix}$

This says that a slashed-daughter-phrase has some value for SLASH and that it has two daughters, the first a phrase and the second a clause whose SLASH value is the union of the SLASH value of the phrase and a set containing a single local feature structure. [1] will normally be the empty set, but when there is extraction from one of these constructions it will be non-empty. Crucially, the constraint does not say which daughter is the head and does not impose any restrictions on the first daughter except that it is a phrase. In particular, it does not require it to be a filler. It captures the properties that the three constructions have in common.

For filler-phrases, we need a constraint identifying the first daughter as a filler with a local feature structure which appears in the SLASH value of the second daughter. The following constraint does this:

(40) *fill-ph* $\Rightarrow$ [DTRS $<$ [SS[LOC [1]]], [SS[SLASH $\{[1]\} \cup set$]] $>$]

It captures what *wh*-interrogatives and free relatives have in common.

Finally, for slashed-head-phrases, we need a constraint requiring the second daughter to be a head. The following, simple constraint does this:

(41) *sl-hd-ph* $\Rightarrow \begin{bmatrix} \text{HD-DTR [1]} \\ \text{DTRS} < [], [1][] > \end{bmatrix}$

It captures what *wh*-interrogatives and clefts have in common.

Head-filler-phrases are subject to all these constraints, and thus have the following properties:

(42) $\begin{bmatrix} \text{SLASH [1]} \\ \text{DTRS} < \begin{bmatrix} phrase \\ \text{SS[LOC [2]]} \end{bmatrix}, [3] \begin{bmatrix} clause \\ \text{SS[SLASH } \{[2]\} \cup [1]] \end{bmatrix} > \\ \text{HD-DTR [3]} \end{bmatrix}$

Free relatives are subject to the constraints in (39) and (40), and thus have the properties in (43):

(43) $\begin{bmatrix} \text{SS} \left[\text{SLASH [1]}\right] \\ \text{DTRS} < \begin{bmatrix} phrase \\ \text{SS[LOC [2]]} \end{bmatrix}, \begin{bmatrix} clause \\ \text{SS|SLASH } \{[2]\} \cup [1] \end{bmatrix} > \end{bmatrix}$

Clefts are subject to the constraints in (39) and (41), and hence have the properties in (44):

(44) $\begin{bmatrix} \text{SS} \left[\text{SLASH [1]}\right] \\ \text{DTRS} < [phrase], [2] \begin{bmatrix} clause \\ \text{SS|SLASH } \{[local]\} \cup [1] \end{bmatrix} > \\ \text{HD-DTR [2]} \end{bmatrix}$

There seems to be no need for any special constraint on head-filler-phrases since their properties follow from constraints on supertypes, but each of the three constructions that we are concerned with requires a constraint to account for its distinctive properties. For *wh*-interrogatives, we can propose the following:

(45) *wh-int-cl* $\Rightarrow \begin{bmatrix} \text{SS|LOC|CONT} \begin{bmatrix} \text{PARAMS } \{[1]\} \cup set \\ \text{PROP [2]} \end{bmatrix} \\ \text{DTRS} < [\text{WH } \{[1]\}], \left[\text{CONT [2]}\right] > \end{bmatrix}$

This ensures that the the first daughter is an interrogative *wh*-phrase and that the clause has the appropriate interrogative semantics. It essentially combines two of Ginzburg and Sag's constraints, the Filler Inclusion Constraint and the Propositional Head Constraint (Ginzburg and Sag 2000: 228-9). There is no need to specify here that the first daughter is a filler and the second a head with

a non-empty SLASH value since these properties are a consequence of (39), (40), and (41).

For free relatives, we can propose the following constraint:

(46) *free-rel* $\Rightarrow$

$$\begin{bmatrix} \text{DTRS} < [1][\text{SS|FREL}\,\{[]\}], [\text{SS|LOC|CAT|HEAD|VFORM}\ fin] > \\ \text{HD}-\text{DTR}\,[1] \end{bmatrix}$$

This ensures that the first daughter is a free relative *wh*-phrase and a head, and that the second daughter is finite. There is no need to specify that the first daughter is a filler and that the second has a non-empty SLASH value since these properties follow from (39) and (40). An appropriate semantic analysis could be added to this.

Finally, for clefts, we can propose the following, rather more complex constraint:

(47) *cleft* $\Rightarrow$

$$\begin{bmatrix} \text{SS|LOC} \begin{bmatrix} \text{CONT} \begin{bmatrix} \text{QUANTS} < \begin{bmatrix} the-rel \\ \text{INDEX}\,[1] \\ \text{RESTR}\,\{[2]\} \end{bmatrix} > \oplus \text{L} \\ \text{NUCL} \begin{bmatrix} identity-rel \\ \text{ARG1}\,[3] \\ \text{ARG2}\,[1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{DTRS} < \left[\text{SS|LOC|CONT}\left[\text{INDEX}\,[3]\right]\right], \\ \qquad \left[\text{SS}\left[\text{LOC}\begin{bmatrix} \text{CAT|HEAD|VFORM}\ fin \\ \text{CONT}\,[2] \end{bmatrix}\right]\right] > \end{bmatrix}$$

This ensures that the two daughters are interpreted as the two terms of an identity predication and that the second daughter is finite. There is no need to specify that the second daughter has a non-empty SLASH value and is a head since these properties follow from (39) and (41).

Two further questions arise about clefts. We have seen that the initial constituent can differ from the gap both in person and in whatever features distinguish pronouns and non-pronominal NPs. However, it is not the case that there is no relation between the initial constituent and the gap. It seems in fact that the initial constituent and the gap must be of the same category. Thus, the (a) examples in following, where filler and gap are the same category, are grammatical, but not the (b) examples where they are different categories.

(48) a. Y ferch soniodd Gwyn amdani.
the girl talk.PAST.3SG Gwyn about.3SGF
'It's the girl that Gwyn talked about.'

b. *Am y ferch soniodd Gwyn amdani.
about the girl talk.PAST.3SG Gwyn about.3SGF

(49) a. Am y ferch soniodd Gwyn.
about the girl talk.PAST.3SG Gwyn
'It's about the girl that Gwyn talked.'

b. *Y ferch soniodd Gwyn.
the girl talk.PAST.3SG Gwyn

It seems likely that this is an automatic consequence of the nature of the identity relation. However, if it is not, it would not be difficult to add a stipulation to the constraint on clefts to ensure the identity.

A further important fact about clefts is that in embedded clauses they are introduced by special complementizers, *mai* if declarative or *ai* if interrogative. These complementizers do not appear with simple, verb-initial clauses. This suggests that cleft sentences should have some feature which distinguishes them from simple, verb-initial clauses. Alternatively, it could be that *mai* and *ai* are heads that take two complements which, like the two daughters in a cleft clause, are interpreted as the two terms of an identity predication. This would entail that clefts are really confined to main clauses and they would need to be marked as [ROOT+] or something equivalent. I will not try to decide which of these approaches should be preferred.

There are some lose ends here, but I have now developed a fairly full analysis of the three Welsh UDCs, which captures both the similarities and differences among the three constructions.

6. Concluding remarks

In the preceding pages, I have investigated the properties of three Welsh UDCs: *wh*-interrogatives, free relatives, and clefts, and I have sought to develop an analysis which captures both the similarities and the differences in this area. I have shown that an analysis of the constructions with a type *slashed-daughter-phrase* with subtypes *filler-phrase* and *slashed-head-phrase* can capture the properties that they all have, the properties that just two of them have, and their distinctive properties. There are of course other Welsh UDCs, e.g. relative clauses mentioned in fn.8, and exhaustive conditionals, discussed briefly in section 2. But they pose no obvious problems, and it should not be difficult to extend the basic approach adopted here to accommodate them. Thus, there is further evidence here that HPSG with its system of types and constraints is well equipped to capture the similarities and differences in families of related constructions.

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