ON A FAMILY OF WELSH CONSTRUCTIONS

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1. Introduction

At least since Chomsky (1977), it has been clear that languages often have a large set of unbounded dependency constructions (UDCs) with a number of shared properties. A satisfactory theory of syntax needs to be able to capture these properties, and they have been a central focus of research in syntax. But theories also need to be able to capture the properties which distinguish specific UDCs. This has had less attention, but Sag (2010) shows how it can be done within HPSG. Three Welsh constructions are of interest here: *wh*-interrogatives, free relatives, and cleft sentences. *Wh*-interrogatives are quite like their English counterparts, and free relatives are broadly similar, but cleft sentences are rather different. These constructions pose an interesting challenge for theories of syntax, but it is not difficult to capture the similarities and the differences among them within HPSG given a slightly expanded hierarchy of phrase types.

2. Basic data

Welsh *wh*-interrogatives involve an initial *wh*-phrase and a following gap or a resumptive pronoun. The following, which shows that Welsh is a VSO language with verb-subject order in finite clauses, has a gap in object position:

(1) Pwy   weloch   chi?
     who   see.PAST.2PL you.PL
     'Who did you see?'

They 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. They may be finite or non-finite.

   Free relatives, rather like their English counterparts, involve a *wh*-word and optionally the element *bynnag* 'ever' and a following gap or a resumptive pronoun:

(2) Naeth   Gwyn   [beth   (bynnag) naeth   Megan].
     do.PAST.3SG Gwyn   what   ever   do. PAST.3SG Megan
     'Gwyn did what(ever) Megan did.'
(3) Aeth   Gwyn   [lle   (bynnag) aeth   Megan].
     go. PAST.3SG Gwyn   where   ever   go. PAST.3SG Megan
     'Gwyn went where(ever) Megan went.'

As one might expect, their distribution depends on the nature of the initial constituent. Thus, the free relatives in (2) and (3) are not interchangeable. 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. Free relatives are always finite.

   Cleft sentences look rather like *wh*-interrogatives. However, as Borsley (2015) shows, there is evidence that the initial constituent is not a filler. The gap or resumptive pronoun is third person even when the initial constituent is first or second person. The following illustrates with a subject gap and a first person initial constituent:

(4) Fi   welodd   /   *welais   ddraig.
     I   see.PAST.3SG   see.PAST.1SG dragon
     'It was I that saw a dragon.'

Similarly, the gap behaves like a nonpronominal, triggering default third person singular agreement in the way that a nonpronominal does, and not the full agreement that appears with a pronoun:

(5) Nhw   welodd   /   *welon   ddraig.
     they   see.PAST.3SG   see.PAST.3PL dragon
     'It was they that saw a dragon.'
(6) Gwelodd   y   dynion   ddraig.
     see.PAST.3SG   the   men   dragon
     'The men saw a dragon.'
(7) Gwelon   nhw   ddraig.
     see.PAST.3PL   they   dragon
     'They saw a dragon.'

Cleft sentences are always finite.

3. Towards an analysis

As in many languages, *wh*-interrogatives are fairly ordinary head-filler-phrases. But there is an issue about the analysis of free relatives. Much work on other languages has analysed the initial constituent as a head combining with a clause containing a gap which somehow shares properties with it or as a filler in a construction which somehow shares properties with the filler. However, researchers such as Payne, Huddleston, and Pullum (2007) have proposed that the initial constituent is both a head and a filler. In English, examples like *Whoever's dogs are running around in the garden is in big trouble* (Wright and Kathol 2002: 374), where the free relative is singular but the initial constituent plural, seem problematic for this approach, but there are no such examples in Welsh. Thus, at least in Welsh, this seems the obvious approach. Clefts can be analysed as involving a hidden identity predication (Borsley 2015). This predication may be negated, as it is in the following example:
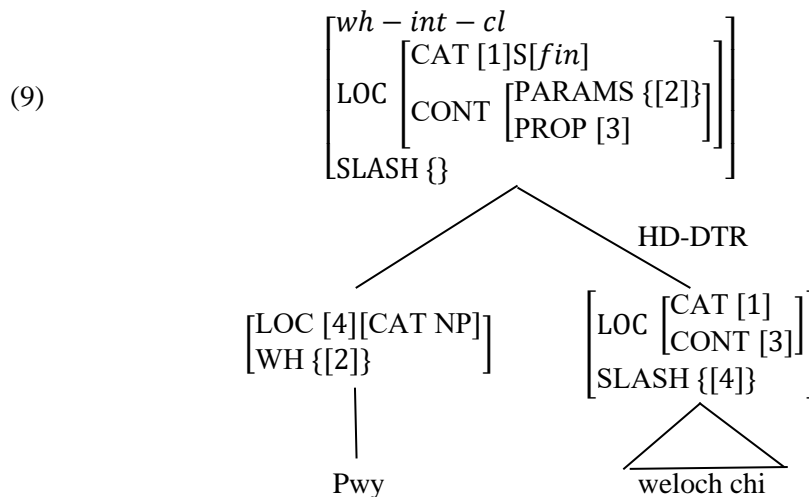
(8) Dim   nhw   welodd   ddraig.
     NEG   they   see.PAST.3SG   dragon
     'It wasn't they that saw a dragon.'

There is no requirement of person identity in identity predications as shown e.g. by *I am the teacher*.
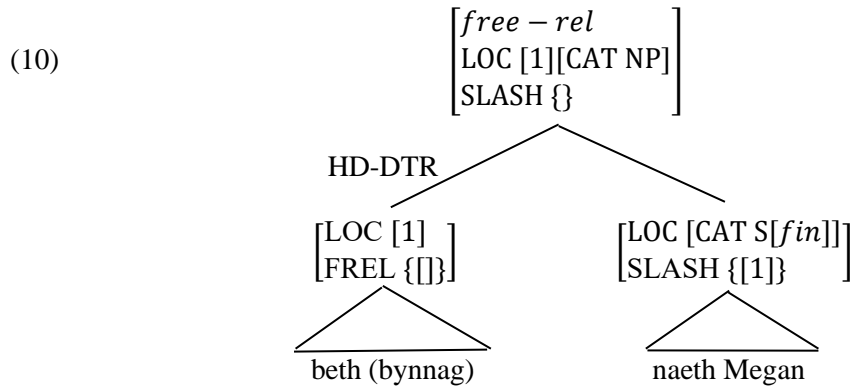   It seems, then, that *wh*-interrogatives are head-filler-phrases, that free relatives are phrases in which the initial constituent is both a head and a filler, and that clefts are phrases in which the initial constituent is not a filler but one term of a hidden identity predication. In all three cases, there is a gap or a resumption pronoun.

4. An HPSG analysis

Wh-interrogatives can be analyzed essentially as in Ginzburg and Sag (2000: chapter 4). This means an analysis of the following form for (1):

(9)

$$
\begin{bmatrix}
wh-int-cl \\
\text{LOC}
\begin{bmatrix}
\text{CAT [1]S}[fin] \\
\text{CONT}
\begin{bmatrix}
\text{PARAMS \{[2]\}} \\
\text{PROP [3]}
\end{bmatrix}
\end{bmatrix} \\
\text{SLASH \{\}}
\end{bmatrix}
$$

HD-DTR

$$
\begin{bmatrix}
\text{LOC [4][CAT NP]} \\
\text{WH \{[2]\}}
\end{bmatrix}
$$

$$
\begin{bmatrix}
\text{LOC}
\begin{bmatrix}
\text{CAT [1]} \\
\text{CONT [3]}
\end{bmatrix} \\
\text{SLASH \{[4]\}}
\end{bmatrix}
$$

Pwy   weloch chi

This incorporates Ginzburg and Sag's semantic analysis of *wh*-interrogatives. For free relatives, Payne, Huddleston, and Pullum (2007) propose an analysis in which the initial constituent has two mothers, but there is no need to assume such an analysis within HPSG. We can propose the following structure for the example in (2):

(10)

$$
\begin{bmatrix} free - rel \\ \text{LOC [1][CAT NP]} \\ \text{SLASH \{\}} \end{bmatrix}
$$

HD-DTR

$$
\begin{bmatrix} \text{LOC [1]} \\ \text{FREL \{[]\}} \end{bmatrix}
\qquad
\begin{bmatrix} \text{LOC [CAT } S[fin]] \\ \text{SLASH \{[1]\}} \end{bmatrix}
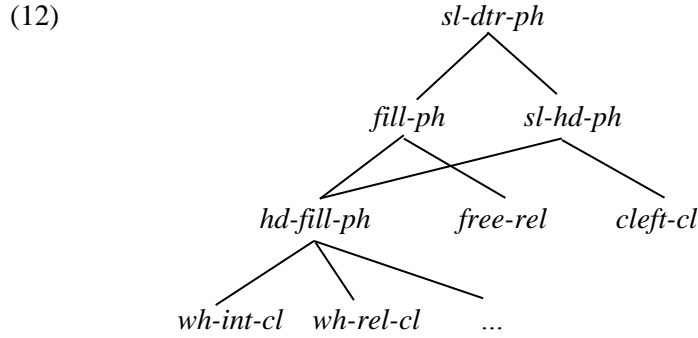$$

beth (bynnag)   naeth Megan

Here, the first daughter is both a filler and a head. I ignore CONTENT values. Probably, any semantic analysis of free relatives could be included here. Finally, we can propose the following structure for the cleft sentence in (4):

(11)

$$
\begin{bmatrix} cleft \\ \text{LOC} \begin{bmatrix} \text{CAT [1]}S[fin] \\ \text{CONT} \begin{bmatrix} \text{QUANTS} < \begin{bmatrix} the-rel \\ \text{INDEX [2]} \\ \text{RESTR \{[3]\}} \end{bmatrix} > \\ \text{NUCL} \begin{bmatrix} identity - rel \\ \text{ARG [4]} \\ \text{ARG [2]} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{SLASH \{\}} \end{bmatrix}
$$

HD-DTR

$$
\begin{bmatrix} \text{LOC} \begin{bmatrix} \text{CAT NP} \\ \text{CONT [INDEX [4]]} \end{bmatrix} \\ \text{WH \{\}} \end{bmatrix}
\qquad
\begin{bmatrix} \text{LOC} \begin{bmatrix} \text{CAT [1]} \\ \text{CONT [3]} \end{bmatrix} \\ \text{SLASH \{NP\}} \end{bmatrix}
$$

fi   welodd ddraig
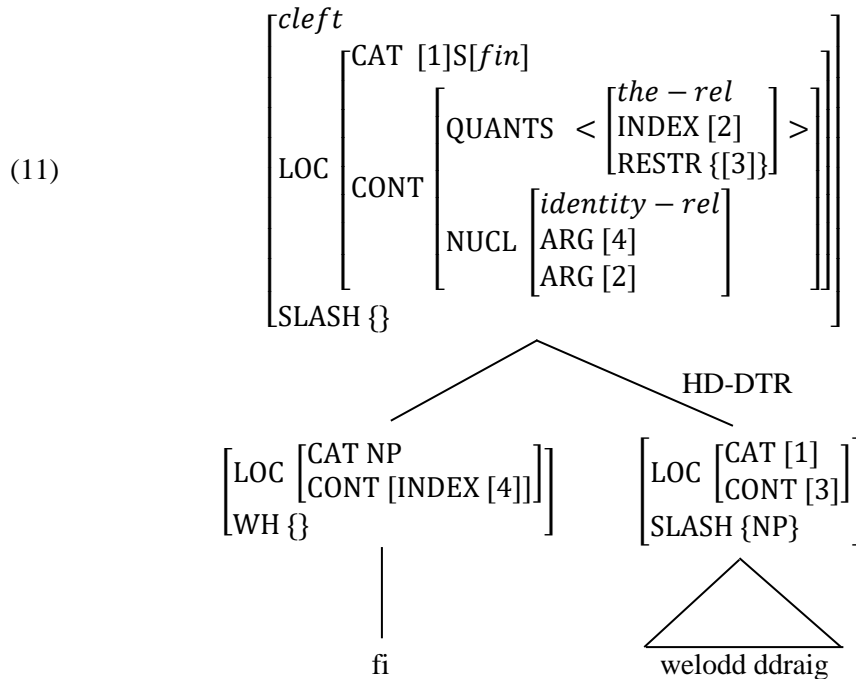
Here, the first daughter is a not a filler, but the second daughter is a head as in (9). The CONTENT value of the mother makes it clear that the second daughter is interpreted as a definite description and identified with the first daughter.

We now need a system of phrase types and associated constraints which license just the right structures, capturing both the similarities and differences among the three constructions. The facts can be captured if we postulate a type *slashed-daughter-phrase* with subtypes *filler-phrase* and *slashed-head-phrase* and the following system of constraints:

(12)
```
                          sl-dtr-ph
                         /        \
                  fill-ph          sl-hd-ph
                 /      \          /    \
          hd-fill-ph   free-rel        cleft-cl
         /    |    \
  wh-int-cl wh-rel-cl  ...
```

For the type *sl-dtr-ph*, we need the following constraint:

$$(13)\ \text{\emph{sl-dtr-ph}} \Rightarrow \begin{bmatrix} \text{SS}\ [\text{SLASH}\ [1]] \\ \text{DTRS}\ <[\emph{phrase}], \begin{bmatrix}\emph{clause}\\ \text{SS|SLASH}\ \{[\emph{local}]\}\ \cup\ [1]\end{bmatrix}> \end{bmatrix}$$

This ensures that the first daughter is a phrase and the second a slashed clause, but does not identify either as the head and does not require the first daughter to be a filler. For the type *fill-ph*, we need the constraint in (14):

$$(14)\ \text{\emph{fill-ph}} \Rightarrow [\text{DTRS}\ < [\text{SS[LOC}\ [1]]], [\text{SS[SLASH}\ \{[1]\} \cup \emph{set}]] >]$$

This simply identifies the first daughter as a filler. For the type *sl-hd-ph*, we need the constraint in (15):

$$(15)\ \text{\emph{sl-hd-ph}} \Rightarrow \begin{bmatrix} \text{HD-DTR}\ [1] \\ \text{DTRS}\ < [], [1][] > \end{bmatrix}$$

This identifies the second daughter, the slashed clause, as a head. Head-filler-phrases are subject to all these constraints, free relatives are subject to the constraints in (13) and (14), and clefts are subject to the constraints in (13) and (15). There seems to be no need for any special constraint on head-filler-phrases.

Each of the three constructions that we are concerned with here requires a constraint to account for its idiosyncratic properties. For *wh*-interrogatives we can propose the following, which essentially combines two of Ginzburg and Sag's constraints:

$$(16)\ \text{\emph{wh-int-cl}} \Rightarrow \begin{bmatrix} \text{SS|LOC|CONT}\begin{bmatrix}\text{PARAMS}\ \{[1]\}\ \cup\ \emph{set}\\ \text{PROP}\ [2]\end{bmatrix} \\ \text{DTRS}\ < [\text{WH}\ \{[1]\}], [\text{CONT}\ [2]] > \end{bmatrix}$$

For free relatives, we need the following constraint:

$$(17)\ \text{\emph{free-rel}} \Rightarrow \begin{bmatrix} \text{DTRS}\ < [1][\text{SS|FREL}\ \{[]\}], [\text{SS|LOC|CAT|HEAD|VFORM}\ \emph{fin}] > \\ \text{HD} - \text{DTR}\ [1] \end{bmatrix}$$

An appropriate semantic analysis could be added to this. Among other things, (17) ensures that the first daughter is a free relative *wh*-phrase and a head, and that the second daughter is a finite. Finally, for clefts the following constraint is necessary:

(18) *cleft* $\Rightarrow$

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

This ensures that the two daughters are interpreted as the two terms of an identity predication and that the second daughter is finite.

Thus, given an appropriate system of types and constraints, it is not difficult to provide an analysis of Welsh *wh*-interrogatives, free relatives, and clefts which captures the properties which they all have, the properties which two of them have, and the properties which distinguish each from the other two. It seems, then, that we have further evidence that HPSG is well equipped to capture the similarities and differences among families of constructions.

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