

On pseudo-non-finite clauses in Welsh

Olivier Bonami 

Université Paris Diderot

Robert D. Borsley 

University of Essex

Maggie Tallerman 

Newcastle University

Proceedings of the Joint 2016 Conference on Head-driven Phrase Structure
Grammar and Lexical Functional Grammar

Polish Academy of Sciences, Warsaw, Poland


Doug Arnold, Miriam Butt, Berthold Crysmann, Tracy Holloway King, Stefan
Müller (Editors)

2016

Stanford, CA: CSLI Publications

pages 104–124

Keywords: Welsh, finiteness, syntax-morphology relation, periphrasis.

Bonami, Olivier, Robert D. Borsley & Maggie Tallerman. 2016. On pseudo-non-finite clauses in Welsh. In Doug Arnold, Miriam Butt, Berthold Crysmann, Tracy Holloway King & Stefan Müller (eds.), *Proceedings of the Joint 2016 Conference on Head-driven Phrase Structure Grammar and Lexical Functional Grammar, Polish Academy of Sciences, Warsaw, Poland*, 104–124. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2016.6. 

Abstract

Languages differ in how they employ finite and non-finite clauses. Welsh finite and non-finite clauses have a similar distribution to their counterparts in English. However, it doesn't look like this because Welsh has certain finite clauses which look rather like non-finite clauses. We examine two types of pseudo-non-finite clauses: finite *bod* clauses and finite *i* clauses. We argue that both cases are instances of a mismatch between syntax and morphology, while the latter only involves periphrasis. We provide an HPSG analysis capturing similarities and differences between these two constructions and canonical finite and nonfinite clauses.

1 Introduction

Languages¹ differ in how they employ finite and non-finite clauses. Welsh finite and non-finite clauses have a similar distribution to their counterparts in English. However, it doesn't look like this because Welsh has certain finite clauses which look rather like non-finite clauses (Tallerman 1998, Borsley et al. 2007, chap. 3). One type just involves the verb *bod* 'be', while the other involves all verbs. The two types of clause differ in important ways and pose rather different challenges for grammatical theory.

2 Data

We will generally focus on spoken varieties of Welsh, commenting on distinctions between such varieties and Literary Welsh, which is not a spoken variety, where necessary. Although there are significant differences between northern and southern dialects, we will generally abstract away from these in what follows.

2.1 Finite verbs in Welsh

Apart from *bod* 'be', Welsh verbs have three synthetic subparadigms: future, past, and conditional. *Bod* has two additional subparadigms, present and imperfect. In Table 1 we provide a very partial illustration.

In various situations these forms may undergo one or other of the mutation processes that affect initial consonants in Welsh. Thus, we may have *gerddith* or *fydd* as a result of soft mutation or *cherddith* as a result of aspirate mutation.²

¹We are grateful to David Willis, Ian Roberts and Nigel Vincent, various anonymous reviewers, and the audience at the HeadLex 2016 conference, for a number of helpful comments. The first author's work was partially supported by a public grant overseen by the French National Research Agency (ANR) as part of the "Investissements d'Avenir" program (reference: ANR-10-LABX-0083).

²Aspirate mutation only affects forms beginning with a voiceless plosive. Hence *bod* is not affected. There are many examples of mutation below. We only comment on them when they are relevant to our analyses.

	<i>Cerdded</i> ‘walk’	<i>Bod</i> ‘be’
Future	<i>cerddith</i>	<i>bydd</i>
Past	<i>cerddodd</i>	<i>buodd</i>
Conditional	<i>cerddai</i>	<i>byddai</i>
Present	—	<i>mae</i>
Imperfect	—	<i>roedd</i>

Table 1: Third person forms of *cerdded* ‘walk’ and *bod* ‘be’.

Welsh also expresses various aspectual meanings with a form of *bod*, an aspectual particle, and a non-finite verb, but this is not particularly important in the present context.

It also seems necessary in Welsh to distinguish between positive and negative forms of finite verbs and between main clause and complement forms. Positive main clause verbs may be preceded by the particle *mi* or *fe* and when they are, they show soft mutation.³ (1) is a typical example:

- (1) *Mi/Fe gerddith Emrys i ’r dre.*
 PRT walk.FUT.3SG Emrys to the town
 ‘Emrys will walk to the town.’

Negative main clause verbs are not preceded by *mi* or *fe*, but they generally show soft mutation or in the case of some verbs aspirate mutation, and they generally co-occur with the negative post-subject adverb *ddim*.⁴

- (2) *Gerddith/Cherddith Emrys ddim i ’r dre.*
 NEG.walk.FUT.3SG Emrys NEG to the town
 ‘Emrys will not walk to the town.’

Positive complement clause verbs are not preceded by the particles *mi* and *fe* and do not show soft mutation:

- (3) *Dywedodd Megan [cerddith Emrys i ’r dre].*
 say.PAST.3SG Megan walk.FUT.3SG Emrys to the town
 ‘Megan said Emrys will walk to the town.’

In negative complement clauses verbs generally co-occur with *ddim* and show essentially the same mutation as in main clauses. They may also be preceded by the particle *na*.

- (4) *Dywedodd Megan [na cherddith Emrys ddim i ’r dre].*
 say.PAST.3SG Megan NEG walk.FUT.3SG Emrys NEG to the town
 ‘Megan said Emrys will not walk to the town.’

³If the particle is not present, the verbs may or may not show mutation.

⁴For more on the form of negative verbs, see (Borsley & Jones, 2005, chap. 3).

The present tense of *bod* is generally not preceded by *mi* or *fe* in positive main clauses, and negative forms show suppletion.

- (5) Mae Emrys yn yr ardd.
 be.PRES.3SG Emrys in the garden
 ‘Emrys is in the garden.’
- (6) Dydy Emrys ddim yn yr ardd.
 NEG.be.PRES.3SG Emrys NEG in the garden
 ‘Emrys is not in the garden.’

We will see in the next section that *bod* also has a distinctive form in complement clauses.

2.2 *Bod*-clauses

The present and imperfect forms of *bod* are fine in main clauses and in relative clauses or other unbounded dependency clauses, e.g. *wh*-interrogatives, but the present forms and for some speakers the imperfect forms too are ungrammatical in complement clauses:

- (7) Mae Elen yn darllen y llyfr.
 be.PRES.3SG Elen PROG read.INF the book
 ‘Elen is reading the book.’
- (8) Roedd Elen yn darllen y llyfr.
 be.IMPF.3SG Elen PROG read.INF the book
 ‘Elen was reading the book.’
- (9) y llyfr [mae / roedd Elen yn ei ddarllen]
 the book be.PRES.3SG be.IMPF.3SG Elen PROG 3SGM read.INF
 ‘the book that Elen is/was reading’
- (10) Pa lyfr [mae / roedd Elen yn ei ddarllen]?
 which book be.PRES.3SG be.IMPF.3SG Elen PROG 3SGM read.INF
 ‘Which book is/was Elen reading?’
- (11) * Mae Aled yn credu [mae Elen yn
 be.PRES.3SG Aled PROG believe.INF be.PRES.3SG Elen PROG
 darllen y llyfr].
 read.INF the book
 ‘Aled believes that Elen is reading the book.’
- (12) % Mae Aled yn credu [roedd Elen yn
 be.PRES.3SG Aled PROG believe.INF be.IMPF.3SG Elen PROG
 darllen y llyfr].
 read.INF the book
 ‘Aled believes that Elen was reading the book.’

Instead of present forms of *bod* and for some speakers imperfect forms as well, what looks like the non-finite form *bod* appears:

- (13) Mae Aled yn credu [bod Elen yn darllen y
 be.PRES.3SG Aled PROG believe.INF be.INF Elen PROG read.INF the
 llyfr].
 book
 ‘Aled believes that Elen is/was reading the book.’

We will call the complement clause in such examples a *bod*-clause.

If the subject of a *bod*-clause is pronominal, *bod* shows agreement in the form of a preceding clitic:

- (14) Mae Aled yn credu [ei bod hi 'n darllen
 be.PRES.3SG Aled PROG believe.INF 3SGF be.INF she PROG read.INF
 y llyfr].
 the book
 ‘Aled believes that she is/was reading the book.’

Ordinary non-finite verbs also show agreement in the form of a clitic with a following pronoun, but the pronoun can only be an object because they never have a following subject. Here are some typical examples:

- (15) a. Dylai Aled weld Elen.
 ought Aled see.INF Elen
 ‘Aled ought to see Elen.’
 b. Dylai Aled ei gweld hi.
 ought Aled 3SGF see.INF she
 ‘Aled ought to see her.’

We will return to this contrast in section 2.4.

There is one situation in which present and imperfect forms of *bod* may appear in complement clauses. This is in complement clauses affected by an unbounded dependency such as the following (Willis, 2000, 2011; Borsley, 2013):⁵

- (16) Beth mae Aled yn credu [mae Elen yn
 what be.PRES.3SG Aled PROG believe.INF be.PRES.3SG Elen PROG
 ei ddarllen]?
 3SGM read.INF
 ‘What does Aled believe that Elen is reading?’
 (17) Beth mae Aled yn credu [roedd Elen yn
 what be.PRES.3SG Aled PROG believe.INF be.IMPF.3SG Elen PROG
 ei ddarllen]?
 3SGM read.INF
 ‘What does Aled believe that Elen was reading?’

⁵Some speakers have *bod* in such sentences, but others prefer present and imperfect forms.

We will show below that *bod*-clauses are a type of finite clause in spite of the form of the verb. We will call them *pseudo-non-finite clauses*.

2.3 Finite *i*-clauses

A second type of pseudo-non-finite clause involves all Welsh verbs. Past tense forms of Welsh verbs appear in main clauses and in the negative complement clauses to epistemic and declarative verbs. However, in some varieties, and especially Literary Welsh, they are not used in positive complement clauses to such verbs.

- (18) Aeth Mair adre'.
go.PAST.3SG Mair home
'Mair went home.'
- (19) Meddyliodd Aled [nad aeth Mair ddim adre'].
think.PAST.3SG Aled NEG go.PAST.3SG Mair NEG home
'Aled thought that Mair had not gone home.'
- (20) % Meddyliodd Aled [aeth Mair adre'].
think.PAST.3SG Aled go.PAST.3SG Mair home
'Aled thought that Mair had gone home.'

Instead of a positive complement clause with a past tense verb, what looks rather like an English *for-to* clause appears:⁶

- (21) Meddyliodd Aled [i Mair fynd adre'].
think.PAST.3SG Aled to Mair go.INF home
'Aled thought that Mair had gone home.'

Here we have a clause introduced by what looks like the preposition *i* 'to', for' (hence the gloss). As we will see shortly, there is evidence of various kinds that these clauses are finite, and we will call them finite *i*-clauses. In the complements to other classes of matrix verb we find *i*-clauses that are clearly non-finite, as in the following example.

- (22) Disgwylodd Aled [i Elen ddarllen y llyfr].
expect.PAST.3SG Aled to Elen read.INF the book
'Aled expected Elen to read the book.'

⁶In Colloquial Welsh, some varieties allow past tense forms in affirmative complement clauses. The *i*-clause construction is often considered rather formal, and may be avoided on these grounds. Some speakers may use a perfect clause, as in (i).

- (i) Meddyliodd Aled [bod Mair wedi mynd adre'].
think.PAST.3SG Aled be.INF Mair PERF go.INF home
'Aled thought that Mair had gone home.'

The word *i* occurring in finite and nonfinite *i*-clauses has the same irregular inflectional paradigm as the preposition *i*, indicated in Table 2. Just like the preposition *i*, it agrees with a following pronoun in gender, person and number, but the morphology unexpectedly neutralizes number distinctions in the first and second person.

ABSOLUTE				ABSOLUTE			
<i>dan</i>				<i>i</i>			
		SG	PL			SG	PL
AGREEING	1	<i>dana</i>	<i>danon</i>	1	<i>i</i>	<i>i</i>	
	2	<i>danat</i>	<i>danoch</i>	2	<i>i</i>	<i>i</i>	
	3.M	<i>dano</i>		3.M	<i>iddo</i>		
	3.F	<i>dani</i>	<i>danyyn</i>	3.F	<i>iddi</i>	<i>iddyn</i>	
<i>dan</i> ‘under’				<i>i</i> ‘to’			

Table 2: Inflectional paradigm of two prepositions.

Non-finite *i*-clauses are negated by the negative verb *peidio* (which only has non-finite and imperative forms and is mutated here):

- (23) Disgwylodd Aled [*i* Elen beidio â darllen y llyfr].
 expect.PAST.3SG Aled to Elen NEG with read.INF the book
 ‘Aled expected Elen not to read the book.’

This is not possible in a finite *i*-clause; finite *i*-clauses are always positive.

- (24) *Meddylodd Aled [*i* Mair beidio â mynd adre’].
 think.PAST.3SG Aled to Mair NEG with go.INF home
 ‘Aled thought that Mair had not gone home.’

Apart from this finite and non-finite *i*-clauses seem to have the same internal structure.

2.4 Evidence that *bod*-clauses and finite *i*-clauses are really finite.

Bod-clauses and finite *i*-clauses are used in contexts where a finite clause is expected; the corresponding finite clauses are unexpectedly ungrammatical. In that sense, they fill a gap in a paradigm of finite constructions. They can also coordinate with ordinary finite clauses:

- (25) Dywedodd Aled [*fod* Mair wedi mynd yn barod] a
 say.PAST.3SG Aled be.INF Mair PERF go.INF PRED ready and
 [*byddai* Gwen yn mynd yn fuan].
 be.COND.3SG Gwen PROG go.INF PRED soon
 ‘Aled said that Mair had gone already and that Gwen would be going soon.’

- (26) Meddylodd Aled [i Alys fynd adre'] a [byddai Mair
 think.PAST.3SG Aled to Alys go.INF home and be.COND.3SG Mair
 yn mynd hefyd].
 PROG go.INF too
 'Aled thought that Alys had gone home and that Mair would be going too.'

Bod-clauses and finite *i*-clauses do not allow a reflexive subject with an antecedent in the main clause:

- (27) *Dywedodd Aled [(ei) fod ei hun wedi gadael].
 say.PAST.3SG Aled 3SGM be.INF 3SGM REFL PERF leave.INF
 *'Aled said that himself had left.'
- (28) *Dywedodd Aled [iddo 'i hun fynd].
 say.PAST.3SG Aled to.3SGM 3SGM REFL go.INF
 *'Aled said that himself had gone.'

In this, they are like finite clauses and unlike uncontroversial non-finite clauses:

- (29) *Dywedodd Aled [eith ei hun].
 say.PAST.3SG Aled go.FUT.3SG 3SGM REFL
 *'Aled said that himself will go.'
- (30) Dymunai Aled [iddo 'i hun ddarllen y llyfr].
 wish.COND.3SG Aled to.3SGM 3SGM REFL read.INF the book
 'Aled would want himself to read the book.'

Bod-clauses also resemble finite clauses in their internal structure. As noted above, they show verb-subject order, which is like finite clauses and unlike non-finite clauses. They also show negation with the post-subject negative adverb *ddim*:

- (31) Mae Aled yn dweud [bod Mair ddim yn barod].
 be.PRES.3SG Aled PROG say.INF be.INF Mair NEG PRED ready
 'Aled says that Mair isn't ready.'

In addition, they allow expletive *yna* 'there', which appears in finite clauses but not in non-finite clauses:

- (32) Mae Gwyn yn meddwl [bod yna ddafad yn yr
 be.PRES.3SG Gwyn PROG think.INF be.INF there sheep in the
 ardd].
 garden
 'Gwyn thinks that there is a sheep in the garden.'
- (33) Mae yna ddafad yn yr ardd.
 be.PRES.3SG there sheep in the garden
 'There is a sheep in the garden.'

- (34) *Disgwyliodd Gwyn [i yna fod dafad yn yr ardd].
 expect.PAST.3SG Gwyn to there be.INF sheep in the garden
 ‘Gwyn expected there to be a sheep in the garden.’

In contrast, as noted above, finite *i*-clauses seem to have essentially the same internal structure as non-finite *i*-clauses, differing from non-finite *i*-clauses only in that they cannot be negated.

3 Analyses

3.1 Preliminaries

Although both contain what looks like a non-finite verb, both *bod*-clauses and finite *i*-clauses seem to be finite and to fill a gap in a paradigm of otherwise finite constructions. In the following pages we will develop analyses which capture this fact but also capture the difference between the two clause types, the fact that *bod*-clauses have a finite internal structure, while finite *i*-clauses have essentially the same structure as non-finite *i*-clauses.

Our analyses rely on three mechanisms familiar from recent work in realisational morphology. First, we assume that the morphology-syntax interface involves a distinction between two sets of morphosyntactic features (Sadler & Spencer, 2001; Stump, 2006; Bonami, 2015) corresponding to the syntactic and the morphological view of the inflectional paradigm. Following Bonami (2015), we implement this distinction by distinguishing between the value of HEAD, which provides a syntactic view of the paradigm, and the value of INFL, a feature carried only by words, which serves as the input to inflectional morphology.

Second, the morphology-syntax interface is governed by a principle of morphosyntactic blocking (Andrews, 1990; Koenig, 1999). Specifically, we assume with Stump (2006, 2015) that a paradigm is licensed by a set of conditional statements such that if the antecedents of two statements stand in a subsumption relation, only the most specific statement may apply. In HPSG terms, we assume a distinguished set of conditional interface statements whose antecedent restricts attention to a particular SYNSEM value and whose consequent specifies the relationship between the HEAD and INFL features; in this paper we highlight the special status of these statements by typesetting them with a grey background. We then define a closure operation of *Pāṇinian strengthening* over these statements that makes them mutually incompatible.⁷ This is a variant of the implementation of Pāṇini’s Principle by Bonami & Crysmann (2013) and Crysmann & Bonami (2016) generalized to the syntax-morphology interface.

⁷Pāṇinian strengthening may be defined as follows. Let S be the set of interface statements, and $\sigma \rightarrow \tau$ be one particular such statement. Let $\{\sigma_1 \rightarrow \tau_1, \dots, \sigma_n \rightarrow \tau_n\} \subset S$ be the set of all statements whose antecedent is strictly more specific than σ , i.e., for each i , $\sigma_i \models \sigma$ and $\sigma \not\models \sigma_i$. Replace $\sigma \rightarrow \tau$ by $(\sigma \wedge \neg\sigma_1 \wedge \dots \wedge \neg\sigma_n) \rightarrow \tau$.

Third, we follow Spencer (2013) in assuming that the forms of a lexeme need not all belong to the same part of speech; this allows us to state that in some circumstances an otherwise verbal lexeme is realised by a complementizer.⁸

3.2 *Bod*-clauses

Bod-clauses seem fairly straightforward. They are essentially syntactically finite but morphologically non-finite. Present forms of *bod* and for some speakers imperfect forms too have non-finite morphology under certain circumstances, namely in a complement clause not affected by an unbounded dependency. Given a distinction between syntactic and morphological finiteness it is not difficult to accommodate these clauses.

We assume that verbs which are syntactically finite are normally morphologically finite as a result of the following constraint which applies to all words and captures the idea that in the canonical situation, HEAD and INFL information match:

$$(35) \quad [] \rightarrow \begin{bmatrix} \text{HEAD} & \boxed{} \\ \text{INFL} & \boxed{1} \end{bmatrix}$$

In the case of *bod*-clauses this will be overridden by a more specific constraint. The other machinery that we need here is fairly standard HPSG machinery. Following much earlier work, we assume a feature LID, whose value is unique to each distinct lexeme: a lexeme, the words that realise it, and the phrases headed by such words all have the same unique LID value. To handle tense we assume a TMA (TENSE-MOOD-ASPECT) feature with the system of values in Figure 1.

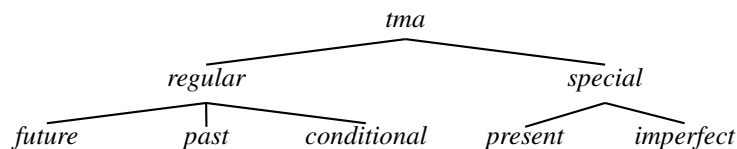


Figure 1: Values for the feature *tma*.

This allows us to say that ordinary verbs only have [TMA *regular*] finite forms, and will also allow us to accommodate speakers who have *bod* instead of both present and imperfect forms. We also need to distinguish complement clauses on the one hand from main clauses and unbounded dependency clauses on the other. We will do this with a feature STATUS with values *main*, *udc*, *subord(inate)*; this is a generalisation of the binary ROOT feature. Finally we need to distinguish complement clauses affected by an unbounded dependency and complement clauses in which there is no unbounded dependency. Remember that in HPSG, unbounded dependencies involve the SLASH feature, whose value is the empty set when there is no

⁸There is an implicit precedent for this idea in Sag (1997), who proposes that verbs and complementizers belong to a common ‘verbal’ part of speech, and that complementizers carry the VFORM feature.

dependency but non-empty when there is a dependency of some kind. Generally when an argument of some head has a non-empty SLASH value, the head has the same value, and so does its mother. Thus, we typically have structures of the form indicated in Figure 2. In the present context this means that *bod* and the clause it heads have a non-empty SLASH value when affected by an unbounded dependency and are [SLASH {}] when there is no dependency.

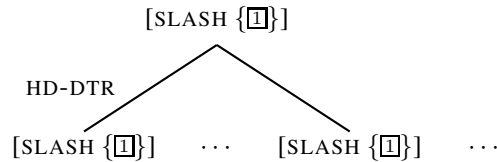


Figure 2: A typical situation of SLASH percolation.

We can now provide analyses for a range of examples. We assume following Borsley (1989) that post-verbal subjects are realizations of the first element of the COMPS list. Given this assumption, and those spelled out above, (7) will have the analysis in Figure 3.⁹

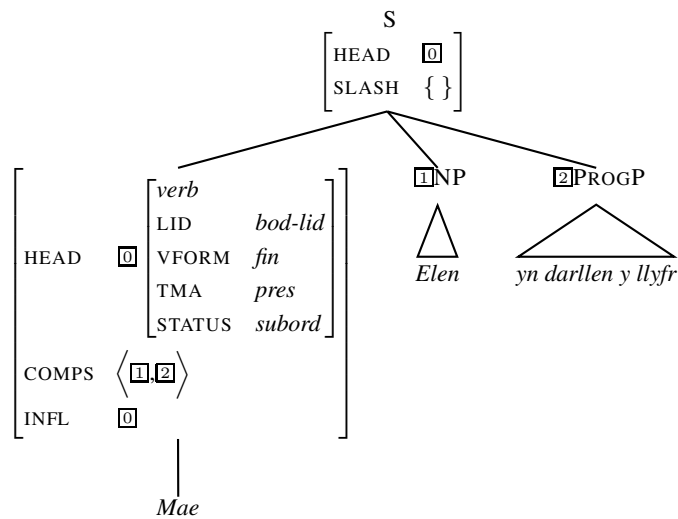


Figure 3: Analysis for example (7).

The crucial feature of this analysis is that HEAD and INFL have the same value. Thus, the verb is both syntactically and morphologically finite. For the complement clause in (16), which is affected by an unbounded dependency, we will have the analysis in Figure 4.

⁹Both NP and ProgP here will be [SLASH {}], but we omit this in order to keep the tree as simple as possible. We will also omit [SLASH {}] in later trees when there is no need to highlight.

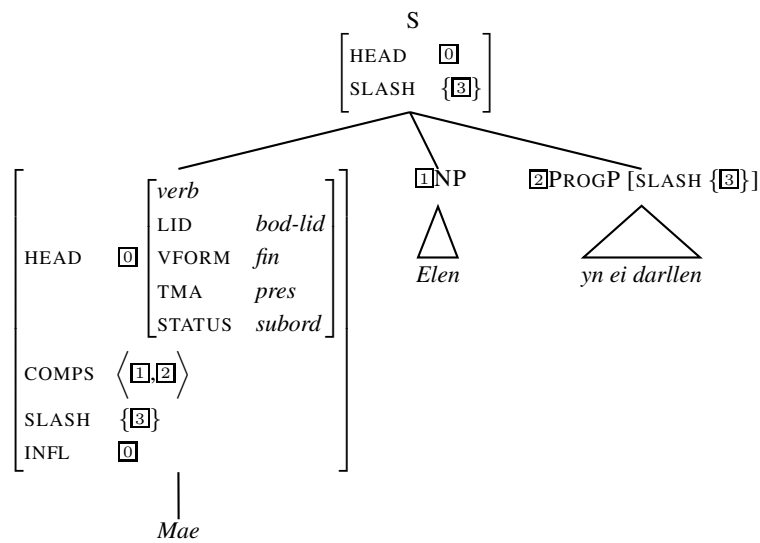


Figure 4: Analysis for example (16).

Here, the STATUS feature makes it clear that this is a complement clause, and the non-empty values for SLASH indicate that it is affected by an unbounded dependency. Again HEAD and INFL have the same value. Finally, we have the analysis in Figure 5 for the *bod*-clause in (13).

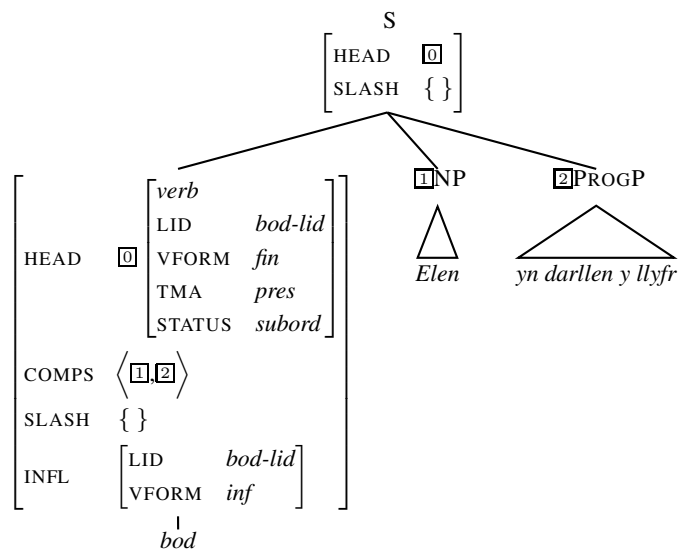


Figure 5: Analysis for example (13).

Here, HEAD and INFL have different values. We attribute this to the interface statement in (36):

$$(36) \quad \left[\begin{array}{l} \text{HEAD} \\ \text{SLASH} \end{array} \left[\begin{array}{l} \text{LID} \quad \textit{bod-lid} \\ \text{VFORM} \quad \textit{fin} \\ \text{STATUS} \quad \textit{subord} \\ \text{TMA} \quad \textit{pres} \end{array} \right] \right] \rightarrow \left[\text{INFL} \left[\begin{array}{l} \text{LID} \quad \textit{bod-lid} \\ \text{VFORM} \quad \textit{inf} \end{array} \right] \right]$$

In the absence of (36), constraint (35) would predict the use of *mae* as a head verb. However, by Pāṇinian strengthening, (36) overrides (35) and ensures that *bod* appears instead of ordinary present tense forms in a complement clause not affected by an unbounded dependency.¹⁰ This is a case of morphosyntactic blocking. For speakers who also have *bod* instead of imperfects, we will have a constraint with [TMA *special*].¹¹

We noted earlier that *bod* shows agreement in the form of a preceding clitic with a following pronoun. We assume that clitics are specifiers and we attribute their appearance to the constraint in (37a).¹² This applies to elements which are morphologically non-finite, hence both to ordinary non-finite verbs and *bod*. Ordinary finite verbs show agreement in the form of a suffix and do not show agreement. We attribute this to the constraint in (37b), which also ensures that nonfinite verbs do not combine with a clitic if there is no agreement trigger.

$$(37) \quad \begin{array}{l} \text{a.} \\ \text{b.} \end{array} \left[\text{INFL} \left[\begin{array}{l} \textit{verb} \\ \text{VFORM} \quad \textit{inf} \\ \text{AGR} \quad \textit{index} \end{array} \right] \right] \rightarrow \left[\text{INFL} \left[\text{AGR} \quad \boxed{\square} \right] \right] \\ \left[\text{SPR} \left\langle \left[\textit{agr-clitic} \right] \right\rangle \right]$$

$$\left[\text{INFL} \left[\begin{array}{l} \textit{verb} \\ \text{VFORM} \quad \textit{fin} \vee \text{AGR} \quad \textit{none} \end{array} \right] \right] \rightarrow \left[\text{SPR} \quad \langle \rangle \right]$$

This licenses the analysis in Figure 6 for the subordinate clause in (14).

¹⁰More precisely, assuming for simplicity that (35) and (36) are the two only interface statements in Welsh grammar, Pāṇinian strengthening has the effect of turning (35) into the following constraint:

$$(i) \quad \neg \left[\begin{array}{l} \text{HEAD} \\ \text{SLASH} \end{array} \left[\begin{array}{l} \text{LID} \quad \textit{bod-lid} \\ \text{VFORM} \quad \textit{fin} \\ \text{STATUS} \quad \textit{subord} \\ \text{TMA} \quad \textit{pres} \end{array} \right] \right] \rightarrow \left[\begin{array}{l} \text{HEAD} \quad \boxed{\square} \\ \text{INFL} \quad \boxed{\square} \end{array} \right]$$

¹¹For speakers who have *bod* in complement clauses affected by an unbounded dependency, we can propose a version of (36) without the [SLASH { }] stipulation.

¹²This raises the question: what ensures that nouns and other heads have appropriate agreement features? Borsley (2009) proposes that this is a consequence of a constraint on order domains, but it would be possible to attribute it to a constraint on constituent structures.

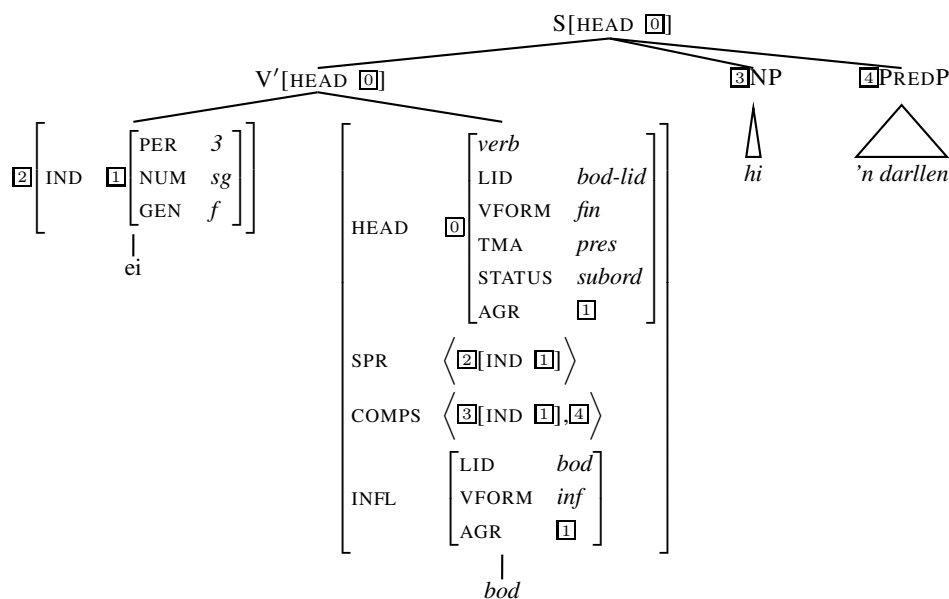


Figure 6: Analysis for example (14).

3.3 Finite *i*-clauses

Finite *i*-clauses are rather more challenging than *bod*-clauses. A satisfactory analysis needs to (a) capture the idea that they involve an unusual realization of a finite verb, and (b) treat them as similarly as possible to non-finite *i*-clauses. They appear to be a case of periphrasis, where instead of the expected inflected form of a lexeme, some other form appears together with some other element. The situation is broadly similar to Latin passive perfects, e.g. (38), where a participle and a form of the copula appears, albeit passive and perfect are otherwise realised by a synthetic form of the verb:

- (38) *monitus* *sum*
 advise.PASS-PART.MASC.SG be.PRES.1.SG
 ‘I have been advised’

Following Bonami (2015), the element which looks like the lexeme (the verb in (21) and the participle in (38)) can be called the ‘main’ element and the other element (*i* in (21) and the copula in (38)) can be called the ‘ancillary’ element.

Two approaches to periphrasis within HPSG have been explored by Bonami and colleagues. On one, developed in Bonami (2015), the main element (the verb in the case of finite *i*-clauses) is the real realization of the lexeme. On the other, developed in Bonami & Webelhuth (2013) and Bonami & Samvelian (2015), the real realization of the lexeme is the ancillary element (*i* in the present case). If we adopted the first approach, we would have to say that the verb in a finite *i*-clause counts as the realisation of a finite cell in the paradigm, in fact a past tense cell, in spite of the fact that it looks like a nonfinite verb both in terms of its morphology

and its syntax. In other words, we would need to recognize a third, ‘paradigmatic’ notion of finiteness in addition to the more directly observable notions of morphological and syntactic finiteness. This seems an undesirable position. Therefore, we will develop a new version of the second approach.¹³

Following Borsley (1999, 2009), we assume that non-finite *i*-clauses are CPs with a ternary branching analysis parallel to Sag’s (1997) analysis of English *for-to* clauses. Thus, the complement clause in (22) has the schematic analysis in Figure 7. Note that the NP complement is identified as the subject of the VP complement. We will develop a fuller analysis shortly. We assume that finite *i*-clauses have the same basic structure, and hence we have the following schematic analysis for the complement clause in (21). Again the NP complement is identified as the subject of the VP complement. Again we will develop a more detailed analysis shortly.

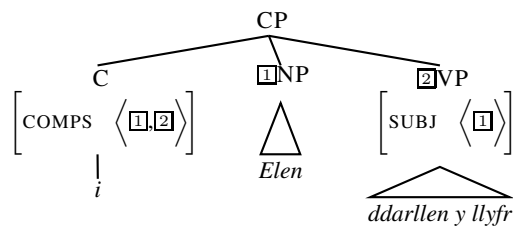


Figure 7: Schematic analysis for example (22).

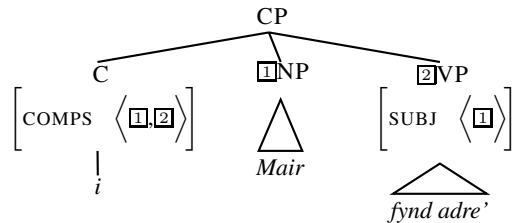


Figure 8: Schematic analysis for example (21).

Although they have slightly different syntactic properties, non-finite and finite *i* have the same basic complement selection properties. They also have the same morphology. As indicated in Table 2, like the preposition *i* and unlike most prepositions, non-finite and finite *i* only show agreement with a third person pronoun. This is captured by assuming that the INFL|LID value of both non-finite and finite *i* has a common supertype with that of the preposition *i*, as indicated in Figure 9. Rules of inflection happen to be formulated in terms of this supertype.

One important difference we assume between finite and nonfinite *i* is in terms of their HEAD|LID values, that is, the lexical identity information they project into syntax. Although non-finite *i* is just an ordinary word with its own lexical identity

¹³Although we focus here on one construction in Welsh, the approach outlined here is intended to be general and an improvement on both Bonami (2015) and Bonami & Samvelian (2015).

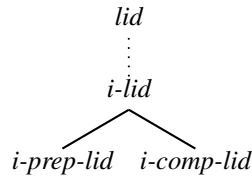


Figure 9: Partial hierarchy of LID values.

which it projects to phrase level, finite *i* has a dual lexical status: from the point of view of inflection it counts as a form of *i*, and hence is specified as INFL|LID *i*; but from the point of view of syntax it counts as a realisation of the main verb, and hence has the same value for the HEAD|LID feature as its VP complement.

It is often assumed that all realizations of a lexeme must be of the same part-of-speech. However, Spencer (2013) argues at length against this assumption. Hence, we see nothing wrong in treating complementizers as forms of a verb.

Is there any way to maintain the assumption that all realizations of a lexeme are of the same part-of-speech? Someone who favours this assumption might propose that both non-finite and finite *i* are not complementizers but verbs. A verbal analysis of finite *i* faces no obvious problems. However, a verbal analysis of non-finite *i* is implausible. If it were a verb, it would be unlike every other non-finite verb in taking a following subject. We think, then, that non-finite *i* must be a complementizer. As far as we can see, the only way to maintain the assumption that all realizations of a lexeme are of the same part-of-speech would be to propose that non-finite *i* is a complementizer with its own LID value while finite *i* is a verb sharing a LID value with its VP complement. However, as noted above, we want to treat finite *i*-clauses as similarly as possible to non-finite *i*-clauses. We think, then, that it is preferable to assume that both non-finite and finite *i* are complementizers.

With the assumptions just introduced, we can propose more detailed analysis in Figure 10 for the complement clause in (22).

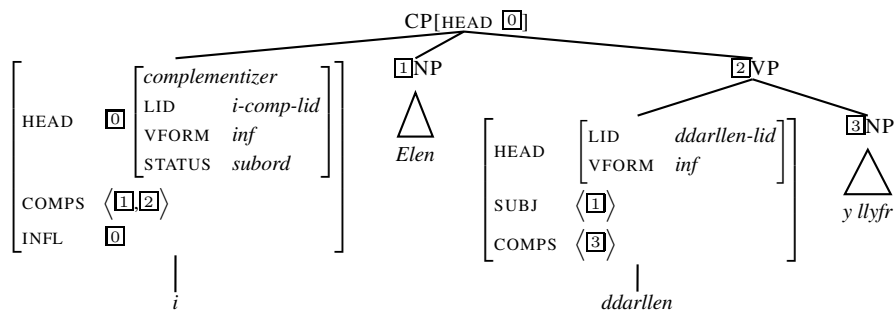


Figure 10: Detailed analysis for example (22).

Here, *i* is identified as non-finite, and both its HEAD and INFL features include [LID *i-lid*] in their value. The INFL value makes it clear that it has the morphological properties of the preposition *i*.

For the complement clause in (21), we can propose the more detailed analysis

in Figure 11.

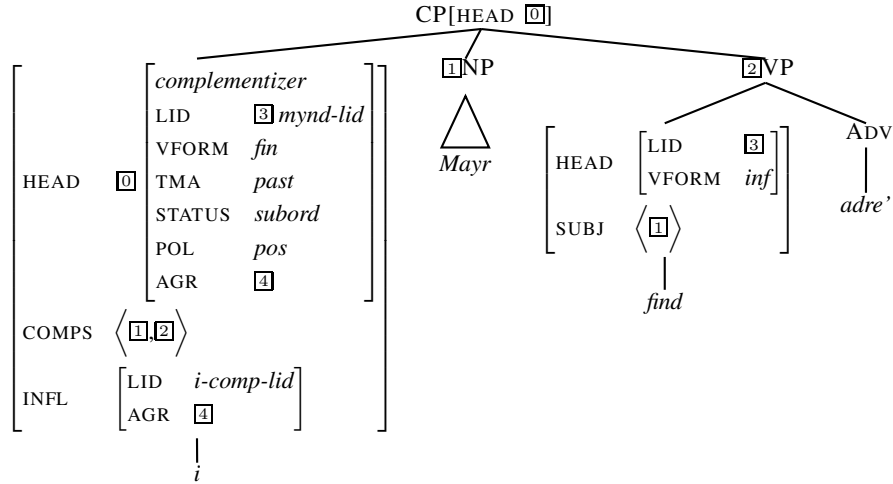


Figure 11: Detailed analysis for example (21).

Here *i* is identified as a positive past subordinate form. The LID value of its HEAD feature identifies it as a form of the following verb, and the INFL value makes it clear that it has the morphological properties of the preposition *i*.

Non-finite and finite *i* differ in some important ways. However, they also show important similarities. The similarities and the differences can be captured by treating them as subtypes of a single lexical type. We will call the supertype *i-clausal* and the two subtypes *i-inf* and *i-fin*, as indicated in Figure 12.

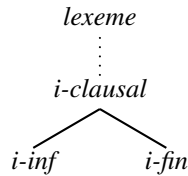


Figure 12: Partial hierarchy of lexeme types.

We assume that the types are associated with the constraints below:

$$\begin{array}{l}
 (39) \quad \text{a. } i\text{-clausal} \rightarrow \left[\begin{array}{l} \text{HEAD} \quad \textit{complementizer} \\ \text{INFL} \quad \left[\text{LID} \quad \textit{i-comp-lid} \right] \\ \text{COMPS} \quad \left\langle \left[\begin{array}{l} \text{HEAD} \quad \left[\textit{verb} \right] \\ \text{VFORM} \quad \textit{inf} \end{array} \right], \left[\begin{array}{l} \text{SUBJ} \quad \langle \text{[1]} \rangle \end{array} \right] \right\rangle \end{array} \right] \\
 \text{b. } i\text{-inf} \rightarrow \left[\text{HEAD|VFORM} \quad \textit{inf} \right]
 \end{array}$$

$$c. \ i\text{-}fin \rightarrow \left[\begin{array}{l} \text{HEAD|LID} \quad \boxed{0} \\ \text{COMPS} \quad \left\langle [], [\text{HEAD|LID} \quad \boxed{0}] \right\rangle \end{array} \right]$$

Constraint (39b) ensures that non-finite *i* is non-finite. Because nothing precludes it, the default syntax-morphology interface statement in (35) will apply to non-finite *i*, and ensure that it is just an ordinary complementizer; in particular, it has an ordinary specification [HEAD|LID *i-comp-lid*]. On the other hand, constraint (39c) states that finite *i* has the same LID value as its verbal complement. This entails that the default syntax-morphology interface statement in (35) can not apply to finite *i*, which is lexically specified as having distinct HEAD|LID and INFL|LID values.

The syntax-morphology interface statement in (40) captures the distribution of finite *i*:

$$(40) \quad \left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \text{VFORM} \quad fin \\ \text{STATUS} \quad subord \\ \text{TMA} \quad past \\ \text{POL} \quad pos \end{array} \right] \\ \rightarrow \quad \left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \text{complementizer} \\ \text{AGR} \quad \boxed{1} \end{array} \right] \\ \text{INFL} \quad \left[\begin{array}{l} \text{LID} \quad i\text{-}comp\text{-}lid \\ \text{AGR} \quad \boxed{1} \end{array} \right] \end{array} \right]$$

(40) ensures that, in any situation where a word is inflected in the positive past in a subordinate clause, this word is a complementizer with the morphological shape of *i*. Because *i-fin* is the only lexical type compatible with that description, finite *i* is the only word that can satisfy (40); hence the realization of any lexeme's positive subordinate past is finite *i* taking that lexeme's infinitive as a complement. Notice that it is crucial that, by morphosyntactic blocking, the existence of the statement in (40) prevents the use of the default statement in (35) for expression of the positive subordinate past — and hence prevents the use of synthetic inflection.¹⁴

We noted in section 2.3 that finite *i*-clauses cannot be negated with the negative verb *peidio* in the way that non-finite *i*-clauses can. One might ensure this explicitly by stipulating that the verbal complement of finite *i* is [POL *pos*]. However, this is unnecessary: as we stated above, any use of finite *i* has to be licensed by a special syntax-morphology interface statement, because finite *i*'s lexical entry is inherently incompatible with (35). But since (40) is the only such statement and presupposes positive polarity, the grammar provides no way of using *i* in a negative context.

We now have an analysis of finite *i*-clauses which has the two desirable features that we identified earlier: (a) it captures the idea that they involve an unusual

¹⁴More precisely, assuming that (35), (36) and (40) are the only interface statements in Welsh grammar, Pāṇinian strengthening has the effect of turning (35) into the following constraint:

$$(i) \quad \left(\neg \left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \text{LID} \quad bod\text{-}lid \\ \text{VFORM} \quad fin \\ \text{STATUS} \quad subord \\ \text{TMA} \quad pres \end{array} \right] \\ \text{SLASH} \quad \{ \} \end{array} \right] \wedge \neg \left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \text{VFORM} \quad fin \\ \text{STATUS} \quad subord \\ \text{TMA} \quad past \\ \text{POL} \quad pos \end{array} \right] \right] \right) \rightarrow \left[\begin{array}{l} \text{HEAD} \quad \boxed{1} \\ \text{INFL} \quad \boxed{1} \end{array} \right]$$

realization of a finite verb, and (b) treat them as similarly as possible to non-finite *i*-clauses.

3.4 Conclusions

We have been concerned in this paper with two types of pseudo-non-finite clause that are a feature of Welsh grammar, one involving *bod* ‘be’, which we have called *bod*-clauses, and the other involving all verbs, which we have called finite *i*-clauses. There is good evidence that both types of clause are really finite despite their superficial appearance. They are similar in various ways but differ in that *bod*-clauses have a clearly finite internal structure whereas finite *i*-clauses have essentially the same internal structure as non-finite *i*-clauses. *Bod*-clauses are quite easy to incorporate into a formal analysis. They just require a distinction between syntactic and morphological finiteness, and we have developed this with the HEAD-INFL distinction. Finite *i*-clauses are more challenging. It would be difficult to claim that the verb is really a finite form given that it seems non-finite in both its morphological form and its syntactic properties. Instead, we have proposed that finite *i* is a finite form of the verb whose non-finite form heads its complement and have developed an analysis that embodies this assumption.

The analysis of finite *i*-clauses above constitutes a periphrastic analysis in the spirit of Bonami & Webelhuth (2013) and Bonami & Samvelian (2015): the head of the clause contributes to filling a cell in the paradigm of one lexeme (the verb) but is realized morphologically as another lexeme (the preposition *i*). Unlike those previous analyses, the present approach does not postulate valence-changing morphological rules and takes morphosyntactic blocking at face value. Unlike the approach of Bonami (2015), it does not rely on the hypothesis that a morphologically nonfinite verb fills a cell in a finite paradigm. Quite on the contrary, it implements rather directly Blevins’s (forthcoming) notion of ‘periphrasis as syntactic exponence’: the head value of the whole clause is the locus of evaluation of what constitutes an extended paradigm. From a technical HPSG standpoint, the main innovation is to implement Pāṇinian competition explicitly at the morphology-syntax interface. The advantage of such a strategy is that both the morphology and the syntax of periphrastic constructions can be taken to be straightforward.

We believe that the analyses we have developed here capture both the similarities and the differences between the two types of pseudo-non-finite clause in a satisfactory way.

References

- Andrews, Avery D. 1990. Unification and morphological blocking. *Natural Language and Linguistic Theory* 8. 507–557.
- Blevins, James P. forthcoming. Periphrasis as syntactic exponence. In Farrell Ack-

- erman, James P. Blevins & Gregory T. Stump (eds.), *Paradigms and periphrasis*, Stanford: CSLI Publications.
- Bonami, Olivier. 2015. Periphrasis as collocation. *Morphology* 25. 63–110.
- Bonami, Olivier & Berthold Crysmann. 2013. Morphotactics in an information-based model of realisational morphology. In Stefan Müller (ed.), *Proceedings of HPSG 2013*, 27–47. Stanford: CSLI Publications.
- Bonami, Olivier & Pollet Samvelian. 2015. The diversity of inflectional periphrasis in Persian. *Journal of Linguistics* 51(2). 327–382.
- Bonami, Olivier & Gert Webelhuth. 2013. The phrase-structural diversity of periphrasis: a lexicalist account. In Marina Chumakina & Greville G. Corbett (eds.), *Periphrasis: The role of syntax and morphology in paradigms*, 141–167. Oxford: Oxford University Press.
- Borsley, Robert D. 1989. An HPSG approach to Welsh. *Journal of Linguistics* 25. 333–354.
- Borsley, Robert D. 1999. Mutation and constituent structure in Welsh. *Lingua* 109. 267–300.
- Borsley, Robert D. 2009. On the superficiality of Welsh agreement. *Natural Language and Linguistic Theory* 27. 225–265.
- Borsley, Robert D. 2013. On the nature of Welsh unbounded dependencies. *Lingua* 133. 1–29.
- Borsley, Robert D. & Bob Morris Jones. 2005. *Welsh negation and grammatical theory*. Cardiff: University of Wales Press.
- Borsley, Robert D., Maggie Tallerman & David Willis. 2007. *The syntax of Welsh*. Cambridge: Cambridge University Press.
- Crysmann, Berthold & Olivier Bonami. 2016. Variable morphotactics in Information-Based Morphology. *Journal of Linguistics* 52(2). 311–374.
- Koenig, Jean-Pierre. 1999. *Lexical relations*. Stanford: CSLI Publications.
- Sadler, Louisa & Andrew Spencer. 2001. Syntax as an exponent of morphological features. In Gert Booij & Jaap van Marle (eds.), *Yearbook of morphology 2000*, 71–96. Dordrecht: Kluwer.
- Sag, Ivan A. 1997. English relative clause constructions. *Journal of Linguistics* 33. 431–484.
- Spencer, Andrew. 2013. *Lexical relatedness: a paradigm-based model*. Oxford: Oxford University Press.

- Stump, Gregory T. 2006. Heterocclisis and paradigm linkage. *Language* 82. 279–322.
- Stump, Gregory T. 2015. *Inflectional paradigms*. Cambridge: Cambridge University Press.
- Tallerman, Maggie. 1998. The uniform case-licensing of subjects in Welsh. *The Linguistic Review* 15. 69–133.
- Willis, David. 2000. On the distribution of resumptive pronouns and wh-trace in Welsh. *Journal of Linguistics* 531–573.
- Willis, David. 2011. The limits of resumption in Welsh wh-dependencies. In Alain Rouveret (ed.), *Resumptive pronouns at the interfaces*, 189–222. Amsterdam: John Benjamins.