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Preposition stranding in Welsh

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Preposition stranding in Welsh

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ABSTRACT

This dissertation investigates preposition stranding observed in Colloquial Welsh using a generative grammar approach.

Welsh traditionally disallows P-stranding. In Literary Welsh, prepositional relatives require a resumptive pronoun which is licensed by the rich agreement of P, and *wh*-questions require pied-piping of the entire PP. However, the use of uninflected stranded preposition can be found colloquially, both in relatives and *wh*-questions.

This dissertation proposes an account of the different syntactic behaviour between the two varieties, based on the notion of PF feature checking proposed by Ackema and Neeleman (2004). I claim that if PF checking takes place between a P head and its DP complement, the DP will be unable to move out of the complement position. This means that P-stranding is impossible. On the other hand, if PF checking does not hold between P and its complement, P-stranding is possible.

Chapter 1 provides theoretical assumptions and background of previous research on P-stranding.

Chapter 2 describes *wh*-constructions in Welsh and investigates the (un)availability of P-stranding in the literary and colloquial varieties.

Chapter 3 considers formal properties of Welsh resumptives. Following Willis (2011), I assume that Welsh *wh*-dependencies with resumptive pronouns obey successive cyclicity.

Chapter 4 presents the PF feature checking approach to P-stranding. I assume that the crucial difference between the two varieties is that P in Literary Welsh possesses AGR-features, but in Colloquial Welsh does not. I claim that the availability of PF checking regulates the availability of P-stranding.

Chapter 5 investigates P-stranding generalizations, observed in Abels (2003), on pseudo-passives, clitics, verbal particles and sluicing.

Chapter 6 discusses diachronic implications of the occurrence of P-stranding. I consider how the P-stranding option came into Welsh grammar, using the notion of bilingual mode developed by Grosjean (2001).

CONTENTS

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Finally, I would like to thank my family for understanding my decision to study in Wales in the first place and for supporting me all the way. Most of all, I thank to my long-suffering wife Hiroko for her continuous support.

AUTHOR'S DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed ..... (candidate)

Date .....

STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction are clearly marked in a footnote(s).

Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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Abbreviations

ACC	accusative
C	complementizer
CL	clitic
COND	conditional
DAT	dative
DEF	definite
DEP	dependent
F	feminine
FUT	future
GEN	genitive
IMPF	imperfect
IMPR	imperative
IMPS	impersonal
INF	infinitive
M	masculine
NEG	negative
NOM	nominative
NONPAST	non-past
P	plural
PAST	past
PERF	perfect
PRED	predicate
PRES	present
PRN	pronoun
PRT	particle
PROG	progressive
REL	relative
S	singular
1	first person
2	second person
3	third person

CHAPTER 1:
INTRODUCTION

1.1 Introduction

This dissertation investigates preposition stranding (hereafter P-stranding) observed in Colloquial Welsh. As van Riemsdijk (1978: 13) points out, P-stranding is a rather rare phenomenon across languages. Welsh also traditionally disallows P-stranding, however, it can be observed colloquially. Literary Welsh requires pied-piping of a whole prepositional phrase in *wh*-questions, whereas Colloquial Welsh allows P-stranding, as illustrated in (1).

(1) a. **O** le dach chi 'n dod? Lit. W
from where be.$_{PRES}$.2$_P$ you $_{PROG}$ come

b. Lle dach chi 'n dod **o**? Col. W
where be.$_{PRES}$.2$_P$ you $_{PROG}$ come from
'Where do you come from?'

The main aim of this dissertation is to provide an account of this syntactic difference between Literary Welsh and Colloquial Welsh in the field of generative grammar. P-stranding is a topic of long-standing debate. Many proposals can be found in the literature on the mechanisms that regulate the occurrence of P-stranding crosslinguistically, and it remains a hot topic in the field. This study attempts to contribute to further understanding of P-stranding research, focusing on Welsh data. This study also discusses this syntactic difference from a diachronic point of view. I will consider the possible influence of English which possesses the P-stranding pattern and how this pattern comes into Welsh grammar.

Before I go further, I would like to briefly consider the sociolinguistic background of Welsh. Welsh is a Celtic language spoken by over half a million speakers mainly in Wales. The modern Celtic languages can be divided into two branches: Brythonic and Goidelic branches.[1] Welsh belongs to the Brythonic branch, along with Breton and Cornish. Irish, Scottish Gaelic and Manx form the Goidelic branch.

The proportion of Welsh speakers in the population of Wales declined steadily in the past. Jones (1993: 543) notes that approximately 80% of the population of Wales spoke Welsh in 1801. The census of 1901 showed that 49.9% (930,000 people) of the population could speak Welsh (Borsley, Tallerman and Willis 2007: 3), and the 1991 census showed a

[1] They are also called P-Celtic and Q-Celtic, respectively, because the sound change of /k^w/ > /p/ is found in the Brythonic languages but not in the Goidelic languages (Russel 1995).

low of 18.7% (508,000).[2] However, the 2010 census indicates that 20.8% (582,000) of the population over the age of 3 could speak Welsh. This represents the first increase in at least two centuries of the proportion of the population that could speak Welsh (Davies 2010: 16), due to the improved official status of the language and the growth of Welsh-medium education. Davies (2010) points out another notable trend over the last century, which is an increase of Welsh-English bilinguals in Wales. In 1901, there were 280,900 monolingual Welsh speakers (Jones 1993: 548), which corresponds to 14% of the population. This portion had decreased to 1% by 1961 and effectively to zero by 2001 (Davies 2010: 17). Currently, virtually all Welsh speakers can also speak English (see Deuchar 2005: 256).

It is worth considering the relationship between Literary Welsh and Colloquial Welsh. In the Welsh language today, the difference between the literary and colloquial varieties is extensive (see Ball 1988 and Jones 1988, among others). The most notable syntactic difference is that Colloquial Welsh use of periphrastic forms of verb over synthetic forms (Fife 1986: 146). Welsh has two verbal constructions: synthetic and periphrastic constructions. On the one hand, the synthetic construction has a VSO word order, inflecting a verb in a finite form. On the other hand, the periphrastic construction has an AuxSVO word order, which requires an inflected auxiliary and a lexical verb in a non-finite form. Examples of the synthetic and periphrastic constructions are illustrated in (2a) and (2b), respectively.

(2) a. Mi fwytes i reis neithiwr.
PRT eat.PAST.1S I rice last night
'I ate rice last night.'
b. Mi wnes i fwyta reis neithiwr.
PRT do. PAST.1S I eat.INF rice last night

The synthetic verbs are not frequently observed in the colloquial variety. Stammers (2009) shows that in the colloquial spoken data[3] the 11 most frequent verbs such as mynd 'go', cael 'get' and gweld 'see' have greater likelihood to occur in synthetic construction with few

[2] The census data is available at the Welsh Language Board website (http://www.byig-wlb.org.uk/ENGLISH/WELSHLANGUAGE/Pages/WhoaretheWelshspeakersWheredotheylive.aspx).

[3] The data are taken from "Siarad", a spoken corpus collected by ESRC Centre for Research on Bilingualism at Bangor University (http://www.siarad.org.uk/speakers.php?c=siarad). The corpus consists of naturalistic recordings of informal conversations between Welsh-English bilinguals.

exceptions of three verbs meddwl ‘think’, gwybod ‘know’ and rhoi ‘put’. Less frequent verbs, on the other hand, tend not to appear in synthetic constructions at all.

Willis (2000: 542) points out that there are prescriptive pressures on *correctness* in Literary Welsh. In other words, there is a norm of how people *should* speak or write properly in Literary Welsh. On the other hand, Colloquial Welsh is a native language of all speakers, and there is considerable regional variation across Wales. The most notable differences are between Northern and Southern dialects. However, the distinction between Literary Welsh and Colloquial Welsh is not black and white; in reality it shows a complex stylistic continuum depending on different levels of formality.

The rest of this introductory chapter is organised as follows. I will first discuss the theoretical assumptions that I adopt in this dissertation in section 1.2, based on the model proposed in Ackema and Neeleman (2004). Section 1.3 provides the background to *wh*-constructions, considering *wh*-movement in 1.3.1 and then resumption in 1.3.2. I will review some prominent analyses of P-stranding in the literature in section 1.4. An outline of the dissertation in section 1.5 concludes the chapter.

1.2 Theoretical assumptions (Ackema and Neeleman 2004)

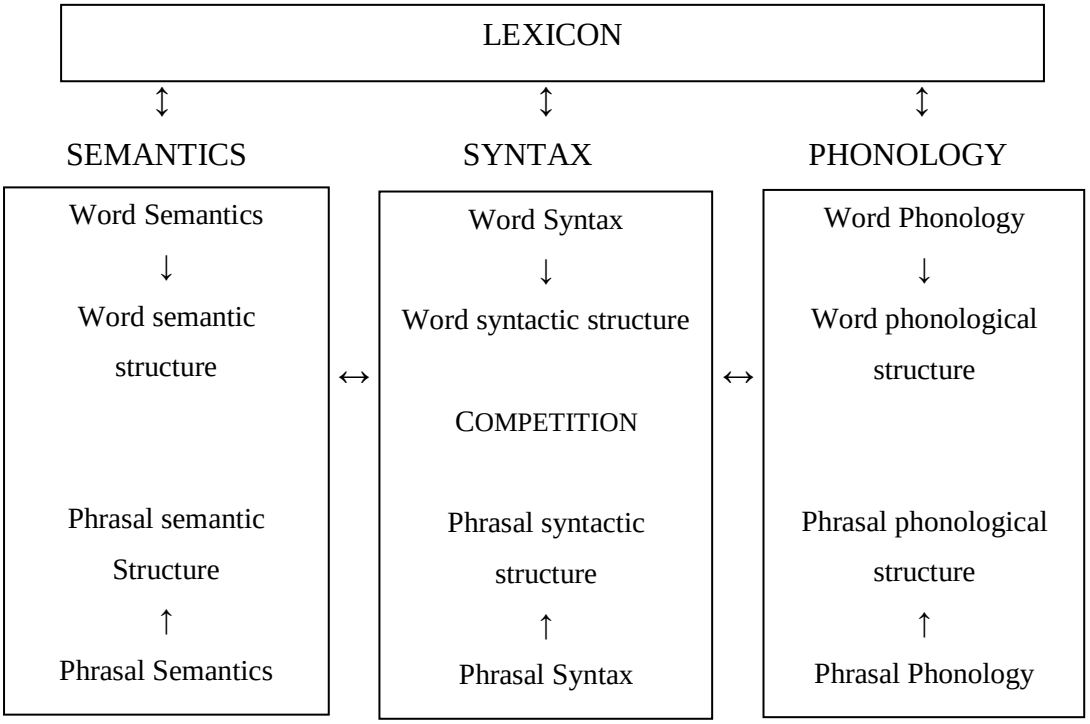
The central question of syntactic theory is what is a well-formed sentence and what is not. It is increasingly recognised that the answer to this question does not solely depend on syntactic rules, but also on conditions of the interfaces of other components such as phonology and semantics (cf. Chomsky1995). My analyses are based on the syntax-phonology interface approach proposed in Ackema and Neeleman (2004), and extend it to the P-stranding phenomenon. I therefore outline their model of grammar in 1.2.1. In 1.2.2, we look at the syntax-phonology interface more specifically to see how these two modules interact. I will then introduce the main ideas of PF feature checking proposed by Ackema and Neeleman in 1.2.3.

1.2.1 Architecture of grammar

Developing Jackendoff (1997, 2002), Ackema and Neeleman (2004) assume that syntax, phonology and semantics have autonomous generative systems and they interact with each other. Furthermore, they argue that each component contains a subcomponent that generates phrasal representation and a subcomponent that generates word-level representations. Under their model, what we usually call ‘syntax’ is a subcomponent of syntax, ‘phrasal syntax’.

What is known as ‘morphology’ is also an independent subcomponent of syntax, ‘word syntax’, which generates hierarchical structures for words. Likewise, they distinguish phrasal phonology (prosodic phonology) from word phonology (lexical phonology), and phrasal semantics from word semantics (lexical semantics). The model of grammar assumed in Ackema and Neeleman (2004) is presented below.

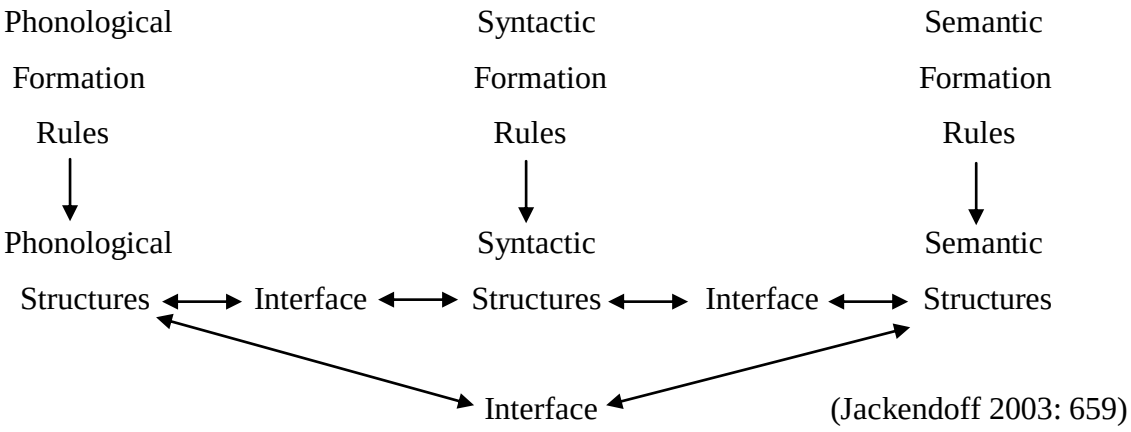
(3)



(adapted from Ackema & Neeleman 2004: 277)

We consider the interaction of macro-components, i.e. phonology, syntax and semantics here. As Ackema and Neeleman themselves point out, their model is largely identical to Jackendoff’s model. Jackendoff (1997, 2002) has developed his model called ‘parallel architecture’, as shown below.

(4) The parallel architecture model:



(Jackendoff 2003: 659)

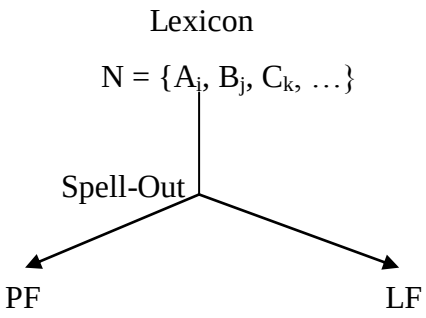
The main points of parallel architecture are essentially same as in the model of Ackema and Neeleman. Jackendoff (1997, 2002) argues that the grammar contains multiple independent generative components and their relation is established by interface rules. In the parallel architecture, a sentence is well-formed when all three of its structures are independently well-formed and a well-formed correspondence among them has been established by the interfaces. Moreover, as in the Ackema and Neeleman's model in (3), the lexical information has direct access to each component.[4]

Although Ackema and Neeleman's model is very similar to Jackendoff's, it differs from the mainstream generative model developed by Chomsky. In the Minimalist Program, the computational system derives a pair of linguistic expressions (π, λ) that satisfy output conditions at the PF and LF interfaces (Chomsky 1995: 225). The elements π and λ correspond to representation at PF (Phonetic Form) and LF (Logical Form) respectively. Chomsky argues that a linguistic expression is well-formed if the representation converges at both PF and LF, otherwise it crashes (i.e., turns out to be ill-formed). Furthermore, Chomsky (1995) suggests that a starting point of the derivation is a 'numeration'. Under Minimalism, it is assumed that each lexical item is indexed for the number of its occurrence. Given a numeration N, the lexical items are sent to the syntactic component by the operation Select, and syntactic structures are built through the operations Merge (combine two constituents) and Move (move a constituent around). At some point in the derivation, the computation system employs the operation Spell-Out, which splits the computation in two parts, PF and

[4] To be more precise, I cite Jackendoff (2003: 660) here; "a word is best regarded as a type of interface rule phonological, syntactic, and semantic structure … In other words, the language does not consist of a lexicon *plus* rules of grammar; rather, lexical items are *among* the rules of grammar – very particular rules to be sure, but rules nonetheless."

LF. The mapping that leads to LF is referred to as the 'covert component' and the one that leads to PF as the 'phonological component'. The computation that precedes Spell-Out is referred to as the 'overt syntax'. The architecture of the Minimalist Program is shown below.

(5) The Minimalist model:



(adapted from Hornstein, Nunes & Grohmann 2005: 73)

I will adopt many assumptions developed under the Minimalist Program, as we will see. However, I will not adopt the idea that the PF interface is derived after the spell-out; rather, as in Ackema and Neeleman (2004) and Jackendoff's parallel architecture, I assume that the PF interface is where two independent components (i.e. syntax and phonology) interact.

Although the interface of subcomponents is less relevant in this dissertation, I will discuss the idea that the syntactic component and the morphological component are in competition in chapter 5 (I adopt the usual term 'syntax' for phrasal syntax and 'morphology' for lexical syntax throughout the text). The main idea is that a complex lexical expression can be realised either in syntax or morphology. We now consider the syntax-phonology interface in more detail.

1.2.2 PF interface

We have seen that syntax and phonology have independent generative systems, but at the same time, they interact with each other. This subsection considers how syntactic representations are mapped onto phonological representations in particular. Selkirk (1986: 384) points out that the constituents of phonological structure are organised in a prosodic hierarchy as shown in (6). She claims that the prosodic structure is strictly layered in the unmarked case. That is, a constituent of a higher level in the hierarchy immediately dominates only constituents of the next level down in the hierarchy.

(6) The Prosodic Hierarchy:

Utterance

Intonational Phrase (ι)

Phonological Phrase (φ)

Prosodic Word (ω)

Foot

Syllable (adapted from Selkirk 1986: 384)

The following examples illustrate that the syntactic structure and prosodic structure are governed by their own well-formedness principles. In syntax, the noun *house* first makes a constituent NP with the adjective *big*, and then that NP merges with the determiner to make DP. In contrast, in phonology the first two words *a big* form a prosodic word, then make a phonological phrase with another prosodic word *house*.

(7) a. $[_{DP}$ a $[_{NP}$ $[_{AP}$ big] house]]

b. [φ [ω a big] [ω house]] (Jackendoff 1997: 26)

To map syntactic representations onto phonological representations, we assume the prosodic structure hypothesis (Selkirk, 1986, 1995; Nespor and Vogel 1986; Truckenbrodt 1999, among others). It claims that the phonological representation is organized into a prosodic constituent structure which is independent of, but related to, the syntactic representation. This process is called a 'prosodic phrasing'. Ackema and Neeleman (2004: 185) assume the following operations at the PF interface. The operations (8a) and (8b) connect syntax to the prosodic structure at PF:

(8) a. Linearization of syntactic terminals

b. Initial prosodic phrasing, on the basis of syntactic information

c. Spell-out of terminals

The first thing that happens in the mapping from syntax to PF is the introduction of linear order. Although I will not go into any details of the mechanism of linearization, following Ackema and Neeleman, I assume that the linearization process which is sensitive to syntactic constituency takes place at PF. The operation (8b), the initial prosodic phrasing, is

determined by alignment conditions that associate boundaries of syntactic constituents and phonological phrases (Sekirk 1986). After the application of all relevant operations at PF,[5] spell-out of terminals will take place.

In what follows, we will see some basic principles of the initial prosodic phrasing. First of all, there is language variation with respect to the alignment condition mentioned above. Selkirk (1986) draws a generalization on this variation; head-initial languages typically opt for right alignment and head-final languages for left alignment. In English, for example, the right edges of a syntactic phrase (XP) arguably correspond to the right edges of a prosodic phrase (indicated by ϕ). The mapping rule for a head-initial language is shown below.

(9) Align (<right edge, XP>, <right edge, ϕ>) (Ackema & Neeleman 2004: 186)

The example of this mapping rule is illustrated in (10). The syntactic structure in (10a) corresponds to the prosodic structure in (10b) (prosodic boundaries ϕ are indicated by braces).

(10) a. [[A friend [of Mary's]] [showed [some pictures] [to John]]]
b. {A friend of Mary's} {showed some pictures} {to John}
(Ackema & Neeleman 2004: 186)

In contrast, in a head-final language such as in Japanese, the left edges of a syntactic XP correspond to the right edges of a prosodic phrase (see Selkirk and Tateishi 1991).

(11) a. [[Mary-no] tomodachi-ga] [[John-ni] [syashin-wo] miseta]
Mary-$_{GEN}$ friend-$_{NOM}$ John-$_{DAT}$ picture-$_{ACC}$ show.$_{PAST}$
b. {Mary-no tomodachi-ga} {John-ni} {syashin-wo miseta}

Crucially, as Welsh is a head-initial language (see Borsley *et al*. 2007: 7-9), Welsh follows the right alignment rule in (9) above.

(12) a. [Mi wnaeth [ffrind Mary] [ddangos [lluniau] [i John]]]
$_{PRT}$ do.$_{PAST}$.3$_{S}$ friend Mary show pictures to John
b. {Mi wnaeth ffrind Mary} {ddangos lluniau} {i John}

[5] I will show more PF interface operations in chapter 4.

Ackema and Neeleman point out that there are, however, other mapping rules that govern the association of syntactic and prosodic structures. An intonational phrase (indicated by ι in (6)) sometimes contravenes the right alignment rule, for instance, the left edge of finite CPs in English coincides with the left edge of an intonational phrase, as observed by Chomsky and Hale (1968: 372). Given that prosodic phrases must be properly contained in intonational phrases, the syntactic structure in (13a) is not mapped onto the prosodic structure in (13b) which is solely based on the right alignment rule, but rather it is mapped as in (13c) (parentheses indicate intonational phrases).

(13) a. [[John] [believes [$_{CP}$ that [Mary] [loves [Bill]]]]

b. * ({John} {believes) (that Mary} {loves Bill})

c. ({John} {believes}) ({that Mary} {loves Bill}) (Ackema & Neeleman 2004: 187)

Conversely, some boundaries triggered by the alignment rule (9) can be erased. In particular, there is a strong tendency for a modifier and the material it modifies to be combined into a single ϕ. Thus, the prosodic boundary between the two elements is erased. This is the case in the earlier example in (7). The prosodic boundary after *a big* triggered by the right alignment rule is erased; as a result, the whole phrase *a big house* is within a single prosodic phrase.

1.2.3 PF feature checking

We saw in 1.2.1 that syntax and phonology have autonomous generative systems and they have independent well-formedness principles. Then, 1.2.2 showed how syntactic representations are mapped onto phonological representations at the PF interface. The mapping between the two components is regulated by the initial prosodic phrasing which mainly relies on the phrase-edge alignment rule. In this subsection, I will briefly introduce the essence of PF feature checking (see more detail in 4.2).

Ackema and Neeleman (2004: chapter 7) propose that feature checking takes place at the PF interface, alongside the commonly assumed syntactic checking (see 1.3 below). Their main hypothesis is that PF feature checking takes place in the mapping from syntax to the initial prosodic phrasing. Ackema and Neeleman argue that PF checking identifies the features to be checked with identical features in the same prosodic domain. PF checking is

implemented via feature identification which is expressed by the following general format (A and B are categories, F_1, F_2 and F_3 are features, and braces indicate prosodic domains):

(14) {[A (F_1) (F_2) (F_3)…] [B (F_1) (F_2) (F_3)…]} →
{[A (F_{1i}) (F_{2j}) (F_{3k})…] [B (F_{1i}) (F_{2j}) (F_{3k})…]} (Ackema & Neeleman 2004: 235)

In languages that have the right alignment rule (9) as in English and Welsh, this PF checking requires post-head adjacency. In other words, a phrase BP whose features are to enter into a checking relation must immediately follow a head A that contains identical features. The syntactic structure [$_{AP}$ A BP] needs to correspond to a prosodic structure that fits the structural description of the rule in (14). If another maximal projection intervenes ([$_{AP}$ A XP BP]), or if the phrase precedes the head ([$_{AP}$ BP A]), PF checking is impossible because the two elements (i.e. A and BP) will not be in the same prosodic domain.

Ackema and Neeleman also assume that it is not possible to move an XP from a position that allows checking against a head H to another position in which XP and H enter into a specifier-head checking relation. PF feature checking involves a shift from syntactic bracketing to prosodic bracketing. As a result of PF checking, the features of the XP form a set with identical features of its head H in the same prosodic domain. I therefore assume that a phrase whose features are checked by the head at PF no longer move to another position for syntactic feature checking. Applying this assumption to *wh*-constructions, we can predict that if PF feature checking holds in the local domain, the element whose features have already checked with its head no longer moves to the specifier position of CP where syntactic feature checking takes place. On the other hand, extraction of the element in the local domain is available. In next section, we will consider this syntactic feature checking in *wh*-constructions in more detail.

1.3 Background to *wh*-constructions

This section provides theoretical background to *wh*-constructions that I assume in this dissertation. Under mainstream Chomskyan analysis, a *wh*-expression like *what* in English moves into the specifier position within CP, as illustrated below. The original position of *what* is indicated by a trace *t*.

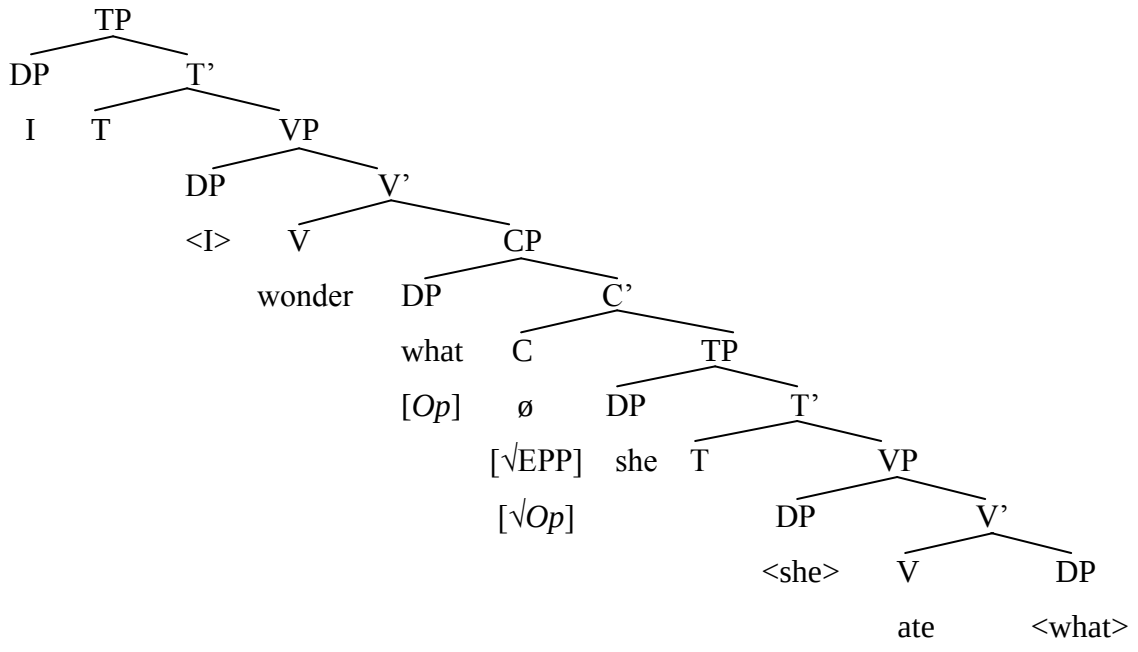
(15) I wonder [$_{CP}$ what$_i$ she ate t_i].

The relation between a moved element and a trace is called an A'-dependency (or A'-chain), since a *wh*-expression moves into Spec-CP which is a non-argument position, as opposed to an A-dependency (or A-chain) which involves movement to an argument position. I will first look at *wh*-movement in 1.3.1, focusing on *wh*-questions and relative clauses. I then turn to the case that a resumptive pronoun sits in the position where a trace would appear in 1.3.2, because Welsh makes use of this resumptive strategy to form an A'-dependency under certain environments (see 2.1 for distribution of resumptive pronouns in Welsh).

1.3.1 *Wh*-movement

First of all, I would like to consider what triggers *wh*-movement. Chomsky (2001) suggests that an EPP-feature (Extended Projection Principle) on C head drives movement of *wh*-expressions to the specifier position of CP. I make use of Chomsky's idea that C possesses an EPP-feature in A'-constructions, but I instead assume that this EPP merely requires *wh*-expressions to be filled in Spec-CP. That is, the EPP-feature on C is a precondition for *wh*-movement but this feature alone does not trigger movement. Adopting McCloskey (2002), I assume that an *Op*-feature together with the EPP-feature triggers the operation Move. I further assume, along the line of the operator movement analysis (cf. Chomsky 1981), that C may possess the *Op*-feature which identifies *wh*-operators, i.e. *wh*-expressions. Let us see a concrete example. (16) shows the structure for (14) above:

(16)



As can be seen in (16), the moved *wh*-expression *what* that occupies in Spec-CP c-commands its trace indicated by <>. This c-command relationship is a necessary condition to form an A'-dependency between a moved constituent and its trace. As mentioned above, feature checking takes place between C head and Spec-CP. In English, a complementizer in A'-dependencies is phonetically null; however, it is assumed that the null C has the EPP-feature and *Op*-feature. These features on C are checked with the moved *wh*-expression in Spec-CP. In (16), the EPP is satisfied by raising the *wh*-expression, and the *Op*-feature is checked by the *wh*-operator *what*.

The EPP analysis of *wh*-movement has interesting implications for multiple *wh*-questions which contain two or more *wh*-expressions. In English, only a *wh*-expression that originates higher in the structure can be preposed and any other *wh*-expressions in the lower clause remain in their original positions. This effect is known as a 'superiority effect' (Kuno and Robinson 1972, Chomsky 1973). The superiority effects are caused by movement of a *wh*-word across another *wh*-word, as illustrated in (17) and (18). The (a)-examples are grammatical since the object *wh*-word *what* stays in its in-situ position. On the other hand, the (b)-examples are somewhat degraded since *what* crosses over another *wh*-word *who* in (17b) and *whom* in (18b).[6]

(17) a. Who$_i$ t_i bought what?

b. * What$_i$ did who buy t_i? (Pesetsky 2000: 15)

(18) a. Who$_i$ did you persuade t_i to read what?

b. ?? What$_i$ did you persuade whom to read t_i? (Pesetsky 2000: 15)

Chomsky (1995) claims that the superiority effect is a consequence of a principle called the'Attract Closest Principle'.

(19) Attract Closest Principle:

K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K. (Chomsky 1995: 297)

[6] These judgements follow Pesetsky (2000). Kevin Donnelly (p.c.) points out to me that (16b) is acceptable. I have no account for why raising an object *wh*-word over a subject *wh*-word is acceptable for some native speakers of English, but there might be some prosodic effects involved.

This means that a head K attracts the closest constituent F that it c-commands that possesses a relevant feature. Under the assumptions expressed above, we can say that the C head which possesses the EPP-feature and *Op*-feature searches for the closest c-commanded *wh*-operator, and that *wh*-operator moves into Spec-CP for the feature checking purpose.

Furthermore, Pesetsky (1987) observed that the expected Superiority effect disappears with D-linked *wh*-phrases. Roughly speaking, *which*-phrases are discourse-linked (D-linked), whereas *who* and *what* are normally not D-linked. D-linking typically arises when the answers to the question are supposed to be drawn from a set of individuals previously introduced into the discourse, or when the set forms part of the *common ground* shared by speaker and hearer. The absence of superiority effect with *which*-phrases is illustrated below:

(20) a. Which person __ bought which book?
b. Which book did which person buy __? (Pesetsky 2000: 16)
(21) a. Which person did John talk to __ about which topic?
b. Which topic did John talk to which person about __? (Pesetsky 2000: 16)

Another type of A'-construction is a relative clause, as illustrated below.

(22) This is the guy [who I talked to].

In (22), the relative pronoun *who* refers to the antecedent in a higher clause *the guy*. The bracketed relative clause contains a *wh*-expression which has undergone *wh*-movement. Relative clauses can be analysed in a similar way as *wh*-questions, that is, a null complementizer possesses the *Op*-feature and the EPP-feature and these features triggers movement of a relative operator, i.e. a relative pronoun. Simplified structures of the relative clause in (22) before movement in (23a) and after movement in (23b) are shown below:

(23) a. $[_{CP}$ ø $_{[Op,\ EPP]}$ $[_{TP}$ I $[_{VP}$ talked $[_{PP}$ to who]]]]
b. $[_{CP}$ who$_i$ ø $_{[\surd Op,\ \surd EPP]}$ $[_{TP}$ I $[_{VP}$ talked $[_{PP}$ to t_i]]]]

The *Op*-feature and EPP-feature of the null C attract the closest *wh*-expression *who* in (23a). *Who* then moves to the Spec-CP position where the two features are checked in (23b).

One last assumption comes from a copy theory of movement. Chomsky (1993, 1995) proposes that the movement operation is in fact a composition of two fundamental operations: copying and deletion. A copy of the moved element is first created, and it is

inserted in the target position, i.e. Spec-CP. Then the occurrence of the moved phrase in the original site is deleted, which means that the lower copy is invisible at the PF interface. I will continue to use the term 'trace' hereafter, but when I refer to a trace, it means a lower copy in a technical sense.

1.3.2 Resumption

As we saw above, A'-dependency constructions such as *wh*-questions and relative clauses usually contain a trace. However, in some languages under certain conditions, a pronoun sits in the position where a trace would appear. This kind of pronoun is called a 'resumptive pronoun', and it duplicates the role of a phrase which has the same reference. Literary Welsh, for instance, employs a resumptive pronoun as the object of a preposition in relative clauses, as illustrated below.

(24) y bobol naethon nhw roi 'r gwobrau iddyn **nhw**
the people do.$_{PAST}$.3$_P$ they give the prizes to.3$_P$ them
'the people they gave the prizes to (*them)' (King 2003: 308)

Although English does not have a productive use of resumptive pronouns as the English counterpart of (24) above suggests, they can appear in certain environments as in (25) (see 3.2.1 for environments where a resumptive pronoun can be used).

(25) There are guests who I am curious about what **they** are going to say.
(McCloskey 2006: 94)

Compare the resumptive pronoun in (25) and an ordinary pronoun used in non-A'-environment as in (26).

(26) Most people think that **they** have a right to a decent job. (McCloskey 2006: 94)

The crucial distinction between the two types of pronoun is that the pronoun in (25) is obligatorily bound, namely the pronoun *they* must refer to the antecedent *guests* which c-commands the pronoun, whereas the pronoun in (26) is free to find its antecedent in the pragmatic or discourse context. Under principle B of the binding theory (Chomsky 1981), a

pronoun must be free in its binding domain. For concreteness, suppose that a pronoun cannot be coindexed and c-commanded by an element within the same CP. Indeed, in (26), the pronoun *the*y can refer to *most people* which is not in the same binding domain, but it does not necessarily do so. The pronoun *they* can refer to another element from the previous context. In (25), however, the pronoun *they* obligatorily refers to the antecedent *guests*. Based on these observations, McCloskey (2006: 95) informally defines a resumptive pronoun as "a pronominal element which is obligatorily bound and which appears in a position in which, under other circumstances, a gap would appear".

I would like to make clear the use of certain terms which may cause confusion. A resumptive pronoun may be phonologically null, as the Welsh example is illustrated below.

(27) y dyn y soniais amdano *pro*
the man C talk.$_{\text{PAST}}$.1$_{\text{S}}$ about.3$_{\text{MS}}$
'the man whom I talked about' (Awbery 1977: 172)

There is no overt resumptive pronoun in (27) above, however, a null pronoun, i.e. *pro*, is licensed by the rich agreement morphology on the preposition *amdano* 'about' in the third-person masculine singular form (see McCloskey and Hale 1984 for an earlier account on Irish). The term 'gap' is usually interchangeably used with a 'trace' derived by movement, but it may be confusing with a phonologically null element such as *pro*. For this reason, I will avoid using the term 'gap', except for the commonly used term 'filler-gap dependency' which expresses the relationship between a *wh*-expression and its c-commanding trace. For a phonologically null resumptive pronoun, I will use 'null pronoun', 'null *pro*', 'resumptive *pro*' or simply '*pro*'.

Finally, I would like to consider the semantics of *wh*-movement and resumption briefly. I will show some syntactic differences between the two A'-constructions in languages such as Irish and Welsh in chapter 3; however, a trace and a resumptive pronoun share a crucial semantic property: namely, they are both variables. Chomsky (1981: 324) argues that a *wh*-question as in (28a) below has the semantic representation of (28b) which can be interpreted as 'Of which x (such that x is a thing) is it true that she ate x?'.

(28) a. What did she eat?
b. Which x (x a thing), she ate x

In the LF representation (28b), the quantifier *which* functions as an interrogative operator that binds the variable x. Syntactic representations need to be mapped onto semantic representations, as well as phonological representations as we saw in 1.2.2, because a grammar must compute a semantic representation for each syntactic structure that it generates. McCloskey (1990: 199) gives the following definition of the syntactic variable as "an element that is syntactically bound and whose most immediate binder is an element in an A-bar-position". Following the above definition, both a trace and a resumptive pronoun are understood as variables. Under *wh*-movement, a *wh*-operator in the Spec-CP position binds its c-commanded trace. Under resumption, an operator in Spec-CP also binds its c-commanded pronoun. Having this background of *wh*-constructions in hand, we will look at previous research on P-stranding more specifically.

1.4 Previous research on P-stranding

This section first looks at cross-linguistic variation on the availability of P-stranding and then reviews previous theoretical analyses of P-stranding. Three main approaches had been proposed in 70s and 80s: escape hatch, reanalysis, and government approaches. A pioneer study comes from van Riemsdijk (1978). He proposes that an occurrence of P-stranding depends on the availability of an escape hatch position within PP. Subsequently, a reanalysis approach was first proposed by Hornstein and Weinberg (1981). They argue that V and its adjacent P form a complex V and this reanalysis process makes P-stranding possible. Then, Kayne (1981, 1984) modifies the reanalysis approach in terms of the government properties of P.

More recently, two other prominent approaches can be found in the literature: phase and incorporation approaches. Abels (2003a) proposes the phase-based approach, using the notion of 'phase' in Chomsky (2000) and subsequent works. Abels claims that the availability of P-stranding is regulated by whether P is a phase head or not in a given language. In fact, his approach is conceptually similar to van Riemsdijk's approach, but he expands the escape hatch approach based on the notion of phase. The other is the D(eterminer)-to-P(reposition) incorporation approach proposed by Law (1998, 2006) and Salles (1997). They argue that if a language has contracted forms between an adposition and a determiner, the adposition cannot be stranded.

As we will see in chapter 4, my analysis is closest to the incorporation approach, especially the one in Salles, but I will develop this approach using the idea of PF feature checking proposed in Ackema and Neeleman (2004). Here I will review the main arguments of each approach mentioned above.[7] But, before that, we will briefly look at crosslinguistic variation on the availability of P-stranding.

1.4.1 Cross-linguistic variation

As van Riemsdijk (1978) pointed out, P-stranding is a rather rare phenomenon across languages. Even in languages that allows P-stranding, it is restricted in various ways. This section briefly illustrates the (un)availability of P-stranding under A'-movement cross-linguistically, using examples especially from languages that will be relevant in the following discussion. I will first show a handful of languages that allow P-stranding. P-stranding is available in Icelandic and Scandinavian languages such as Danish, Norwegian and Swedish (Merchant 2002). In Western Germanic, English and Frisian (Hoekstra 1995) allow it. Prince Edward Island French spoken in Canada also widely allows P-stranding (King 2000, also see 6.3.2). Outside the Germanic languages, Kru languages spoken in West Africa: Vata and Gbadi allow it with postpositions (Koopman 1984). The English, Icelandic and Norwegian examples are illustrated below from Merchant (2001):

(29) Who was he talking with? (Merchant 2001: 92)

(30) Hvern hefur Pétur talað við? Icelandic
who has Peter talked with (Merchant 2001: 93)

(31) Vem har Peter talat med? Swedish
who has Peter talked with (Merchant 2001: 93)

In contrast, P-stranding is not available in the majority of languages. Merchant (2001) provides data from eighteen languages that disallow P-stranding. Fifteen of them are Indo-European: Greek, German, Dutch, Yiddish, Russian, Slovene, Polish, Czech, Bulgarian, Serbo-Croatian, Slovene, Persian, Catalan, Spanish, French, and Italian. The other three languages are non-Indo-European: Hebrew, Moroccan Arabic, and Basque. The examples of

[7] I will not go into the Kayne's government based-approach here, since it relies on theoretical concepts that are not used in the current syntactic theory.

German and Dutch from West Germanic, and Russian from Slavic, and Spanish and French from Romance are given here.

(32) * Wem hat sie mit gesprochen? German
who has she with spoken (Merchant 2001: 94)
(33) */??/? Wie heft zij mee gesproken? Dutch
who has she with spoken (Merchant 2001: 95)
(34) * Kem ona govorila s? Russian
who she spoke with (Merchant 2001: 95)
(35) * ¿Quién habló con? Spanish
who spoke.3_S with (Merchant 2001: 98)
(36) * Chi ha parlato Pietro con? Italian
who has spoken Peter with (Merchant 2001: 99)

1.4.2 Escape hatch approach

We now turn to previous analyses of P-stranding, starting from van Riemsdijk's (1978) study. He extends Chomsky's (1973) theory of subjacency and proposes that PP is a bounding node in addition to S and NP. Chomsky (1973) introduced the notion of an 'escape hatch': a peripheral position that a moved element must pass through. Van Riemsdijk further expressed the following general constraint on movement, called the 'Head Constraint'.

(37) The Head Constraint:
No rule may involve X_i / X_j and Y_i / Y_j in the structure
… X_i … $[_H{}^n$ … $[_{H'}$… Y_i … H … Y_j … $]_{H'}$ … $]_H{}^n$ … X_j …
where H is the phonologically specified (i.e. non-null) head and H^n is the maximal projection of H'''. (van Riemsdijk 1978: 160)

The Head Constraint rules out extraction out of the maximal projection of the head H from the domain H' if the H is phonologically specified. This means that movement of Y_i to X_i or Y_j to X_j in (37) is banned. Van Riemsdijk suggests that PPs are universally bounding nodes and there is a parameter whether PPs have or do not have a COMP position that can serve as an escape hatch. In more recent terminology, this means that there is a parameter whether PPs have a specifier position that can serve as escape hatch or not. Informally speaking, P-

stranding is generally disallowed due to the Head Constraint in (37), however, in some languages' movement of the complement of P through the specifier position within PP is allowed, which escapes the Head Constraint.

Van Riemsdijk argues that the escape hatch approach accounts for the limited occurrence of P-stranding in Dutch and German.[8] Dutch has locative pronouns, what van Riemsdijk calls 'R-pronouns',[9] which occur with a postposition. R-pronouns such as *er* 'there/it', *waar* 'where/what', and *daar* 'there' appear to the left of Ps as in (38a), whereas non-R-pronouns such as *hem* 'him' and *wie* 'who' must appear to the right as in (38b). This is illustrated using the adposition *op* 'on' below:

(38) a. er op / * op er 'on it'; waar op / * op waar 'on where' Dutch
b. op hem / * hem op 'on him'; op wie / * wie op 'on whom' (van Riemsdijk 1978: 37)

Dutch does not readily allow preposition stranding as in (39a), however, postposition stranding with R-pronouns is possible as in (39b).

(39) a. * Wie heb je [op __] gerekend? Dutch
who have you on counted
'Who did you count on?' (van Riemsdijk 1978: 137)
b. Waar heb je [__ op] gerekend?
where have you on counted
'What did you count on?' (van Riemsdijk 1978: 135)

Van Riemsdijk argues that the difference between (39a) and (39b) regarding the availability of P-stranding is due to the availability of an escape hatch in Spec-PP. The following sets of examples illustrate the contrast between R-pronouns in (40) and non-R-pronouns in (41). Van Riemsdijk (1978) claims that R-pronouns originate in the complement position of P. In (40a), the R-pronoun *er* moves to the specifier position of P *op*. (40b) further shows that stranding of the P is acceptable since the R-pronoun is extracted through Spec-PP, an escape hatch

[8] German shows similar behaviour regarding the stranding of prepositions, but its occurrence is more limited than in Dutch (compare (32) and (33) above) and there are dialectal variations (see Abels (2003: 192-217) and references cited there).

[9] They are called R-pronouns since all R-pronouns in Dutch contain an /r/-phoneme. German also has R-pronouns such as *da* 'there' and *wo* 'where'.

position. In contrast, it turns out to be ill-formed in the case of non-R-pronouns, as illustrated in (41). According to van Riemsijk, non-R-pronouns may not employ Spec-PP as an escape hatch for extraction out of PP, since they cannot be independently generated there.

(40) a. Ik had niet [$_{PP}$ er$_i$ [op t_i]] gerekend. Dutch
I had not it on counted
'I had not counted on it.'
b. Ik had er$_i$ niet [$_{PP}$ t_i [op t_i]] gerekend.
I had it not on counted (Law 2006: 634)

(41) a. Ik had niet [$_{PP}$ [op hem]] gerekend.
I had not on him counted
b. * Ik had niet [$_{PP}$ hem$_i$ [op t_i]] gerekend.
c. * Ik had hem$_i$ niet [$_{PP}$ t_i [op t_i]] gerekend. (Law 2006: 634)

Under the escape hatch approach, phrases moving out of PP have to pass through an intermediate landing site in the Spec-PP position in languages that allow P-stranding.

1.4.3 Reanalysis approach

Hornstein and Weinberg (1981) propose an analysis of P-stranding based on the operation of 'reanalysis'. Their analysis is based on three assumptions. First, there is a universal filter blocking oblique traces.

(42) * [$_{NP}$ e$_{oblique}$] (Hornstein & Weinberg 1981: 60)

This filter rules out empty NPs marked with oblique Case. Second, there is a language specific rule of syntactic reanalysis.

(43) V → V* (where V c-commands all elements in V*) (Hornstein & Weinberg 1981: 60)

This reanalysis operation takes V and any contiguous VP-internal element to its right, and reanalyses that element as a complex verb V*. Third, the reanalysis rule (42) applies in the base, that is, before movement and the filter in (43).

Concrete examples are shown to illustrate how these rules work. The reanalysis rule (43) would apply to VP in (44a) to be reanalysed as either (44b) or (44c).

(44) a. John [$_{VP}$ [$_{V}$ talked [$_{PP}$ to Harry] [$_{PP}$ about Fred]]].
b. John [$_{VP}$ [$_{V}$ talked to] Harry [$_{PP}$ about Fred]].
c. John [$_{VP}$ [$_{V}$ talked to Harry about] Fred]]. (Hornstein & Weinberg 1981: 60)

The string *talked to* in (44b) and *talked to Harry about* in (44c) is reanalysed in the base, and the prepositions *to* in (44b) and *about* in (44c) in the complex verb no longer assign oblique Case to the following DPs. Therefore, *wh*-expressions that originate in those DP positions can be extracted, as in (45), which does not violate the oblique Case filter in (42).

(45) a. Who$_i$ did John [$_{VP}$ [$_{V}$ talk to] [t_i [$_{PP}$ about Fred]]?
b. Who$_i$ did John [$_{VP}$ [$_{V}$ talk to Harry about] t_i]?

Hornstein and Weinberg (1981) point out that the reanalysis rule cannot apply if another constituent intervenes between a verb and a preposition.

(46) a. [$_{S}$ I [$_{VP}$ spoke to Harry about John] yesterday].
b. [$_{S}$ I [$_{VP}$ spoke to Harry] yesterday [about John]. (Hornstein & Weinberg 1981: 59)
(47) a. Who$_i$ did you speak to Harry about t_i yesterday?
b. * Who$_i$ did you speak to Harry yesterday about t_i? (Hornstein & Weinberg 1981: 59)

In (46b), the preposition *about* cannot form a complex verb with the preceding VP due to the presence of the adverb *yesterday*. As the result, the extraction of complement of the preposition *about* turns out to be ungrammatical as in (47b).

The reanalysis approach has had an enormous amount of attention in the literature, and it has been exposed to much criticism (Abels 2003; Baltin and Postal 1996; Koster 1987; Law 2006; Newmeyer 1998; Salles 1997; Takami 1988; Truswell 2009, among others). Koster (1987) points out the cases where V and P do not behave like a constituent. If V and P makes a complex verb as Hornstein and Weinberg propose, the following data of gapping in (48) and Heavy NP shift in (49) are problematic. The examples below are taken from Newmeyer (2005: 114-115):

(48) a. * John looked at Mary and Bill ___ Sue.

b. John looked at Mary and Bill ___ at Sue.

(49) a. John looked at [the woman he loved] very often.

b. John looked very often [at the woman he loved].

c. * John looked at very often [the woman he loved].

The grammatical contrast in (48) seems to suggest that the P *at* relates to the object noun *Sue* more closely than the verb *look*. The heavy NP shift data in (49) also shows a similar contrast. (49b) is well-formed even though the adverb intervenes between V and P, conversely, (49c) is ill-formed even though the P is adjacent to the V.

Moreover, as many have pointed out, the reanalysis approach is conceptually undesirable, since it is construction-specific. Newmeyer (1998) concludes; "[s]urely, to adopt such a solution [the reanalysis operation, RH] is simply to give up and say that there is no more general explanation of the phenomenon." Therefore I will not pursue this approach further.

1.4.4 Phase approach (Abels 2003a)

We turn to the phase-based approach proposed in Abels (2003a). As in van Riemsdijk (1978), Abels proposes a constraint that regulates the locality of movement. The main difference is that Abels works with a descendent of the Head Constraint, namely the notion of 'phase' similar to that of Chomsky (2000), where the node responsible for bounding properties is not a maximal projection, but the head of that projection (Truswell 2009). A phase head is defined for Abels as a head bearing a set of unvalued features. Abels expresses his constraint as a Stranding Generalization.

(50) Stranding Generalization:

Given a phase head α° and a constituent X in α°'s c-command domain

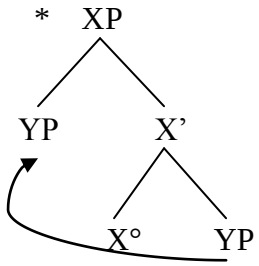
a. √ [X … [α° [… t_x …]] …] and

b. * [X … [α° t_x …] …] (Abels 2003a: 9)

The Stranding Generalization in (50a) says that a phase head may allow a constituent X to move out of its c-command domain. Movement out of the domain of a phase head must pass

though the specifier of that phase head. However, a phase head never allows movement of its own complement as in (50b). Abels calls this an Anti-locality Constraint, as shown below:

(51) Anti-locality Constraint:



(Abels 2003a: 12)

(51) rules out movement of the complement to the specifier of that very same head. Abels assumes that movement is allowed only if it establishes a new feature checking relation. The head-complement relation is the closest possible relation in syntax, that is, they c-command each other. No additional feature checking possibilities could arise from movement of the phrase YP in the complement to the specifier of the phase head X°; therefore, such movement is impossible.

Abels further argues that P may also be a phase head, as well as v and C (cf. Chomsky 2000). He claims that the ban against P-stranding in most languages is just an instance of the Stranding Generalization in (50). Here is the PP version of (50):

(52) a. √ [X … [P° [… t_x …]] and
b. * [X … [P° t_x] …] (Abels 2003a: 158)

Given P is a phase head, the Anti-locality Constraint bans extraction of the complement of P as in (52b). This is the situation in non-P-stranding languages. However, sub-extraction out of PP is possible in principle as in (52a). Under van Riemsdijk's system, no element within PP moves out in non-P-stranding languages, that is, nothing can escape from PP without violating the Head Constraint. Abels points out that this is empirically inadequate since non-P-stranding languages sometimes allow sub-extraction out of PP although these examples are rare. As shown in (34), Russian is a non-P-stranding language. It requires pied-piping as in (53a) rather than P-stranding as in (53b). However, the extraction of a smaller constituent *na cto* 'on what' embedded within PP in (54) is acceptable or close to acceptable.

(53) a. Ot cego sleduet otkazat'sja?
of what follows give up-self
'What should one give up?'
b. * Cego sleduet otkazat'sja ot?
what follows give up-self of (Abels 2003a: 160)

(54) ? Na cto sleduet otkazat'sja [$_{PP}$ ot vsjaceskih pretenzij $t_{na\ cto}$]
on what follows give up-self of whatsoever hopes
'What should one rid oneself of any kind of hope for?' (Abels 2003a: 161)

The above examples suggest that PPs are not inherently barriers to movement even in non-P-stranding languages.

Abels proposes that whether a language allows P-stranding or not depends on the properties of P in that language, and is subject to parameterization. Phrases moving out of PP have to pass through Spec-PP as an intermediate landing site in languages where P is a phase head; on the other hand, they can be extracted without passing through the specifier of P in languages where P is not a phase head. This parametric situation is expressed below in (55).

(55) [+/-] P^{o} is a phase head. (Abels 2003a: 233)

Abels suggests that the property whether a language allows P-stranding or not resides in the inherent properties of P in that language. If P is a phase head in a given language, P-stranding is disallowed. This is common across languages. In contrast, if P is not a phase head in a given language, extraction from the complement position of P is allowed. This is the situation found in P-stranding languages. There seems to be no independent test for whether P is a phase head or not.

1.4.5 Incorporation approach

The last analysis is the incorporation approach proposed independently by Law (1998, 2006) and Salles (1997). Both argue that the availability of P-stranding relies on morphological properties, that is, whether a language has contracted forms between an adposition and a determiner or not.

We will look at Law's arguments first. Law (2006: 646) observes that a preposition sometimes coalesces with a following determiner into a contracted form[10] in a language that disallows P-stranding, as in Romance and German. Contracted forms in French, Italian and German are illustrated in (56):

(56) a. du = de le 'of/about the.$_{\text{MASC}}$' French
b. del = di il 'of/about the.$_{\text{MASC}}$' Italian
c. am = an dem 'at/by the.$_{\text{MASC / NEUTER}}$' German
(Law 2006: 646)

Intuitively, the contracted forms shown above indicate that the two elements which involve contraction form one unit. Law claims that the lack of P-stranding is considered to be a consequence of P not being separable from the following D, since P-stranding is the result of moving the DP that is an object of P. Law's account of this intuition will be shown below.

Law (1998) and van Riemsdijk (1998) propose that the mapping between syntax and morphology is subject to the following syntax-morphology-interface condition:

(57) Syntactic constraint on suppletion:[11]
Elements that undergo suppletive rules must form a syntactic unit X°. (Law 2006: 647)

From this viewpoint, the contractions in (56) can be taken to be evidence that D incorporates into P in overt syntax, so that P+D as a syntactic unit may undergo the contraction rule. Here is the configuration of contracted forms:

(58) $[_{PP}\ [P°+D_i°\ [_{DP}\ [t_i\ [_{NP}\ [N°]]]]]]$ (Law 2006: 647)

Let us see concrete examples. Romance languages have contracted forms as shown in (56), which suggests that D has incorporated into P, therefore DP in the complement of P

[10] In fact, Law (2006) calls it a suppletive form. However, suppletion is defined as a "Morphological process or alternation in which one form wholly replaces another" (Matthews 2007), providing *went* from *go* as an example. These forms show that two separate elements fuse into single word rather than an alternation of one word, which should be a contraction.

[11] I will use the word 'suppletion' here as in Law (2006).

cannot move leaving its head P behind. As expected, P-stranding under A'-movement is impossible, as in the French examples illustrated in (59) below.

(59) a. * Quel sujet$_i$ as-tu parlé de t_i? French
which subject have-you talked about
'Which subject did you talk about?'
b. … [$_{PP}$ [[de+quel$_i$] [$_{DP}$ t_i [$_{NP}$ sujet]]]]
c. Qui a parle duquel sujet?
who has talked about-the subject
'Who have talked about which subject?'
d. Duquel sujet$_i$ as-tu parlé?
about-which usbject have-you talked
'About which subject did you talk?' (Law 2006: 649)

In the structure in (59b), the head D *quel* incorporates into the P *de*, which can be seen from the contracted form *duquel* in (59c, d). The head D cannot move with its NP *sujet*, since the two no longer form a syntactic constituent.

German, as well as Dutch, has contracted forms as in (56c). This suggests that the D-to-P incorporation is operative in these languages. German as in Romance languages does not allow P-stranding in most cases. In (44a), the D *welchem* incorporates into the P, as shown in (60b),[12] it therefore cannot move with its NP complement since the two do not form a syntactic unit.

(60) a. *Welchem Kerl hast du mit gerechnet? German
which guy have you with counted
'Which guy have you counted on?'
b. … [$_{PP}$ [[mit+welchem$_i$] [$_{DP}$ [t_i Kerl]]]] … (Law 2006: 651)

On the other hand, contracted forms of P+D are not observed in English and Scandinavian languages. As there is no D-to-P incorporation, P-stranding is possible in these languages.

Welsh in fact allows a contracted form of P+D. If the definite article *y(r)* follows a preposition that ends in a vowel, it occurs in the contracted form *'r* /r/, as illustrated below.

[12] The German *wh*-expression *welchem* 'which', however, does not have contracted forms.

(61) o**'r** tŷ / ardd
from-the house / garden
'from the house / garden' (Borsley et al. 2007: 155)

The existence of the contracted form suggests that D is incorporated into P. The incorporation between D and P predicts that Welsh disallows P-stranding. This correctly captures the situation in Literary Welsh. However, the incorporation approach cannot account of the occurrence of P-stranding in Colloquial Welsh. This is because the use of the determiner *'r* is robust when it follows a vowel in Colloquial Welsh as well. Therefore, it seems difficult for the D-to-P incorporation approach to account of the difference between Colloquial Welsh and Literary Welsh.

Prior to Law, Salles (1997) proposes a similar account of P-stranding. Salles provides similar sets of data as in Law (2006); however, she rather argues that the unavailability of P-stranding correlates with phi-feature (such as person, number and gender features) realisation on P. Salles (1997: chapter 4) considers why pied-piping is obligatory in languages that have contracted forms between P and D. According to her, this question can be understood straightforwardly under the minimalist framework, namely movement carries just enough material for convergence (Chomsky 1995). For Salles, the trigger for *wh*-movement is a strong Q-feature on a C head (compare 1.3.1 above), and a *wh*-expression needs to move to Spec-CP in order to satisfy this feature. In Romance languages, the *wh*-expression has to move together with P because P and D are amalgamated. In English and Scandinavian languages, the *wh*-expression can move to Spec-CP on its own due to the lack of contracted forms. Salles claims that this analysis follows the minimalist assumption that a condition of syntactic behaviour is determined by the morphological properties of the language.

Salles hypothesises that the P and D agreement relation corresponds to feature checking in the spec-head configuration. Following Chomsky (1995), Salles assumes that feature checking in the spec-head configuration is associated with overt XP movement and strong feature checking. She further assumes that phi-feature realisation on P involves a strong D-feature in Romance languages, whereas P possesses a weak D-feature in English and Scandinavian languages. In Romance languages, the strong D-feature of P is checked under phi-feature realisation on P. Salles claims that this is because contraction between P and D is obligatory in these languages, and this contraction blocks DP merge in Spec-PP. In English

and Scandinavian languages, given that P has a weak D-feature, P and D do not involve phi-feature checking in the spec-head configuration, and P only licenses DP in the complement position.

Salles briefly considers Celtic languages. Among other Celtic languages, Welsh has inflected P with personal pronouns, as illustrated below.

(62) wrtho ef
by.3_{MS} he (Salles 1997: 109)

Salles assumes that Celtic languages disallow P-stranding as in Romance languages, and argues that this is due to phi-feature realisation on P. An important difference is that inflected P in Celtic languages bears person, gender and number features, whereas in Romance, only gender and number features. This is simply because P in Celtic languages shows inflection with personal pronouns which obviously have the person feature. Salles (1997: 110) also touches on a possible counterexample to her analysis in a footnote. In Irish, inflected P can be stranded as in (63) below, although the preposition *leis* bears phi-features.

(63) Cé a raibh tú ag caint leis?
who C were you talk.$_{PROG}$ with-him
'Who were you talking to?' (McCloskey 1990: 234)

Salles states that the above case should not be treated in the same way as English P-stranding precisely because P is inflected. But she leaves the Celtic cases for future work because "[t]he Celtic inflected P is a topic in itself, and a rather interesting one" (Salles 1997: 110). I take up the issue in this dissertation.

1.5 Outline of the dissertation

This section provides a preview of the coming chapters.

Chapter 2 describes Welsh *wh*-constructions, dealing with *wh*-questions and relative clauses. We will first look at the distribution of a trace and a resumptive pronoun in various positions in Welsh *wh*-constructions, mainly based on Borsley *et al*. (2007). We will then focus on prepositional *wh*-constructions. The default pattern in Literary Welsh is that relative clauses require a resumptive pronoun which is licensed by the rich agreement of preposition

(see1.3.2 above) and *wh*-questions require pied-piping of an entire PP. On the other hand, P-stranding without agreement on the preposition is widely observed in Colloquial Welsh in both relative clauses and *wh*-questions (Willis 2000). The following generalization can be drawn from the above observation. A preposition in Literary Welsh is followed by its pronominal complement, i.e. a resumptive pronoun in relatives and a *wh*-expression in interrogatives, whereas a preposition in Colloquial Welsh is followed by a trace left by movement. Native speakers' acceptability judgement tests also show that the P-stranding option is available colloquially.

Chapter 3 presents the typology of resumption developed by McCloskey (2006) and Asudeh (2010) and considers where Welsh resumptives may fit in this system. Three types of resumptive pronouns will be first introduced: processor resumptives, syntactically active resumptives and syntactically inactive resumptives. McCloskey and Asudeh suggest that the syntactic behaviour of resumption varies from language to language. Syntactically active resumptives do not display general properties of movement such as island-sensitivity and weak crossover violation, whereas syntactically inactive resumptives display them. The data of island-sensitivity and weak crossover effects are not very clear. However, Willis (2011) shows empirical evidence that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. This suggests that there is movement with resumptive pronouns.

Chapter 4 presents an account of the different syntactic behaviour on the availability of P-stranding between Literary Welsh and Colloquial Welsh. As we saw in 1.2, my account is based on the notion of PF feature checking in Ackema and Neeleman (2004). I assume that the crucial difference between the two varieties is that a P head in Literary Welsh possesses AGR-features on person, number and gender, but in Colloquial Welsh does not. In relatives, we can see this contrast from the presence/absence of inflectional morphology on P. In Literary Welsh, given a P head possesses AGR-features, PF checking takes place between P and its complement to check AGR-features in the same prosodic domain. At the same time, an EPP-feature on v and C head requires their specifier positions to be filled for syntactic checking (see 1.3 above). However, since PF checking already holds between P and its DP complement in Literary Welsh, the DP in the complement position no longer moves to the Spec-CP position to check the EPP feature with the C head (see 1.2.3). Adopting Willis (2011), I will assume that a null *wh*-operator is inserted into the specifier of P from the lexicon, and then the EPP requirement is satisfied by movement of that operator to Spec-CP

via Spec-vP. In Colloquial Welsh, PF feature checking does not hold between P and its complement due to the lack of AGR-features on P. As a consequence, a *wh*-operator can move out from the complement position of P, then it moves following successive cyclicity.

For *wh*-questions in Literary Welsh, I continue to assume that the P head bears AGR-features despite its appearance in a bare form. This is because Welsh *wh*-expressions are in fact non-pronominal in terms of morphological agreement (Borsley 2009). Therefore, the PF feature checking takes place between P and its complement. This disallows movement of a *wh*-word to Spec-CP on its own. Rather, the elements in the PF checking relation move together to satisfy the EPP requirement on C, which is simply a phrasal movement of PP. I will also consider the consequences of this analysis and advantages of the feature checking approach.

Chapter 5 investigates the four P-stranding generalizations expressed in Abels (2003a). First, all languages that allow P-stranding under passive (i.e. pseudo-passive) also allow P-stranding under *wh*-constructions. Second, languages that disallow P-stranding do not allow clitic pronouns as the complement of P. Third, all languages that allow P-stranding also have verbal particles (i.e. phrasal verbs) (Stowell 1982). Fourth, a language allows P-stranding under sluicing only if it allows P-stranding under *wh*-question (Merchant 2001). I will first check whether these generalizations hold in Welsh. Then, I will consider these phenomena making use of the PF feature checking analysis developed in chapter 4.

Chapter 6 discusses the occurrence of P-stranding in Colloquial Welsh from a diachronic point of view. Borsley *et al*. (2007: 116) suggest that the appearance of P-stranding is "a twentieth-century innovation from language contact, modelled on preposition stranding as found in English". This seems to be the case if we consider the very extensive contact with English; virtually all Welsh speakers are bilingual in Welsh and English (see 1.1 above). I will suggest that the occurrence of P-stranding in colloquial Welsh is due to the activation of English syntactic knowledge in terms of processing while Welsh-English bilinguals are speaking Welsh, using the notion of 'bilingual mode' developed by Grosjean (2001). Following an acquisition-based model of language change (Andersen 1973, among others), I assume that language change takes place if a younger group acquires a grammar which is slightly different from the one of the older group. In my case study, this means that language change takes place if children acquire the P-stranding option in their mental grammar. I will argue that synchronically Welsh speakers have two grammars in their mind, i.e. Literary Welsh and Colloquial Welsh. Adopting the competing-grammars analysis in Kroch (1989), I

will suggest that the P-stranding and non-P-stranding options associated with the two registers are in competition diachronically. The competing-grammars analysis predicts that the non-P-stranding option will be replaced by the P-stranding option over the period of time.

In chapter 7, I review my claims in this dissertation, and then consider remaining problems for future research.

CHAPTER 2

DESCRIPTION OF *WH*-CONSTRUCTIONS AND PP IN WELSH

2.1 Introduction

Welsh makes use of two strategies to form A'-dependencies depending on the position of variables (see 1.3). One is the movement strategy where a variable position is occupied by a trace. The other is the resumptive strategy where a pronoun is identified in a variable position. For instance, when a variable is identified in object of finite verbs, the movement strategy is used to form a relative clause. In (1), there is no resumptive pronoun, and a trace is posited in object position of the verb *werthodd* 'sold'. The trace position is marked as __.

(1) y car werthodd Gareth __
the car sell.$_{PAST}$.3$_{S}$ Gareth
'the car that Gareth sold' (Willis 2000: 533)

In prepositional relatives, on the other hand, a resumptive pronoun sits in object position of a preposition, as illustrated in (2) below. A resumptive pronoun is underlined throughout the chapter.

(2) y bobl werthodd Ieuan y ceffyl iddyn nhw
the people sell.$_{PAST}$.3$_{S}$ Ieuan the horse to.3$_{MS}$ them
'the people that Ieuan sold the horse to (them)' (Willis 2011: 190)

Although the above two strategies are used in the various A'-constructions in Welsh, such as clefts, comparatives, non-finite *wh*-constructions, etc. (see Borsley *et al*. 2007), I will focus on relative clauses and *wh*-questions since they are particularly relevant to P-stranding.

This chapter is organised as follows. Section 2.2 provides an overview of the distribution of a trace and a resumptive pronoun in various syntactic positions in Welsh. Section 2.3 focuses on prepositional *wh*-constructions and describes the different syntactic behaviour between Literary Welsh and Colloquial Welsh. Then, section 2.4 presents the acceptability judgements of prepositional *wh*-constructions that I conducted. Section 2.5 concludes the chapter.

2.2 Availability of movement and resumption in Welsh *wh*-constructions (Willis 2000; Borsley, Tallerman and Willis 2007)

This section presents the availability of the movement and resumptive strategies in various syntactic positions, based on Willis (2000) and Borsley *et al*. (2007: chapter 4). Two diagnostics will be used to identify the two strategies (see chapter 3 for more formal properties). First, the movement strategy manifests a weak (default) agreement pattern, whereas the resumptive strategy generally shows rich agreement (Willis 2000: 533). Examples (3) and (4) illustrate this contrast:

(3) a. y gwragedd a welodd y ddamwain
the women C see.$_{\text{PAST}}$.**3$_{\text{S}}$** the accident
'the women who saw the accident'
b. * y gwragedd a welasant y ddamwain
the women C see.$_{\text{PAST}}$.**3$_{\text{P}}$** the accedent (Willis 2000: 533)

(4) a. y dynion y prynais eu car *pro*
the men C buy.$_{\text{PAST}}$.1$_{\text{S}}$ **3$_{\text{P}}$** car
'the men whose car I bought' (Willis 2000: 534)
b. * y dynion y prynais ei gar
the men C buy.$_{\text{PAST}}$.1$_{\text{S}}$ **3$_{\text{MS}}$** car (Willis 2000: 535)

If a subject is relativized, a verb does not agree with that subject, rather it occurs in a default third-person singular form. In (3), the verb is obligatorily singular *welodd* 'saw' despite the fact that the antecedent *y gwragedd* 'women' is plural. The rich agreement pattern in the third-person plural form *welasant* is not possible. In a possessor relative, on the other hand, a clitic must agree with an antecedent of the relative clause. In (4a), the clitic *eu* shows rich agreement with the plural antecedent *y dynion* 'the men'. As we saw in 1.3.1, this rich agreement morphology licenses a resumptive pronoun, even if there is no overt pronoun. It is assumed that there is a null pronoun (i.e. *pro*). The use of the non-agreeing clitic *ei* in the third-person masculine singular form is ungrammatical, as in (4b).

Second, the movement strategy disallows overt pronouns in variable positions, although the resumptive strategy may allow them (Willis 2000: 534). An occurrence of the overt pronoun *nhw* 'they' in subject position turns out to be ungrammatical, as illustrated in (5). In

contrast, the overt pronoun is possible in possessor noun phrases even though it is rare in Literary Welsh (Willis 2000: 538), as in (6).

(5) * y gwragedd a welodd nhw y ddamwain
the women C see.$_{PAST}$.3$_S$ they the accident
'the women who (they) saw the accident' (adapted from Willis 2000: 534)

(6) y dynion y prynais eu car nhw
the men C buy.$_{PAST}$.1$_S$ 3$_P$ car
'the men whose car I bought' (Willis 2000: 538)

Although the exact distribution is still debated, the two strategies show the following distribution based on the above two diagnostics. The movement strategy is used when variables are in subject, direct object and adjunct positions, and the object of preposition in current Colloquial Welsh. On the other hand, the resumptive strategy is used when variables are in object of a preposition and a possessor noun phrase in relative clauses, and *wh*-questions requires pied-piping of an entire phrase. The availability of the different patterns of forming *wh*-constructions for different variable positions is summarised in (7).

(7) Patterns of forming *wh*-constructions:

	Wh-question	Relative clause
subject	movement	movement
object of synthetic verb	movement	movement
object of periphrastic verb	movement	movement
adjunct	movement	movement
object of preposition (Col. W)	movement	movement
object of preposition (Lit. W)	pied-piping	resumption
possessor noun phrase	pied-piping	resumption

In this section, 2.2.1 will first introduce relative markers used in *wh*-constructions in Welsh. Then, the availability of the movement strategy and the resumptive strategy will be shown in the above-mentioned syntactic positions: subject in 2.2.2, direct object in 2.2.3, adjunct position in 2.2.4, and possessor noun phrase in 2.2.5 (see 2.3 for object of preposition).

2.2.1 Form of complementizers

Relative clauses in Literary Welsh have traditionally been divided into two types: the direct relative clause and the indirect relative clause (Willis 2000: 531). The direct type uses the relative marker *a* followed by soft mutation (henceforth *aS*) of the initial consonant of the following word.[13] In (8), the initial consonant 'g' of *gwelai* is dropped due to soft mutation. The indirect type uses the relative marker *y(r)*[14] which does not cause any mutation, as in (9).

(8) yr olygfa **a** welai __ o ben y mynydd
the view saw.$_{\text{IMPF}}$ from top the mountain
'the view that he had from the top of the mountain' (Willis 2000: 532)

(9) yr ysgol **yr** âi Deian a Loli iddi __
the school went.$_{\text{IMPF}}$ Deian and Loli to.3$_{\text{FS}}$
'the school that Deian and Loli went to' (Willis 2000: 532)

The two markers can be found across the whole range of A'-constructions. These markers are generally assumed as complementizers (see McCloskey 1990 for the treatment of Irish complementizers). The standard analysis, which can go back to Awbery (1977), regards them as a reflection of the distinction between the movement and resumptive strategies to form relative clauses, namely *aS* is used for the movement structure whereas *y(r)* is used for the resumptive structure. However, Willis (2000) points out that a form of complementizers does not directly correspond to a relativization strategy in Welsh (see also Rouveret 1994).

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[13] Mutation is an alternation of word-initial consonants shared in all Celtic languages. In Welsh, there are three types of mutation: soft mutation, nasal mutation and aspirate mutation. They are triggered mostly by an immediately preceding lexical item or sometimes by morphosyntactic conditions (see Borsley 2007: chapter 7 for more detail). These types of mutation cause the following alternations:

Radical	Soft mutation	Nasal mutation	Aspirate mutation
p [p]	b [b]	mh [m̥^{h}]	ph [f]
t [t]	d [d]	nh [n̥^{h}]	th [θ]
c [k]	g [g]	ngh [ŋ̊^{h}]	ch [x]
b [b]	f [v]	m [m]	
d [d]	dd [ð]	n [n]	
g [g]	- zero	ng [ŋ]	
m [m]	f [v]		
ll [ɬ]	l [l]		
rh [r̥^{h}]	r [r]		

(Borsley *et al*. 2007: 20)

[14] The form *y* is realised before a consonant and *yr* is realised before a vowel.

Willis (2000: 542-43) further points out that the direct correlation does not hold historically, rather it is based on the recent prescriptivism by Welsh grammarians, notably after Watkins (1961). We will see some cases where the complementizer and the relativization strategy do not correlate. The clearest case of mismatch can be found in adjunct *wh*-constructions (see 2.2.4 below), where the complementizer *y(r)* is used in the literary variety, even though they involve movement. Moreover, the use of complementizers *aS* and *y(r)* is rare in the colloquial variety. Instead, following verbs undergo soft mutation regardless of the relativization strategy and the position of a variable. I therefore assume that Colloquial Welsh has the complementizer *øS* throughout the relevant constructions, although it sometimes does not cause mutation in adjunct *wh*-constructions (see 2.2.4 below).[15]

In summary, Willis (2000) shows that the correlation between the relative markers and the relativization strategies which is stated by recent prescriptivism is based neither on the historical tradition of the literary language nor on the usage of the colloquial language. We will now examine the distribution of a trace and resumptive pronouns in various variable positions, based on the two diagnostics: the availability of rich agreement and overt pronouns in resumption, rather than the form of complementizers.

2.2.2 Movement in subject position

We will first consider subject *wh*-constructions. An example of relative clauses is illustrated in (10) and *wh*-questions in (11). In both cases, the complementizer *aS* is used in the literary variety (Borsley *et al*. 2007).

(10) y dyn (a) gafodd __ y wobr
the man C get.$_{PAST}$.3$_S$ the prize
'the man who got the prize' (Borsley *et al*. 2007: 118)

(11) Pwy (a) gafodd __ y wobr?
who C get.$_{PAST}$.3$_S$ the prize
'Who got the prize?' (Borsley *et al*. 2007: 106)

[15] Some adjunct *wh*-elements such as *lle* 'where' do not cause mutation, and other overt adjunct *wh*-elements such as *pryd* 'when' allow both soft mutation and no mutation on the following verb (Willis 2000: 552). Because of this lexically idiosyncratic mutation behaviour, Willis suggests that the marker *øS* is itself an operator, inserted at the variable position and undergo A'-movement to Spec-CP.

Unlike English, *wh*-words are not normally used in relative clauses (Borsley *et al*. 2007: 119):

(12) * y dyn **pwy** gafodd y wobr
the man who get.$_{PAST}$.3$_S$ the prize
'the man who got the prize'

Subject *wh*-constructions show movement properties in both of the two criteria. First, a verb does not show agreement with an extracted subject. As we already saw in (3) above, the verb does not show number agreement with the plural antecedent in a relative clause, rather it occurs in a default third-person singular form. The example (3) above is repeated here in (13).

(13) y gwragedd a {welodd / *welasant} y ddamwain
the women C see.$_{PAST}$.**3$_S$** see.$_{PAST}$.**3$_P$** the accident
'the women who saw the accident'

The lack of agreement is also observed in *wh*-questions. In (14a), the verb *ennill* 'to win' appears in the default third-person singular form. The agreeing form in plural in (14b) is ungrammatical.

(14) a. Pa fyfyrwyr enillodd y wobr?
which students win.$_{PAST}$.**3$_S$** the prize
'Which students won the prize?'
b. * Pa fyfyrwyr enillon y wobr?
which students win.$_{PAST}$.**3$_P$** the prize (Borsley *et al*. 2007: 107)

Second, overt resumptive pronouns are impossible in subject position.

(15) * y dyn gafodd e 'r wobr
the man get.$_{PAST}$.3$_S$ he the prize
'the man who (he) got the prize' (Borsley *et al*. 2007: 119)

(16) * Pa fyfyrwyr enillon nhw 'r wobr?
which students win.$_{PAST}$.3$_P$ they the prize
'Which students (they) won the prize?' (Borsley *et al*. 2007: 108)

The above diagnostics suggest that subject *wh*-constructions involve movement, not resumption.[16]

2.2.3 Movement in object position

This subsection considers *wh*-constructions where a variable is identified in object position of a verb. As already shown in 1.1, Welsh has two verbal constructions as in the other Celtic languages: synthetic and periphrastic constructions (see Borsley *et al*. 2007: 38). I will first consider object *wh*-constructions where the verb is synthetic, then turn to the case of periphrastic verbs.

Examples of synthetic verbs are given below, with a relative clause in (17) and a *wh*-question in (18). The complementizer *aS* is used in Literary Welsh.

(17) y ffrwydrad (a) glywais i __ wedyn
the explosion C hear.$_{PAST}$.1$_S$ I then
'the explosion that I heard then' (Borsley *et al*. 2007: 119)
(18) Beth (a) glywaist ti __ wedyn?
what C hear.$_{PAST}$.2$_S$ you then
'What did you hear then?' (Borsley *et al*. 2007: 106)

A verb may show agreement with a subject but not with an object in Welsh (i.e. an accusative language), so there is no way to check the agreement effect in this context. However, overt pronouns are unavailable in this position.[17]

[16] Borsley et al. (2007: 141-44) point out that the resumptive strategy may also be used in embedded subject *wh*-constructions. They suggest that both movement and resumptive strategies are possible in embedded clauses, although the movement strategy is more usual in colloquial Welsh. See also Willis (2000: 553-57) for more detailed discussion.

[17] However, see 3.3.1 for possibility of resumptive pronouns in embedded object position.

(19) * y ffrwydrad (a) glywais i e wedyn
the explosion C hear.$_{PAST}$.1$_S$ I it then
'the explosion that I heard then' (Borsley *et al*. 2007: 119)

(20) * Beth (a) glywaist ti e wedyn?
what C hear.$_{PAST}$.2$_S$ you it then
'What did you hear (it) then?' (Borsley *et al*. 2007: 108)

The unavailability of resumptive pronouns suggests that a trace left by movement is posited in object position of synthetic (i.e. finite) verbs.

We now turn to object *wh*-constructions of periphrastic verbs. In the literary language, an object-agreement clitic precedes the verb, as illustrated in (21a). This clitic may be dropped in speech, but it still triggers mutation on the non-finite verb (*dwyn* > *ddwyn*), as in (21b). In the most colloquial variety, both object-agreement clitic and its mutation are absent, as in (21c).

(21) a. y car mae 'r lladron wedi **ei dd**wyn __ Lit. W.
the car be.$_{PRES}$.1$_S$ the thieves $_{PERF}$ 3$_{MS}$ steal.$_{INF}$
b. y car mae 'r lladron wedi **dd**wyn __
the car be.$_{PRES}$.1$_S$ the thieves $_{PERF}$ steal.$_{INF}$
c. y car mae 'r lladron wedi **d**wyn __ Col. W.
the car be.$_{PRES}$.1$_S$ the thieves $_{PERF}$ steal.$_{INF}$
'the car that the thieves have stolen' (Borsley *et al*. 2007: 120)

This stylistic variation is essentially the same in *wh*-questions.

(22) a. Beth ydych chi 'n **ei f**wyta __? Lit. W.
what be.$_{PRES}$.2$_P$ you $_{PROG}$ 3$_{MS}$ eat.$_{INF}$
b. Beth ydych chi 'n **f**wyta __?
what be.$_{PRES}$.2$_P$ you $_{PROG}$ eat.$_{INF}$
c. Be' {'dych / 'dach} chi 'n **b**wyta __? Col. W.
what be.$_{PRES}$.2$_P$ you $_{PROG}$ eat.$_{INF}$
'What are you eating?' (Borsley *et al*. 2007: 111)

In Literary Welsh, a complementizer may be used in front of auxiliary verbs in both relatives and *wh*-questions. The complementiser *y(r)* is used if the auxiliary is *bod* 'be', as illustrated in (23). Either *aS* or *y(r)* is used if the auxiliary is modal such as *gallu* 'be able', *cael* 'be allowed', etc. as in (24) (Borsley *et al* 2007: 120).

(23) Beth **yr** ydych yn ei fwyta?
what C be.$_{PRES}$.2$_{P}$ $_{PROG}$ 3$_{MS}$ eat.$_{INF}$
'What are you eating?' (Borsley *et al*. 2007: 111)

(24) a. Beth **a** allaf ei wneud?
what C can.1$_{S}$ 3$_{MS}$ do.$_{INF}$ (Borsley *et al*. 2007: 111)

b. Beth **y** gallaf ei wneud?
what C can.$_{PRES}$.1$_{S}$ 3$_{MS}$ do.$_{INF}$ (Borsley *et al*. 2007: 112)
'What can I do?'

Let us examine the two criteria to determine whether the case of the periphrastic construction involves movement or resumption. The first criterion is agreement. The clitic agrees with its antecedent in Literary Welsh. The example (25a) demonstrates agreement between the clitic *eu*[18] and the plural antecedent *y dynion*. If the singular clitic *ei* is used, it turns out to be ungrammatical in Literary Welsh, as in (25b). However, Willis (2000) points out that (25b) which does not show agreement is observed colloquially.[19]

(25) a. y dynion y byddwch yn eu cwrdd Lit. W.
the men C be.$_{FUT}$.2$_{P}$ $_{PROG}$ **3$_{P}$** meet.$_{INF}$
'the men that you'll be meeting'

b. * y dynion y byddwch yn ei gwrdd Lit. W.
the men C be.$_{FUT}$.2$_{P}$ $_{PROG}$ **3$_{MS}$** meet.$_{INF}$ (Willis 2000: 535)

[18] The plural clitics *ein* 'our', *eich* 'your' and *eu* 'their' do not trigger mutation in principle (see footnote 23 below).

[19] The acceptability of strict agreement between a clitic and an antecedent varies between speakers. In my judgement tests, the sentence without the object-agreement clitic is the most acceptable, see [11] in appendix.

[11c] Dyna 'r llyfrau mae Ieuan wedi prynu.
that's the books be.$_{PRES}$.3$_{S}$ Ieuan $_{PERF}$ buy
'That's the books that Ieuan has bought.'

The same situation is obseved in *wh*-questions. The clitic normally agrees in person and number with the *wh*-object, as in (26). However, Borsley *et al*. (2007) also observe that this strict agreement is not required in speech, instead, as in (25b) above the clitic in the default third-person masculine singular form *ei* or its mutation alone can be found regardless of person and number.

(26) Pa rai wyt ti wedi (eu) clywed o'r blaen?
which ones be.$_{PRES}$.2$_S$ you $_{PERF}$ **3$_P$** hear before
'Which ones have you heard before?' (Borsley *et al*. 2007: 110)

Rich agreement on clitics in Literary Welsh seems to suggest that this is a reflex of the resumptive strategy, that is, there is a null pronoun in postverbal object position. This position is taken in Awbery (1977) and Rouveret (2002). However, the crucial fact is that an overt pronoun cannot sit in this position even in the literary variety. In non-*wh*-environments, agreement clitics allow both an overt pronoun and a null object after the non-finite verb (Borsley *et al*. 2007).

(27) Mae Ifan yn ei fwyta (e).
be.$_{PRES}$.3$_S$ Ifan $_{PROG}$ 3$_{MS}$ eat.$_{INF}$ it
'Ifan is eating it.' (Borsley *et al*. 2007: 110)

In *wh*-constructions, however, an overt pronoun is never possible in object position of non-finite verbs (Tallerman 1990: 310).

(28) * y car mae 'r lladron wedi (ei) ddwyn e
the car be.$_{PRES}$.3$_S$ the thieves $_{PERF}$ 3$_{MS}$ steal.$_{INF}$ it
'the car that the thieves have stolen' (Borsley *et al*. 2007: 120)
(29) * Beth ydych chi 'n (ei) fwyta e?
what be.$_{PRES}$.2$_P$ you $_{PROG}$ 3$_{MS}$ eat it
'What are you eating? (Borsley *et al*. 2007: 110)

The unavailability of overt pronouns seems to suggest that a trace left by movement is posited in object position of the periphrastic verbs.

Wh-constructions formed in object of periphrastic verbs present a two-way difficulty (see Borsley *et al*. 2007: 112-14 and Willis 2011 for more discussion). If we assume that the resumptive strategy is involved, we need separate treatments for synthetic and periphrastic verbal constructions, that is, object *wh*-constructions of the synthetic verbs use the movement strategy whereas the periphrastic verbal constructions use the resumptive strategy. On the other hand, if we assume that movement is involved in object *wh*-constructions of the periphrastic verbs, we need to treat *wh*-construction and non-*wh*-construction differently. In other words, periphrastic verbs can take a pronoun as their object in non-*wh*-context, but in *wh*-context they take a trace derived by movement rather than a resumptive *pro* despite of the presence of agreement clitics in the literary variety. However, as we saw above, an overt pronoun is never possible in object position in *wh*-constructions. Furthermore, the strict agreement between the clitic and the antecedent is not always observed in Colloquial Welsh, and the agreement clitics are often omitted in this variety. Therefore, following Borsley *et al*. (2007), we can conclude that at least in Colloquial Welsh the movement strategy is involved in object position regardless of whether the verb is synthetic or periphrastic.

2.2.4 Movement in adjunct position

We turn to adjunct *wh*-constructions. Various adjunct *wh*-words are used to form *wh*-questions, such as, *sut* 'how', *pryd* 'when', *pam* 'why', *lle / ble* 'where',[20] and *pa mor* + adjective 'how + adjective'. Although *lle / ble* 'where' sometimes does not ttrigger mutation on following verbs, with other *wh*-words both soft mutation and absence of mutation are found in the colloquial variety (Borsley *et al*. 2007: 117).

(30) Sut {**g**wyddost / **w**yddost} ti hyn?
how know.$_{\text{PRES}}$.2$_{\text{S}}$ you that
'How do you know that?' (Borsley *et al*. 2007: 117)

(31) Pryd {**c**est / **g**est} ti dy benblwydd?
when get.$_{\text{PAST}}$.2$_{\text{S}}$ you 2$_{\text{S}}$ birthday
'When did you have your birthday?' (Borsley *et al*. 2007: 117)

[20] *Lle* is mainly used in the North and *ble* in the South.

(32) Pa mor aml {**b**yddwch / **f**yddwch} chi yn torri 'r lawnt?
which so often be.$_{FUT}$.2$_P$ you $_{PROG}$ cut the lawn
'How often do you mow the lawn?' (Borsley *et al*. 2007: 117)

In relative clauses, *wh*-words are not normally used as we saw in (12), but adjunct relatives exhibit an exception for this. Although the use of *wh*-words is not obligatory, it is always grammatical in adjunct relatives. Borsley *et al*. (2007: 122) point out that a *wh*-word is optional with generic nouns denoting places, times, reasons, etc. as illustrated in (33), but it is obligatory with other nouns as in (34).

(33) y flwyddyn ges i 'ngeni
the year get.$_{PAST}$.1$_S$ I 1$_S$.be-born
'the year I was born' (Borsley *et al*. 2007: 122)
(34) yr ysbyty **lle** ces i 'ngeni
the hospital where get.$_{PAST}$.1$_S$ I 1$_S$.be-born
'the hospital where I was born' (Borsley *et al*. 2007: 122)

There is no possible resumptive element in adjunct *wh*-constructions. An overt pronoun in this position is impossible, and we cannot observe any agreement relationship with other elements.[21] Therefore, a trace left by movement is posited in adjunct position. In 2.2.1 above, we saw the inaccurate prescriptive mapping rule that the complementizer *aS* is associated with the movement strategy, whereas the complementizer *y(r)* is associated with the resumptive strategy. Adjunct *wh*-constructions involve movement rather than resumption, however, the complementizer *y(r)* is required in Literary Welsh. The below examples illustrate the use of *y(r)* in a *wh*-question (35) and in a relative clause (36).

(35) Pryd **y** cefaist ti dy benblwydd?
when C get.$_{PAST}$.2$_S$ you 2$_S$ birthday
'When were you born?' (Borsley *et al*. 2007: 117)

[21] While agreement clitics observed in (33)-(36) are required for passives (see 5.2 for more detail), they are nothing to do with *wh*-constructions.

(36) y flwyddyn **y** cefais i fy ngeni
the year C get.$_{PAST}$.1_S I 1_S be-born
'the year I was born' (Borsley *et al*. 2007: 122)

The above examples show that the direct mapping between the form of complementizers and the relativization strategies does not hold.

2.2.5 Pied-piping and resumption in possessor noun phrase

I finally look at *wh*-constructions where a variable is found in a possessor noun phrase. The patterns used in relative clauses and *wh*-questions of subject, object and adjunct *wh*-constructions that we have seen above are essentially the same. Both relative and *wh*-question make use of the movement strategy. However, possessor *wh*-constructions require distinct patterns: resumption in relatives and pied-piping in *wh*-questions.

Before considering *wh*-constructions, we will first look at possessor noun phrases in non-*wh*-environments. In Welsh, possessor noun phrases follow a head noun. There is no morphological genitive case marking on the possessor noun phrase (Borsley *et al*. 2007: 153), as illustrated in (37).

(37) tad y {bachgen / bechgyn}
father the boy boys
'the boy's / boys' father' (Borsley *et al*. 2007: 202)

If the possessor noun phrase is a pronoun, an agreement clitic precedes the head noun.[22] The pronominal possessor is often not overt especially in Literary Welsh (Borsley *et al*. 2007: 201):

[22] However, Willis (2000) points out that the use of a postnominal pronoun without agreement-clitics can be observed colloquially, such as *llyfr hi* 'her book'.

(38) a. ei[23] dad (o)
3_{MS} father he
'his father'
b. eu tad (nhw)
3_{P} father they
'their father' (Borsley *et al*. 2007: 201)

The clitics cannot be used with a non-pronominal possessor, as in (39).

(39) a. * **ei** dad y bachgen
3_{MS} father the boy
b. * **eu** tad y bachgyn
3_{P} father the boys (Borsley *et al*. 2007: 202)

A possessor noun phrase in non-*wh*-environments is largely parallel to *wh*-environments. In relative clauses, the agreement clitic precedes the head noun and the pronominal possessor may follow the head, as illustrated below.

(40) y dyn welais i ei chwaer (e)
the man see.$_{PAST}$.1_{S} I 3_{MS} sister he
'the man whose sister I saw'

In Literary Welsh, the complementizer *y(r)* is used, and it does not cause mutation on the following verb:

(41) y dyn **y** gwelais i ei chwaer
the man C see.$_{PAST}$.1_{S} I 3_{MS} sister
'the man whose sister I saw' (Borsley *et al*. 2007: 201)

[23] Possessive clitics cause various types of mutations, as illustrated in the table below. 'Aspiration' here means the insertion of *h*- when a following word starts from a vowel.

	singular	plural
first person	*fy* + nasal mutation	*ein* + radical / aspiration
second person	*dy* + soft mutation	*eich* + radical
third person masculine	*ei* + soft mutation	*eu* + radical / aspiration
feminine	*ei* + aspirate mutation / aspiration	

(Borsley *et al*. 2007: 157)

Tallerman (1990) points out that the agreement clitic is obligatory,[24] and an overt pronoun is preferred in Colloquial Welsh, as shown below.

(42) Dyma 'r bachgen y gwelais i *(ei) gi o
here the boy C see.$_{PAST}$.1$_S$ I 3$_{MS}$ dog he
'Here's the boy whose dog I saw.' (Tallerman 1990: 310)

As we already saw in (4) above, the clitics obligatorily agree with the antecedents in possessor relatives. The following examples illustrate this rich agreement:

(43) a. Dyna 'r fenyw dwi 'n nabod ei **m**ab.
that's the woman be.$_{PRES}$.1$_S$+I $_{PROG}$ know **3$_{FS}$** son
b. * Dyna 'r fenyw dwi 'n nabod ei **f**ab.
that's the woman be.$_{PRES}$.1$_S$+I $_{PROG}$ know **3$_{MS}$** son
'That's the woman whose son I know.' (Willis 2000: 570)

In (43a), the third-person feminine singular clitic which causes aspirate mutation is used (see footnote 13 above). In this case, the radical form *mab* 'son' is realised because aspirate mutation does not affect the initial consonant *m* (see footnote 13). In (43b), on the other hand, the third-person masculine singular clitic is used. This masculine clitic causes soft mutation on the initial consonant, and the following noun is realised as *fab*. The use of the masculine clitic leads to ungrammaticality since it does not agree with the antecedent *y fenyw* 'the woman' in gender. The availability of overt pronouns in the possessor noun phrase and the rich agreement on the clitics suggest that possessor relatives make use of resumption.

Wh-questions, on the other hand, require pied-piping of the entire noun phrase. The *wh*-word *pwy* with no case marking follows the head noun, as in (44).

[24] This differs from non-*wh*-environments in the very colloquial variety. As mentioned in footnote 22 above, agreement clitics may be absent in non-*wh*-environments. However, they are obligatory in *wh*-environments even in Colloquial Welsh, as in (42). This suggests that possessor relatives involve resumption even in the most colloquial variety. See Willis (2000: 568-570) for arguments against the possibility of the movement analysis in the possessor relatives.

(44) Gwraig pwy welaist ti?
wife who see.$_{PAST}$.2$_S$ you
'Whose wife did you see?' (Borsley 2009: 233)

This pied-ping pattern is parallel to the pattern of non-pronominal possessor in non-*wh*-environments, as seen in (37) above. The *wh*-word alone cannot be fronted:

(45) * Pwy welest ti wraig?
who see.$_{PAST}$.2$_S$ you wife
'Whose wife did you see? (Who(se) did you see wife?)'

Unlike relative clauses, Borsley (2009) points out that the resumptive pattern in *wh*-questions is very marginal.

(46) ?? Pwy welest ti ei wraig?
who see.$_{PAST}$.2$_S$ you 3$_{SM}$ wife
'Whose wife did you see? (Who did you see his wife?)' (Borsley 2009: 233)

In summary, the possessor relatives require the resumptive strategy, whereas *wh*-questions make use of pied-piping of a whole possessor phrase.

2.2.6 Summary

Based on Willis (2000) and Borsley *et al*. (2007), this section presented the distribution of a trace and resumptive pronoun in various syntactic positions. The two rather descriptive diagnostics were used to identify the resumptive strategy. One is the availability of an overt pronoun, and the other is the presence of rich agreement which licences a resumptive pronoun. Absence of these two properties indicates the availability of movement. I have shown that the availability of the resumptive strategy is in fact fairly limited. The resumptive strategy is used in possessor relatives (and prepositional relatives in Literary Welsh as we will see in more detail in 2.3.2), and they require pied-piping in *wh*-questions. A trace left by movement is identified in all the other positions, i.e., subject, direct object and adjunct positions, (and object of a preposition in Colloquial Welsh (see more detail below)).

This distribution of movement and resumption can be captured by NP Accessibility Hierarchy of Keenan and Comrie (1977); see Tallerman (1990) for more discussion of the Accessibility Hierarchy on Welsh. The Accessibility Hierarchy is intended to capture the availability of noun phrase argument positions for relative clause formation across languages. Keenan and Comrie suggest the following hierarchy:

(47) Accessibility Hierarchy:
subject (SU) > direct object (DO) > non-direct object (NDO) > possessor (POSS) > object of comparison (OCOMP)

Informally speaking, this means that it is easier to relativize a noun phrase in a higher position than a lower one, and a lower position (i.e. more oblique position) may require some additional element to form relative clauses. Keenan and Comrie (1977: 67) also note that a relativization strategy that applies at any one point of the Accessibility Hierarchy may in principle cease to apply at any lower point. This matches the availability of the movement and resumptive strategies in Welsh. The movement strategy is available in higher positions of the hierarchy, whereas the resumptive strategy is only available in more oblique positions. In Literary Welsh, the movement strategy ends in direct object position. On the other hand, as Tallerman (1990) points out, the movement strategy shifts towards the lower end of the hierarchy in Colloquial Welsh. The movement strategy can apply up to non-direct object position, i.e. object of a preposition, but not in possessor relatives. In next section, we will consider prepositional *wh*-constructions that make use of the different strategies between the literary and colloquial varieties.

2.3 Prepositional *wh*-constructions in Welsh

This section focuses on prepositional *wh*-constructions: the main theme of this dissertation. I will first consider Welsh prepositions especially with regard to their agreement system in 2.3.1. 2.3.2 will describe prepositional *wh*-constructions and show the different patterns used in Literary Welsh and Colloquial Welsh. Literary Welsh requires the resumptive strategy in relatives and pied-piping in *wh*-questions, as in possessor *wh*-constructions (see 2.2.5 above). Colloquial Welsh, on the other hand, allows P-stranding which involves movement. Based on the data in 2.3.2, generalizations that capture the syntactic difference between the two varieties will be drawn in 2.3.3.

2.3.1 Welsh prepositions, agreement and form of pronouns

Most Welsh prepositions inflect for the person, number, and also gender (in third-person singular), if they take personal pronouns as a complement. The inflectional paradigm of the majority of prepositions is given in (48).[25]

(48)

	singular	plural
first person	–a i	–on ni
second person	–at ti	–och chi
third person	–o fe/fo[26] (masculine)	–yn nhw
	–i hi (feminine)	

(King 2003: 275)

In Welsh, as in other Celtic languages, agreement appears between a head and a pronominal element, but not with a lexical noun phrase (see the contrast between (37) and (38) above in possessor noun phrase, for instance). A preposition shows agreement with a following pronominal complement if the preposition possesses agreement morphology, as illustrated in (49). If the complement is a full lexical NP, a preposition appears in a bare form, as in (50).[27]

(49) a. amdano fe/fo
about.3_{MS} he
'about him'

b. amdanyn nhw
about.3_{P} they
'about them'

(50) a. am y {plentyn / plant}
about the child children
'about the child/children'

b. * amdano 'r plentyn
about.3_{MS} the child
'about the child'

c. * amdanyn 'r plant
about.3_{P} the children
'about the children'

[25] However, there are some prepositions that do not follow this pattern, such as *gan* 'with' and *i* 'to' (see King 2003: 284, 289 for more detail).

[26] The use of these different pronouns is essentially dialectional variation. *Fe* is mainly used in the South, and *fo* is used in the North.

[27] Gwen Awbery (p.c.) however points out that children sometimes produce utterances as in (50b) and (50c). She seems to suggest that this is more productive than just a speech error. Paolo Acquaviva (p.c.) mentions that the similar situation is found in Irish, usually with a preposition in the default third-person masculine singular form.

There are a few prepositions that do not have inflectional morphology, such as *â* 'with', *efo* 'with' (used in the North), *gyda* 'with' (mainly used in the South), and *mewn* 'in'. The important point here is that uninflectable prepositions take a different form of pronouns in first-person singular. Inflectable prepositions usually take the pronoun *i*, as illustrated in (51a). On the other hand, uninflectable prepositions take *fi* as their complement, as in (52).

(51) a. amdana **i** b. % amdana fi
about.1_S I about.1_S I
(52) a. * efo i b. efo **fi**
with I with I

King (2003: 91-92) states that the use of *i* with the inflected prepositions is considered to be standard, but the pronoun *fi* is also used.[28]

Pronoun like *fi* are called 'strong pronouns' (also called 'independent pronouns'; see Borsley *et al*. 2007: 319-20).[29] The strong pronoun may occupy a focus position and may be used alone (Borsley *et al*. 2007: 27), as illustrated in (53) and (54) respectively.

(53) {**Fi** / *I} ydy 'r gorau.
I be.$_{PRES}$.3_S the best
'I am the best.'
(54) Pwy sy isio hwn? **Fi**!! / *I!!
who be.$_{PRES.REL}$ want this I
'Who wants this?' 'Me!!'

The weak pronoun (also known as 'dependent pronouns') is usually associated with an agreement morpheme. In (55), the weak pronoun *i* is used in the subject position where the

[28] My judgement tests show that the use of *fi* with the inflected preposition is acceptable for most speakers, see [49a] in appendix. The mean score of the sentence that includes *amdano fi* is 4.3 out of 5 (5 is perfectly acceptable and 1 is completely unacceptable).

[29] Cardinaletti and Starke (1999) analyses pronominal systems in many European languages and classify pronouns into strong pronouns, weak pronouns and clitics. I will consider classification of Welsh weak pronouns and clitics in 5.3.

verb agrees with it. In fact, weak pronouns are often omitted in the literary language as in (55b).[30]

(55) a. Gwelais **i** 'r ddraig.
see.$_{PAST}$.1$_S$ I the dragon
'I saw the dragon.'
b. Gwelais y ddraig.
see.$_{PAST}$.1$_S$ the dragon (Borsley *et al*. 2007: 26)

In contrast, the strong form *fi* is required in the object position of synthetic verbs where there is no agreement between the pronoun and the verbs, as illustrated below.

(56) Gwelodd y ddraig {**fi** / *i}.
see.$_{PAST}$.3$_S$ the dragon I
'The dragon saw me.' (Borsley *et al*. 2007: 26)

The distinction between weak and strong pronouns in Modern Welsh is confined to first-person singular *i* and *fi* with regard to agreement with prepositions. In other environments, we can also find the distinction in second-person pronouns *di* and *ti*, and third-person masculine singular *e/o* and *fe/fo*. The second-person singular pronoun has a strong form *ti* and a weak form *di* (but *ti* after /t/, see (59) below). The strong form is used in the object position of synthetic verbs, as illustrated in (57). On the other hand, the weak form is used in the object position of periphrastic verbs with agreement clitics in (58).

[30] Although all Celtic languages show morphological agreement only with pronominals, Welsh differs with others in terms of the overtness of pronoun. In Celtic languages other than Welsh, an overt pronoun is usually impossible if there is agreement (Borsley *et al*. 2007: 18). Irish examples are illustrated below. If a verb inflects in person and number, an overt pronoun is unavailable, as in (i). On the other hand, if a verb appears in the default form in third-person singular, an overt pronoun is required, as in (ii).

(i) Chuirfinn (*mé) isteach ar an phost sin. Irish
put.$_{COND}$.1$_S$ I in on the job that
'I would apply for that job.' (McCloskey & Hale 1984: 490)
(ii) Chuirfeadh sibh isteach ar an phost sin.
put.$_{COND}$.3$_S$ you in on the job that
'You would apply for that job.'

(57) Gweles i **ti** ddoe.
see.$_{PAST}$.1$_S$ I you yesterday
'I saw you yesterday.'
(58) Mae Steffan yn dy garu (**di**).
be.$_{PRES}$.1$_S$ $_{PROG}$ 2$_S$ love you
'Steffan loves you.'

As we saw in (55), the weak pronoun is used in subject position. However, since most of the forms in the verbal inflectional paradigms end in /t/ for second-person singular, the following pronoun appears in the form of *ti* on surface.

(59) {Gweli **di** / Gwelaist **ti**} 'r cyfan.
see.$_{FUT}$.2$_S$ you see.$_{PAST}$.2$_S$ you the whole
'You'll see everything.' / 'You saw everything.' (Borsley *et al*. 2007: 27)

In Colloquial Welsh, agreement clitics may be omitted in periphrastic verbal constructions (see 2.2.3 above). As there is no agreement, a non-finite verb takes the strong pronoun (compare (58) above):

(60) Mae Rhiannon yn hoffi **ti**.
be.$_{PRES}$.3$_S$ Rhiannon $_{PROG}$ like.$_{INF}$ you
'Rhiannon likes you.' (Borsley *et al*. 2007: 28)

The criteria for choosing between the strong pronouns *fe/fo* and the weak pronouns *e/o* are essentially the same as for first-person singular *fi* and *i*. However, a preposition always takes *fe/fo* as its complement regardless of the absence or presence of inflectional morphology.

(61) a. amdano {**fo** / **fe** / *o / *e} b. efo {**fo** / **fe** / *o / *e}
about.3$_{MS}$ he with he

The reason for the use of the strong pronouns *fo* and *fe* with the inflected prepositions may be morpho-phonological, as in the alternation of *di* and *ti* in (59). In (59), *ti* is chosen when a

preceding verb ends in /t/ presumably due to assimilation. Conversely, the use of *fe/fo* in (61) could be understood as an insertion of /v/ to avoid vowel sequence, since inflected prepositions in third-person masculine singular always end in the vowel /o/ (see the inflectional paradigm of preposition in (48) above). In fact, the same vowel sequence would be found if the pronoun *o* followed prepositions. I suggest that the use of *fe/fo* with inflected preposition can be formally understood as an instance of the OCP (Obligatory Contour Principle); see McCarthy (1986) and Yip (1998) among others. Yip (1998) defines the OCP as follows:

(62) OCP: Output must not contain two identical elements

If the OCP is operative here, the occurrence of *fo/fe* with the inflected prepositions, at least in the case of *fo*, can be accounted morpho-phonologically. This would be compatible with the claim that pronouns after inflected prepositions are underlyingly weak pronouns, but the strong forms *fo/fe* in third-person masculine singular are realised on the surface due to the application of the OCP.

All the other personal pronouns, *hi* 'she', *ni* 'we', *chi* 'you' and *nhw* 'they', do not distinguish between the strong and weak forms at least in Modern Welsh. In Literary Welsh, some pronouns have different forms: *ef* (= *e/fe*) 'he', *chwi* (= *chi*) 'you', and *hwy* (= *nhw*) 'they' (King 2003: 93), but these are variants in register.

The final point on Welsh prepositions is that Welsh has compound prepositions which consist of preposition plus noun. Three examples are given here (see more detail in King 2003: 300):

(63) a. ar gyfer y rhieni b. o flaen y orsaf c. o gwmpas y byd
for the parents in front of the station around the world

When compound prepositions take a personal pronoun as their complement, agreement clitics occur between a simple preposition and a noun. The inflectional paradigm of the compound preposition *ar gyfer* 'for' with personal pronouns is shown below in (64):

(64)

	singular	plural
first person	ar ’y nghyfer (i)	ar ein cyfer (ni)
second person	ar dy gyfer (di)	ar eich cyfer (chi)
third person	ar ei gyfer (e/o) (masculine)	ar eu cyfer (nhw)
	ar ei chyfer (hi) (feminine)	

(King 2003: 301)

2.3.2 Prepositional *wh*-constructions in Literary and Colloquial Welsh

I now look at prepositional *wh*-constructions, based on Willis (2000) and Borsley *et al*. (2007). The default pattern in Literary Welsh is resumption in relative clauses and pied-piping in *wh*-questions. Colloquial Welsh, however, allows stranding of non-inflected prepositions in both relatives and *wh*-questions. We will first consider the case in Literary Welsh, and then turn to Colloquial Welsh.

In prepositional relatives, a preposition sits in (near) clause-final position, and there is obligatory agreement between a preposition and the antecedent of its complement in Literary Welsh. In (65), the preposition *i* ‘to’ occurs in the third-person feminine singular form *iddi* to agree with the antecedent *y fenyw* ‘the woman’. The null complementizer *øS* triggers soft mutation on the following verb (*gwerthodd* > *werthodd*).

(65) y fenyw werthodd Ieuan y ceffyl iddi
the woman sell.$_{\text{PAST}}$.3$_{\text{S}}$ Ieuan the horse to.**3$_{\text{FS}}$**
‘the woman that Ieuan sold the horse to’ (Borsley *et al*. 2007: 121)

Wh-questions, on the other hand, require pied-piping of an entire prepositional phrase to the front, as shown in (66). Notice that the preposition appears in the bare form *gan*, not the default agreement form *ganddo* in third person masculine singular.

(66) Gan bwy gest ti ’r llythyr ’na?
with who get.$_{\text{PAST}}$.2$_{\text{S}}$ you the letter that
‘Who did you get that letter from?’ (Borsley *et al*. 2007: 115)

In contrast to *wh*-questions, pied-piping of the whole PP is not possible in relative causes. Willis (2011: 195) points out that this is because, unlike English, *wh*-words are not available

in Welsh relatives except for adjunct relatives. Therefore, pied-piping which is movement of a preposition and a *wh*-word is not an option in relative clauses:

(67) * y fenyw i **bwy** werthodd Ieuan y ceffyl
the woman to who sell.$_{PAST}$.3$_S$ Ieuan the horse
'the woman to who Ieuan sold the horse' (Borsley *et al*. 2007: 121)

The complementizer *y(r)* is available in the literary language, and it does not cause mutation on a following verb (Borsley *et al*. 2007):

(68) y wraig **y** gwerthodd Ieuan y ceffyl iddi
the woman C sell.$_{PAST}$.3$_S$ Ieuan the horse to.3$_{FS}$
'the woman to who Ieuan sold the horse' (Borsley *et al*. 2007: 121)
(69) Gan bwy **y** cefaist 'r llythyr hwnnw?
with who C get.$_{PAST}$.2$_S$ the letter that
'Who did you get that letter from?' (Borsley *et al*. 2007: 115)

In prepositional relatives, we can observe the two properties of the resumptive strategy: the availability of overt pronouns and rich agreement. Overt pronouns are possible in object position of a preposition, as illustrated below.

(70) y myfyrwyr werthodd Ieuan y ceffyl iddyn nhw
the students sell.$_{PAST}$.3$_S$ Ieuan the horse to.**3$_P$** them
'the students that Ieuan sold the horse to' (Borsley *et al*. 2007: 121)

As we already saw in (65), even when there is no overt pronoun, a preposition obligatorily shows agreement with an antecedent of relative clauses in Literary Welsh. In (71), the preposition *am* 'about' must agree with the plural antecedent *y dynion* 'the men'. The mismatch of this agreement turns out to be ungrammatical, as in (71b).

(71) a. y dynion y soniais amdanynt
the men C talk.$1_{S.PAST}$ about.3_{P} (Willis 2000: 534)
'the men I talked about'
b. * y dynion y soniais amdano
the men C talk.$1_{S.PAST}$ about.3_{MS} (Willis 2000: 535)

The availability of overt pronouns and rich agreement on a preposition suggest that prepositional relatives involve resumption in Literary Welsh. As we saw in (66), however, in *wh*-questions a preposition does not show rich agreement with *wh*-expressions. The inflected preposition is not possible in pied-piping, as illustrated in (72b).

(72) a. Am bwy soniodd Gwyn?
about who talk.$_{PAST}$.3_{S} Gwyn (Borsley 2009: 248)
'About who did Gwyn talk?'
b. * Amdano bwy soniodd Gwyn?
about.3_{MS} who talk.$_{PAST}$.3_{S} Gwyn

I will consider the reason why a preposition does not show rich agreement with *wh*-expressions in 4.3.2.

I also look at the case of prepositions that have no inflectional morphology. In *wh*-questions, pied-piping is required just like inflectable prepositions.

(73) Efo pwy gest ti ginio?
with who get.$_{PAST}$.2_{S} you lunch
'Who did you have lunch with?'

In relative clauses, an overt pronoun needs to follow immediately after uninflectable prepositions in Literary Welsh (King 2003: 308).

(74) Dyma 'r ddynes ges i ginio efo hi.
here the woman get.$_{PAST}$.1_{S} I lunch with her
'This is the woman I had lunch with.' (King 2003: 307)

An overt pronoun is optional with inflected prepositions, however, it is obligatory with uninflectable prepositions in Literary Welsh. Although we cannot check the availability of rich agreement in the case of uniflectable prepositions, the overt pronoun manifests the resumptive strategy.

I now turn to the situation in the colloquial variety. In Literary Welsh *wh*-questions require pied-piping, however, Borsley *et al*. (2007: 115) note that the resumptive pattern is also found in Colloquial Welsh. Only a *wh*-expression is fronted in initial position and a stranded preposition sits in clause-final position, as illustrated in (75) below. If a preposition can inflect, it normally appears in the third-person masculine singular form:

(75) Pwy gest ti 'r llythyr 'na gannddo?
who get.$_{PAST}$.2$_S$ you the letter that with.3$_{MS}$
'Who did you get that letter from?' (Borsley *et al*. 2007: 115)

An overt resumptive pronoun may also be present after the inflected preposition.

(76) Pwy gest ti 'r llythyr 'na ganddo <u>fe</u>?
who get.$_{PAST}$.2$_S$ you the letter that with.3$_{MS}$ him
'Who did you get that letter from?' (Borsley *et al*. 2007: 115)

If the *wh*-expression is plural, the preposition is also in the plural form:[31]

(77) Pa rai gest ti 'r llythyr 'na ganddyn <u>nhw</u>?
which ones get. $_{PAST}$.2$_S$ you the letter that with.**3$_P$** them
'Which ones did you get that letter from?' (Borsley et al. 2007: 115)

This resumptive pattern can be found with uninflectable prepositions. Borsley *et al*. (2007) point out that where the preposition has no inflected forms, an overt pronoun is obligatory in neutral registers.

[31] I will show that this resumptive pattern is preferable with D-linked *pa*(which)-phrases to with non-D-liked *wh*-words in 2.4 below.

(78) Beth wyt ti 'n chwarae efo fo?
what be.$_{PRES}$.2$_S$ you $_{PROG}$ play with it.3$_{MS}$
'What are you playing with?' (Borsley *et al*. 2007: 115)

Furthermore, Willis (2000: 557) points out that the P-stranding pattern without agreement on the preposition is found in many varieties of Colloquial Welsh especially among young speakers. The stranded prepositions in a bare form sit in clause-final position in this pattern, as illustrated in (79).

(79) Beth mae e 'n w(h)ilo am?
what be.$_{PRES}$.3$_S$ he $_{PROG}$ look for
'What is he looking for?' (Willis 2000: 557)

If the preposition is stranded in a bare form, it cannot take an overt pronoun in its complement position.

(80) * Beth mae e 'n chwilio am **fe**?
what be.$_{PRES}$.3$_S$ he $_{PROG}$ look for it
'What is he looking for?' (Willis 2000: 557)

The unavailability of rich agreement on the preposition and overt pronouns clearly suggests that this P-stranding pattern involves movement. Willis (2000) points out that P-stranding is also found with uninflectable prepositions, as in (81).

(81) Pwy wnest ti chwarae efo?
who do.$_{PAST}$.2$_S$ you play with
'Who did you play with?'

P-stranding is also observed in relative clauses. (82) is an example of inflectable prepositions, and (83) is an example of uninflectable prepositions.

(82) Dyna ’r llyfr wnaeth Mair sôn am.
that’s the book do.$_{PAST}$.3$_S$ Mair talk about
‘That’s the book Mair talked about.’

(83) Cymraeg yw ’r iaith rôn i ’n siarad mewn.
Welsh is the language be.$_{IMPF}$.1$_S$ I $_{PROG}$ speak in
‘Welsh is the language I was talking in.’ (Willis 2000: 557)

2.3.3 Generalizations

The default pattern in Literary Welsh is that relative clauses require the resumptive strategy. Inflected prepositions licence a resumptive pronoun although it may be phonologically null (i.e. *pro*), and uninflectable prepositions take an overt pronoun as their complement. *Wh*-questions require pied-piping of an entire PP. In contrast, Colloquial Welsh allows P-stranding that involves movement in both relatives and *wh*-questions. From these observations, the following generalizations can be drawn:

(84) Generalizations on prepositional A’-dependencies in Welsh:
a. Literary Welsh: a head P is followed by its pronominal complement
(i.e., resumptive pronouns in relatives, *wh*-elements in interrogatives)
b. Colloquial Welsh: a head P is followed by a trace left by movement.

These generalizations, however, do not capture the whole range of data in 2.2.2. As we saw above, Borsley *et al*. (2007) note that the resumptive pattern can be found in *wh*-questions and it is a characteristic of Colloquial Welsh. Therefore, the examples above in (75)-(78) that employ the resumptive strategy may be counterexamples of the generalization (84b). However, the acceptability judgements suggest that this resumptive pattern in *wh*-questions does not seem to be very pervasive compared to the P-stranding pattern, as we will see in 2.4 below.

2.4 Acceptability judgements

This section examines the acceptability of prepositional *wh*-constructions described in 2.3 above. I examine the availability of P-stranding in the acceptability[32] judgement tests that I conducted.

2.4.1 Design

I first explain how acceptability judgements were elicited in my survey. The judgement test consists of 72 sets of sentences. The main aim of the survey is to test native speakers' acceptability of P-stranding in *wh*-constructions, but other phenomena such as weak crossover effects, pseudo-passives, etc. that will be relevant for the other chapters were also tested.

Participants are asked to judge each of the sentences in a five-point rating scale. The following instructions are provided (see Appendix A).

(85) "Please carefully read the sentences listed below. I would like you to indicate your reaction to the sentence. Please mark your response 5, 4, 3, 2 or 1 beside each sentence. Use 5 for sentences that sound completely natural to you and they are something you would say. Use 1 for sentences that sound completely unnatural to you and no one would say them. If your feelings about the sentence are somewhere between these extremes, use one of the middle responses, 4, 3, or 2. Please do not use 0."

.

As my survey mainly aims to examine the acceptability of P-stranding and its related patterns in Colloquial Welsh, I adopted intuitive instructions as opposed to prescriptive instructions (see Cowart 1997: 57). Participants are instructed to judge sentences based on *naturalness*. Featherston (2007: 292) also points out that the question *How natural does this sound?* is preferable, and it adds advantage of focusing informants on the spoken rather than the written form.[33]

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[32] I use the terminology 'acceptability' rather than 'grammaticality'. Chomsky (1965: 11) mentions that "the notion 'acceptable' is not to be confused with 'grammatical'. Acceptability is a concept that belongs to the study of performance, whereas grammaticalness belongs to the study of competence." We cannot access to competence directly, since any experiments inevitably involve performance factors such as processing.

[33] Pam Mcdonald (p.c.) suggested me to present sentences in spoken (recorded) material, because written Welsh and spoken Welsh are considerably different and participants might get different impression once it is written. But I leave it for future research.

Similar instructions are used in Collins *et al*. (2009). They however use a three-point scale as follows:

(86) Sounds completely natural and it is something I would say;
Sounds kind of odd, but I wouldn't be surprised to hear someone else say it:
Sounds completely wrong and no one would say this.

They claim that this system has an important advantage in the sense that it corresponds closely to the rating of OK, ? and * traditionally used by syntacticians. I adopt a five-point scale here since the five-point scale would be able to provide more precise data of acceptability.[34] I do not describe the intermediate values (i.e. 2 to 4) following Cowart's (1997: 71) suggestion; "[i]t is generally wiser simply to identify a scale for the informant, and perhaps to describe its end points, without attempting to describe any intermediate scale values."

Participants are asked to rate sets of sentences, and one set of them usually denotes the same or similar meaning. This is illustrated in the following set of examples from *wh*-questions:

(87) a. O le dach chi 'n dod?
from where be.$_{PRES.}2_P$ you $_{PROG}$ come
'Where do you come from?'
b. Lle dach chi 'n dod ohono fo?
where be.$_{PRES.}2_P$ you $_{PROG}$ come from.3_{MS} him
c. Lle dach chi 'n dod ohono?
where be.$_{PRES.}2_P$ you $_{PROG}$ come from.3_{MS}
d. Lle dach chi 'n dod o?
where be.$_{PRES.}2_P$ you $_{PROG}$ come from
e. Lle dach chi 'n dod o fo?
where be.$_{PRES.}2_P$ you $_{PROG}$ come from him

[34] Featherstone (2007) suggests that researchers should allow informants a multiple-point scale to answer on. In fact, Chomsky (1965) notes that "like acceptability, grammaticalness is, no doubt, a matter of degree".

(87a) is the pied-piping pattern. (87b) and (87c) make use of the resumptive pattern, with the overt pronoun *fo* in (87b) and without the pronoun in (87c). (87d) is the P-stranding pattern. (87e) is the use of the uninflected preposition with the overt pronoun.

Sentences in a set are not randomised across subjects. Collins *et al*. (2009) mention that when a syntactician works with an informant, they usually go over small related groups of sentences. Collins et al. further claim that "randomzing test sentences across subject is an idea that does not fit naturally in the generative paradigm for judgment elicitation". Schütze (1996) also observes that speakers usually feel more confident about relative judgements than absolute ones. I therefore did not randomise sentences across subjects not to break up these sets of sentences. This allows informants to compare sentences grouped together. However, the order of sentences within each set of related sentences is randomised. For instance, the order for one set may be [a, b, c, d, e], while another may be [c, a, e, d, b] and so on. This prevents participants from predicting acceptability from its position in a set. In doing so, we can avoid guessing the judgements rather than actually judging the sentences. I also randomised the order of sets of sentence types, such as *wh*-questions, relatives, pseudo-passives, etc. This avoids priming effects by immediately preceding context (Featherston 2007: 283) and the monotony of informants.

2.4.2 Informants and procedure

Twelve Welsh native speakers in the Bangor area located in North Wales participated in this study. I asked the informants by e-mail to take part in my survey which was attached in the e-mail. My survey contains three parts: instructions and test sentences as we saw above, and a questionnaire about background information of informants such as their age, gender and the amount of exposure to Welsh. Once they completed the survey, they sent it back to me.

Among twelve informants who participate in this survey, seven are male and five are female. Their age is between 23 to 57 years old. Two are in their twenties, one is in her thirties, five are in their forties, and four are in their fifties. The age factor may play the important role in this survey. Since, as we saw in 2.3.2 above, Willis (2000) points out that P-stranding is found many colloquial varieties especially among young speakers. However, as the number of participants is small, I will not discuss the age factor in detail here.

All twelve informants are Welsh native speakers who have been able to speak Welsh since they were two years old or younger (see (4) in the questionnaire: Appendix C). And all of them are Welsh-English bilinguals. Four out of twelve have been able to speak English

since they were two years old or younger. Three of them have been able to speak English since they were four years old or younger. The other six informants started to speak English sine primary school (see (5) in Appendix C). Eleven out of twelve informants' mothers spoke to them in Welsh. Only one informant's mother spoke to the informant in Welsh and English (see (6) in Appendix C). Eleven informants' fathers spoke to them in Welsh, and only one informant's father spoke to the informant in Welsh and English (see (7) in Appendix C). Nine informants were predominantly taught through Welsh at primary school, and the other three informants are taught though Welsh and English (see (8) in Appendix C). At secondary school, three informants were taught though Welsh, six of them were taught though English, and the other three were taught through in Welsh and English (see (9) in Appendix C).

I also checked the exposure to the Welsh language. Seven informants watch or listen to Welsh programmes on television, radio or other media almost everyday. Two informants do so several times a week, one informant does so about once a week, one informant does so about once in a month, and one informant does so less than once a month (see (10) in Appendix C). Four informants read Welsh in newspaper, magazines, books, or on the internet almost everyday, three informants do so several times a week, two informants do so about once in a month, and two informants do so about once in a month, and one informant does so less than once in a month (see (11) in Appencix C). Ten informants speak to the person most in their everyday life using Welsh, and the other two speak using equally Welsh and English (see (12) in Appendix C).

2.4.3 Results

The results of the acceptability judgements are presented here. I focus on the two sentence types that we saw in 2.3 above, namely, prepositional relatives and prepositional *wh*-questions. I will first consider the test sentences of relative clauses.

The result of Set 14 which tests the relative clauses with the inflectable preposition *am* is shown below. The mean score of acceptability is indicated on the right side of each test sentence in bold, and the range is indicated in parentheses (see appendix D for the full distribution of acceptability).

[Set 14]

a. Dyma ’r llyfr wnaeth Mair sôn amdano fo. **3.8** [1-5]
here the book do.$_{PAST}$.3$_{S}$ Mair talk.$_{INF}$ about.3$_{MS}$ he
‘This is the book that Mair talked about.’

b. Dyma’r llyfr am beth wnaeth Mair sôn. **1.5** [1-5]
about what

c. Dyma’r llyfr wnaeth Mair sôn amdano. **3.9** [2-5]
about.3$_{MS}$

d. Dyma’r llyfr wnaeth Mair sôn am. **3.6** [1-5]
about

e. Dyma’r llyfr beth wnaeth Mair sôn am. **1.2** [1-2]
what about

f. Dyma’r llyfr beth wnaeth Mair sôn amdano. **1.1** [1-2]
what about.3$_{MS}$

The most acceptable sentence is [14c] with the inflected preposition in clause-finial position, which involves resumption. The resumptive pattern with the overt pronoun *fo* in [14a] is only slightly degraded. Notably, the mean score of the P-stranding pattern without agreement on the preposition in [14d] is 3.6. Although three out of twelve participants judge [14d] 1 (completely unacceptable), four participants judge it 5 (completely acceptable), and five judge it 4. We saw in 2.2 that *wh*-words are not normally used in relative clauses. As expected, the use of the *wh*-word in a relative clause significantly degrades the acceptability as in [14b], [14e] and [14f], although the pied-piping pattern [14b] is slightly better than the others.

Set 68 is also the case of a relative clause with the inflected preposition. Although the synthetic verb *gwerthodd* is used here, the acceptability of the sentences shows the similar pattern to Set 14. The use of *wh*-word *beth* ‘what’ is very marginal, as in [68a], [68d] and [68f]. In Set 68, however, the P-stranding pattern in [68e] is the most acceptable. The resumptive pattern without the overt pronoun *hi* in [68b] is only slightly more acceptable than [68c] with the pronoun, as in Set 14 above.

[Set 68]

a. Dyna 'r ddynes bwy werthodd Ieuan y ceffyl i. **1.1** [1-2]
there the woman who sell.$_{PAST}$.3$_{S}$ Ieuan the horse to
'That's the woman that Ieuan sold the horse to.'

b. Dyna'r ddynes werthodd Ieuan y ceffyl iddi. **3.5** [1-5]
to.3$_{FS}$

c. Dyna'r ddynes werthodd Ieuan y ceffyl iddi hi. **3.3** [1-5]
to.3$_{FS}$ she

d. Dyna'r ddynes i bwy werthodd Ieuan y ceffyl. **1.8** [1-5]
to who

e. Dyna'r ddynes werthodd Ieuan y ceffyl i. **3.6** [1-5]
to

f. Dyna'r ddynes bwy werthodd Ieuan y ceffyl iddi. **1.2** [1-3]
who to.3$_{FS}$

[14c] and [68b] which are the resumptive pattern with the overt pronouns are standard sentences expected in Literary Welsh, however, there are two informants who consistently judge these resumptive sentences low, 1 or 2. Conversely, there are two informants who consistently judge colloquial P-stranding sentences such as [14d] and [68e] low. These variations between speakers make the range score wide.

Set 29 is the case where the antecedent is plural. We saw that the acceptability of the resumptive pattern without the overt pronouns is slightly better than the one with the overt pronouns in the above two sets. However, this tendency is not observed here. The presence of the overt pronoun in [29a] is considerably better than [29c] without the overt pronoun. King (1993: 269) states that personal pronouns can be dropped when they follow inflected prepositions, however, the inflected preposition in the third-person plural always takes the overt pronoun *nhw*.[35] Although the overtness of *nhw* does not seem to be obligatory in *wh*-environments as in [29c], the different acceptability between [29a] and [29c] clearly suggests that the presence of *nhw* is preferable.

[35] King, however, does not provide the reason why *nhw* is always overt with inflected prepositions.

[Set 29]

a. Oes gen ti ryw ddarnau arbennig wyt ti isio gwrando arnyn nhw?
be.$_{PRES}$ with.2$_P$ you any pieces special be.$_{PRES}$.2$_S$ you want listen.$_{INF}$ on.3$_P$ they
'Do you have any particular pieces that you want to listen to?' **4.5** [2-5]

b. Oes gen ti ryw ddarnau arbennig beth wyt ti isio gwrando ar? **1.7** [1-4]
what on

c. Oes gen ti ryw ddarnau arbennig wyt ti isio gwrando arnyn? **2.9** [1-5]
on.3$_P$

d. Oes gen ti ryw ddarnau arbennig ar beth wyt ti isio gwrando? **1.2** [1-2]
on what

e. Oes gen ti ryw ddarnau arbennig wyt ti isio gwrando ar? **3.2** [1-5]
on

f. Oes gen ti ryw ddarnau arbennig beth wyt ti isio gwrando arnyn? **1.7** [1-4]
what on.3$_P$

In Set 19, the antecedent *y ysgol* 'the school' denotes a place. In this case, the use of the *wh*-word *lle* in [19b], [19e] and [19f] is acceptable, as observed in adjunct relatives (see 2.2.4). The inflected preposition is preferable as in [19a], [19c] and [19f], however, the mean score of the P-stranding pattern in [19b] and [19d] shows 3.0 and 2.9, respectively.

[Set 19]

a. Mi wnes i ymweld â ’r ysgol oedd John a Enlli yn arfer mynd iddi hi.
PRT do.PAST.1S I visit with the school be.IMPF.3S John and Enlli used-to go.INF to.3FS she
‘I visited the school that John and Enlli used to go to.’ **3.7** [1-5]

b. Mi wnes i ymweld â’r ysgol lle oedd John a Enlli yn arfer mynd i. **3.0** [1-5]
where to

c. Mi wnes i ymweld â’r ysgol oedd John a Enlli yn arfer mynd iddi. **4.0** [1-5]
to.3FS

d. Mi wnes i ymweld â’r ysgol oedd John a Enlli yn arfer mynd i. **2.9** [1-5]
to

e. Mi wnes i ymweld â’r ysgol i le oedd John a Enlli yn arfer mynd. **2.9** [1-5]
to where

f. Mi wnes i ymweld â’r ysgol lle oedd John a Enlli yn arfer mynd iddi. **3.5** [1-5]
where to.3FS

Set 10 is a case of the uninflectable preposition *efo*. The resumptive pattern which takes the overt pronoun *fo* in the complement of the preposition in [10c] is the most acceptable. However, the P-stranding pattern without the overt pronoun in [10a] is also acceptable. Again, the use of the *wh*-word is degraded, but the pied-piping pattern in [10b] is slightly better than [10d].

[Set 10]

a. Dyma ’r dyn wnes i chwarae tenis efo ddoe. **3.9** [1-5]
this the man do.PAST.1S I play.INF tennis with yesterday
‘This is the man that I played tennis yesterday.’

b. Dyma’r dyn efo pwy wnes i chwarae tenis ddoe. **1.7** [1-4]
with who

c. Dyma’r dyn wnes i chwarae tenis efo fo ddoe. **4.4** [2-5]
with he

d. Dyma’r dyn bwy wnes i chwarae tenis efo ddoe. **1.4** [1-3]
who with

We now turn to *wh*-questions. Set 3 is an example of *wh*-questions with the inflectable preposition *am*. All twelve informants report that the pied-ping sentence in [3d] is perfectly acceptable. As Borsley et al (2007) point out, the resumptive pattern in *wh*-question in [3b] and [3c] seems to be acceptable, however, the P-stranding pattern in [3a] is better than the resumptive pattern. Eleven out of twelve informants judge the non-inflected preposition with the overt resumptive pronoun in [3e] as completely unacceptable.

[Set 3]

a. Beth mae o 'n chwilio am? **3.3** [1-5]
   What be.$_{PRES}$.3$_S$ he $_{PROG}$ look.$_{INF}$ for
   'What are you looking for?'

b. Beth mae o'n chwilio amdano? **2.7** [1-5]
   what for.3$_S$

c. Beth mae o'n chwilio amdano fo? **2.6** [1-5]
   for.3$_S$ he

d. Am beth mae o'n chwilio? **5.0** [5]
   for what

e. Beth mae o'n chwilio am fo? **1.1** [1-2]
   what for he

The same pattern of acceptability can be observed in Set 27, although the mean score of every sentence is lower than the set 3.[36] Eleven out of twelve informants judge pied-piping in [27a] perfectly acceptable. P-stranding in [27d] is more acceptable than the resumptive pattern in [27b] and [27c]. All participants judge [27e] perfectly unacceptable.

[36] For instance, the resumptive pattern without the pronoun in Set 3 is judged 2.7 ([3b]), whereas the same pattern in Set 27 is 1.9 ([27b]). The mean judgement of the P-stranding pattern is 3.3 in [3a], but 2.3 in [27d]. It may be related to the structure of the sentences in Set 27, or may be the use of the preposition *gan*. But I do not know what exactly affects the difference of the judgement between the two sets.

[Set 27]

a. Gan bwy gest ti ’r llythyr ’na? **4.9** [4-5]
with who get.$_{PAST}$.2$_S$ you the letter that
‘Who did you get that letter from?’

b. Pwy gest ti’r llythyr ’na ganddo? **1.9** [1-3]
who with.3$_{MS}$

c. Pwy gest ti’r llythyr ’na ganddo fo? **1.8** [1-4]
Who with.3$_{MS}$ he

d. Pwy gest ti’r llythyr ’na gan? **2.3** [1-5]
who with

e. Pwy gest ti’r llythyr ’na gan fo? **1.0** [1]
who with he

The adjunct *wh*-word *lle* ‘where’ is used in Set 12 with the inflectable preposition *i*. The general pattern is the same as other prepositional *wh*-questions that we saw above, however, the acceptability of the resumptive pattern with the overt pronoun *fo* in [12b] is slightly better than [12e] without the overt pronoun.

[Set 12]

a. Lle dan ni ’n mynd i? **3.4** [1-5]
where be.$_{PRES}$.2$_P$ we $_{PROG}$ go.$_{INF}$ to
‘Where are we going to?’

b. Lle dan ni’n mynd iddo fo? **1.8** [1-5]
where to.3$_{MS}$ he

c. Lle dan ni’n mynd i fo? **1.1** [1-2]
where to he

d. I le dan ni’n mynd? **4.9** [4-5]
i where

e. Lle dan ni’n mynd iddo? **1.4** [1-3]
where to.3$_{MS}$

Set 33 is a case of *wh*-questions with the D-linked *pa*-phrase. The pied-piping pattern is the most acceptable in the above three sets of *wh*-questions. However, the situation is

different here. The resumptive pattern without the overt pronoun in [33e] is the most acceptable. In fact, pied-piping in [33c] is less acceptable than P-stranding in [33b]. I will consider why the resumptive pattern is preferable with the D-linked phrase in 4.4.

[Set 33]

a. Pa ferch wyt ti ’n sôn amdani hi? **3.3** [1-5]
which girl be.$_{PRES}$.2$_{S}$ you $_{PROG}$ talk.$_{INF}$ about.3$_{FS}$ she
‘Which girl are you talking about?’

b. Pa ferch wyt ti’n sôn am? **3.7** [1-5]
about

c. Am ba ferch wyt ti’n sôn? **3.3** [1-5]
about

d. Pa ferch wyt ti’n sôn am hi? **1.5** [1-2]
about she

e. Pa ferch wyt ti’n sôn amdani? **4.2** [2-5]
about.3$_{FS}$

Set 24 is also the case of *wh*-questions with the D-linked phrase. Both of the inflectable preposition *yn* and the uninflectable preposition *mewn* correspond to English *in* semantically. [24c] and [24e] are the pied-piping pattern. [24b] and [24d] are the resumptive pattern. [24a] and [24f] are the P-stranding pattern. The examples of *mewn* [24a], [24d] and [24e] are degraded in every pair. This is presumably because *mewn* takes indefinite nouns as its complement whereas *yn* takes definite nouns (King 2003: 290). Unlike the Set 33, the pied-piping pattern with the preposition *yn* [24c] is the most acceptable. However, the mean score of the resumptive pattern in [24b] is 4.0 which is significantly higher than the resumptive pattern with non-D-linked *wh*-words.

[Set 24]

a. Pa iaith oeddech chi 'n siarad mewn? **2.0** [1-5]
which language be.$_{IMPF}$.2$_{P}$ you $_{PROG}$ speak in
'In which language are you talking?'

b. Pa iaith oeddech chi'n siarad ynddi? **4.0** [2-5]
in.3$_{FS}$

c. Ym mha iaith oeddech chi'n siarad? **4.8** [4-5]
in

d. Pa iaith oeddech chi'n siarad mewn hi? **1.2** [1-2]
in she

e. Mewn pa iaith oeddech chi'n siarad? **3.8** [1-5]
in

f. Pa iaith oeddech chi'n siarad yn? **2.3** [1-4]
in

Set 38 and Set 64 are cases of the uninflectable preposition *efo*. As in *wh*-questions with inflectable prepositions, the pied-piping pattern [38b] is the most acceptable, and the resumptive pattern with the overt pronoun in [38a] is degraded compare to the P-stranding pattern [38c].

[Set 38]

a. Pwy gest ti ginio efo fo? **2.3** [1-5]
who get.$_{PAST}$.2$_{S}$ you lunch with he
'Who did you have lunch with?'

b. Efo pwy gest ti ginio? **4.8** [4-5]
with who

c. Pwy gest ti ginio efo? **4.2** [1-5]
who with

Exactly the same pattern of acceptability can be found in Set 64.

[Set 64]

a. Efo pwy wnest ti siarad? **4.8** [3-5]
with who do.$_{PAST}$.2$_S$ you speak
'Who did you talk with?'

b. Pwy wnest ti siarad efo fo? **2.3** [1-5]
who with he

c. Pwy wnest ti siarad efo? **3.9** [1-5]
who with

2.4.4 Discussion

The above results show that the P-stranding option is currently available alongside the resumptive pattern in relatives and pied-piping in *wh*-questions, although the acceptability greatly varies between speakers. As I mentioned, there are two informants who prefer the colloquial P-stranding option to the use of inflected prepositions in most of the judgement sentences. It seems that P-stranding is the most natural option for them. Conversely, there are two informants who consistently do not allow P-stranding both in relative clauses and *wh*-questions.

The age factor might play a role here. The former two informants who prefer P-stranding are in their forties. On the other hand, the latter two speakers are in their fifties. However, there are younger informants who are more hesitant to allow P-stranding, and there are only twelve informants in my servey. Therefore, I cannot say anything conclusive. However, there may be a factor related to informants' backgrounds. The informants who judge the P-stranding sentences low seems to have much exposure to the literary language. Both informants watch / listen to Welsh programmes on television, radio or other media almost everyday (question (10) in the questionnaire), and they also read Welsh almost everyday (question (11) in the questionnaire). Presumably, speakers who spend a lot of time on watching / listening Welsh programmes and reading Welsh are more familiar with the literay language than speakers who rarely read Welsh. This may lead these informants' judgement more prescriptive.

In 2.3, we saw that the default pattern of prepositional *wh*-question in Literary Welsh is pied-piping in *wh*-questions and resumption in relative clauses. However, the judgement tests reveal that the acceptability of pied-piping in *wh*-question is considerably better than resumption in relative clauses. The results also show that the resumptive pattern in *wh*-

questions is marginally acceptable. However, the P-stranding pattern is consistently more acceptable than the resumptive pattern in *wh*-questions except for the cases with D-linked *pa*-phrase.

2.5 Conclusion

Section 2.2 presented the availability of the movement and resumptive strategies in Welsh *wh*-constructions. Following Willis (2000) and Borsley et al. (2007), the two diagnostics are used to identify the resumptive strategy. One is the availability of an overt pronoun in a variable position, and the other is the presence of rich agreement which licences a resumptive pronoun. Section 2.3 showed the different syntactic behaviour between Literary Welsh and Colloquial Welsh in prepositional *wh*-constructions. The default pattern in Literary Welsh is the resumptive strategy which requires a pronoun in the complement position of a preposition in relatives and *wh*-questions which requires pied-piping of an entire PP. On the other hand, Colloquial Welsh allows a trace left by movement in complement of P in both relatives and *wh*-questions. Section 2.4 presented the results of the acceptability judgements. The results showed that the P-stranding option is currently available alongside the resumptive pattern in relatives and pied-piping in *wh*-questions, although the acceptability varies between speakers.

CHAPTER 3:
FORMAL PROPERTIES OF RESUMPTION

3.1 Introduction

In the previous chapter, we have seen that Welsh makes use of the movement and resumptive strategies to form A'-dependencies, depending on the position of a variable. The resumptive strategy is found in possessor relatives and prepositional relatives in Literary Welsh. The two descriptive diagnostics were used to identify the resumptive strategy; the availability of an overt pronoun and the presence of rich agreement which licences a resumptive pronoun. This chapter presents the typology of resumption developed by McCloskey (2006) and Asudeh (2011) and considers where Welsh resumptives may fit in this system.

One of the core issues in the treatment of resumption is whether a resumptive pronoun is an alternative manifestation of a trace. In other words, whether the dependency between the resumptive pronoun and its binder (i.e. binder-resumptive dependency) should be analysed similar to a filler-gap dependency derived by movement, or the binder-resumpive dependency and the filler-gap dependency need to be analysed differently (Chatsiou 2010: 88). Some scholars (Zaenen *et al*. 1981; Engdahl 1985; Shlonsky 1992; Kayne 1994; Aoun *et al*. 2001; Boeckx 2003) have argued in favour of the former position, whereas others (Sells 1984, 1987; McCloskey 1990, 2002; Merchant 2001; Asudeh 2004) have argued in favour of the latter. In this chapter, I will investigate whether Welsh resumptives have movement properties or not.

Section 3.2 introduces three types of resumptive pronouns, possessor resumptives, syntactically active resumptives and syntactically inactive resumptives. McCloskey (2006) and Asudeh (2011) suggest that the syntactic behaviour of resumption varies from language to language. Section 3.3 examines the syntactic behaviour of Welsh resumptives mainly using two diagnostics of movement: island-sensitivity and weak crossover violation. However, these data are not very clear. Section 3.4 introduces Willis' (2011) empirical evidence that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. This suggests that Welsh resumptives involve movement.

3.2 Three types of resumption (McCloskey 2006; Asudeh 2011)

In 1.3.2, following McCloskey's definition, we saw that a resumptive pronoun is a pronominal element which is bound and which appears in a position where a trace would

appear. We also saw that a resumptive pronoun and a trace are both syntactic variables in the sense that their binder is an element in an A'-position. McCloskey (2006) demonstrates that syntactic behaviour of resumption varies from language to language and distinguishes three types of resumptive pronouns. The first type is resumption which is not grammaticised, but rather a device that speakers resort to under performance conditions. Asudeh (2011) terms this type 'processor resumptives', typically observed in English. The second type is resumption which does not display movement properties. This type is called 'syntactically active resumptives' (SARs), which include Irish, Hebrew and varieties of Arabic. The third type is resumption which displays properties of movement, labelled syntactically inactive resumptives (SIRs). This type includes Swedish and Kru languages in West Africa: Vata and Gbadi. Based on McCloskey (2006) and Asudeh (2011), I will show syntactic behaviour of each type, mainly using two crucial diagnostics: island constraints and weak crossover effects (see 3.2.4 below for evaluation of other syntactic diagnostics).

3.2.1 Processor resumptives

The first type of resumptive is processor resumptives which are not regarded as part of the grammar proper. A resumptive pronoun in English may occur inside islands as illustrated in (1), or facilitate processing complexity as in (2). Resumptive pronouns of this English type are known as 'intrusive pronouns' (Sells 1984).

(1) a. There are guests who I am curious about what <u>they</u> are going to say.

(McCloskey 2006: 94)

b. I'd like to meet the linguist that Mary couldn't remember if she had seen <u>him</u> before.

(Sells 1984: 11)

(2) This is the girl that Peter said that yesterday his mother had given some cakes to <u>her</u>.

(Erteschik-Shir 1992: 89)

Asudeh and McCloskey suggest that processor resumptives are not grammatically licensed, rather they are an artifact of parsing and production. Some psycholinguistic studies (Ferreira and Swets 2005; Alexopoulou and Keller 2007) show that although speakers produce processor resumptives, these speakers reject them in carefully controlled experiments.

English resumptives display general properties of movement. First diagnostic of movement is sensitivity to island constraints. This property has been known at least since the

work of Ross (1967). Ross shows that *wh*-movement is constrained in the way that *wh*-elements cannot move across islands. One such island constraint is known as the complex NP/DP constraint which blocks extraction out of a complex noun phrase. Examples of relative clause in (3a) and *wh*-question in (3b) are illustrated below:

(3) a. * This is the man whom$_i$ Emsworth made [$_{DP}$ the claim [$_{CP}$ that he will invite t_i]].

b. * Who$_i$ did Poirot make [$_{DP}$ the claim [$_{CP}$ that he saw t_i last week]]?

(Haegeman 1994: 404)

The other constraint is *wh*-island. In (4) below, the adjunct *wh*-word *how* cannot be extracted because the other *wh*-element *which problem* already occupies the specifier position of the lower CP.

(4) * How$_i$ do you wonder [$_{CP}$ which problem$_j$ John could solve t_j t_i]?

(Haegeman 1994: 404)

The second diagnostic is weak crossover effect (Wasow 1979). Weak crossover arises when a trace corefers with a pronoun which does not c-command it (McCloskey 2006: 102). This is illustrated below. In (5), although the DP node *his mother* c-commands a *wh*-trace, the pronoun *his* itself does not c-command the trace. If the trace of *who* corefers the pronoun *his*, the sentence turns out to be ungrammatical.

(5) * Who$_i$ does his$_i$ mother love t_i? (Haegeman 1994: 417)

3.2.2 Syntactically active resumptives

We now turn to syntactically active resumptives, focusing on Irish which widely allows resumptive pronouns. McCloskey (1979, 1990) demonstrates that resumptive pronouns in Irish can occur in any syntactic position in any A'-dependency, except for the subject position in a main clause. McCloskey (1990) calls this restriction 'Highest Subject Restriction' [37] which is illustrated in (6). This restriction bans the occurrence of the

[37] McCloskey (1990) analyses the Highest Subject Restriction as an A'-disjointness requirement, essentially an A'-version of Principle B of binding theory. See Willis (2000: 544-550) for discussion of the A'-disjointness requirement in Welsh.

resumptive pronoun *sé* 'he' in the highest subject position within the relative clause as in (6a), whereas the resumptive pronoun in embedded subject position is acceptable in (6b).

(6) a. * an fear a raibh sé breoite
the man C was he ill
'the man that (he) was ill'
b. an fear ar dhúirt mé go dtiocfadh sé
the man C said I C would-come he
'the man that I said (he) would come' (McCloskey 1990: 214)

Another interesting characteristic is that Irish manifests a morphological distinction on complementizers between filler-gap dependency and binder-resumptive dependency. McCloskey (1990, 2001) points out that different complementizers are realised in the different types of binding relation. The complementizer *aL* which causes the mutation Lenition is associated with the binding of a trace, as illustrated in (7a). The complementizer *aN* which triggers Nasal mutation is associated with the binding of a pronoun, as in (7b).[38] If there is no A'-binding element, the complementizer *go* is realised, as in (7c).

(7) a. an fear a bhuail tú __
the girl *aL* stuck you
'the man that you struck' (McCloskey 1990: 205)
b. an fear ar bhuail tú é
the girl *aN* stuck you him
'the man that you struck (him)' (McCloskey 1990: 206)
c. Dúirt sé gur bhuail tú é.
said he *go*.$_{PAST}$ struck you him
'He said that you struck him.' (McCloskey 1990: 205)

Irish resumptive pronouns show no sensitivity to general constraints on movement with respect to islands and weak crossover (McCloskey 1979). First, consider that a trace in Irish

[38] McCloskey (2002: 220), however, notes that the distinction between *aL* and *aN* is not observed in the speech among many young speakers. The use of *aL* is spreading even in the resumptive structure (Brain Ó Curnáin p.c.).

is island sensitive. The extraction of direct objects within complex DP island as in (8a) and *wh*-island as in (8b) is disallowed:

(8) a.* an fear a phóg mé an bhean a phós __
the man *aL* kissed I the woman *aL* married
'the man who I kissed the woman who married' (McCloskey 1979: 30)

b. * fear nach bhfuil fhios agam cén cineál mná a phósfadh __
man $C._{NEG}$ I-know what sort of woman *aL* would-marry
'a man who I don't know what woman would marry' (McCloskey 1979: 32)

In contrast, Irish resumptives are immune to island constraints. Resumptive pronouns may occur in complex DP island (9a) and in *wh*-island (9b).

(9) a. Sin teanga a mbeadh meas agam ar duine ar bith a tá ábalta i a labhairt.
that language *aN* would-be respect at-me on person any *aL* is able it to speak
'That's a language that I would respect anyone who could speak it.'
(McCloskey 1979: 34)

b. Sin fear nach bhfuil fhios agam cén cineál mná a phósfadh é.
that man $C._{NEG}$ I-know what sort of woman *aL* would-marry him
'That's a man that I don't know what kind of woman would marry him'
(McCloskey 1979: 33)

This immunity of Irish resumptives from the locality constraints suggests that a pronoun and its binder are generated separately, rather than derived through movement.

The binder-resumptive dependencies and the filler-gap dependencies behave differently in terms of locality effects. However, McCloskey (1990) points out that there is a sense that a resumptive pronoun behaves like variables. This is observed in strong crossover. Traces left by movement to A'-position are subject to the strong crossover effect (Postal 1971). Strong crossover is the effect that "the trace of movement to an A-bar-position may not be anaphorically linked with a c-commanding pronoun" (McCloskey 2006: 101). The following example illustrates the strong crossover effect.

(10) * Who did she_i claim [t_i had arrived earliest]? (McCloskey 2006: 101)

In (10), the pronoun *she* c-commands a *wh*-trace in embedded subject position, and they are co-indexed. It is argued that the ungrammaticality of (10) derives from Condition C of the binding theory (Chomsky 1981). Condition C requires non-pronominal DPs including *wh*-traces not be bound by an element in an A-position. Condition C is violated in (10), since the trace in the embedded clause is c-commanded by, and co-indexed with, the pronoun *she* which is in the argument position (i.e. subject). McCloskey (1990) demonstrates that Irish resumptives are subject to the strong crossover effect, as illustrated below.

(11) * Sin an fear_i ar dhúirt an bastard_i go maródh $\underline{\text{sé}}_i$ muid.
that the man *aN* said the bastard C would-kill he us
'That's the man that the bastard said that he would kill us.' (McCloskey 1990: 212)

In (11), the epithet *bastard* in A-position c-commands the pronoun *sé* 'he', therefore, they cannot be co-indexed.

Irish resumptives are subject to strong crossover effects, but crucially, they are not subject to weak crossover effects (McCloskey 1990). In (12), if the pronoun in a higher position *a* 'his' does not c-command a lower pronoun *é* 'him', they can be co-indexed.

(12) fear a d'fhág a_i bhean $\underline{\text{é}}_i$
man *aN* left his wife him
'a man that his wife left' (McCloskey 1990: 236)

On the other hand, weak crossover effects emerge when the second pronoun is replaced with a trace:

(13) * fear a d'fhág a bhean __
man *aL* left his wife
'a man that his wife left' (McCloskey 1990: 237)

In summary, based on seminal works by McCloskey, a resumptive pronoun in Irish is a syntactic variable like a trace, as we can see from the strong crossover effects. However, the lack of island-sensitivity and weak crossover effects suggest that the syntactically active

resumptives as in Irish do not involve movement, rather a resumptive pronoun and its binder are base-generated.

3.2.3 Syntactically inactive resumptives

The third type is syntactically inactive resumptives. McCloskey (2006) points out that syntactically inactive resumptives show the contrasting distribution to syntactically active resumptives as observed in Irish. Koopman (1982) documents for Vata, and Engdahl (1985) for Swedish, that resumptive pronouns are found only in subject positions. The following *wh*-questions in Vata illustrate that resumptive pronouns are available in subject positions, both in a main clause and an embedded clause as in (14), but not in object positions in (15).

(14) a. àl´ɔ ɔ̀ / *__ lē sˈaká lˈa
who he eat rice WH
'Who is eating rice?'

b. àl´ɔ `n gūgū nā ɔ̀ / *__ yì lˈa
who you think that he arrive WH
'Who do you think arrived?' (Koopman 1982: 128)

(15) a. yī kòfi lˈe __ / *mí lˈa
what Kofi eat it WH
'What is Kofi eating?'

b. àl´ɔ `n gūgū nā wˈa yˈɛ̀ __ / *m`ɔ yé lˈa
who you think that they see him PRT WH
'Who do you think they saw?' (Koopman 1982: 128)

Asudeh (2004: 115-121) points out that the Highest Subject Restriction holds in languages that typically make use of syntactically active resumptives such as in Irish, Hebrew and varieties of Arabic; however, it does not hold in Vata. The distribution of syntactically inactive resumptives also does not respect Keenan and Comrie's Accessibility Hierarchy mentioned in 2.2.6. The syntactically inactive resumptives only occur in subject position which is the least oblique argument.

In contrast to Irish, Vata resumptive pronouns, in fact, show movement properties with respect to islands and weak crossover (Asudeh 2011). Despite the presence of the overt resumptive pronouns, they cannot occur in *wh*-islands (Koopman and Sportiche 1986):

(16) a. * álÓ `n n'I [zĒ mĒm'E` gb'U Ò d'I` -ɓ'O *t* mÉ] yì l'a
who you NEG·AUX reason it-it for he cut REL it know WH
'Who don't you know why he cut it? (Koopman & Sportiche 1986: 369)

b. * álÓ `n nyl'a nyl'i nā Ò d'I mÉ l'a
who you wonder that he cut it WH
'Who do you wonder whether he cut it? (Koopman & Sportiche 1986: 370)

Similary, Vata resumptives give rise to weak crossover effects (Koopman and Sportiche 1982), as in (17).

(17) a. * àl´ɔ 'ɔ n´ɔ gùgù nā ɔ̀ mlì l'a
who$_i$ his$_i$ mother think that he$_i$ left WH
'Who did his mother think left?' (Koopman & Sportiche 1982)

b. * àl´ɔ `n yr'a 'ɔ n´ɔ nā ɔ̀ mlì l'a
who$_i$ you tell his$_i$ mother that he$_i$ left WH
'Who did you tell his mother left?' (Koopman & Sportiche 1982)

Resumptive pronouns in Swedish display similar properties (McCloskey 2006). Engdahl (1985) observes that Swedish resumptives do not improve island violations, as illustrated in (18).

(18) ?* Vilken bil åt du lunch med någon som körde den?
which car ate you lunch with someone that drove it
'Which car did you have lunch with someone that drove?' (Engdahl 1985: 10)

Furthermore, Zaenen *et al*. (1981) and Engdahl (1985) demonstrate that Swedish resumptive pronouns display movement properties in terms of licensing reconstruction, across-the-board (ATB) extraction, and parasitic gap. We will briefly look at these properties one by one.

Zaenen *et al*. (1981) show that Swedish resumptive pronouns allow what is now commonly known as reconstruction (Barss 1986; Lebeaux 1988). Reconstruction effects are observed when binding rules apply in the base position of a moved phrase, rather than its landing site. Zaenen *et al*. first demonstrate that reflexive possessors in Swedish must be

bound and they need a local antecedent within the sentence. However, the following example is grammatical, even though a *wh*-phrase containing the reflexive is fronted.

(19) [Vilken av sina$_i$ flickvänner]$_j$ tror du att Kalle$_i$ inte längre träffar __$_j$?
which of his girlfriends think you that Kalle no longer sees
'Which of his girlfriends do you think that Kalle no longer sees?'
(Zaenen *et al*. 1981: 680)

Under Condition B of the binding theory, *sina* 'his' cannot corefer with *Kalle* because *sina* is not c-commanded by *Kalle*. It is argued that the *wh*-phrase *vilken av sina flickvänner* is reconstructed in its original position where *sina* is c-commanded by *Kalle*, which rescues the grammaticality of (19). A strong (but not universal) consensus on recent work is that reconstruction effects result from syntactic movement (McCloskey 2006: 112). If a resumptive pronoun is active in syntax, reconstruction should be blocked by the presence of a resumptive pronoun. Nevertheless, the following sentence with the pronoun *henne* 'her' is grammatical:

(20) [Vilken av sina$_i$ flickvänner]$_j$ undrade du om det att Kalle$_i$ inte längre fick träffa <u>henne$_j$</u>
which of his girlfriends wonder you if it that Kalle no longer sees her
kunde ligga bakom hans dåliga humör?
could lie behind his bad mood
'Which of his girlfriends do you think the fact that Kalle no longer gets to see (her)
could be behind his bad mood?' (Zaenen *et al*. 1981: 681)

A resumptive pronoun in Swedish also satisfies across-the-board extraction from a coordinate structure. ATB is a requirement that if an extraction rule applies in one conjunct of a coordinate structure, it also needs to apply in the other conjuncts (Ross 1967; Williams 1978). The following example is ungrammatical in both Swedish and English, since the extraction rule only applies in the first conjunct:

(21) * Där borta går en man$_i$ som jag ofta träffar __$_i$ men inte minns
there goes a man that I often meet but don't remember
om Marie känner Kalle$_i$.
if Marie knows Kalle
'There goes a man that I often meet but don't remember if Marie knows Kalle.'
(Zaenen *et al*. 1981: 681)

However, Zaenen *et al*. show that extraction out of a single conjunct is allowed if the other conjunct contains a resumptive pronoun.

(22) Där borta går en man$_i$ som jag ofta träffar __$_i$ men inte minns vad han$_i$ heter.
there goes a man that I often meet but don't remember what he is called
'There goes a man that I often meet but don't remember what he is called.'
(Zaenen *et al*. 1981: 681)

Based on the reconstruction and ATB extraction phenomena, Zaenen *et al*. (1981: 679) conclude that the relation between a resumptive pronoun and its binder is of the same nature as the relation between a trace and its binder in Swedish.

The final phenomenon is parasitic gaps. A parasitic gap is a null element whose presence is licensed by another gap in the sentence (Taraldsen 1981; Engdahl 1983). An English example is given in (23):

(23) These are the papers$_i$ that I filed __$_i$ without reading __$_i$.

It is generally assumed that parasitic gaps are traces of movement because they are sensitive to island constraints (Chomsky 1986). Engdahl (1985) shows that Swedish resumptives license parasitic gaps.

(24) Det var den fången$_i$ som läkarna inte kunde avgöra om han$_i$ verkligen var sjuk
it was that prisoner that the-doctor not could decide if he really was ill
utan att tala med __$_i$ personligen.
without to talk with in-person
'This is the prisoner that the doctors couldn't determine if he really was ill without talking to in person.'[39] (Engdahl 1985: 7)

All the data above suggest that a resumptive pronoun in Swedish is sensitive to movement constraints.

Based on the observation that resumptives in these languages show properties of movement, Koopman (1982) and Engdahl (1985) draw a similar conclusion on the behaviour resumption in Vata and Swedish respectively. Resumptive pronouns behave like a trace of *wh*-movement and they are, in fact, phonetically realised traces. McCloskey (2006) also suggests that, in contrast to Irish, the binder-resumptive dependencies in Vata and Swedish involves movement.

3.2.4 Diagnostics of resumption

In addition to island-sensitivity and weak crossover violation, we have seen the three other properties of movement in the previous subsection, i.e., licensing of reconstruction, ATB extraction, and parasitic gaps. However, Asudeh (2004, 2011) casts doubt on the latter three properties as diagnostics of movement, mainly because these properties may not be entirely syntactic.

(25) below shows tests that are generally used as diagnostics of movement in the literature. It shows that syntactically active resumptives do not show these diagnostics of movement, whereas syntactically inactive resumptives do. However, Asudeh points out that syntactically active resumptives in every language do not display the full set of properties.

[39] Asudeh (2004: 134) points out that this English translation is ill-formed, even though English allows intrusive pronouns.

(25) Some diagnostic properties of Syntactically Active RPs and Syntactically Inactive RPs:

	Syntactically Active RPs	Syntactically Inactive RPs
Island-sensitive	No	Yes
Weak crossover violation	No	Yes
Reconstruction licensed	No?	Yes
ATB extraction licensed	No?	Yes
Parasitic gap licensed	?	Yes

(Asudeh 2011: 132)

The first two diagnostics (i.e. island-sensitivity and weak crossover violation) are widely regarded as fairly established diagnostics of movement.[40] However, Asudeh argues that the final three properties are weaker diagnostics to decide whether resumption in a language is syntactically active or not.

Asudeh (2011) points out that reconstruction is still somewhat poorly understood and may be licensed semantically, instead of or in addition to being licensed syntactically (see Sharvit 1999; Sternefeld 2001). Moreover, recent work has begun to show that reconstruction is not a uniform phenomenon with respect to resumption. In Welsh, Rouveret (2002, 2008) demonstrates that resumptive relatives partly exhibit reconstruction effects. Welsh relatives that involve the movement strategy show full range of reconstruction effects, however, relative clauses that involve resumption also display these effects with respect to anaphoric binding and pronominal binding, but not with respect to Condition C (see 3.3.3 below).

ATB extraction is also dubious for a diagnostic of movement (Asudeh 2004; 2011). It has been known that there are exceptions to ATB extraction. Ross (1967) already noted exceptions, as in the following example:

[40] Bob Borsley (p.c.) informs me that there are cases traditionally analysed in terms of movement which are not subject to weak crossover. English examples are illustrated below. (i) is an example of non-restrictive relative clauses, (ii) is tough movement, and (iii) is parasitic gaps. These examples are expected to violate weak crossover effects. However, they are all acceptable.

(i) Robin$_i$, whom$_i$ his$_i$ associates consider a bit of a cold fish, didn't get any Valentine's Day cards.
(Levine & Hukari 2006: 307)

(ii) Who$_i$ is easy for his$_i$ mother to like __$_i$?
(iii) Who did you fire __$_i$ before his$_i$ mother had a chance to warn __$_i$?

Lasnik and Stowell (1991) propose that such examples involve a phonologically empty resumptive pronoun, but Levine and Hukari (2006: chapter 6) argue against this proposal. Borsley (p.c.) therefore points out that weak crossover is not reliable diagnostics to distinguish between movement dependencies and non-movement dependencies either.

(26) What did you go to the store and buy? (Asudeh 2004: 273)

ATB requirement is violated since only the object of the verb *buy* is extracted from the second conjunct, yet the sentence is grammatical. Kehler (2002) argues that ATB is not a purely syntactic phenomenon but additionally involves semantic and pragmatic factors in terms of discourse coherence. If non-syntactic factors play an important role to ATB, then ATB may not clearly distinguish syntactically active resumptives or inactive resumptives.

Asudeh (2011: 133) states that parasitic gaps may also be licensed at the syntax-semantic interface in a way that certain anaphoric elements might interact. In fact, whether syntactic active resumptives license parasitic gaps has been controversial in the literature on Hebrew, although resumptive pronouns in Hebrew do not show movement properties in other aspects. Borer (1984) and Sells (1984) claim that Hebrew resumptives do license parasitic gaps, while Shlonsky (1992) claims they do not. If these points made in Asudeh (2004, 2011) are borne out, reconstruction, ATB extraction and parasitic gaps do not seem to good diagnostics to judge whether resumptives are syntactically active or not.

To summarise, following McCloskey (2006) and Asudeh (2011), this section introduced three types of resumption: processor resumptives, syntactically active resumptives, and syntactically inactive resumptives. We have seen that syntactically active resumptives do not display general properties of movement, whereas syntacically inactive resumptives display them. In the next section, I will examine the diagnostic properties: island-sensitivity, weak crossover violation, reconstruction, ATB extraction and parasitic gaps to see whether Welsh resumptives are syntactically active or not.

3.3 Welsh resumptives

In the previous section, we saw three types of resumption: processor resumptives, syntactically active resumptives and syntactically inactive resumptives. This section considers where Welsh resumptives may fit in this system. As we saw in chapter 2, Welsh allows resumptive pronouns in possessor relatives and prepositional relatives even in structurally simplex sentences. Examples from the previous chapter illustrate this point. (27) is the example of possessor relatives, and (28) is the example of prepositional relatives.

(27) Dyma ’r bachgen y gwelais i ei gi o
here the boy C see.$_{PAST}$.1$_S$ I 3$_{MS}$ dog he
‘Here’s the boy whose dog I saw.’ (Tallerman 1990: 310)

(28) Dyma ’r ddynes ges i ginio efo hi.
here the woman get.$_{PAST}$.1$_S$ I lunch with her
‘This is the woman I had lunch with.’ (King 2003: 307)

The availability of resumptive pronouns in a simplex structure suggests that Welsh resumpitves are grammaticised, not processor resumptives. Therefore, I will examine whether Welsh resumptives are syntactically active or not, mainly using the two syntactic diagnostics of movement: island-sensitivity and weak crossover effects.

3.3.1 Island constraints

Borsley *et al*. (2007: 146-148) deal with locality effects in Welsh. They point out that Welsh *wh*-constructions which involve movement are subject to island constraints. An example of adjunct relatives which involves movement (see 2.2.4 above) is illustrated below. In (29), the extraction of *yfory* ‘tomorrow’ in adjunct position out of the complex NP island turns out to be ungrammatical.

(29) * Yfory$_i$ yw ’r dydd y lledodd [y si y byddai hi ’n dod __$_i$].
tomorrow be.$_{PRES}$.3$_S$ the day C spread.3$_S$ the rumour C be.$_{COND}$.3$_S$ she $_{PROG}$ come
‘Tomorrow is the day that the rumour spread that she’d come.’
(Borsley *et al*. 2007: 146)

However, the situation of *wh*-constructions formed in an embedded object is puzzling. Tallerman (1983) points out that two different types of complex NP island elicit different grammaticality judgements. First type is NP plus relative clause. A resumptive pronoun in this type is subject to the island constraint. Despite the presence of overt pronoun, (30) is ungrammatical:

(30) * Dyma ’r ffenestr$_i$ y tarais i [’r bachgen a dorrodd hi$_i$].
here-is the window C hit I the boy C broke it
‘That’s the window that I hit the boy who broke (it).’ (Tallerman 1983: 197)

Wh-question of this type is equally ill-formed.

(31) * Pa ddyn$_i$ gusanaist ti [’r ddynes a briododd o$_i$]?
which man kissed you the woman C married him
‘Which man did you kiss the woman who married (him)?’ (Tallerman 1983: 197)

The other type of complex NP island is sentential complements of NP, such as *the fact that …* in English. In contrast to the former type, a resumptive pronoun in this type is immune to the island constraint at least in relative clauses. In (32), the pronoun *o* ‘him’ in complex NP island is grammatical. In fact, Tallerman (1983) reports that whether the resumptive pronoun is present or absent does not make much difference to the acceptability to native speakers.

(32) Dyma ’r dyn$_i$ y credodd Dafydd [y si y gwelodd Mair (o$_i$)].
here-is the man C believed David the rumour C saw Mary him
‘Here’s the man who David believed the rumour that Mary saw.’ (Tallerman 1983: 201)

Borsley *et al*. (2007: 147) state that the situation in resumptive *wh*-constructions does not clear-cut either. They however point out that the resumptive strategy overcomes island constraints in some cases. (33) is an example of an adjunct island. There is no overt pronoun *hi* ‘it (feminine)’, however, rich agreement on the preposition *arni* license a resumptive *pro*.

(33) B’le mae ’r enfys honno, tybed, yr adroddais gyntaf y llinellau
where be.$_{PRES}$.3$_S$ the rainbow that wonder C read.$_{PAST}$.1$_S$ first the lines
wrth syllu arni?
at stare on.3$_{FS}$
‘Where is that rainbow, I wonder, which I first read the lines staring at (it)?’
(Borsley *et al*. 2007: 147)

However, counter examples can be found elsewhere. (34a) shows that a null pronoun licensed by the rich agreement on the preposition *amdano* seems to be sensitive to complex NP island. Rouveret (2008) reports that the overt pronoun improves its acceptability, as in (34b)

(34) a. ?? Dyma ’r dyn y cusanaist ti [’r ddynes a siaradodd amdano].
here the man C kissed you the woman C talked about.3_{MS}
b. ? Dyma ’r dyn y cusanaist ti [’r ddynes a siaradodd amdano ef].
here the man C kissed you the woman C talked about.3_{MS} him
‘Here’s the man that you kissed the woman that talked about him.’
(Rouveret 2008: 179)

(34) is the example of NP plus relative clause. I therefore checked island-sensitivity in the case of sentential complements of NP in my judgement tests.

Set 28 and Set 42 are cases of prepositional relatives. The mean score of acceptability is indicated in the right side of each sentence, and the range is in the blackets. In Set 28, the resumptive pattern [28a] and [28b] is marginal. [28c] without rich agreement on the preposition is degraded.

[Set 28]

a. Dyna ’r hogyn dw i wedi clywed sôn bod athrawon
that’s the boy be.$_{PRES}$.1_S I $_{PERF}$ hear rumour be.$_{INF}$ teachers **3.3** [2-5]
yn poeni amdano ’n ofnadwy.
$_{PROG}$ worry about.3_{MS} $_{PRED}$ terrible
‘That’s the boy that I have heard the rumour that teachers worry about.’

b. Dyna’r hogyn dw i wedi clywed sôn bod athrawon yn poeni amdano fo ’n ofnadwy.
about.3_{MS} he **3.5** [2-5]

c. Dyna’r hogyn dw i wedi clywed sôn bod athrawon yn poeni am yn ofnadwy.
about **2.3** [1-5]

In Set 42, the most acceptable option is [42a] without the overt pronoun *hi*. In this set, the mean score of [42b] with the overt pronoun is slightly lower than [42c] without agreement on the preposition.

[Set 42]

a. Dyma ’r ddynes oeddwn ni ’n clywed sôn bod Alun
here the woman be.$_{IMPF}$.2$_P$ we $_{PROG}$ hear rumour be.$_{INF}$ Alun
yn chwilio amdani. **3.3** [1-5]
$_{PROG}$ look for.3$_{FS}$
‘This is the woman that we heard the rumour that Alun is looking for.’

b. Dyma’r ddynes oeddwn ni’n clywed sôn bod Alun yn chwilio amdani hi. **2.3** [1-4]
am.3$_{FS}$ she

c. Dyma’r ddynes oeddwn ni’n clywed sôn bod Alun yn chwilio am. **2.5** [1-5]
about

Set 8 is the case of *wh*-question with uninflectable preposition *â*. The mean score of the resumptive pattern with the overt pronoun [8a] and the P-stranding pattern in [8c] is exactly the same: 2.4.

[Set 8]

a. Pa ddinas wnest ti glywed sôn byddwn ni ’n ymweld â hi? **2.4** [1-5]
which city do.$_{PAST}$.2$_S$ you hear rumour be.$_{FUT}$.2$_P$ we $_{PROG}$ visit to it
‘Which city did you hear the rumour that we are going to visit?’

b. Wnest ti glywed sôn byddwn ni ’n ymweld â Efrog Newydd? **4.3** [1-5]
do.$_{PAST}$.2$_S$ you hear rumour be.$_{FUT}$.2$_P$ we $_{PROG}$ visit to New York
‘Did you hear the rumour that we are going to visit New York?’

c. Pa ddinas wnest ti glywed sôn byddwn ni’n ymweld â? **2.4** [1-5]
‘Which city did you hear the rumour that we are going to visit?’

The above results show that a resumptive pronoun within complex NP islands is marginal. There is huge variation between speakers on the acceptability of these data (see Appendix D for the full distribution of acceptability), and it is not clear whether Welsh resumptives are sensitive to island effect or not.

Rouveret (2008) concludes that Welsh resumptives are sensitive to island constraints in relative clause. However, it would be too hasty to conclude that Welsh resumptives are sensitive to island constraints, since the judgements on such cases remain quite subtle (Borsley *et al*. 2007: 148) and Welsh resumptives do save islands in some cases as in (33).

Borsley (2010) suggests that island phenomena are a processing matter along the line of some recent work such as Levine and Hukari (2006) and Hofmeister and Sag (2010). Processing difficulty presumably affects the acceptability, since the sentence that contains island is inevitably long and complex. However, this does not mean that Welsh resumptives are simply processor resumptives in terms of the classification of McCloskey and Asudeh since Welsh allows the resumptive pronoun in a simplex structure.

In sum, it is not clear whether Welsh resumptives are sensitive to island constraints. We now turn to another diagnostic: weak crossover.

3.3.2 Weak crossover

To my knowledge, weak crossover effects have not been tested so far in Welsh. I tested weak crossover effects in prepositional relatives. In Set 70, neither the pronoun *hi* nor the null counterpart within the possessor noun phrase c-commands the resumptive pronoun in the object position of the preposition. The results show that [70c] and [70d] without the overt pronoun in object of the preposition is marginally acceptable.

[Set 70]

a. Dyma ’r ddynes$_i$ mae ei gŵr hi$_i$ ’n chwilio amdani hi$_i$. **3.4** [1-5]
this-is the woman be.$_{PRES}$.3$_S$ 3$_{FS}$ husband she $_{PROG}$ look for.3$_{FS}$ she
‘This is the woman that her husband is looking for (her).’

b. Dyma’r ddynes mae ei gŵr yn chwilio amdani hi. **3.1** [1-5]
for.3$_{FS}$ she

c. Dyma’r ddynes mae ei gŵr hi ’n chwilio amdani. **4.5** [2-5]
she for.3$_{FS}$

d. Dyma’r ddynes mae ei gŵr yn chwilio amdani. **4.3** [2-5]
for.3$_{FS}$

The similar pattern can be observed in Set 5. However, the score of acceptability is lower than Set 70 above. The mean score of [5c] which contains a null *pro* both in the possessor noun phrase and in object of the preposition is just above 4.

[Set 5]

a. Dyna 'r hogyn mae ei fam *pro*$_i$ yn poeni amdano fo$_i$. **3.2** [1-5]
that's the boy be.$_{PRES}$.3$_S$ 3$_{MS}$ mother $_{PROG}$ worry about.3$_{MS}$ he
'That's the boy that his mother worries about (him).'

b. Dyna'r hogyn mae ei fam o'n poeni amdano. **3.4** [1-5]
he about.3$_{MS}$

c. Dyna'r hogyn mae ei fam yn poeni amdano. **4.3** [2-5]
about.3$_{MS}$

d. Dyna'r hogyn mae ei fam o'n poeni amdano fo. **3.7** [1-5]
he about.3$_{MS}$ he

The above results seem to suggest Welsh resumptive pronouns in prepositional relatives are not subject to weak crossover effects. However, there is variation between speakers and judgements are quite subtle on these sentences. Therefore, it is not very clear whether Welsh resumptives are syntactically active or not.

3.3.3 Reconstruction

I will also briefly look at the other three diagnostics tested in the literature. In this subsection, I summarise Rouveret's (2008) work on Welsh reconstruction.

If a binder-resumptive dependency involves movement, in other words, a resumptive pronoun is a spell-out of a trace, we expect that it exhibits the full range of reconstruction effect. However, as already mentioned in 3.2.4, Rouveret (2002, 2008) observes that Welsh resumptive relatives exhibit reconstruction effects with respect to anaphoric binding and pronominal binding, but not Condition C.

Anaphoric binding may require reconstruction effects. In (35), the anaphoric expression *ei hun* 'himself' is reconstructed at the variable position, signalled by the resumptive element *eu*[41]. Consequently, it can be co-indexed with *Siôn*, which follows condition A.

[41] For Rouveret, non-finite verb can take a null *pro* due to the presence of an agreement clitics.

(35) Fe ’m hysbyswyd am y clecs amdano ei hun y mae Siôn wedi eu clywed
PRT me was-reported about the gossips about himself C is Siôn PERF them hear
yn y cyfarfod
at the party
‘[The gossips about himself$_i$]$_j$ that Siôn$_i$ heard t_j at the party were reported to me.’
(Rouveret 2008: 182)

Pronominal binding also exhibits reconstruction effects.

(36) Mae gan Siôn farn ar ei lyfr y mae pob awdur yn ei pharchu
is with Siôn opinion about his book C is each author PROG it respect
‘Siôn$_i$ has [an opinion about his$_i$ book]$_j$ that each author respects t_j.’
(Rouveret 2008: 182)

In order to derive the bound interpretation of the pronoun under Condition B, we need to suppose that the antecedent in the bracket is interpreted in the object position of the verb *parchu* ‘respect’.

However, reconstruction effects are not observed in resumptive relatives regarding Condition C, as illustrated below in (37).

(37) Yn ddiweddar, dygwyd darlun o Siôn yr oedd ef wedi ei roddi i Mair
recently was-stolen picture of Siôn C was he PERF it give to Mair
‘Recently was stolen a picture of Siôn$_i$ which he$_i$ had given to Mair.’
(Rouveret 2008: 181)

If the anticedent is reconstructed into the object position of *roddi* ‘give’, Condition C violation that an R-expression needs to be free should arise. Nevertheless, *Siôn* can be co-indexed with the pronoun *ef* ‘he’. This binding behaviour contrasts with relative clauses wihch involves movement.

(38) * Yn ddiweddar, dygwyd darlun o Siôn a roddasai i Mair
recently was-stolen picture of Siôn C had-given to Mair
'Recently was stolen [a picture of $Siôn_i$]$_j$ that he_i had given t_j to Mair.'
(Rouveret 2008: 181)

If the anticedent is reconstructed in the object of the finite verb *roddasai* which cannot take *pro* due to lack of clitics, Condition C should emerge. Indeed, the null pronominal subject of *roddasai* cannot refer *Siôn*, unlike in (37) above.

In sum, although a filler-gap dependency exhibits the full range of reconstruction, a binder-resumptive dependency exhibits partial reconstruction effects excluding Condition C in Welsh relative clauses. This seems to suggest that there is no simple correlation between the availability of reconstruction effects in a structure and the presence of a trace or resumptive element.

3.3.4 ATB extraction

Borsley (2010) argues that filler-gap dependencies and binder-resumptive dependencies in Welsh are similar. One of his arguments comes from ATB extraction.

ATB requirement disallows an extraction of only one conjunct of a coordinated structure. In (39), only the first conjunct is extracted, and this leads to ungrammaticality.

(39) * y dyn_i [welais i $\_\__i$ a gwelaist tithau[42] Megan]
the man $see._{PAST}.1_S$ I and $talk._{PAST}.2_S$ you Megan
'the man that I saw and you saw Megan' (Borsley 2010)

Rather, if both conjuncts are extracted, the sentence turns out to be grammatical:

(40) y dyn_i [welais i $\_\__i$ a gwelaist tithau $\_\__i$ hefyd]
the man $see._{PAST}.1_S$ I and $talk._{PAST}.2_S$ you too
'the man that I saw and you saw too' (Borsley 2010)

[42] The pronoun *ti* 'you' is realised in the different form *tithau*. This type of pronoun is known as 'conjunctive pronouns'. They often indicate a change of topic with the pronoun being the new topic, or else indicate comparison with some other entity (Borsley *et al*. 2007: 321).

With regard to ATB, Welsh seems to behave like Swedish. Borsley observes that a coordinated structure which contains a trace in one clause and a resumptive pronoun in the other is acceptable. Examples in (41) illustrate this:

(41) a. y dyn [welais i __ a soniais amdano fo]
the man see.$_{PAST}$.1$_S$ I and talk.$_{PAST}$.1$_S$ about.3$_{MS}$ he
'the man that I saw and talked about'
b. y dyn [welais i __ a oeddwn i 'n nabod ei dad o]
the man see.$_{PAST}$.1$_S$ I and be.$_{IMPF}$.1$_S$ I $_{PROG}$ know 3$_{MS}$ father he
'the man who I saw and whose father I knew' (Borsley 2010)

These data seem to suggest that Welsh resumptives are in fact spell-out of traces.

3.3.5 Parasitic gaps

Borsley (2010) also discusses parasitic gaps, and observes that Welsh seems not to have them.

(42) * Dyna 'r adroddiad dw i wedi ei daflu __ i ffwrdd [heb ddarllen __].
there-is the report be.$_{PRES}$.1$_S$ I $_{PERF}$ 3$_{SM}$ throw away without read
'There is the report that I have thrown away without reading.' (Borsley 2010)

This seems to support the non-movement analysis of binder-resumptive dependencies. However, (43) with a pronoun in the parasitic gap position is acceptable:

(43) Dyna 'r adroddiad dw i wedi ei daflu __ i ffwrdd [heb ei ddarllen (o)].
there-is the report be.$_{PRES}$.1$_S$ I $_{PERF}$ 3$_{MS}$ throw away without 3$_{MS}$ read he
(Borsley 2010)

3.3.6 Summary

I have investigated where Welsh resumptives may fit in the three types of resumption: processor resumptives, syntactically active resumptives and syntactically inactive resumptives. As Welsh allows resumptive pronouns in prepositional relatives in structurally simplex sentences, Welsh resumptives are not the processor type. I checked the sensitivity to island constraints and week crossover effects in my judgement tests. The results are not

conclusive to decide whether Welsh resumptives are syntactically active or not. The data on island constraints and week crossover effects need further investigation.

The other important point to note is the distribution of resumptive pronouns. In Welsh, the resumptive strategy is available in more oblique positions, that is, in object of preposition and possessor noun phrases. Borsley (2010) argues that a trace and a resumptive pronoun appear in different local environments (roughly complementary distribution), but they are similar otherwise. In fact, there are arguments that support the movement analysis of Welsh resumptives, that is, Welsh resumptives are syntactically inactive. The next section shows such data on successive cyclicity which is the idea that long *wh*-movement proceeds in a series of intermediate steps.

3.4 Successive cyclicity (Willis 2011)

In this section, I will show successive cyclicity of Welsh *wh*-dependencies presented in Willis (2011). Willis claims that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. He shows empirical evidence that the specifiers of CP and vP serve as escape hatches in Welsh, and argues that a *wh*-operator can be freely extracted as long as it moves through these escape hatches.

I will first show Willis' empirical arguments of successive cyclicity of *wh*-dependencies via CP. Willis (2011: 201-205) demonstrates three pieces of evidence that Welsh shows the cyclic nature of *wh*-movement through Spec-CP, as in Irish (see McCloskey 1990, 2002). First, an embedded verb does not show mutation in non-*wh*-environments, but it does show mutation in *wh*-environments. In (44a), the embedded verb is in the non-mutated form *daw* 'will come'. In *wh*-environments as in (44b), the embedded verb is in the soft-mutated form *ddaw* because it participates in a *wh*-dependency, according to Willis.

(44) a. Ryn ni 'n gobeithio (y) {**daw** / *ddaw} elw o 'r gefeillio.
be.$_{PRES}$.1$_P$ we $_{PROG}$ hope C dome.$_{FUT}$.3$_S$ benefit from the twinning
'We hope that benefit will come from the twinning.'

b. Beth yn ni 'n ei obeithio **ddaw** o 'r gefeillio
what be.$_{PRES}$.1$_P$ we $_{PROG}$ 3$_{SM}$ hope dome.$_{FUT}$.3$_S$ from the twinning
ydi y bydd y naill a 'r llall yn elwa.
be.$_{PRES}$.3$_S$ C be.$_{FUT}$.3$_S$ the one and the other $_{PROG}$ benefit
'What we hope will come from the twinning is that both sides will benefit.'

(Willis 2011: 202)

Second, the special relative form of *bod* 'be' *sy(dd)* is used in long-distance subject extractions. In (45a), the verb form is *mae* in third person singular in an affirmative sentence. In contrast, *sy* is used when a subject *wh*-expression is extracted, as illustrated in (45b).

(45) a. **Mae** Megan yn gwybod yr ateb.
be.$_{PRES}$.3$_S$ Megan $_{PROG}$ know the answer
'Megan knows the answer.'

b. Pwy **sy** 'n gwybod yr ateb.
who be.$_{PRES}$ $_{PROG}$ know the answer
'Who knows the answer?' (Willis 2011: 203)

The special relative form is also used in long-distance subject extractions, as illustrated in (46) below.

(46) Pwy wyt ti 'n feddwl {**sy** / *mae} 'n gwybod yr ateb?
who be.$_{PRES}$.2$_S$ you $_{PROG}$ think be.$_{PRES}$ $_{PROG}$ know the answer
'Who do you think knows the answer?' (Willis 2011: 203)

Third, tense restrictions that can be seen on the verb at the beginning of the embedded clause are voided in *wh*-environments. In Welsh, a finite complement clause in the present or imperfect tense is ungrammatical (Willis 2011: 204), although there is variation between

speakers. As in (47a), the non-finite form of *bod* is used in the present tense.[43] However, this restriction is relaxed in *wh*-environments. The use of the finite verb *mae* 'be' is grammatical in *wh*-questions, as illustrated in (47b).

(47) a. Dwi 'n meddwl {**bod** /?*mae} Megan yn gwybod yr ateb.
be.$_{PRES}$.1$_S$ $_{PROG}$ think be.$_{INF}$ / be.$_{PRES}$.3$_S$ Megan $_{PROG}$ know the answer
'I think that Megan knows the answer.'

b. Beth wyt ti 'n meddwl **mae** Magan yn ei wybod?
what be.$_{PRES}$.2$_S$ you $_{PROG}$ think be.$_{PRES}$.3$_S$ Megan $_{PROG}$ 3$_{MS}$ know
'What do you think that Megan knows?' (Willis 2011: 205)

Willis suggests that all three of these phenomena demonstrate that the CP-layer of the embedded clause takes part in a *wh*-dependency and triggers morphosyntactic alternations.

In addition to CP, Willis argues that the vP-layer also shows that the cyclic nature of *wh*-movement, based on the arguments of object clitics. As we saw in 2.2.3, an object-agreement clitic precedes a non-finite verb in the literary variety, as illustrated in (48).

(48) y car mae 'r lladron wedi ei ddwyn (*e)
the car be.$_{PRES}$.3$_S$ the thieves $_{PERF}$ 3$_{MS}$ steal it
'the car that the thieves have stolen it' (Willis 2011: 193)

In Colloquial Welsh, preverbal clitics such as *ei* as in (48) are often omitted, but they may cause mutation on a following verb. However, a resumptive pronoun cannot follow a verb in *wh*-dependencies in both literary and colloquial varieties. Willis therefore argues against the analysis that object *wh*-constructions of a non-finite verb are resumptive in nature (contra Awbery 1977; Rouveret 2002). Moreover, long-distance dependencies allow an object clitic to precede a non-finite verb in the main clause, as illustrated below.

(49) Beth wyt ti 'n **(ei) feddwl** bod hyn yn (ei) olygu?
what be.$_{PRES}$.2$_S$ you $_{PROG}$ 3$_{MS}$ think be.$_{INF}$ this $_{PROG}$ 3$_{MS}$ mean
'What do you think this means?' (Willis 2011: 197)

[43] In my judgement tests, the acceptability of the use of *mae* in the affirmative sentence as in (47a) is 2.2 [1-5] (see 59c in Appendix D).

Willis points out that if (49) above is the result of movement of a *wh*-expression, the object clitics could be analysed as a reflex of *wh*-movement. He suggests that the availability of an object clitic shows evidence for cyclic movement via Spec-vP. Adopting Chomsky (2001), Willis assumes that C and v are phase heads, and *wh*-movement needs to proceed through specifiers of these phases as escape hatches.

Given standard views of successive cyclicity, it suggests that there is movement with resumptive pronouns. In order to obey successive cyclicity, we need to assume some kind of movement operation in binder-resumptive dependencies. In the next chapter, I will consider the derivation of Welsh resumptive stuructures in the next chapter, adapting Willis' (2011) analysis.

CHAPTER 4:
PF FEATURE CHECKING APPROACH TO WELSH P-STRANDING

4.1 Introduction

In chapter 2, we saw the distribution of a trace and a resumptive pronoun in Welsh A'-dependencies, depending on the position of these variables. Prepositional *wh*-constructions show different syntactic behaviour between Literary Welsh and Colloquial Welsh. The default pattern in Literary Welsh is the resumptive strategy which requires a pronoun in the complement position of a preposition in relatives and pied-piping of an entire PP in *wh*-questions. On the other hand, Colloquial Welsh allows a trace left by movement in complement of P in both relatives and *wh*-questions. As we saw in 2.3.3, this contrast can be generalised in the following way. (84) in chapter 2 is repeated here in (1).

(1) Generalizations on prepositional A'-dependencies in Welsh:

a. Literary Welsh: a head P is followed by its pronominal complement.
(i.e., resumptive pronouns in relatives, *wh*-elements in interrogatives)

b. Colloquial Welsh: a head P is followed by a trace left by movement.

Concrete examples are illustrated below. In prepositional relatives as in (2a), the rich agreement on a preposition licences a resumptive pronoun although it may be phonologically null (i.e. *pro*). In Colloquial Welsh, on the other hand, the use of an uninflected preposition is observed, as illustrated in (2b). In *wh*-questions, the literary variety requires pied-piping as in (3a); whereas in the colloquial variety, a *wh*-expression can move out of PP on its own as in (3b).

(2) a. y dyn y siaradais i amdano {fo / *pro*} Lit. W
the man C talk.$_{PAST}$.1$_S$ I about.3$_{MS}$ him
'the man that I talked about'
b. y dyn wnes i siarad am Col. W
the man do.$_{PAST}$.1$_S$ I talk.$_{INF}$ about
(3) a. Am beth y siaradest ti? Lit. W
about what C talk.$_{PAST}$.2$_S$ you
'What did you talk about?'
b. Beth wnest ti siarad am? Col. W
what do.$_{PAST}$.2$_S$ you talk.$_{INF}$ about

This chapter aims to provide an account on the generalization (1), based on the notion of PF feature checking proposed in Ackema and Neeleman (2004).

In chapter 3, I introduced Willis' (2011) argument that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. To account for the generalization (1), I will adopt Willis' proposal on the resumptive structure that a *wh*-operator is inserted from the lexicon into the specifier of P, and that operator moves though specifers of v and C following successive cyclicity. In contrast, I assume that a *wh*-operator is originated in the complement of P in the P-stranding structure in Colloquial Welsh, then it moves through specifiers of v and C to satisfy EPP-feature. I will argue that these different syntactic operations between the two varieties are regulated by the availability of PF feature checking. We will see the PF feature checking analysis of Welsh P-stranding in more detail below, but the idea is that if the PF feature checking holds between a P head and its DP complement, the DP whose features have already checked will be unable to move to Spec-CP where syntactic feature checking takes place with a C head. This means that P-stranding is impossible. On the other hand, if PF checking does not hold within PP, an extraction from the complement position of P to Spec-CP is available.

This chapter is organised as follows. Section 4.1 first introduces the PF feature checking mechanism, by reviewing Ackema and Neeleman (2004). The main idea is that PF checking takes place between the two elements in the same prosodic domain via feature identification. Section 4.2 discusses Willis' formal analyses on Welsh *wh*-dependencies. Section 4.3 extends Ackema and Neeleman's proposal to prepositional *wh*-constructions in Welsh. I will argue that the PF checking approach can provide an account on the syntactic difference expressed

in the generalization (1) above. Section 4.4 investigates Welsh *wh*-questions, comparing two other Celtic languages. We will see that multiple *wh*-questions and prepositional pied-piping are not available in Irish and Scottish Gaelic. Section 4.5 concludes the chapter.

4.2 PF feature checking (Ackema and Neeleman 2004)

This section introduces the notion of PF feature checking by reviewing Ackema and Neeleman (2004). 4.2.1 deals with the mechanism of PF feature checking. Ackema and Neeleman claim that PF checking is implemented via feature identification between a head and an adjacent phrase in a same prosodic domain. This feature identification is illustrated by Germanic complementizer agreement. In 4.2.2, we will look at PF checking analysis of English *that*-trace effect where a prosodic requirement conflicts with a syntactic requirement. We will also briefly consider the PF interface account of morphological alternation which is sensitive to the initial prosodic domain in 4.2.3. 4.2.4 summarises this section by considering the order of operations that take place at PF.

4.2.1 Feature identification

Feature checking has played an important role in the recent syntactic theory. According to Chomsky (1995), there is a difference between strong and weak features. The former must be checked overtly, whereas the latter needs to be checked covertly at LF only. Chomsky (2000, 2001) further assumes that the motivation for feature checking is that features can be uninterpretable. Uninterpretable features need to be checked with interpretable features via an Agree relation, before the derivation reaches at LF.

Ackema and Neeleman (2004: chapter 7) propose that feature checking can take place at the PF interface where syntax and phonology interact, alongside the commonly assumed syntactic feature checking. Their main hypothesis is that PF feature checking takes place in the mapping from syntax to an initial prosodic phrasing. As we saw in chapter 1, the initial prosodic phrase is determined by alignment conditions that associate boundaries of syntactic constituents with boundaries of phonological phrases (Selkirk 1986, among others). Ackema and Neeleman argue that the PF checking is implemented via feature identification which is expressed by the following general format (A and B are categories, F_1, F_2 and F_3 are features, and braces indicate prosodic domains):

(4) {[A (F_1) (F_2) (F_3)…] [B (F_1) (F_2) (F_3)…]} →
{[A (F_{1i}) (F_{2j}) (F_{3k})…] [B (F_{1i}) (F_{2j}) (F_{3k})…]} (Ackema & Neeleman 2004: 235)

In languages that have a right alignment rule as in English and Welsh (see 1.2.2), this PF checking requires post-head adjacency. In other words, a phrase BP whose features are to enter into a checking relation must immediately follow a head A that contains identical features. The syntactic structure [$_{AP}$ A BP] needs to correspond to a prosodic structure that fits the structural description of the rule in (4). If another maximal projection intervenes ([$_{AP}$ A XP BP]), or if the phrase precedes the head ([$_{AP}$ BP A]), PF checking is impossible because the two elements (i.e. A and BP) will not be in the same prosodic domain. The PF checking is implemented via feature identification between a head and an adjacent phrase that contains identical features.

The PF checking approach can provide an account of Germanic complementizer agreement, among other things. Although the English complementizer does not show any morphological agreement, some Germanic languages show complementizer agreement with an adjacent subject. The paradigm of complementizer agreement in West Flemish is illustrated below.

(5) a. dan ik werken b. dan gie werkt c. da {ze / Valère} werkt
that.1_S I work.1_S that.2_S you work.2_S that.3_S she / Valerie work.3_S
d. dan wunder werken e. da gunder werkt
that.1_P we work.1_P that.2_P you.$_P$ work.2_P
f. dan {zunder / Pol} en Valère werken
that.3_P they / Paul and Valerie work.3_P (Ackema & Neeleman 2004: 236)

If another phrase breaks adjacency between an agreeing head and a following subject, the complementizer does not agree with the subject, as illustrated below. In (6b), C appears without an agreement ending, because it is separated from the subject by the adverbial.

(6) a. da / dan zunder [op den warmste dag van 't jaar] tegen under wil gewerkt en
that / that.3_{PL} they on the hottest day of the year against their will worked have
'that they have worked against their will on the hottest day of the year'

b. da / *dan [op den warmste dag van 't jaar] zunder tegen under wil gewerkt en
that / that.3_{PL} on the hottest day of the year they against their will worked have
(Ackema & Neeleman 2004: 240)

The traditional view on syntactic feature checking is that it takes place between a head and its specifier. However, in the case of Germanic complementizer agreement as in (5) above, there is no specifier-head configuration between C and the following subject without additional assumptions. Ackema and Neeleman argue that their PF feature checking straightforwardly accounts for the subjacency requirement of complementizer agreement with its subject, as in (6). They assume the following feature identification rule for Germanic complementizer agreement:[44]

(7) {[C (Prt) (Add) (Plr)…] [D (Prt) (Add) (Plr)…]} →
{[C (Prt_i) (Add_j) (Plr_k)…] [D (Prt_i) (Add_j) (Plr_k)…]} (Ackema & Neeleman 2004: 241)

4.2.2 Complementizer-trace effect

Ackema and Neeleman (2004: 250-60) argue that their PF checking hypothesis offers new insights into complementizer-trace effects. In English, the complementizer *that* is obligatory absent when a subject *wh*-element is extracted, as illustrated in (8). If the extracted element is an object or adjunct, the complementizer is optional, as in (9).

(8) a. Who_i do you think t_i will question Seamus first?

b. * Who_i do you think that t_i will question Seamus first?

(9) Who_i do you think (that) Ciaran will question t_i first? (Carnie 2007: 20)

Ackema and Neeleman's account is based on the assumption that it is not possible to move an XP from a position that allows checking against a head H to another position in which XP and H enter into an actual checking relation. (10) below expresses this condition:

[44] The features [Prt], [Add] and [Plr] stand for participant (in speech act), addressee and plural, respectively.

(10) Let α_i and α_{i+I} be links of the same chain, such that α_i c-commands α_{i+I}. If agreement checking involves α_i and β, then α_{i+I} cannot be in a configuration that would allow agreement checking between it and β. (Ackema & Neeleman 2004: 251)

They claim that (10) must hold at PF since agreement checking can be conditioned by prosodic as well as syntactic domains.

The condition (10) may be violated in cases of long-distance movement out of CP. *Wh*-movement is assumed to proceed cyclically, that is, a *wh*-expression cannot skip a specifier of CP when it moves (see McCloskey 1990, 2002 for morphological evidence in Irish). Ackema and Neeleman adopt Chomsky's (2001) phase impenetrability condition for this cyclic movement. Chomsky suggests that only the head and the left edge of a phase are accessible to phase external relations. Ackema and Neeleman however propose that this condition is stricter. They claim that phases are transparent for features of their head only, and features of specifier can be made accessible through agreement relation with the head indirectly. Ackema and Neeleman assume the following syntactic condition:

(11) a. Only the head of a phase is accessible to phase-external operations.
b. A specifier can be made accessible by agreeing with the head.
(Ackema & Neeleman 2004: 251)

Given (11), extraction of a *wh*-expression from CP will be possible only if the *wh*-expression at some point of the derivation enters into an agreement relation with a C head. According to Ackema and Neeleman, in many languages including English, this agreement relation will be purely formal: C contains an underspecified feature bundle, as in (12a), rather than a specific set of features shared with an extracted element. If a *wh*-phrase moves to the Spec-CP position, specifier-head agreement allows such an underspecified feature bundle to be identified with features of that phrase, as in (12b). As a consequence, a link can be established with an antecedent external to CP, as in (12c), which makes it possible to extract a *wh*-expression to the next Spec-CP position.

(12) a. C < >

b. [$_{CP}$ WH <F_1 F_2>$_i$ [$_{C'}$ C < >$_i$ …

c. WH … [$_{CP}$ WH <F_1 F_2>$_i$ [$_{C'}$ C < >$_i$ … (Ackema & Neeleman 2004: 251)

In case of subject extraction, however, this syntactic requirement conflicts with the PF requirement in (10). The base position of a subject *wh*-expression is one that allows for a PF feature agreement relation with C. The English complementizer does not show any morphological agreement, but it is assumed that PF feature identification may take place between C and the following subject just as in West Flemish. At the same time, the condition in (11) demands that subject extraction through Spec-CP, as in (13a). The C head is in a syntactic agreement relation with the *wh*-expression in its specifier. This implies that the condition at PF (10) will be violated. In (13b), a trace of the subject *wh*-element is in the same prosodic domain with the preceding C, so that this trace is in a potential PF checking position. Ackema and Neeleman (2004: 252) note that this presupposes that the syntactically established agreement relation between Spec-CP and C is visible at the PF interface. As a result, C in the PF checking position with its subject no longer establishes syntactic relation with Spec-CP, which explains the ungrammaticality of subject extraction in (13c).

(13) a. WH <F_1 F_2>$_i$ … [$_{CP}$ WH <F_1 F_2>$_i$ [$_{C'}$ C < >$_i$ [$_{IP}$ WH <F_1 F_2>$_i$ …

b. WH <F_1 F_2>$_i$ … {WH <F_1 F_2>$_i$} {C < >$_i$ WH <F_1 F_2>$_i$} {…

c. * Who$_i$ do you think t_i that t_i has sold out completely?

(Ackema & Neeleman 2004: 252)

Several consequences follow Ackema and Neeleman's analysis of the complementizer-trace effect. When the complementizer is deleted in the mapping from syntax to PF, no agreement relation can be established between the C and the subject at PF. Therefore, a subject *wh*-element can be extracted to satisfy the syntactic requirement, as illustrated below.

(14) a. WH <F_1 F_2>$_i$ … [$_{CP}$ WH <F_1 F_2>$_i$ [$_{C'}$ C < >$_i$ [$_{IP}$ WH <F_1 F_2>$_i$ …

b. WH <F_1 F_2>$_i$ … {WH <F_1 F_2>$_i$} {ø WH <F_1 F_2>$_i$} {…

c. Who do you think has sold out completely? (Ackema & Neeleman 2004: 253)

Similarly, when a phrase breaks the PF checking relation, *that*-trace effect disappears. If an adjunct intervenes between C and subject, these two elements are no longer in the same prosodic domain.[45] In this case, the subject extraction across the complementizer is available, as illustrated in (15).

(15) a. WH $<F_1\ F_2>_i$ … $[_{CP}$ WH $<F_1\ F_2>_i$ $[_{C'}$ C $< >_i$ $[_{IP}$ AdvP WH $<F_1\ F_2>_i$ …

b. WH $<F_1\ F_2>_i$ … {WH $<F_1\ F_2>_i$} {C $< >_i$ AdvP}{WH $<F_1\ F_2>_i$} {…

c. Who do you think that, for all intents and purposes, has sold out completely?

(Ackema & Neeleman 2004: 252)

4.2.3 Context-sensitive allomorphy

Ackema and Neeleman (2003, 2004: chapter 6) also consider the PF interface account of morphological alternations. It has been argued that there is a type of allomorphy that involves a change in the feature content of terminal nodes. In particular, features can be deleted post-syntactically but prior to spell-out. This is the idea of Bonet's rules of 'impoverishment' (see Bonet 1995 for impoverishment of Romance pronominal clitics). Bonet argues that such feature reduction is conditioned by a particular context (also see Halle and Marantz's (1993) notion of 'conditioned allomorphy').

Ackema and Neeleman argue that one type of context that allormophy can be sensitive to is the initial prosodic domain, rather than a syntactic adjacency. In other words, languages may have rules of the type in (16), which states that features of a terminal contained in the same prosodic domain as a certain other terminal are deleted.

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[45] Borsley (p.c.) points out to me that Ackema and Neeleman's approach to *that*-trace effects and adverbials is problematic, giving the following examples from Levine and Hukari (2006).

(i) Robin is someone who I suspect that merely has to nod his head and point in the right direction to get his enemies to disappear without a trace.
(ii) * Merely, Robin has to nod his head. (Lavine & Hukari 2006: 91)

The ungrammaticality of the example (ii) suggests that the adverb *merely* cannot appear in pre-subject position. It seems to follow that the example (i) has a trace immediately after *that*, not after *merely*. If this is the case, the example (15) above has a trace immediately following *that* as in (iii) where C and the subject *wh*-trace are in the same prosodic domain, not one separated from *that* by the adverbial as in (iv).

(iii) Who_i do you think t_i that t_i, for all intents and purposes, has sold out completely?
(iv) Who_i do you think t_i that, for all intents and purposes, t_i has sold out completely?

(16) {… [$_A$ F_1 F_2] … [$_B$ F_1 F_3] …} → {… [$_A$ F_2] … [$_B$ F_1 F_3] …}

(Ackema and Neeleman 2004: 188)

Consequently, this affects the phonological realization of A if the language has spell-out rules that crucially refer to the deleted feature:

(17) a. [$_A$ F_1 F_2] ↔ /a/

b. [$_A$ F_2] ↔ /a'/ (Ackema and Neeleman 2004: 188)

The element A usually will be realised as /a/ when it bears the feature F_1 and F_2, but as a result of (16) it will be appeared in a different realization as /a'/, the form that normally surfaces when F_1 is absent. One of the context-sensitive allomorphy rules is an instance of *pro*-drop which will be relevant in the discussion below. In languages which have a right alignment rule for the initial prosodic phrasing, a *pro*-drop rule requires right-adjacency to a head (X) that agrees with a pronominal DP, which can be schematized as follows:

(18) {… [X (F_1) (F_2) (F3)] … [DP (F_1) (F_2) (F3)] …} →

{… [X (F_1) (F_2) (F3)] … [ ] …}

4.2.4 Operations at PF

In chapter 1, we saw the following PF interface operations. (7) in 1.2.2 is repeated here:

(19) a. Linearization of syntactic terminals

b. Initial prosodic phrasing, on the basis of syntactic information

c. Spell-out of terminals

Given the account of the complementizer trace effect, Ackema and Neeleman discuss a timing of trace deletion at the PF interface. Any theory must assume that traces are deleted at some point at the interface between syntax and phonology. Their PF checking account relies on the presence of traces at the point of checking, as we saw in 4.2.2. At the same time, according to Ackema and Neeleman, the allomorphy rules in 4.2.3 are not sensitive to traces, they only trigger a closure of a prosodic domain (2004: 242). Thus, traces are deleted after

the application of checking rules, but before the application of allomorphy rules. We can therefore extend the order of operation at the PF interface as follows.

(20) a. Linearization of syntactic terminals
b. Initial prosodic phrasing, on the basis of syntactic information
c. Application of checking rules
d. Deletion of traces
e. Application of context-sensitive allomorphy rules
f. Spell-out of terminals (Ackema & Neeleman 2004: 358-59)

4.3 Willis' (2011) approach to Welsh *wh*-constructions

Before presenting my PF feature checking analysis to Welsh P-stranding, I will first show Willis' (2011) formal account on Welsh *wh*-dependencies. He claims that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. As already shown in 3.4, Willis provides empirical evidence that the specifiers of CP and vP serve as escape hatches in Welsh, and argues that a *wh*-operator can be freely extracted as long as it moves through these escape hatches. I will consider his analysis in some depth since he also deals with P-stranding.

Willis assumes that *wh*-movement is triggered by an uninterpretable *wh*-feature that possesses an EPP-feature on the head of the *wh*-clause. That is, C exists in two versions, a non-*wh* version (realised in Welsh as *y(r)*, in Irish as *go*, in English as *that* etc.) and a *wh*-version. The *wh*-version bears an uninterpretable *wh*-feature with an EPP-feature:

(21) C_{EPP}[uWH:___]

This uninterpretable *wh*-feature searches for an interpretable *wh*-feature. Such an interpretable feature is a *wh*-expression in *wh*-questions, or a null operator in relative clauses. This is illustrated by a *wh*-expression *pwy* 'who':

(22) pwy D[WH:+]

An uninterpretable *wh*-feature on a C head triggers movement of a *wh*-expression to Spec-CP, and the uninterpretable feature is valued (or checked) by the interpretable feature of *wh*-

expression. In (23), the uninterpretable *wh*-feature on C is valued by the moved subject *wh*-expression *pwy* 'who' (lower copies are indicated in angle brackets).

(23) Pwy sy <pwy> 'n gwybod yr ateb?
[$_{CP}$ [WH:+] C_{EPP}[uWH:+] …]
who be.$_{PRES.REL}$ $_{PROG}$ know the answer
'Who knows the answer?' (Willis 2011: 209)

As we saw above, Willis argues that *wh*-movement is derived through Spec-vP as well as Spec-CP in a successive cyclic manner. Since movement across v (from object position) and C (across clause boundaries) occurs in Welsh, these heads must be capable of attracting a *wh*-operator to their specifiers. Therefore, Willis assumes that a v head also bears an uninterpretable *wh*-feature just like a C head.

(24) v_{EPP}[uWH:___]

If the *wh*-versions of both C and v are selected, *wh*-movement proceeds via Spec-vP and Spec-CP positions, as illustrated in (25). The object clitic *'i* is not associated with resumption for Willis as we saw in 3.4. The *wh*-expression *pwy* first moves to Spec-vP and then to Spec-CP in order to value the *wh*-feature on v and C heads.

(25) Pwy mae 'r heddlu wedi <pwy> 'i ddal <pwy>?
[$_{CP}$ [WH:+] C_{EPP}[uWH:+] … [$_{vP}$ v_{EPP}[uWH:+] …]]
who be.$_{PRES}$.3_S the police $_{PERF}$ 3_{MS} catch
'Who have the police caught?' (Willis 2011: 210)

We finally look at prepositional relatives which make use of the resumptive strategy. Willis points out that even resumptive *wh*-dependencies show some successive-cyclic effects, since morphological alternations that suggest cyclic movement via CP and vP can be observed even when a resumptive pronoun is used. We saw in (47) in the previous chapter that the tense restriction of the embedded clause is voided in *wh*-environments. In (26) below, the embedded verb is in the present tense *mae* rather than the non-finite form *bod* in a prepositional relative with an overt resumptive in a variable position.

(26) y llyfr mae pawb yn dweud **mae** Mair yn sôn amdano fe
the book be.$_{PRES}$.2$_S$ everyone $_{PROG}$ say be.$_{PRES}$.3$_S$ Mair $_{PROG}$ talk about.3$_{MS}$ it
(Willis 2011: 215)

We also saw in (49) that the object clitic may precede a non-finite verb in the main clause in long-distance *wh*-dependencies. In (27), soft mutation on main verb with or without an object clitic is grammatical in long-distance prepositional relatives formed using a resumptive pronoun.

(27) y llyfr roedd pawb yn (ei) **feddwl** oedd Mair yn sôn amdano fe
the book be.$_{IMPE}$.2$_S$ everyone $_{PROG}$ 3$_{MS}$ think be.$_{PRES}$.3$_S$ Mair $_{PROG}$ talk about.3$_{MS}$ it
'the book that everyone thought that Mair was talking about' (Willis 2011: 215)

According to Willis, the above data suggest that the resumptive structure shows the cyclic nature as in the movement structure.

To account for these facts, Willis suggests that a *wh*-operator is inserted from the lexicon into the specifier of P, then that operator moves though specifers of v and C following successive cyclicity. He assumes that a P head that takes resumptive pronouns bears a feature that blocks movement but allows insertion (Merge) of a *wh*-operator. According to Willis, such a feature is an uninterpretable *wh*-feature lacking an EPP-feature. The lexical entry of a P head is expressed as follows.

(28) P [uWH:___] (Willis 2011: 215)

Willis claims that this uninterpretable *wh*-feature on P is valued by a null operator *Op* inserted from the lexicon. Then, uninterpretable *wh*-features on v and C is valued by that moved null operator. The configuration of a prepositional relative is illustrated below.

(29) y bobl [$_{CP}$ werthodd Ieuan [$_{vP}$ y ceffyl iddyn nhw
[$_{CP}$ C$_{EPP}$[uWH:_] … [$_{vP}$ v$_{EPP}$[uWH:_] … [$_{PP}$ *Op*[WH:+] P[uWH:_] [$_{DP}$ [them]]]]]
the people sell.$_{PAST}$.3$_S$ Ieuan the horse to.3$_P$ them
'the people that Ieuan sold the horse to (them)' (Willis 2011: 216)

McCloskey (2002, 2006) observes that resumptive pronouns are simply ordinary pronouns. Following this observation, Willis assumes that resumptive pronouns bear no *wh*-feature. The pronoun *nhw* 'they' is introduced to satisfy the argument structure of the preposition *i* 'to'. The uninterpretable *wh*-feature on P cannot be valued by any element within the PP. Therefore, Willis proposes that the null operator which bears the *wh*-feature, *Op* [WH:+], is merged into Spec-PP from the lexicon. Then, the unvalued *wh*-feature is valued by the null operator through the specifier of v and C. This null operator movement is illustrated in (30) below. This configuration after the derivation contains no uninterpretable features:

(30) y bobl [$_{CP}$ werthod Ieuan [$_{vP}$ y ceffyl iddyn nhw
[$_{CP}$ *Op*[uWH:+] C$_{EPP}$[uWH:+]..[$_{vP}$ <*Op*> v$_{EPP}$[uWH:+]..[$_{PP}$ <*Op*>P [uWH:+] [DP]]]]
the people sell.$_{PAST}$.3$_{S}$ Ieuan the horse to.3$_{P}$ them

Willis (2011: 217) also very briefly considers P-stranding that allows extraction of the complement in Colloquial Welsh. He suggests that speakers who allows P-stranding either possess a *wh*-version of some functional projection at the left edge of P by creating an escape hatch for movement from within PP, or else P is not a phase head for them. Willis states that the escape hatch analysis seems to be more preferable since it keeps with the idea that the locus of cross-linguistic and dialect variation is the lexicon. Although Willis' analysis nicely captures behaviour of Welsh *wh*-dependencies on both empirical and theoretical grounds, his treatment of P-stranding is rather speculative. Willis seems to suggest that there is a functional head within PP which may bear an uninterpretable *wh*-feature with an EPP-feature in the P-stranding structure. However, he does not specify what kind of functional projection it is, and what makes this difference between the colloquial and literary varieties.

Although Willis' analysis nicely captures Welsh data on *wh*-dependencies, his treatment of P-stranding is still not conclusive. In the next section, I will present the PF checking account on Welsh P-stranding.

4.4 Literary Welsh vs Colloquial Welsh

Section 4.2 introduced some PF operations proposed in Ackema and Neeleman (2004). Making use of them, this section aims to provide an account of the syntactic difference between Literary and Colloquial Welsh on the availability of P-stranding. My claim will be

that if PF feature checking takes place between a head P and its complement, the complement whose features are checked with its head P at PF no longer move to the Spec-CP position for syntactic feature checking. This is the situation in Literary Welsh. In Colloquial Welsh, on the other hand, I will argue that PF checking does not take place within PP, therefore extraction of the complement PP is available.

We will first look at the case of prepositional relatives in 4.4.1, where the contrast between the two varieties in terms of PF feature identification can be clearly seen from an inflectional morphology on a P head. We then turn to *wh*-questions in 4.4.2. I will argue that PF feature checking is operative in pied-piping despite the appearance of preposition in a bare form. 4.4.3 will consider the case of prepositions that have no inflectional paradigm. We finally see an advantage of the PF checking approach in first conjunct agreement phenomenon which is problematic for a purely syntactic approach in 4.4.4.

4.4.1 Prepositional relatives

We first need to consider a hierarchical structure to determine syntactic terminals. I adopt Willis' (2011) proposal on the resumptive structure that a *wh*-operator *Op* is nserted from the lexicon into the specifier of P. This insertion operation is called Merge in Chomskyan syntax. Then that operator moves though specifers of v and C following successive cyclicity. I assume that the movement through specifiers of v and C is required to satisfy EPP feature on these heads. In contrast, I assume that a *wh*-operator is originated in the complement of P in the movement structure, then it moves through specifiers of v and C to satisfy EPP-feature.

We now look at concrete examples to illustrate this contrast. Consider the following prepositional relatives in Literary Welsh (31a) and Colloquial Welsh (31b). The synthetic verbal construction is used in (31a), whereas the periphrastic construction is used in (31b).

(31) a. y dyn y siaradais i amdano fo / *pro*
the man C talk.$_{\text{PAST}}$.1$_{\text{S}}$ I about.3$_{\text{SM}}$ he
'the man I talked about'

b. y dyn ø wnes i siarad am
the man C did.$_{\text{PAST}}$.1$_{\text{S}}$ I talk.$_{\text{INF}}$ about.ø
'the man I talked about'

The examples in (31) have the following syntactic structures.

(32) a. y dyn [$_{CP}$ *Op*$_i$ C$_{[EPP]}$ y siaradais [$_{vP}$ t_i [$_{PP}$ t_i P$_{[AGR]}$ amdano fo/*pro*]]]

b. y dyn [$_{CP}$ *Op*$_i$ C$_{[EPP]}$ ø wnes [$_{vP}$ t_i i siarad [$_{PP}$ P$_{[\ ]}$ am t_i]]]

In (32a), the resumptive pronoun *fo* or a null pronoun *pro* is introduced to satisfy the argument structure of the preposition, following McCloskey's observation that the resumptive pronouns are simply ordinary pronouns. A *wh*-operator *Op* is Merged in Spec-PP, then it reaches to Spec-CP via Spec-vP to satisfy EPP-feature. In (23b), the operator moves to the Spec-CP position from the complement of P. As we will see shortly, I will rather argue that the operation Move or Merge is regulated by the availability of PF feature checking. I assume that the crucial difference between the two varieties is that a P head in Literary Welsh possesses AGR(eement)-features on person, number and gender, but Colloquial Welsh does not. This difference can be seen from the contrast on the availability of inflectional morphology on the preposition *am* in (32).

Once syntax decides terminal nodes, the syntactic structure is linearized based on the initial prosodic phrasing. Given Welsh is a head-initial language, it obeys the right alignment rule. The above syntactic structures in (32) have the following prosodic structures:

(33) a. {y dyn} {y siaradais i} {amdano (fo)}

b. {y dyn} {wnes i} {siarad am *t*}

Then, possible feature checking operations take place. I assume that AGR-features on person, number, and gender may be checked at PF between a preposition and its complement in Welsh. In both cases in (33), the complements immediately follow P heads in the same prosodic domain, therefore they are possible candidates to be PF checked within this local domain. However, the feature checking takes place only in Literary Welsh in (33a), since only a preposition in this variety bears AGR-features. In this case, the feature identification as in (4) applies between a P head and a resumptive pronoun in its complement position. This is shown below in (34). The features [Per], [Num] and [Gen] stand for person, number and gender, respectively:

(34) {… [P (Per) (Num) (Gen)] [DP (Per) (Num) (Gen)] ….} →
{… [P (Per_i) (Num_j) (Gen_k)] [DP (Per_i) (Num_j) (Gen_k)] …}

As seen from (34) above, the two elements P and DP share the set of features in the same prosodic domain. I assume that the feature identification does not hold in the colloquial variety due to the lack of AGR-features on a P head, although P and the trace of the null operator *pro* in (34b) are in the same prosodic domain as in (34b).

PF feature checking involves a shift from syntactic bracketing to phonological bracketing. As noted above, according to Ackema and Neeleman, the syntactic requirement as in (11) is also visible at PF interface. Therefore, a phrase whose features are checked by the head in the local domain at PF no longer move to another position for syntactic feature checking, as expressed in (10). This is the situation in Literary Welsh. As AGR-features of a resumptive pronoun have already checked with its head, it cannot move from the complement of P for syntactic checking. Rather, a *wh*-operator *Op* is inserted into the specifier of P by Merge. Then, the EPP requirement on C and v heads is satisfied by movement of that operator via the specifier of C and v. On the other hand, PF feature checking does not hold within PP in Colloquial Welsh, therefore the *wh*-operator can move out from the complement position of P. Then, it moves to Spec-CP via Spec-vP following successive cyclicity. Under this account, the choice between Move and Merge of the *wh*-operator relies on the availability of PF feature checking between P and its complement.

The PF checking analysis that I have developed here can straightforwardly account of the different behaviour on prepositional *wh*-constructions based on the lexical information. If a P head possesses AGR-features, its complement that is PF feature checked by that P cannot be extracted. If a P head possesses no AGR-features, P-stranding is possible.

After application of the checking rules, a trace left by movement is deleted in Colloquial Welsh. In Literary Welsh, a context-sensitive allomorphy operation may apply. A P head and a following resumptive pronoun shares the same AGR-features after the PF checking, the *pro*-drop rule mentioned in (17) may apply.

(35) {… [P (Per) (Num) (Gen)] [DP (Per) (Num) (Gen)] …} →
{… [P (Per) (Num) (Gen)] [ ] …}

As we saw in 2.3, an overt pronoun after an inflected preposition is possible in Welsh. Therefore, the above *pro*-drop rule is optional. After the above-mentioned operations, terminal nodes are finally spelled-out, as in (31).

4.4.2 Prepositional *wh*-questions

We turn to the case of *wh*-questions where a whole PP is pied-piped in Literary Welsh but P-stranding is available in Colloquial Welsh. At first sight, it seems difficult to see whether the PF checking is operative between P and a *wh*-expression in its complement position, since a preposition that is used in pied-piping and P-stranding appears in a bare form, not an inflected form. However, I will argue that PF feature checking is available in the pied-piping structure in spite of the surface morphology.

The contrast between the two varieties in *wh*-questions is illustrated below. Literary Welsh requires pied-piping as in (36), whereas Colloquial Welsh allows P-stranding as in (37). The corresponding prosodic structures are shown in (36b) and (37b).

(36) a. $[_{CP}\,[_{PP}\,P_{[AGR]}$ Am beth$]_i\ C_{[EPP]}$ y siaradaist ti $[_{vP}\,t_i\,[_{PP}\,t_i]]]$?

b. {Am beth} {y siaradais i *t*}

(37) a. $[_{CP}$ Be'$_i\ C_{[EPP]}$ ø wnest $[_{vP}\,t_i$ ti siarad $[_{PP}\,P_{[\ ]}$ am $t_i]]]$?

b. {Be'} {wnest ti} {siarad am *t*}

The explanation for the colloquial variety in (37) is straightforward. As in relative clauses above, I assume that a preposition of this variety does not possess AGR-features. Therefore, no PF feature checking relation is established between P and a trace of a *wh*-operator in complement of P. As a consequence, the *wh*-operator *be'* 'what' can be extracted to the Spec-CP position to check the EPP-feature via Spec-vP.

In the literary variety as in (36), I continue to assume that the P head bears AGR-features as in relatives, despite of its appearance in a bare form. Borsley (2009) claims that Welsh *wh*-expressions are in fact non-pronominal in terms of morphological agreement. He discusses superficial agreement phenomena in Welsh. As we already saw in 2.3.1, Welsh shows agreement with a pronominal element but not with a full lexical DP. The availability of agreement between a subject and a verb is illustrated below. Finite verbs agree with following subjects if they are pronominal as in (38), but not with non-pronominal subjects as in (39).

(38) a. Gwelodd {e / hi} ddraig.
see.$_{PAST}$.3$_S$ he / she dragon
'S/he saw a dragon.'
b. Gwelon nhw ddraig.
see.$_{PAST}$.3$_P$ they dragon
'They saw a dragon.' (Borsley 2009: 227)

(39) a. Gwelodd y {bachgen / bechgyn}ddraig.
see.$_{PAST}$.3$_S$ the boy boys dragon
'The boy/boys saw a dragon.'
b. * Gwelon y bechgyn ddraig.
see.$_{PAST}$.3$_P$ the boys dragon
'The boys saw a dragon.' (Borsley 2009: 227)

We also saw in 2.2.2 that a *wh*-subject and a verb do not show number agreement when the subject is fronted. In (40), the fronted *wh*-phrase is plural but the following verb is singular. Borsley (2009) points out that the absence of agreement is expected if a *wh*-phrase is non-pronominal.

(40) Pa ddynion {welodd / *welon} ddafad?
which men see.$_{PAST}$.3$_S$ see.$_{PAST}$.3$_P$ sheep
'Which men saw a sheep?' (Borsley 2009: 249)

Likewise, when a single *wh*-word is fronted, the following verb is always singular. The example in 2.2.2 is repeated here.

(41) Pwy (a) gafodd __ y wobr?
who C get.$_{PAST}$.3$_S$ the prize
'Who got the prize?' (Borsley et al. 2007: 106)

The above data show that Welsh agreement only occurs with *personal* pronouns. Furthermore, Borsley claims that the appearance of a bare preposition in pied-piping also suggests that

Welsh *wh*-expressions are non-pronominal. In (42), the preposition *am* does not show agreement with the *wh*-word, even though *pwy* is animate.

(42) Am bwy soniodd Gwyn?
about who talk.$_{PAST}$.3$_S$ Gwyn
'About who did Gwyn talk?' (Borsley 2009: 248)

Based on Borsley (2009), I assume that PF feature checking is available in the pied-piping structure between a preposition and a following *wh*-expression although the *wh*-expression does not trigger morphological agreement on the preposition. Through the feature identification, a P head and a *wh*-operator in its complement position share the identical AGR-features. This PF feature checking disallows movement of a *wh*-operator to Spec-CP on its own. Rather, the two elements in the checking relation move together to the Spec-CP position via Spec-vP to check the EPP-feature, as in (36a) above. As this operation does not break the PF checking relation within PP; the EPP requirement is satisfied by movement of PP, which is simply a phrasal movement.

4.4.3 Uninflectable prepositions

In this chapter so far, I have neglected the prepositions which have no inflected forms, such as *â* 'with', *efo* 'with' and *gyda* 'with'. I would like to suggest that the PF checking analysis can carry over the cases of these uninflectable prepositions. As we saw in 2.3, in relatives an uninflectable preposition obligatorily takes an overt pronoun as its complement in Literary Welsh as in (43), but a pronoun may be omitted in Colloquial Welsh as in (44).

(43) y ffrind [$_{CP}$ *Op*$_i$ C$_{[EPP]}$ y chwaraes [$_{vP}$ t_i i denis [$_{PP}$ t_i P$_{[AGR]}$ efo fo]]]
(44) y ffrind [$_{CP}$ *Op*$_i$ C$_{[EPP]}$ ø wnes [$_{vP}$ t_i i chwarae tenis [$_{PP}$ P$_{[\ ]}$ efo t_i]]]

As in (43), I continue to assume that a preposition in Literary Welsh possesses AGR-features even though uniflectable prepositions do not have an inflectional paradigm. If this is right, the PF feature checking can take place between preposition and the following resumptive pronoun in the literary variety. As a consequence, the head P and the pronoun in its complement position share the identical AGR-features. Therefore, the pronoun in the complement of P cannot move out of PP, and a *wh*-operator is inserted into the specifier of P.

However, unlike the case of inflectable prepositions, *pro*-drop rule as in (35) above does not apply here. The unavailability of *pro*-drop with uninflectable prepositions is parallel with non-*wh*-contexts. An inflected preposition can take a phonologically null pronoun as a complement in an affirmative sentence as well, as illustrated in (45b). A pronoun except for *nhw* 'they' may be dropped with inflected prepositions (King 2003: 275). In contrast, an uninflectable preposition obligatorily takes an overt pronoun, as illustrated in (46). The result of my judgement tests is shown below (see [26b] in Appendix D for (45a) and [26c] for (45b), and see [63d] for (46a) and [63b] for (46b)).

(45) a. Dw i 'n cofio amdani hi. **4.3** [1-5]
b. Dw i 'n cofio amdani. **4.6** [3-5]
be.$_{PRES}$.1$_S$ I $_{PROG}$ remember about.3$_{SF}$ it
'I remember it.'

(46) a. Dw i 'n cytuno â hi. **4.5** [3-5]
b. * Dw i 'n cytuno â. **1.7** [1-4]
be.$_{PRES}$.1$_S$ I $_{PROG}$ remember with it/she
'I agree with (it/her)'

In Colloquial Welsh, I assumed that a P head does not possess AGR-features in 4.4.1. Therefore, PF feature checking does not take place between P and its complement, as shown in (44) above. Consequently, a *wh*-operator can be extracted from the complement of P.

In *wh*-questions, Literary Welsh requires pied-piping as in (47), whereas Colloquial Welsh allows P-stranding as in (48).

(47) [$_{CP}$ [$_{PP}$ P$_{[AGR]}$ Efo pwy]$_i$ C$_{[EPP]}$ y chwaraest ti [$_{vP}$ t_i denis [$_{PP}$ t_i]]]?
(48) [$_{CP}$ Pwy$_i$ C$_{[EPP]}$ ø wnest [$_{vP}$ t_i ti chwarae tenis [$_{PP}$ efo t_i]]]?

Given the assumption that a P head in the literary variety bears AGR-features, the same argument used for inflected preposition in 4.4.2 above carries over here. PF feature checking takes place between P and a *wh*-expression in the literary variety, and these two elements in PF checking relation need to move together to Spec-CP via Spec-vP. In Colloquial Welsh, on the other hand, PF checking does not hold, therefore a *wh*-expression can move out on its own from the complement of P.

4.4.4 First conjunct agreement

Finally, we look at a first conjunct agreement discussed in Borsley (2009). In Welsh, when a coordinate DP appears in a possible agreement position, agreement shows only with the first conjunct if it is a pronoun.[46] Welsh prepositions only agree with a first conjunct rather than a whole phrase, as illustrated in (49). The preposition *ar* 'on' agrees with the adjacent pronoun *i* as in (49a), but it cannot show agreement with a whole DP as in (49b). The occurrence of a bare preposition is also ungrammatical, as illustrated in (49c).[47]

(49) a. arnaf [i a Megan]
on.1_S I and Megan
'on me and Megan' (Borsley 2009: 242)

b. * arnon [i a Megan]
on.1_P I and Megan

c. * ar [i a Megan]
on.ø I and Megan

Borsley points out that this superficial agreement phenomenon is hard to explain from a pure syntactic approach which focuses on abstract structural level.

Ackema and Neeleman (2004: 248-50) also discuss the first conjunct agreement. They deal with first conjunct agreement between a complementizer and a following subject in Frisian and the dialect of Tegelen Dutch, discussed in van Koppen (2003). According to van Koppen, a complementizer obligatorily agrees with a first conjunct of a coordinate subject in Frisian and Tegelen Dutch, as illustrated below.

[46] This first conjunct agreement phenomenon can be found in other Celtic languages (see McCloskey and Hale 1984 on Irish).

[47] David Willis (p.c.) points out that a bare preposition is possible with the strong pronoun *fi* 'I' colloquially. My judgement test shows that the mean score of the sentence include *ar fi a Megan* is 3.7 [1-5] (see [43e] in appendixes).

(50) a. Ik tink dat-st do en Marie dit wykein yn Rome west ha. Frisian
I think that-2_S you and Mary this weekend in Rome been have
'I think that you and Mary have been in Rome this weekend.'
(Ackema & Neeleman 2004: 248)

b. Ich dink de-s doow en ich ôs kenne treffe. Tegelen Dutch
I think that-2_S you and I each other can meet
'I think that you and I can meet.' (Ackema & Neeleman 2004: 249)

Under the PF checking analysis, the account of the above data is straightforward. Only the first conjunct of the coordinate subject is in the same prosodic domain with the preceding C head. We therefore expect that PF feature checking is possible for only first conjunct to agree with C. In contrast, the second conjunct will not be in the same prosodic domain, therefore, complementizer agreement with the second DP is ruled out. A syntactic and prosodic phrase of the above coordination structures can be schematised as follows.

(51) a. $[_{CP}$ C $[_{IP}$ [DP en DP] $[_{VP}$ …]]]
b. {C DP} {en DP} {… (adapted from Ackema & Neeleman 2004: 248)

The same argument applies to the Welsh data in (49) above.[48]

(52) a. $[_{PP}$ P $[_{DP}$ [DP] a [DP]]]
b. {P DP} {a DP}

Since a preposition and a first conjunct are in the same prosodic domain, only the first DP can enter into PF checking relation with the preceding P head. This explains the reason why

[48] However, Borsley (2009: 251-53) points out that the PF interface approach cannot account for clitic data, as in (i) and (ii) below, because the clitics and associated pronoun are not adjacent.

(i) fy nhad [i a Megan]
1_S father I and Megan
'my and Megan's father'
(ii) Gwaeth Emrys fy ngweld [i a Megan].
do.$_{PAST}$.3_S Emrys 1_S see I and Megan
'Emrys saw me and Megan.' (Borsley 2009: 242)

I have no an account on these clitic data and leave it for the further work.

agreement with the whole PP in (49b) and with the second conjunct in (49c) are ungrammatical.

4.4.5 Summary

This section provided the PF-checking-based account on the availability of Welsh P-stranding. My argument is based on Ackema and Neeleman's assumption that it is not possible to move an XP from a position that allows PF checking against a head H to another syntactic checking position. I also assumed that the crucial difference between Literary Welsh and Colloquial Welsh is that the former possesses AGR-features on person, number and gender on a P head; whereas the latter does not. As we saw in 4.4.1, this contrast is morphologically realised in prepositional relatives. In relatives, given a P head in Literary Welsh possesses AGR-features, PF checking takes place between the P head and its pronominal complement to check AGR-features in the same prosodic domain. At the same time, EPP-features on v and C heads require their specifier position to be filled for syntactic checking. To resolve these conflicting requirements, a *wh*-operator *Op* is Merged in the specifier position of P, then it moves to Spec-CP via Spec-vP to satisfy the EPP-requirement. In contrast, PF feature checking is absent in Colloquial Welsh due to the lack of AGR-features on a P head. As a consequence, the EPP requirement is satisfied by movement of the operator from the complement position of P, following successive cyclicity.

4.4.2 dealt with prepositional *wh*-questions. I claimed that PF feature checking is available in the pied-piping structure used in Literary Welsh. Although a preposition does not show inflection in pied-piping, I continue to assume that a P head possesses AGR-features. The appearance of a bare preposition in pied-piping is because, as suggested in Borsley (2009), a *wh*-expression in Welsh is non-pronominal in terms of morphological agreement. Therefore, PF feature checking takes place between a P head and a *wh*-expression in its complement position in Literary Welsh. This PF checking disallows movement of the *wh*-expression on its own, rather, the two element in the checking relation need to be raised together to satisfy the EPP-features v and C. In Colloquial Welsh, on the other hand, PF feature checking is not available due to the lack of AGR-features on a P head in this variety. As a consequence, a *wh*-expression alone can move into Spec-CP from the complement position of P.

In 4.4.3, we saw the case of prepositions that have no inflectional morphology. In the case of non-inflectable prepositions, the *pro*-drop rule does not apply in relative clauses. This

is parallel to the situation in affirmative sentences where non-inflectable prepositions obligatorily need an overt pronominal complement. Finally, 4.4.4 dealt with the first conjunct agreement phenomenon. The PF checking approach straightforwardly accounts for the first conjunct agreement of preposition in Welsh. A preposition only shows agreement with an adjacent DP in the coordinated phrase because only the first conjunct is in the same prosodic domain with the P head where PF feature checking is possible.

4.5 Syntactic differences between Welsh and Irish / Gaelic on *wh*-questions

In this section, we will further investigate Welsh *wh*-questions by comparing two Goidelic languages: Irish and Scottish Gaelic. Based on syntax-semantics interface arguments, Adger and Ramchand (2005) argue that *wh*-dependencies in Celtic languages arise from a base-generation strategy and do not make use of Move operation. As we will see in 4.5.1, their argument does not seem to readily work in Welsh since Welsh possesses multiple *wh*-questions. In 4.5.2, we will look at a further difference on the syntactic behaviour of prepositional *wh*-questions. Based on McCloskey (2002) on Irish and Adger (2010, 2011) on Gaelic, I will show that pied-piping of PP is not available in these languages unlike Welsh.

4.5.1 Multiple *wh*-questions

In Adger and Ramchand (2005), they discuss crosslinguistic variation on the availability of a base-generation (Merge) strategy and a Move strategy to form A'-dependencies. Adger and Ramchand claim that the difference between languages that make use of Merge or Move operation derives from the difference in the items in their lexical inventories. A striking difference between English and Celtic languages is the fact that *wh*-expressions in English can show up overtly in relative clauses,[49] as illustrated in (53). Adger and Ramchand show that the corresponding Gaelic example in (54) is completely ungrammatical. As we already saw in 2.2, *wh*-expressions are not normally used in relative clauses in Welsh as well. The example (12) in chapter 2 is repeated in (55).

[49] Adger and Ramchand (2005: 189) note that under their system a language allows to have both Merge and Move strategies if both types of lexical items exist.

(53) the man who I saw (Adger & Ramchand 2005: 188)

(54) * am fear cò a chunnaic mi Gaelic
the man who C.$_{REL}$ saw I
'the man who I saw' (Adger & Ramchand 2005: 188)

(55) * y dyn **pwy** gafodd y wobr
the man who get.$_{PAST}$.3$_S$ the prize
'the man who got the prize' (Borsley *et al*. 2007: 119)

Although I will not review Adger and Ramchand's arguments in detail, they propose an analysis of A'-dependencies in Gaelic and Irish that does not make use of Move, but relies on base-generation plus Agree. They further argue against the operator movement analysis that a null *pro* moves to the specifier of CP in these languages (contra McCloskey 2002). According to Adger and Ramchand, one of empirical evidence against the operator movement analysis comes from the lack of multiple *wh*-questions in Gaelic and Irish.[50] They point out that if a null operator moves to the Spec-CP position in relatives, we expect that these languages allow multiple *wh*-questions. However, neither Gaelic nor Irish allows multiple *wh*-questions, as illustrated in (56).

(56) a. * Cò a bha a' pògadh cò? Gaelic
who C.$_{REL}$ be.$_{PAST}$ kissing who
'Who kissed who?'

b. * Cé a rinne caidé? Irish
who C.$_{REL}$ do.$_{PAST}$ what
'Who did what?' (Adger & Ramchand 2005: 183)

[50] The other evidence against the operator movement analysis that Adger and Ramchand suggest is the nonexistence of parasitic gap construction in Gaelic. Parasitic gaps are disallowed in Gaelic relatives:

(i) * Seo a' chaileag a phòg thu gun a bhith air bruidhinn ris.
this is girl C.$_{REL}$ kissed you without to be after talking to.3$_{SM}$
'This is the girl that you kissed without talking to.' (Adger and Ramchand 2005: 184)

As we already saw in 3.2.3, it is generally assumed that parasitic gaps are traces of movement because they are sensitive to island constraints in English (Chomsky 1986). Adger and Ramchand argue that the lack of parasitic gap constructions is unexpected if there is null operator movement in Gaelic relatives.

We saw in 3.3.5 that Welsh also does not seem to have parasitic gap constructions. However, Borsley (2010) points out that a resumptive pronoun can sit in the parasitic gap position.

In contrast, Welsh allows multiple *wh*-questions, as illustrated below.

(57) a. Pwy sy 'n gadael pryd?
who be.$_{PRES.REL\ PROG}$ leave when
'Who's leaving when?'
b. Pwy ydy pwy?
who be.$_{PRES}$.3_S who
'Who's who?' (Borsley *et al*. 2007: 118)

The existence of multiple *wh*-questions makes difficult to transfer their argument straightforwardly into Welsh.[51] Since Welsh allows multiple *wh*-questions, Adger and Ramchand's claim that the Move operation is not available in Gaelic and Irish does not seem to be plausible in Welsh. I therefore continue to assume that Welsh makes use of Move and Merge operations to form A'-dependencies.

As we saw in 1.3.1, the superiority effect is observed in English multiple *wh*-questions. The superiority effects are caused by movement of a *wh*-word across another *wh*-word. The example (16) in chapter 1 is repeated here in (58).

(58) a. Who ___ bought what?
b. * What did who buy ___? (Pesetsky 2000: 15)

Borsley *et al*. (2007) point out that the superiority effect is also observed in Welsh. In (59b), the object *wh*-word *beth* crosses over the subject *wh*-word *pwy*, and this turns out to be ungrammatical.

[51] Ryan Bennett (p.c.) asked a further possible difference on the availability of an echo *wh*-question between Irish and Welsh. Irish does not have an echo-*wh*-question (McCloskey 1979), but Welsh may allows it at least colloquially, such as *Wnest ti ddued be'*? 'You said what?'. In my judgement tests, there is huge variation between speakers. Interestingly, informants' acceptability is categorical. No participant judge it 2 or 3. See [30b] in Appendix D, the mean score is 3.5 [1-5].

(59) a. Pwy sy ’n gwneud beth?
who be.$_{PRES.REL}$ $_{PROG}$ do what
‘Who’s doing what?’
b. * Beth mae pwy yn ei wneud?
what be.$_{PRES}$.3_S who $_{PROG}$ 3_{MS} do
(‘What’s who doing?) (Borsley *et al*. 2007: 118)

Furthermore, Pesetsky (1987) observed that expected superiority effect disappears with D-linked *wh*-phrases, as we saw in chapter 1. The superiority effect is absent with D-linked *which*-phrases, as illustrated below.

(60) a. Which person __ bought which book?
b. Which book did which person buy __? (Pesetsky 2000: 16)

Aoun and Li (2003: 11) also mention that superiority has generally been analysed as a condition of movement, and *wh*-phrases not displaying superiority effects do not involve movement.

In fact, D-linked *pa(which)*-phrases in Welsh prefer the resumptive structure which does not have movement properties. As we saw in chapter 2, my judgement test shows that the resumptive structure with D-linked *pa*-phrase is more acceptable than with non-D-linked *wh*-expressions, although many informants also allow pied-piping and P-stranding to some extent with D-linked *pa*-phrase alongside the resumptive pattern. (61) below is the example of the resumptive structure with D-linked *pa*-phrase.

(61) Pa ferch wyt ti ’n sôn amdani?
which girl be.$_{PRES}$.2_S you $_{PROG}$ talk about.3_{SF}
‘Which girl are you talking about?’

4.5.2 Pied-piping

A further difference between these two languages and Welsh is the availability of pied-piping. In Welsh, the pied-piping pattern is available in prepositional *wh*-questions, as illustrated below.

(62) O le dach chi 'n dod?
from where be.$_{PRES}$.2$_{P}$ you $_{PROG}$ come
'Where do you come from?'

In contrast, pied-piping does not seem to be available in Irish and Scottish Gaelic.

We first look at the Irish situation, discussed in McCloskey (2002: 213-218). In Irish, the default pattern of prepositional *wh*-questions is the resumptive structure, as illustrated below.

(63) Cé a raibh tú ag caint leis? Irish
who *aN* were you $_{PROG}$ talk with-him
'Who were you talking to?' (McCloskey 2002: 213)

However, McCloskey (1990) observes that, beside (63) above, a pied-piping-like pattern is also possible under certain conditions (see below for these conditions):

(64) Cé leis a raibh tú ag caint? Irish
who with-him *aN* were you $_{PROG}$ talk
'Who were you talking to?' (McCloskey 2002: 213)

The above example resembles the Welsh (and English) pied-piping pattern at first sight. However, McCloskey (2002) argues that the identification of (64) with pied-piping as deriving from movement is mistaken. In fact, the possibility of (64) is limited by a number of prosodic factors. McCloskey points out that the sequence of *wh*-expression and inflected preposition forms a single prosodic unit. Another element cannot intervene the sequence of *wh*-expression and preposition. For instance, the modifier *eile* 'other' must appear after the inflected preposition as in (65a), not before the preposition as in (65b).

(65) a. Cá leis eile a mbeifeá ag dúil? Irish
what with-it other *aN* you-would-be $_{PROG}$ expect
'What else would you expect?'
b. * Cá h- eile leis a mbeifeá ag dúil?
what other with-it *aN* you-would-be $_{PROG}$ expect (McCloskey 2002: 215)

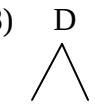
Furthermore, a *wh*-expression must be stressless and monosyllabic. The normal word for 'what' is *goidé* in Northern varieties. According to McCloskey, since *goidé* is disyllabic and has a stress on its second syllable, it cannot be used before the inflected preposition, as illustrated in (66b). The monosyllabic form *cá* is used instead, as in (66a).

(66) a. Cá leis a ndearna tú é? Irish
what with-it *aN* did you it
'What did you do it with?'
b. * Coidé leis a ndearna tú é?
what with-it *aN* did you it (McCloskey 2002: 214)

Given the above prosodic restrictions, McCloskey views this phenomenon as 'PP-preposing'. McCloskey further observes that (64) above is more akin to the phenomenon called 'swiping' in Merchant (2002) than pied-piping. Swiping is a name for the reversed word order of *wh*-word and preposition under sluicing, as illustrated in (58).

(67) She spoke to somebody, but I don't know <u>who to</u>. (McCloskey 2002: 214)

Merchant proposes that this word order inversion involves prosodic incorporation of D (a *wh*-word) into P at the PF interface (see 5.5 for Merchant's proposal on this phenomenon in more detail). McCloskey (2002) proposes that the Irish case as in (64) also involves prosodic incorporation as in swiping, producing an output as in (68):

(68)


cé leis (McCloskey 2002: 215)

I will not go into McCloskey's analysis in detail. However, there are two differences here between Irish and Welsh. First, Welsh shows no prosodic restriction, unlike Irish, and pied-piping is the default pattern in prepositional *wh*-questions. Second, and more crucially, Welsh differs from Irish in the respect that a preposition precedes a *wh*-expression in a bare

form not an inflected form. Therefore, it is not plausible to analyse the Welsh pied-piping sentence like (62) above as PP preposing which involves prosodic incorporation. Moreover, as the preposition shows no inflection in Welsh, there is no possible resumptive element in pied-piping. Without an additional assumption, pied-piping in Welsh should be analysed as an instance of phrasal movement of PP.

We turn to the Gaelic case, documented in Adger (2010, 2011). As in Irish, Gaelic seems to allow the both patterns. An inflected preposition may sit in the clause final position as illustrated in (69), or between *wh*-expression and complementizer as in (70).

(69) a. Cò a bhruidhinn thu ris? Gaelic
who C talk.$_{PAST}$ you to.3$_{MS}$
'Who did you talk to?' (Adger 2011: 362)

b. Cò a' chaileag a bha thu a' bruidhinn ris?
which the girl C be.$_{PAST}$ you at speak with.3$_{MS}$
'Which girl were you talking to?' (Adger 2011: 436)

(70) a. Cò ris a bhios Calum a' bruidhinn? Gaelic
who to.3$_{MS}$ C be.$_{FUT}$ Calum at speak
'Who will Calum be speaking to?' (Adger 2010)

b. Cò am boireannach ris am bi Calum a' bruidhinn?
who the woman to.$_{DEF}$ C be.$_{FUT.DEP}$ Calum at speak
'Which woman will Calum be speaking to?' (Adger 2010)

Adger points out that the preposition *ris* in (70a) inflects for gender, person and number,[52] but *ris* in (70b) with a D-linked *wh*-phrase is a preposition inflects only for the definiteness of their complement. Putting aside the details of Gaelic prepositional system, the second difference mentioned above for Irish can be maintained for Gaelic examples in (70). The preposition follows *wh*-expressions is in the inflected form *ris* not in the bare form *ri*, which crucially differs from pied-piping in Welsh.

In summary, existence of multiple *wh*-questions and pied-piping in Welsh suggests that Welsh makes use of the Move operation alongside the Merge operation, contrary to Adger and Ramchand (2005). In 4.5.1, we saw that the superiority effect seems to be observed in

[52] In Gaelic, a third-person masculine singular is the default form. In (70b), the preposition *ris* does not show gender agreement with the fronted *wh*-phrase. See Adger (2011) for details.

Welsh multiple *wh*-questions, and the use of resumptive structure is preferable with the D-linked *pa*-phrases compared to non-D-linked *wh*-expressions. 4.5.2 showed the difference on the prepositional *wh*-questions between Welsh and other two Celtic languages. The occurrence of preposition at the left of *wh*-expression in a bare form in Welsh suggests that it is a genuine case of pied-piping that involves a phrasal movement of PP.

4.6 Conclusion

This chapter presented the PF feature checking account on P-stranding in Welsh. I argued that the availability of P-stranding depends on the availability of PF checking between a P head and its complement. I assumed that P in Literary Welsh possesses AGR-features, but P in Colloquial Welsh does not. If PF feature checking of AGR-features takes place between a P head and its DP complement, that DP will be unable to move out of the complement position. This is the situation in Literary Welsh. In prepositional relatives, a *wh*-operator is Merged in the specifier of P, and the EPP requirements on v and C are satisfied by movement of that operator following cyclicity. In *wh*-questions, the EPP requirements is satisfied by movement of the entire PP, which does not break the PF checking relation between P and its complement. In Colloquial Welsh, however, PF feature checking does not hold between P and its complement due to the lack of AGR-features on P. Therefore, a complement of P can be extracted, which makes P-stranding possible in this variety.

CHAPTER 5:
P-STRANDING GENERALIZATIONS

5.1 Introduction

In the previous chapter, I proposed the PF-feature checking approach to Welsh prepositional *wh*-constructions. Literary Welsh requires the resumptive strategy which takes a pronoun in the complement position of preposition in relatives and pied-piping of an entire PP in *wh*-questions. On the other hand, colloquial Welsh allows a trace left by movement in the complement of P in both relatives and *wh*-questions. I argued that a P head in Literary Welsh possess AGR-features, and PF feature checking takes place between the P head and its DP complement. Consequently, the DP complement in the PF checking relation with the P head no longer moves to Spec-CP for syntactic feature checking with a C head. This means that P-stranding is impossible. In contrast, I assumed that a P head in Colloquial Welsh does not possess AGR-features, and PF checking does not take place with its DP complement. Therefore, the DP in the complement of P can be extracted to Spec-CP via Spec-vP to satisfy EPP requirements. This PF-checking approach can provide an account of why P-stranding is available in Colloquial Welsh but not in Literary Welsh.

This chapter deals with P-stranding generalizations discussed in Abels (2003a). Abels (2003a: 230-32) expresses the following generalizations.

(1) P-stranding generalizations:[53]

a. All languages that allow P-stranding under passives, i.e. pseudo-passives, also allow P-stranding under *wh*-constructions.
b. Languages that do not allow P-stranding do not allow clitic pronouns as the complement of P.
c. All languages that allow P-stranding also have verbal particles.
d. A language allows P-stranding under sluicing iff it allows P-stranding under question formation.

The aim of this chapter is not to provide a theoretical account of why the above generalizations hold across languages. Instead, I will first check whether these

[53] In fact, Abels points out one more generalization: "Even in non-P-stranding languages PPs are not islands." But I will not go into this, because the island phenomenon in Welsh seems to be quite intricate as we saw in 3.3.1.

generalizations hold in Welsh. In fact, Colloquial Welsh which allows P-stranding shows some interesting behaviour with regard to the above phenomena, different from the literary variety. I will attempt to account for these phenomena using the conclusion reached in the previous chapter.

5.2 Pseudo-passives

The first generalization is a well-known restriction on the occurrence of P-stranding under passives in the literature. The generalization is given in (2) below again.

(2) All languages that allow P-stranding under passives, i.e. pseudo-passives, also allow P-stranding under *wh*-constructions.

The languages that allow P-stranding under both types include English, Norwegian, Swedish, Vata with postposition, Gbadi with postposition, and Prince Edward Island French. Languages that only allow P-stranding under *wh*-constructions are Danish, Icelandic and Frisian. Languages that allows P-stranding under passives but not under *wh*-constructions have not been observed so far (see Abels (2003a: 230-31) and references cited there).

The natural consequence of this limitation on P-stranding under passives is that an additional condition is required to allow pseudo-passives. This logic can be schematised as follows:[54]

(3) a. Factor X → P-stranding under *wh*-constructions
b. Factor X + Factor Y → P-stranding under passives

(3) expresses that Factor X is a necessary but perhaps not sufficient condition to allow P-stranding in a language; and pseudo-passivization needs an additional condition: Factor Y. I argued in the previous chapter that Factor X is the absence of PF feature checking. If PF checking takes place between a P head and its complement, P-stranding is impossible. (3) therefore predicts that pseudo-passives are disallowed if there is PF checking between a preposition and its complement. If there is no PF checking between the two elements, pseudo-passives may be possible if some other factor (Factor Y) that is relevant to pseudo-

[54] This formulation is expressed in Truswell (2009). However, he departs from this schema in the end, and proposes two independent factors that regulate P-stranding under *wh*-constructions and passives separately.

passivisation is satisfied. Before considering what the Factor Y is, we will first look at Welsh passive constructions and check whether Welsh allows pseudo-passives or not.

5.2.1 Welsh pseudo-passives

Welsh has two ways to express the passive voice. One is periphrastic passive which requires the auxiliary verb *cael* 'to get, have' and the other is impersonal passive. The periphrastic passive (hereafter, *cael* passive) is common both in Literary and Colloquial Welsh. However, the use of impersonal passive is largely confined to the literary language (Borsley et al. 2004: 282).

The *Cael* passive consists of a patient DP in subject position, the auxiliary *cael*, and a non-finite verb preceded by a clitic which agrees with the subject. An agent DP may optionally follow using PP headed by *gan* 'by'. The active sentences in (a) and their passive counterparts in (b) are illustrated in (4) and (5). In (4b), *cael* shows agreement with its subject *Rhodri* in the usual way. As the lexical DP sits in subject position, the auxiliary shows default agreement in third-person singular. The clitic also shows agreement with the subject, and the clitic *ei* in third-person masculine singular causes soft mutation on the following non-finite verb. (5b) makes use of an even more periphrastic method which inflects another auxiliary *bod* 'be' rather than *cael*. The agreement clitic *ei* in third-person feminine singular causes aspirate mutation on the following verb.

(4) a. Tarodd Rhodri Emrys.
hit.$_{PAST}$.3$_S$ Rhodri Emrys
'Rhodri hit Emrys.'

b. Cafodd Emrys ei **d**aro (gan Rhodri).
get.$_{PAST}$.3$_S$ Emrys 3$_{\mathbf{MS}}$ hit.$_{INF}$ by Rhodri
'Emrys was hit (by Rhodri).' (Borsley *et al*. 2007: 275)

(5) a. Mae rhywun wedi taro Megan.
be.$_{PRES}$.3$_S$ somebody $_{PERF}$ hit.$_{INF}$ Megan
'Somebody has hit Megan.'

b. Mae Megan wedi cael ei **th**aro.
be.$_{PAST}$.3$_S$ Megan $_{PERF}$ get.$_{INF}$ 3$_{\mathbf{FS}}$ hit.$_{INF}$
'Megan has been hit.

An overt pronoun may follow a non-finite verb in non-*wh*-environments (see (27) in 2.2.3). However, an overt pronoun is impossible in passives.[55]

(6) a. Cafodd Emrys ei daro (***o**) gan Rhodri.
get.$_{PAST}$.3$_S$ Emrys 3$_{MS}$ hit.$_{INF}$ he by Rhodri
b. Mae Emrys wedi cael ei daro (***o**) gan Rhodri.
be.$_{PRES}$.3$_S$ Emrys $_{PERF}$ get.$_{INF}$ 3$_{MS}$ hit.$_{INF}$ he by Rhodri (Borsley *et al*. 2007: 275)

Because of this unavailability of an overt pronoun, Willis (2000) argues that the preverbal agreement clitics do not licence resumptive *pro,* and a patient DP that originated in the object position of non-finite verbs moves to subject position.

The unavailability of an overt pronoun is also observed in direct object *wh*-constructions of periphrastic verbs.

(7) y car mae 'r lladron wedi (ei) ddwyn (***e**)
the car be.$_{PRES}$.3$_S$ the thieves $_{PERF}$ 3$_{MS}$ steal.$_{INF}$ it
'the car that the thieves have stolen' (Borsley *et al*. 2007: 120)

Although an overt pronoun is impossible in the object position of non-finite verbs in *wh*-environments, the agreement clitic is optional and it is often omitted in Colloquial Welsh. In passives, however, the clitic is obligatory (compare (4b) above).[56]

(8) * Cafodd Emrys {daro / taro} (gan Rhodri).
get.$_{PAST}$.3$_S$ Emrys hit.$_{INF}$ by Rhodri
'Emrys was hit (by Rhodri).' (Borsley *et al*. 2007: 275)

We now look at impersonal passives used in Literary Welsh. Impersonal passives are expressed by inflecting a lexical verb. Here are two examples:

[55] My judgement test also shows the unavailability of an overt pronoun in passives. All informants judge (6a) completely unacceptable (see [4a] in appendixes).

[56] See Borsley *et al*. (2007: 277-78) for more arguments of the difference between the clitics used in object *wh*-constructions of non-finite verbs and the clitics used in *cael* passives.

(9) Gwelwyd Mair gan John.
see.$_{IMPS.PAST}$ Mair by John
'Mair was seen by John.' (Jones & Thomas 1977: 279)

(10) Cynhelir cyfarfod.
hold.$_{IMPS.NONPAST}$ meeting
'The meeting will be held.' (King 2003: 224)

We saw that the auxiliary in *cael* passives agrees with the following subject, however, a verb used in impersonal passives shows no agreement and it is only marked for tense. In Modern Welsh, only two impersonal endings are available: *–wyd* for past as in (10) and *–ir* for non-past in (10). One significant difference between *cael* passives and impersonal passives is that impersonal passives allow intransitive verbs, as illustrated in (11) and (12).

(11) Rhedwyd yno.
run.$_{IMPS.PAST}$ there
'People ran there.' (Awbery 1976: 151)

(12) Dawnsir yma bob wythos.[57]
dance.$_{IMPS.NONPAST}$ here every week
'People dance here every week.'

We turn to prepositional passives to check the generalization (2) whether Welsh allows pseudo-passive or not. Passivization of a prepositional object in *cael* passives has been considered to be marginal in the literature. Awbery (1976) points out that pseudo-passives are marginally acceptable in some cases, though reactions vary. She gives a following example as one of the more acceptable forms.

(13) Cafodd y defaid eu gofalu amdanynt gan y ci.
get.$_{PAST}$.3$_S$ the sheep 3$_P$ care about.3$_P$ by the dog
'The sheep were looked after by the dog.' (Awbery 1976: 139)

The basic structure is the essentially same as the ordinary *cael* passive. An auxiliary agrees with a patient DP in subject position; in (13) above, *cael* shows default agreement since the

[57] I thank John David Philips for providing this example.

subject *y defaid* 'the sheep' is a full DP. The clitic agrees with the subject in the third-person plural form *eu*. In pseudo-passives, however, if a preposition has inflectional morphology it generally shows agreement with the patient argument. I continue to assume that rich agreement on a preposition licences a resumptive *pro*. As a preposition and the patient argument are dislocated, I regard this pattern as pseudo-passive. However, as a preposition shows inflection, I assume that this is not a genuine case of P-stranding under passives (see 5.2.2 for discussion). Awbery notes that an overt pronoun cannot follow the inflected preposition.

(14) Cafodd y defaid eu gofalu amdanynt (***hwy**) gan y ci.
get.$_{PAST}$.3$_S$ the sheep 3$_P$ care about.3$_P$ they by the dog
'The sheep were looked after by the dog.' (Awbery 1976: 139)

For Jones and Thomas (1977), prepositional passives in *cael* passive are unacceptable or at least questionable.[58]

(15) a. * Mae 'r gadair wedi cael eistedd arni gan John.
be.$_{PRES}$.3$_S$ the chair $_{PERF}$ get.$_{INF}$ sit on.3$_{FS}$ by John
'The chair has been sat on by John.'
b. * Mae 'r capel wedi cael rhoi prês iddo gan Mair.
be.$_{PRES}$.3$_S$ the chapel $_{PERF}$ get.$_{INF}$ give money to.3$_{MS}$ by Mair
'The chapel has been given money by Mair.' (Jones & Thomas 1977: 271)

Jones and Thomas, in fact, state the following on the acceptability of the above sentences "it may be fair to state that accepted practices are sometimes contradicted by colloquial usage in a bilingual society" (p.271).

In contrast to the marginal status in *cael* passives, prepositional passives with impersonals are grammatical. However, as mentioned above, the use of impersonal passives are mainly limited to the literary language.

[58] Jones and Thomas do not put the preverbal agreement clitics in both examples in (15) for unknown reason.

(16) a. Eisteddwyd ar y gadair gan Mair.
sit.$_{IMPS.PAST}$ on the chair by Mair
'The chair was sat on by Mair.'
b. Soniwyd am y mater gan y pwyllgor.
talk.$_{IMPS.PAST}$ about the matter by the committee
'The matter was talked about by the committee.' (Jones & Thomas 1977: 277)

In impersonal passives, a preposition and a patient DP are adjacent, therefore this is not the case of pseudo-passives.

I checked the acceptability of prepositional passives in my judgement tests. I tested five sentences in each set; a sentence with an inflected preposition in clause-final position as in [54c], a sentence with an inflected preposition followed by an overt pronoun as in [54d], a sentence with a non-inflected preposition as in [54a], an impersonal passive sentence as in [54e], and an active sentence as in [54b]. The results are shown below.

[Set 54]

a. Cafodd y carped 'ma ei sathru ar. **2.5** [1-5]
get.$_{PAST}$.3$_S$ the carpet this 3$_{MS}$ step on
'This carpet was stepped on.'

b. Mi wnaeth rhywun sathru ar y carped 'ma. **4.5** [1-5]
$_{PRT}$ do.$_{PAST}$.3$_S$ somebody step on the carpet this
'Somebody stepped on this carpet.'

c. Cafodd y carped ' ma ei sathru arno. **2.7** [1-5]
on.3$_{MS}$

d. Cafodd y carped 'ma ei sathru arno fo. **2.0** [1-4]
on.3$_{MS}$ it

e. Sathrwyd ar y carped 'ma. **3.9** [1-5]
step.$_{IMPS.PAST}$ on the carpet this

Although impersonal passives are confined to Literary Welsh, [54e] is the most acceptable in the passive sentences. As expected from the literature, there is huge variation between speakers on the acceptability of pseudo-passives. However, the mean score of all pseudo-passives in [54a], [54c] and [54d] is below 3. One might expect that the sentence with non-

inflected preposition is acceptable colloquially as in *wh*-questions and relatives, but [54a] is also marginal.

Set 51 is based on the example (13) above from Awbery (1976). The similar pattern observed in Set 54 can be found here. The acceptability of pseudo-passives [51b], [51c] and [51e] is worse than the impersonal passive [51a]. We saw that an overt pronoun is impossible after a preposition in (14), however, the result shows that the sentence with overt pronoun in [51e] is better than [51b] without it. This may be related to the King's (2003) point that the overt pronoun is preferable in the case of *nhw* (see [Set 29] in 2.4.3).

[Set 51]

a. Gofalwyd am y defaid gan y ci. **3.3** [1-5]
care.$_{IMPERS.PAST}$ about the sheep by the dog
The sheep were looked after by the dog.'

b. Cafodd y defaid eu gofalu amdanyn gan y ci. **1.9** [1-5]
get.$_{PAST}$.3_S the sheep 3_P care about.3_P by the dog

c. Cafodd y defaid eu gofalu am gan y ci. **2.2** [1-5]
about

d. Mi wnaeth y ci ofalu am y defaid. **4.8** [4-5]
$_{PRT}$ do.$_{PAST}$.3_S the dog care.$_{INF}$ about the sheep
'The dog looked after the sheep.'

e. Cafodd y defaid eu gofalu amdanyn nhw gan y ci. **2.4** [1-5]
about.3_P they

Set 17 is based on (16b) above from Jones and Thomas (1977). We can find a different pattern of acceptability here. All informants judge pseudo-passives [17c], [17d] and [17e] completely unacceptable.[59]

[59] Peredur Davies (p.c) points out that the acceptable phrasing would be the following:

(i) Cafodd y capel bres wedi ei roi iddo (fo) gan Mair.
get.$_{PAST}$.3_S the chapel money $_{PERF}$ 3_{MS} give to.3_{MS} he by Mair
'The chapel was given money by Mair.'

However, I have no account of the categorical unacceptability in [17c], [17d] and [17e].

[Set 17]

a. Rhoddwyd prês i 'r capel gan Mair. **3.8** [1-5]
give.$_{IMPS.PAST}$ money to the chapel by Mair
'The chapel was given money by Mair.'

b. Mi wnaeth Mair roi prês i 'r capel. **4.8** [3-5]
$_{PRT}$ do.$_{PAST}$.3$_S$ Mair give.$_{INF}$ money to the chapel
'Mair gave money to the chapel.'

c. Cafodd y capel ei roi prês iddo gan Mair. **1.0** [1]
get.$_{PAST}$.3$_S$ the chapel 3$_{MS}$ give.$_{INF}$ money to.3$_{MS}$ by Mair
'The chapel was given money by Mair.'

d. Cafodd y capel ei roi prês iddo fo gan Mair. **1.0** [1]
to.3$_{MS}$ he

e. Cafodd y capel ei roi prês i gan Mair. **1.0** [1]
to

Set 31, Set 34 and Set 67 are the cases where the auxiliary *bod* 'be' is used as a finite verb rather than *cael*. Pseudo-passives in [31a], [31b] and [31e] are very marginal. In fact, the mean score of these sentences is below 2, which is lower than Set 51 and Set 54 above. The use of *cael* passive inflecting the auxiliary *bod* might lower the acceptability.

[Set 31]

a. Mae 'r llyfr 'na wedi cael ei siarad amdano. **1.8** [1-5]
be.$_{PRES}$.3$_S$ the book that $_{PERF}$ get.$_{INF}$ 3$_{MS}$ speak about.3$_{MS}$
'That book has been talked about.'

b. Mae'r llyfr 'na wedi cael ei siarad amdano fo. **1.2** [1-2]
about.3$_{MS}$ he

c. Siaradwyd am y llyfr 'na. **3.8** [1-5]
speak.$_{IMPS.PAST}$ about the book that

d. Mae rhywun wedi siarad am y llyfr 'na. **4.6** [1-5]
be.$_{PRES}$.3$_S$ somebody $_{PERF}$ speak about the book that

e. Mae'r llyfr 'na wedi cael ei siarad am. **1.9** [1-4]
about

The acceptability of the pseudo-passives in Set 34 is better than Set 31 above. However, the mean score is again below 3.

[Set 34]

a. Does neb erioed wedi saethu at y llwynog 'na. **4.5** [1-5]
NEG+be.PRES nobody ever PERF shoot at the fox that
'Nobody has ever shot at that fox.'

b. Dydy 'r llwynog 'na erioed wedi cael ei saethu ato. **2.2** [1-5]
NEG+be.PRES.3S the fox that ever PERF get.INF 3MS shoot at.3MS
'That fox has never been shot at.'

c. Dydy'r llwynog 'na erioed wedi cael ei saethu ato fo. **2.3** [1-4]
at.3MS he

d. Ni saethwyd erioed at y llwynog 'na. **3.5** [1-5]
NEG shoot.IMPS.PAST ever at the fox that

e. Dydy'r llwynog 'na erioed wedi cael ei saethu at. **2.6** [1-5]
at

Set 67 is based on the sentence (15a) above in Jones and Thomas (1977). Again, sentences with pseudo-passives are marginal.

[Set 67]

a. Mae 'r gadair wedi cael eistedd arni hi gan John. **1.3** [1-3]
be.PRES.3S the chair PERF get.INF sit on.3FS she by John
'The chair has been sat on by John.'

b. Mae'r gadair 'ma wedi cael ei eistedd ar gan John. **2.1** [1-5]
on

c. Eisteddwyd ar y gadair 'ma gan John. **3.3** [1-5]
sit.IMPS.PAST on the chair this by John

d. Mae'r gadair 'ma wedi cael ei eistedd arni gan John. **2.3** [1-4]
on.3FS

e. Mae John wedi eistedd ar y gadair 'ma. **5.0** [5]
be.PRES.3S John PERF sit.INF on the chair this
'John has sat on this chair.'

The above results show that prepositional passive is acceptable in impersonals, though its use is limited to the literary language. However, this is not the case of pseudo-passives since a preposition and a patient DP are adjacent. As Awbery (1976) and Jones and Thomas (1977) point out, the acceptability of pseudo-passives with the auxiliary *cael* is marginal. The mean score of acceptability of pseudo-passives in all sentences is below 3 regardless of the presence/absence of inflection on the prepositions. In the next section, we will consider this marginal status of pseudo-passives.

5.2.2 Explaining Welsh data

I claim that the marginality of pseudo-passives where a preposition shows inflection is due to the two conflicting requirements. On the one hand, the rich agreement on a preposition requires a pronominal DP (i.e. a resumptive pronoun) in its complement position. On the other hand, *cael* passive requires movement of that DP in the complement of P to subject position. I argued in the previous chapter that Literary Welsh possesses AGR-features, and these features are checked at PF. This PF feature checking disallows the extraction from the complement position of P. In pseudo-passives with an inflected preposition, this PF checking is operative between P and its complement. This immobilises the patient argument in complement of P. At the same time, as Willis (2000) argues, a *cael* passive requires movement of the patient argument into subject position. As we saw in (6), the preverbal agreement clitics do not seem to license a resumptive pronoun. The marginality of pseudo-passives with an inflected preposition can be understood as a consequence of the two conflicting requirements.

In pseudo-passives with a non-inflected preposition, PF feature checking does not take place. Therefore, we can expect that P-stranding is possible as in *wh*-questions and relatives without additional conditions. However, as we saw above, the pseudo-passives with a non-inflected preposition (i.e. P-stranding under passives) is also marginal. We saw the schema that regulates limited occurrence of P-stranding under passives in (3). This is given in (17) below again.

(17) a. Factor X → P-stranding under *wh*-constructions

b. Factor X + Factor Y → P-stranding under passives

In my analysis, Factor X that allows P-stranding under *wh*-constructions is the absence of PF feature checking. The presence of PF checking already ruled out pseudo-passives with an inflected preposition. We now consider Factor Y.

As we saw in chapter 1, Abels (2003a) argues that Factor X is P in a given language is not a phase head. He further argues that Factor Y is Case suppression. Languages vary according to whether the Case assigning property of the P head can be suppressed. If P's Case is suppressed (and P is not a phase head), P-stranding under passives is possible. However, if P's Case is not suppressed, P-stranding under passives is impossible even though the language allows P-stranding under *wh*-constructions. He expresses these two conditions as parameters:

(18) a. Parameter 1: [+/-] P^{o} is a phase head.
b. Parameter 2: [+/-] P^{o}'s Case may be suppressed. (Abels 2003a: 233)

According to Abels, these two parameters explain the generalization in (2).

Abels assumes the second parameter without much argument, but the implication behind it is clear. It is generally assumed that the passive morpheme absorbs the accusative Case (e.g. Chomsky 1981; Baker, Johnson and Roberts 1989, among others). Consider the following examples of active sentence and its passive counterpart.

(19) a. John wrote the book.
b. The book was written by John.

Under the standard analysis, the passive participle *–en* absorbs the accusative Case of DP *the book* in object in (19a), consequently, that patient DP which lacks Case needs to move to Spec-IP position to receive the nominative Case. If the object of the verb with passive morphology does not move, the sentence turns out to be ungrammatical due to the Case filter violation which bans overt DPs without Case (Chomsky 1981), as illustrated below.

(20) * It / there was written John.

In Welsh *cael* passive, as Willis (2000: 564) points out, the verb occurs in the non-finite form which is not morphologically passive. Therefore, it seems that there is no Case

suppression in Welsh. This explains the marginality of pseudo-passives with a non-inflected preposition (P-stranding under passives) in Welsh. As there is no PF feature checking between P and its DP complement when the P is not inflected, the DP (a patient argument in passives) is movable in principle. However, there is no passive morpheme to absorb P's Case (presumably the oblique Case), therefore, the patient argument in complement of P does not need to move to subject position to receive the nominative Case. The lack of this Case suppression does not readily accept P-stranding under passives in Welsh.

We therefore reach the following schema that regulates the occurrence of P-stranding under passives. Both Factor X and Factor Y need to be satisfied to allow P-stranding under passives.

(21) a. Absence of PF feature checking → P-stranding under *wh*-constructions
b. Absence of PF feature checking + Suppression of P's Case
→ P-stranding under passives

I have investigated the marginal status of pseudo-passives in Welsh. In pseudo-passives with an inflected preposition, the rich agreement on P licenses *pro*. Therefore, this is not the case of P-stranding under passives. I suggested the two requirements that lead to the marginality of pseudo-passives with an inflected preposition. The presence of PF checking disallows movement of a patient argument in complement of P. At the same time, a *cael* passive requires movement of the patient argument in subject position. The marginality of this case can be understood as a consequence of the two conflicting requirements. Pseudo-passives with a non-inflected preposition are the genuine case of P-stranding under passives. Although PF feature checking is absent in this case, P's Case is not suppressed in Welsh due to the lack of passive morphology on the verb. Therefore, a patient argument in complement of P does not need to move to subject position for Case reason. The lack of the Case suppression does not readily accept P-stranding under passives. Impersonal passives are not a problem for (21) from the beginning since a preposition and a patient argument are always adjacent. This is the reason why impersonal passives are acceptable though they are largely confined in the literary language.

5.3 Clitics

We now turn to the second generalization on clitics. Abels (2003a, 2003b) proposes the following generalization:

(22) A language allows clitic pronouns as the complements of P iff that language allows P-stranding.

Abels (2003a: 221) states that Celtic languages including Welsh, given that they are non-P-stranding languages, could be counterexamples of this generalization since they seem to allow clitics as the complement of P. According to Abels, they are not counterexamples of this generalization because clitics in these languages are really agreement heads. However, on the basis of the division between weak pronouns and clitics proposed in Cardinaletti and Starke (1999), Welsh pronouns that sit in complement of P are, strictly speaking, not clitics. Therefore, literary Welsh that disallows P-stranding does not seem to be a counterexample of Abels' generalization in (22). A closer look at the Welsh pronominal system reveals that pronouns in complement of P are weak pronouns. I will first show Abels' argument in 5.3.1, and then consider the Welsh case in 5.3.2.

5.3.1 Abels (2003a, 2003b)

Abels (2003a, 2003b) observes that pronominal clitics do not readily appear as the complement of a P head in most languages. This is captured by the following filter:

(23) *[P clitic]

The ban expressed in (23) is illustrated in (24). When a full pronoun is used instead of the clitic pronoun, the example becomes acceptable in all cases. All examples are taken from Abels (2003a: 218):

(24) a. Prema {*joj / njoj} trče. Serbo Croatian
toward her.$_{CL}$ her.$_{PRN}$ run
'They run towards her.'
b. Sobre {*la / ella} hablo Pedro. Spanish
about her.$_{CL}$ her.$_{PRN}$ talked Pedro
'Pedro talked about her.'
c. Ich habe mich auf {*'n / ihn} verlassen. German
I have myself on him.$_{CL}$ him.$_{PRN}$ relied
'I have relied on him.'

However, the filter (23) is not universal. Some languages allow clitics in complement of P, as illustrated in (25). English allows reduced pronouns which have clitic status (see Abels 2003a: 219). Icelandic clitic *'ana* and Norwegian counterpart *'a* can also occur in the complement position of a preposition.

(25) a. We talked about 'im for quite some time. English
b. Ég hugsaði um 'ana. Icelandic
I thought about her.$_{CL}$
'I thought about her.'
c. Den lå under 'a. Norwegian
it lay under her.$_{CL}$
'It lay under her.' (Abels 2003a: 219)

In fact, all of these languages allow P-stranding. Therefore, the generalization in (22) seems to hold across languages.[60]

Abels also considers correlation of P-stranding and clitics. According to him, there is an obvious connection between the syntax of pronominal clitics and P-stranding: clitics are commonly assumed to obligatorily undergo movements that strong pronouns and full DPs are exempt from.[61] As we saw in 1.4.4, for Abels P is a phase head in non-P-stranding languages,

[60] Outside the Indo-European languages, Abels (2003a: 220) notes that Gbadi which allows P-stranding falls under the generalization (22).

[61] The examples in (25) do not seem to involve movement, but Abels (2003b) assumes that the clitics move covertly. He argues that clitics move overtly only if possible, otherwise they move covertly.

and that P head bans the extraction of its own complement. Therefore, clitics, being immediate complement of P, have nowhere to move within the c-command domain of the P head in non-P-stranding languages. This explains why these languages disallow clitics as the complement of P, as we saw in (24) above.

5.3.2 Weak pronouns in complement of P

As already discussed in 2.3.1, Welsh can take a pronoun in the object position of a preposition. The weak form of pronouns is used with inflected prepositions, and they may be omitted, as illustrated below.

(26) a. amdana {i / *pro*} b. amadano {fo[62] / *pro*}
about.1_S I about.3_{MS} he

On the other hand, the strong pronoun is required with non-inflectable prepositions, as in (27).

(27) a. efo fi / *i b. efo fo
with I with he

Although the terms 'clitic pronouns' and 'weak pronouns' are often used interchangeably, Cardinaletti and Starke (1999) deal with pronominal systems in many European languages, and argue that the clitic pronouns and the weak pronouns can be distinguished in a strictly defined sense. They point out that clitics are uniformly best analysed as heads (X°), while weak pronouns are uniformly best analysed as maximal projections (XP).[63] Without additional assumptions, the complement of P must have a phrasal status even if it is replaced by a weak pronoun.

(28) a. am [$_{DP}$ y dyn] b. amdana [$_{DP}$ i]
about the man about.1_S I

[62] In 2.3.1, I suggested that the form *fo* is realised on the surface, rather than the underlying weak form *o*, to avoid the same vowel sequence regulated by the OCP.

[63] Abels (2003a: 221) suggests that Welsh clitics are not in the complement of P, citing Rouveret (1991). However, Rouveret also assumes that weak pronouns have a phrasal status. Rouveret (1991: 369) notes that '[t]hey [weak pronouns, R.H.] have the properties of maximal projections, not the properties of heads".

Moreover, Cardinaletti and Starke claim that a null *pro* is really a weak pronoun. Their claim directly corresponds to the fact that a weak pronoun in the complement position can be omitted, as we saw in (26) above. Therefore, based on Cardinaletti and Starke's definition, the element in the complement of P in Welsh is weak pronoun, but not clitic pronoun.

Clitics in Welsh can be found in pronominal possessor noun phrases (see 2.2.5) and pronominal object construction with non-finite verbs (see 2.2.3). Cardinaletti and Starke observe that clitic-doubling always involve at least one clitic; no combination of weak pronoun and strong pronoun is possible. The doubling phenomenon in Welsh can be seen in exactly these environments.[64][65]

(29) a. tad y bachgen b. ei dad (o)
father the boy 3_{MS} father he
'the boy's father' 'his father'

(30) a. Dw i wedi bwyta 'r siocled.
be.$_{PRES}$.1_S I $_{PERF}$ eat the chocolate
'I have eaten the chocolate.'

b. Dw i wedi ei fwyta (o).
be.$_{PRES}$.1_S I $_{PERF}$ 3_{MS} eat it
'I have eaten it.'

The pronoun *o* that follows the head noun in (29b) and the non-finite verb in (30b) is a weak pronoun, since it occupies a XP position and it can be dropped. On the other hand, the

[64] As we saw in 5.2.1, the agreement clitcs are also used in *cael* passive. However, doubling is not possible, an overt pronoun is obligatorily absent in *cael* passive. This seems to suggest that we need a different treatment for the clitics in passives.

[65] Bob Borsley (p.c.) informs me that the clear contrast between weak pronouns and clitics is the possibility of coordination. Weak pronouns can be coordinated as illustrated in (i). This suggests that weak pronouns following prepositions are not clitics. However, the clitics that precede nouns and non-finite verbs cannot be coordinated as in (ii).

(i) amdanat ti a i
about.2_S you and me
(ii) * dy a fy nghyfrinach
your and my secret

pronoun *ei* must be a clitic pronoun,[66] since the doubling phenomena involve at least one clitic according to Cardinaletti and Starke.

The other Cardinaletti and Starke's criterion is prosodic. It is pointed out that weak pronouns may bear word-stress, but clitics cannot. This seems to be borne out in Welsh as well. The weak pronoun *di* in the object of non-finite verb can be stressed,[67] but the clitic *dy* cannot, as illustrated below. The stressed elements are capitalised:

(31) a. Dw i 'n dy garu DI.
be.$_{PRES}$.1$_S$ I $_{PROG}$ 2$_S$ love you
'I love YOU.'
b. * Dw i 'n DY garu di.
be.$_{PRES}$.1$_S$ I $_{PROG}$ 2$_S$ love you

Modern Welsh has the following pronominal system.

(32) Strong, weak and clitic pronoun distinction in Colloquial Welsh:[68]

	Strong	Weak	Clitic
1st singular	*fi*	*i*	*fy*
2nd singular	*ti*	*di* (*ti* after /t/)	*dy*
3rd sing. mas.	*fo / fe*	*o/e* (*fo/fe* after vowel)	*ei*
3rd sing. fem.	*hi*	*hi*	*ei*
1st plural	*ni*	*ni*	*ein*
2nd plural	*chi*	*chi*	*eich*
3rd plural	*nhw*	*nhw*	*ein*

To conclude, on the basis of Cardinaletti and Starke's (1999) distinction between weak pronouns and clitics, the elements in complement of P in Welsh are in fact weak pronouns

[66] These clitics must be analysed as a head X°, but I do not pursue this issue here.

[67] Weak pronoun can bear a word stress, but not a contrastive stress as strong pronoun (see (53) and (54) in chapter 2).

[68] Conjunctive pronouns that we briefly saw in 3.3.4 seem to have weak and strong forms. For instance, the strong form in first person singular is *finnau* and its weak counterpart is *innau* (see Borsley *et al*. 2007: 28).

not clitics. Therefore, Literary Welsh which disallows P-stranding is not a counterexample of the generalization (22).

5.4 Verbal particles

The next generalization on verb particle construction is first observed in Stowell (1982). This generalization in (1c) is repeated below in (33).

(33) All languages that allow P-stranding also have verbal particles.

Verb particle constructions, also known as 'phrasal verbs', are combination of a verb and a particle. English examples of the verb particle construction are illustrated below.

(34) a. John looked up his friend.
b. Kevin turned off the stereo. (Stowell 1982: 253)

Stowell discusses the relation between this verbal particle construction and P-stranding. Adopting the reanalysis approach to P-stranding (see 1.4.3), Stowell proposes that reanalysis is subject to a word-formation rule. According to Stowell, the complex words are produced independently by the language specific word-formation rules. Following the claim by Emonds (1972) that particles are intransitive prepositions, the word-formation rule can produce complex words consisting of verb and particle. The structure of verb particle constructions in VO language and OV language is shown below.

(35) a. $[_V$ V + P] VO language
b. $[_V$ P + V] OV language

Stowell (1982: 255) points out that "preposition stranding ought to be possible in any language that has morphologically-derived Verb-Particle constructions, provided that the language has verb-initial VP and true prepositions or verb-final VP and true postpositions". This means that the verb particle combination provides a template for the reanalysis operation. If a language has a verb particle construction with the order verb + particle as in (35a), then this combination provides a template to reanalyse the verb and the following preposition into a single complex verb as in (36a). A language has a verb particle construction with the order

particle + verb as in (35b) shows a mirror image. The particle + verb combination provides a template to reanalyse the verb and the preceding postposition into a single complex verb as in (36b).

(36) a. V [$_{PP}$ P DP] → [$_{V}$ V + P] DP
b. [$_{PP}$ P DP] V → DP [$_{V}$ P + V]

The Stowell's analysis makes the following predictions. P-stranding is possible only in languages that have the verb particle construction; whereas P-stranding is impossible if a language does not have the verb particle construction. Sugisaki and Snyder (2002) show that this prediction is largely born out across languages, and in fact, child language acquisition data also support the prediction. Many Scandinavian languages have the verb particle construction with the order of verb + particle (see Haiden 2006), and they allow preposition stranding. On the other hand, verb particle constructions are not observed in any of the Romance languages (Stowell 1982: 254), and P-stranding is generally unavailable in Romance.[69]

In this section, I will first show the availability of verb particle constructions in Welsh, then consider the optional particle placement. In English, if the verb selects a DP, the particle may break up the adjacency of the verb and DP.

(37) a. John looked up [$_{DP}$ the information].
b. John looked [$_{DP}$ the information] up. (Neeleman 2002)

Welsh usually makes use of the V DP Part order, however, the V Part DP order seems to be available in some cases. 5.4.1 presents Welsh data, considering possible English influence

[69] However, Prince Edward Island French allows P-stranding and also possesses verbal particles, as illustrated below. All examples are from King and Roberge (1990: 336-367).

(i) a. Il a pluggé {in le computer / le computer in}.
he has plugged in the computer the computer in.
b. Pluggé {le / le computer} in!
plug it the computer in
c. Ils avont layé {off le monde / le monde off} à la factorie
they have layed off the people the people off at the factory
d. Il y a une tapée de femmes qui travaillont out
it there has a lot of women who work out
'There are a lot of women who work outside the home.'

due to language contact. 5.4.2 discusses the optional particle placement in Welsh, based on the Ackema and Neeleman's (2001) idea that there is competition between morphology and syntax.

5.4.1 Welsh verbal particles

Welsh possesses verb particle constructions, as illustrated in (38). The availability of verbal particles seems to suggest that Welsh has the potential to allow P-stranding.

(38) Mae Harold wedi mynd i ffwrdd i Lundain ers wythnos.
be.$_{PRES}$.3$_S$ Harold $_{PERF}$ go off to London for week
'Harold went off to London a week ago.' (Rottet 2005: 40)

Modern Welsh also makes use of a large number of idiomatic verb particle combinations whose meanings cannot readily predicted from their components. What is most striking about these is that they usually have more or less exact English counterparts (Rottet 2005: 40-41), as illustrated below.

(39) a. Mae Mair yn mynd i wneud fyny am golli dy het di.
be.$_{PRES}$.3$_S$ Mair $_{PROG}$ go to do/make up for lose 2$_S$ hat you
'Mair is going to make up for losing your hat.' (Jones 1979: 115)
b. … a gall perthynas dorri fyny.[70]
and can.$_{PRES}$.3$_S$ relationship break up
'… and a relationship can break up.' (Rottet 2005: 56)

Rottet (2005) investigates English influence on Welsh phrasal verbs. Idiomatic verbal particles suggest English influence, but the origin of Welsh verbal particles is not recent at all.

[70] Rottet (2005: 42) notes that many verbal particles are made up of the preposition *i* 'to' plus its noun object. For instance, *i fyny* 'up', *i lawr* 'down' and *i ffwrdd* 'away, off' contains reflexes of *mynydd* 'mountain', *llaw*r 'floor' and *ffordd* 'road' respectively, while the three variants used mainly in South Wales, *(i'r) lan* 'up', *(i) bant* 'away' and *(i'r)* maes 'out' contains reflexes of *glan* 'shore', *pant* 'valley' and *maes* 'field'. Rottet also points out that the preposition *i*, with or without a definite article *'r*, has become optional due to the grammaticalization.

Rottet points out that the literal verb particle construction is well-attested in Middle Welsh. The following example is dated to around 1200:[71]

(40) kyn duguitei awir y lavr. a llyr. en lli. Middle Welsh
before fall sky down and sea in flood
'before the sky should fall down, and the sea, in a flood …' (Rottet 2005: 44)

The above example suggests that Welsh must have possessed verb particle constructions before the period of English contact. Indeed, the other Brythonic languages, i.e. Breton and Cornish, also traditionally possess verb particle constructions (Rottet 2005). However, we can find considerable English influence on Modern Welsh especially in idiomatic verb particles. It seems that Welsh can easily accommodate more English verbal particle expressions, using the native syntactic pattern. Rottet (2005) concludes that this is not a new development but more of an extension of the existing verb particle constructions. This conclusion is strengthened by the comparison with Breton which may not be influenced by English but is influenced by French which does not have verbal particles. Rottet (2005: 47) points out that verb particle constructions are considerably more frequent and productive, creating new verb particle combinations, in Welsh than in Breton.

I now consider particle placement in transitive verbs. There is inconsistency in the literature. Jones (1979) notes that Welsh only allows V DP Part order, but not V Part DP order, which is different from English.

(41) a. Mae John wedi sortio 'r papurau allan.
be.$_{PRES}$.3$_S$ John $_{PERF}$ sort the papers out
'John has sorted the papers out.'
b. * Mae John wedi sortio allan y papurau.
be.$_{PRES}$.3$_S$ John $_{PERF}$ sort out the papers
'John has sorted out the papers.' (Jones 1979: 116)

Rottet (2005) notes that both orders are possible in Welsh, citing the following examples:

[71] The source is from *Llyfr du Caerfyddin* (*Black Book of Carmarthen*) by Jarman A. O. H. printed in 1982.

(42) a. … pan dorodd "Merched Beca" 'r drws i lawr.
when break.$_{PAST}$.3$_S$ girl Beca the door down
'… when the Rebecca rioters broke the door down.'
b. Mae e 'n torri lawr y ffiniau
be.$_{PRES}$.3$_S$ he $_{PROG}$ break down the boundaries
ac mae hynny 'n beth positif iawn.
and be.$_{PRES}$.3$_S$ that $_{PROG}$ thing positive very
'It breaks down the boundaries and that is a very positive thing.' (Rottet 2005: 44)

I therefore tested the acceptability of optional particle placement. Set 9 is the examples of *troi i lawr* 'turn down'. The verb using *gwrthod* 'refuse' is the most acceptable in [9b]. Among verb particle constructions, V DP Prt order in [9d] is the most acceptable. The use of the single particle without the preposition *i* in [9c] is degraded. The mean score of acceptability is better in V DP Part order than V Part DP order. However, when DP follows the particle, the use of single particle in [9e] is in fact more acceptable than the use of complex particle in [9a].

[Set 9]

a. Mi wnaeth fy athro droi i lawr y cynnig. **3.0** [1-5]
$_{PRT}$ do.$_{PAST}$.3$_S$ my teacher turn down the offer
'My teacher turned down the offer.'

b. Mi wnaeth fy athro wrthod y cynnig. **4.5** [2-5]
reject the offer
'My teacher rejected the offer.'

c. Mi wnaeth fy athro droi 'r cynnig lawr. **3.5** [1-5]
turn the offer down

d. Mi wnaeth fy athro droi 'r cynnig i lawr. **3.9** [1-5]
turn the offer down

e. Mi wnaeth fy athro droi lawr y cynnig. **3.4** [1-5]
turn down the offer

Set 56 is the examples of *troi i ffwrdd* 'turn off'. Set 56 also shows that V DP Part order is preferred. In V DP Part order, the use of the complex particle *i ffwrdd* in [56d] is more

acceptable than the single particle *ffwrdd* in [56e]. In V Part DP order, the single particle in [56c] is better than the complex particle in [56a].

[Set 56]

a. Mi wnaeth Rhianon droi i ffwrdd y teledu. **2.0** [1-3]
PRT do.PAST.3S Rhianon turn off the TV
'Rhianon turned off the TV.'

b. Mi wnaeth Rhiannon ddiffodd y teledu. **3.7** [1-5]
extinguish the TV

c. Mi wnaeth Rhianon droi ffwrdd y teledu. **2.4** [1-5]
turn off the TV

d. Mi wnaeth Rhianon droi y teledu i ffwrdd. **4.6** [3-5]
turn the TV off

e. Mi wnaeth Rhianon droi y teledu ffwrdd. **3.9** [1-5]
turn the TV off

The same pattern can be found in Set 71, expect that [71a] without the particle *i lawr* is the most acceptable.

[Set 71]

a. Mae 'r plant wedi torri 'r drws. **4.8** [4-5]
be.PRES.3S the children PERF break the door
'Children broke down the door.'

b. Mae'r plant wedi torri i lawr y drws. **1.9** [1-3]
break down the door

c. Mae'r plant wedi torri 'r drws lawr. **3.5** [1-5]
break the door down

d. Mae'r plant wedi torri 'r drws i lawr. **4.4** [2-5]
break the door down

e. Mae'r plant wedi torri lawr y drws. **2.8** [1-5]
break down the door

Set 53 is the case of single particle *allan* 'out'. The single particle also prefers V DP Part order in [53d]. However, the mean acceptability of V Prt DP is 3.6, which is higher than V Prt DP order used with the complex particles in [9a], [56a] and [71b] above.

[Set 53]

a. Mae John wedi sortio'r papurau. **4.0** [1-5]
be.$_{PRES}$.3$_S$ John $_{PERF}$ sort the papers
'John has sorted out the papers.'

b. Mae John wedi sortio allan y papurau. **3.6** [1-5]
sort out the papers

c. Mae John wedi trefnu 'r papurau. **4.5** [1-5]
organise the papers

d. Mae John wedi sortio 'r papurau allan. **4.3** [2-5]
sort the papers out

Set 44 is the example of *troi ymlaen* 'turn on' with the single particle. Again, V DP Prt order as in [44b] and [44c] is preferred. Although *droi'r teledu ymlaen* in [44c] is the most acceptable sequence, the reverse order *droi ymlaen y teledu* in [44a] is significantly degraded, compared to *roi ymlaen y teledu* in [44d] though I cannot explain why.

[Set 44]

a. Mi wnaeth Bethan droi ymlaen y teledu. **1.8** [1-5]
$_{PRT}$ do.$_{PAST}$.3$_S$ Bethan turn on the TV

b. Mi wnaeth Bethan roi 'r teledu ymlaen. **4.4** [2-5]
put the TV on

c. Mi wnaeth Bethan droi 'r teledu ymlaen. **4.9** [4-5]
turn the TV on

d. Mi wnaeth Bethan roi ymlaen y teledu. **3.7** [1-5]
put on the TV

The results show that Welsh verb particle constructions prefer V DP Part order. If a verbal particle consists of two words, the use of complex particle is preferred in V DP Part order. However, the use of single particle is more acceptable in V Part DP order.

5.4.2 Particle placement

This subsection analyses the Welsh particle placement shown above. My analysis is based on Ackema and Neeleman's idea that there is competition between morphology and syntax, outlined in chapter 1. Ackema and Neeleman (2001) propose the following.

(43) Lexical items can be underspecified in various ways: one type of underspecification concerns their locus of realization (that is, syntax or morphology).

Many theories implicitly assume uniform realization, that is, a particular complex lexical item uniformally receives a particular (i.e. syntactic or morphological) realization. Under Ackema and Neeleman's model, there is no reason why a complex lexical expression consisting of a head and a dependent could not be underspecified as to the component in which it is to be realized. If we suppose that a complex lexical item A-B is indeed underspecified with respect to its locus of realization, A and B may be merged either in syntax as in the structure like [$_{AP}$ A BP] or in morphology such as [$_{A}$ A B]. The unmarked status of syntactic merger has the effect that A and B usually combine in syntax. However, Ackema and Neeleman argue that, under specific circumstances, it is possible to merge A and B in morphology.

Given the above assumption, verb particle combination can be either generated in syntax or morphology. If the verbal particle is realised in syntax, a head V and a phrasal particle is merged as in (44a). If the verb particle is realised in morphology, a V and a particle are adjoined to create complex verb as in (44b).

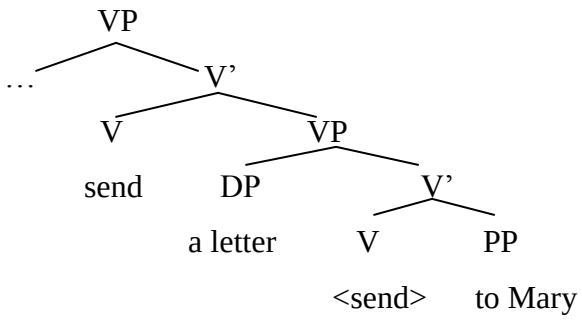
(44) a. [$_{V}$ V PartP] Syntactic realisation
b. [$_{V}$ V Part] Morphological realisation

The argument is essentially the same as Neeleman's (2002) claim that particles optionally project to account for English optional particle placement. Projection is expected in syntactic positions, therefore particles can be XPs. Particles also can be complex heads with an adjacent verb in morphology.

To derive V DP Part order, we need to assume some kind of movement since V and a particle is dislocated by an intervening DP. Neeleman (2002) adopts Larson's VP-shell analysis. Larson (1988) proposes that ditransitive constructions involve two VPs in a

hierarchical structure. In his analysis, Theme is generated in the specifier of the lower VP, and Goal with the preposition *to* in its complement. The verb in the lower VP is raised into the higher VP by head-movement. We can obtain the following structure with the correct surface order.

(45)



Assuming the VP-shell analysis, together with the idea that syntax and morphology are in competition, the optional particle placement can be explained straightforwardly. If a verbal particle is realised in syntax, the particle projects a phrase, i.e. PartP. In this case, a head V undergoes head-movement to the higher VP, as shown in (46)

(46) a. $[_{V'}\ V_i\ [_{VP}$ DP $[_V\ t_i$ PrtP]]]
b. troi$_i$ y teledu t_i i ffwrdd
turn the TV off

On the other hand, if a verbal particle is realised in morphology, a verb and a particle make a complex verb.

(47) a. $[_{VP}\ [_V$ V Prt] DP]
b. troi ffwrdd y teledu
turn off the TV

Welsh mainly makes use of V DP Part order as in (46), presumably because most Welsh particles consist of more than one word such as *i ffwrdd* 'off' and *i fyny* 'up', which makes the particles a phrasal level. We saw that a single particle is preferred in V Part DP order. This seems to be a natural consequence, given the assumption that a single particle is easier to merge in morphology to make a complex verb.

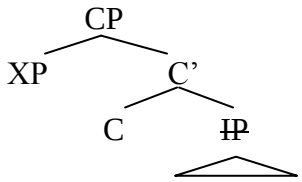
5.5 Sluicing

We turn to the final generalization (1d) on sluicing discovered by Merchant (1999, 2001). Sluicing is an ellipsis phenomenon first described (and named) by Ross (1969), as illustrated below. A sentential part of an interrogative clause is elided, leaving only a *wh*-phrase remnant. All examples are taken from Merchant (2006: 270-71).

(48) a. Jack bought something, but I don't know what ~~he bought~~.
b. A: Someone called. B: Really? Who ~~called~~?
c. Beth was there, but you'll never guess who else ~~was there~~.

All these examples have the following structure in common. XP indicates a *wh*-phrase, and the struck-through IP indicates that the sentential constituent of the interrogative CP is elided.

(49)



The most comprehensive treatment of sluicing to date is found in Merchant (2001). Developing Ross (1969), he argues that sluicing involves movement of a *wh*-phrase out of a sentential constituent, followed by deletion of that node. To illustrate this, the derivation of (48a) is shown below.

(50) Jack bought something, but I don't know [$_{CP}$ what$_i$ [~~$_{IP}$ he bought <what>$_i$~~]].

5.5.1 Merchant's generalization (2001)

The focus of this section is P-stranding under sluicing. Merchant (2001: 92) points out the following generalization.

(51) A language *L* will allow preposition stranding under sluicing iff *L* allows preposition stranding under regular *wh*-movement.

Merchant shows that P-stranding languages under question formation such as English, Frisian, Swedish, Norwegian, Danish, and Icelandic allow omission of a preposition under sluicing. English and Frisian data are given below from Merchant (2001: 92-93). (a) examples are P-stranding data in *wh*-question and (b) examples are sluicing data:

(52) a. Who was he talking with?
b. Peter was talking with someone, but I don't know (with) who.

(53) a. Wa hat Piet mei sprutsen? Frisian
who has Piet with talked
b. Piet hat mei ien sprutsen, mar ik wyt net (mei) wa.
Piet has with someone talked but I know not with who (Merchant 2001: 93)

In contrast, in languages that generally do not allow P-stranding in *wh*-question, the preposition under sluicing is obligatorily present. Merchant (2001: 94-100) documents the data from 18 languages, but the only two of them are illustrated below from Greek and German.

(54) a. * Pjon milise me? Greek
who she-spoke with
b. I Anna milise me kapjon, alla dhe ksero *(me) pjon.
the Anna spoke with someone but not I-know with who (Merchant 2001: 94)

(55) a. * Wem hat sie mit gesprochen? German
who has she with spoken
b. Anna hat mit jemandem gesprochen, aber ich weiß nicht, *(mit) wem.
Anna has with someone spoke but I know not with who
(Merchant 2001: 94)

This correlation is best explained under the movement approach to sluicing that we have seen above.[72] That is, sluicing involves the usual operation of *wh*-movement, subject to the

[72] Bob Borsley (p.c) however informs me that Merchant's movement plus deletion approach and his generalization has been called into question by Sag and Nykiel (2011). They point out that the deletion of a preposition would be specific to the sluicing phenomenon, and is not independently motivated in any language.

language specific constraints, followed by deletion of the IP. In English, for example, both derivations presented in (56a) and (56b) are possible:

(56) Peter was talking with someone, but I don't know

a. [$_{CP}$ [with who]$_i$ [$_{IP}$ ~~he was talking <with who>$_i$~~]].

b. [$_{CP}$ [who]$_i$ [$_{IP}$ ~~he was talking with <who>$_i$~~]].

The pied-piping option is taken in (56a); the whole PP moves into Spec-CP before the deletion of IP takes place. The P-stranding option is also available, as English allows P-stranding under regular A'-movement. On the other hand, in a language such as German the pied-piping option is the only possibility, as shown in (57) below, since the pied-piping option is only the possibility under regular *wh*-movement.

(57) Anna hat mit jemandem gesprochen, aber ich weiß nicht

Anna has with someone spoke but I know not

a. [$_{CP}$ [mit wem]$_i$ [$_{IP}$ ~~sie <mit wem>$_i$ gesprochen hat~~]].

with who she with who spoken has

b. * [$_{CP}$ [wem]$_i$ [$_{IP}$ ~~sie mit <wem>$_i$ gesprochen hat~~]].

who she with who spoken has (adapted from Merchant 2002)

We now look at whether Welsh data falls under the Merchant's generalization (51). Then, 5.5.2 deals with a phenomenon called 'swiping' which seems to be acceptable at least in Colloquial Welsh.

5.5.2 Sluicing in Welsh

As far as I know, sluicing in Welsh is not documented in the previous literature. I checked acceptability judgements to test whether Merchant's generalization in (51) holds in Welsh. The results show that omission of preposition under sluicing is possible in Welsh as in [47b] and [32b], although the ones with prepositions are preferable.[73] Only relevant sentences in a set are shown below:

[73] Merchant's generalization predicts that sluicing without preposition is more colloquial. However, Peredur Davies (p.c.) points out that the test sentences without preposition such as [47b] and [32b] do not sound particularly colloquial.

[Set 47]

a. Roedd Megan yn siarad efo rhywun,
be.$_{PAST.}3_S$ Megan $_{PROG}$ speak with someone
ond dw i ddim yn gwybod efo pwy. **4.8** [3-5]
but be.$_{PRES.1S}$ I not $_{PROG}$ know with who
'Megan was talking with someone, but I don't know with who.'

b. Roedd Megan yn siarad efo rhywun, ond dw i ddim yn gwybod pwy. **4.3** [2-5]
what
'Megan was talking with someone, but I don't know who.'

[Set 32]

b. Roedden nhw 'n siarad am rhywbeth,
be.$_{IMPF.}3_S$ they $_{PROG}$ speak about something
ond dw i ddim yn gwybod beth. **4.5** [2-5]
but be.$_{PRES.}1_S$ I not $_{PROG}$ know what

e. Roedden nhw'n siarad am rhywbeth, ond dw i ddim yn gwybod am beth. **4.7** [3-5]
about what

Welsh allows the omission of a preposition under sluicing, and it allows P-stranding in Colloquial Welsh. Therefore, the generalization (51) seems to hold in Welsh.

CHAPTER 6:
IMPLICATIONS FOR SYNTACTIC CHANGE

6.1 Introduction

I have been investigating P-stranding in Welsh. Chapter 2 shows that while Literary Welsh requires pied-piping in *wh*-questions and resumption in relatives, P-stranding is observed in colloquial Welsh. Chapter 3 considers the formal properties of the resumptive structure used in prepositional relatives. I adapted Willis' (2011) claim that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. Extending the idea of PF feature checking in Ackema and Neeleman (2004), chapter 4 proposes PF checking analyses to account for a different syntactic behaviour between Literary Welsh and Colloquial Welsh regarding extraction of prepositional complement. I claimed that PF checking is absent in colloquial Welsh, therefore, P-stranding is possible in this variety. On the other hand, PF checking is present in Literary Welsh; therefore, the extraction of prepositional complement is disallowed. In the previous chapter, I considered some consequences of the PF checking approach in the phenomena related to P-stranding, i.e., pseudopassives, clitics, verbal particles and sluicing.

This chapter discusses the occurrence of P-stranding and whether or not it represents syntactic change. It aims to provide a more complete picture of the P-stranding issue in Welsh by considering the mechanisms of syntactic change. Borsley *et al*. (2007: 116) suggest that the appearance of P-stranding is "a twentieth-century innovation from language contact, modelled on preposition stranding as found in English". This seems plausible if we consider the very extensive contact with English; virtually all Welsh speakers are bilingual in Welsh and English. We will consider how the P-stranding option came into Welsh grammar in the first place and its synchronic and diachronic implications.

Section 6.2 introduces an acquisition-based model of language change assumed in the generative approach. In this model, language change takes place when children acquire a grammar that is slightly different from their parents' grammar. Section 6.3 focuses on syntactic change in a language contact situation, reviewing recent proposals by Roberts (2007) and Lucas (2009). Following Lucas, I will argue that we need to consider performance factors to account for triggers of change. Section 6.4 develops this idea in the bilingual setting, using the notion of bilingual mode proposed by Grosjean (1982, 2001). I will suggest that the occurrence of P-stranding in Colloquial Welsh is due to the activation of English

syntactic knowledge while Welsh-English bilinguals are speaking Welsh. Section 6.5 considers synchronic and diachronic implications of the occurrence of P-stranding. I will argue that synchronically Welsh speakers have two grammars in their mind, i.e. Literary Welsh and Colloquial Welsh. Adopting the competing-grammars analysis in Kroch (1989, 2000), I will suggest that the P-stranding and non-P-stranding options associated with the two registers are in competition diachronically. Section 6.6 concludes the chapter.

6.2 Acquisition based-model of language change

There are two major approaches to offer explanations for syntactic change. One is the formal/generative approach and the other is functional approach (see Fischer 2007 for an overview of the two approaches). The generative approach focuses on competence which attempts to reveal the system of the human mind and how a speaker acquires a language. On the other hand, the functional approach focuses on performance factors, although this approach is more heterogeneous. I will not discuss these approaches in detail. Instead, this section introduces the generative approach to syntactic change that I adopt.

Before introducing the generative approach to language change, I first consider language acquisition very briefly. The question of how children acquire their first language has been the main concern since the start of generative grammar. Chomsky (1986) formulates what he calls 'Plato's problem' in the following way: how do we know so much, given that the evidence available to us is very limited? In other words, children acquire their first language surprisingly quickly in spite of limited triggering experience from their environment. This argument is also called the 'poverty of the stimulus'. In order to explain this problem, Chomsky proposes the 'innateness hypothesis' which claims that some kind of device to acquire a language is genetically inherited in human's mind. It is assumed that there is a mental entity called 'language faculty' which is a particular component of the human mind. This enables us to acquire one's knowledge of one's native language from fairly poor stimuli, known as the 'primary linguistic data' (hereafter PLD), compared to the nature of the linguistic knowledge which results from first-language acquisition. This state of affairs can be schematized as follows:

(1) PLD → Language Faculty → Linguistic Knowledge
(E-language) (in human mind) (I-language)

The theory of the language faculty is called 'Universal Grammar' UG (Chomsky 1986: 3). UG is a theory of initial state S_0 of the language faculty, prior to any linguistic experience, i.e. PLD. Given appropriate experience, this faculty passes from the state S_0 to the relatively stable state S_S (Chomsky 1986: 25). Children acquire particular grammars (various I-languages) based on the PLD (E-language), and this accounts for variation across languages.

From Chomsky's proposal of Principles and Parameters Theory in the 1980s, generative linguists have attempted to explain cross linguistic variation. Most work at that time focused on synchronic variation rather than diachronic variation. However, some generative linguists, notably Lightfoot (1979) followed by Roberts (1985) among others, explore the relation of language acquisition and language change. I will now introduce an acquisition based-model of syntactic change assumed in the generative approach.

An important concept of language change in the acquisition based-model is 'abductive change' first introduced by Andersen (1973), which is schematised below.

(2) Grammar1 → Output1

Grammar2 → Output2 (Andersen 1973: 767)

In (2), Grammar1 refers to the parents' I-language and Output1 is a corpus produced by the speakers, i.e. the parents' E-language. Grammar2 refers to the children's I-language and Output2 is a corpus of the children. What is important here is that children do not directly access their parents' grammar because grammars are mental entities. Grammars are transmitted from one generation to the next via output, which raises the possibility of mismatch between Grammar1 and Grammar2. So we can say that language change takes place if children acquire a grammar that is slightly different from their parents' grammar.

Hale (1998) further argues that language change is a set of differences between Grammar1 and Grammar2. The figure below shows his model of language change:

(3) G1 (the source grammar)

S_0 (UG) → S_1 → S_2 → - - - → G2 (the constructed grammar) (Hale 1998: 2)

As we already saw above, S_0 represents UG which is the initial state of the acquirer. PLD generated by G1 is transformed into S_1, and learning continues through a number of intermediate steps triggered by the PLD, then terminates to be a steady-state grammar S_S, that is, G2. Hale defines 'change' as alteration from G1 (the source grammar) to G2 (the constructed grammar). In this model, "change is the result of the acquirer being exposed to a PLD that differs in some way from that which the acquirer of the source grammar was exposed to" (Hale 1998: 9).

We saw that language change happens if a younger group acquires a grammar which is slightly different from the one of the older group. Abductive change provides a possibility of such a mismatch between the generations. However, the question is why this might be the case. To put it crudely, why do innovators innovate an innovative form? One of the problems in the acquisition based-model of language change is known as 'Regress Problem'. Roberts (2007: 126) put this problem in the following way; "an innovation in Corpus2[74] may be ascribable to a mismatch in G2 compared to G1, but it must have been triggered by something in Corpus1 – otherwise where did it come from? But if Corpus1 could trigger this, then how could G1 provide this property without itself having the innovative property?" If it is true that children are only exposed to an older generation's E-language as PLD, the parents' grammar (i.e. I-language) should somehow allow innovative E-language to make language change happen.

In the next section, I will argue that we need to consider performance factors to solve the Regress Problem, along the line of Lucas (2009) in 6.3.3 below. I will not solve the Regress Problem of syntactic change in general where language contact may not play a crucial role for change[75] (see Roberts 2007 for his formal solution), but I will suggest how the problem can be understood in a bilingual situation considering language processing in 6.4.

6.3 Models of contact-induced grammatical change

We have seen some important concepts in syntactic change in the previous section. We will now turn to syntactic change due to language contact, more specifically. Language contact in general is still very much understudied in the generative tradition. Likewise, work on contact-

[74] "Corpus" in Roberts (2007) refers to a body of sentences produced by speakers, basically the same as Andersen's "Output" in (2).

[75] Thomason (2003: 687), however, states that "most of what historical linguists study under the designation 'language change' is due to contact".

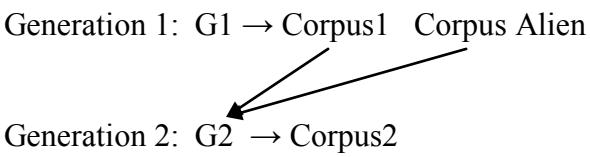
induced syntactic change is still largely descriptive. In this section, I will examine two recent proposals which offer a model of contact-induced grammatical change. 6.3.1 introduces a model proposed by Roberts (2007). Then, we will consider the case study of P-stranding in Prince Edward Island French in King (2000) in 6.3.2, because Roberts suggests that this is the case for direct contact in his model and also because it is very relevant to my case study. Finally, we see Lucas' (2009) proposal which considers the role of performance factors in the acquisition-based model of syntactic change in 6.3.3.

6.3.1 Roberts (2007)

Roberts (2007: 236-242, 389-406) deals with contact-induced change. He argues that language contact may cause syntactic change because PLD is affected by an alien grammatical system. As a consequence, the younger generation of speakers is exposed to a different kind of PLD from the older group, which causes abductive change.

Roberts distinguishes two types of contact-induced change: 'direct' and 'indirect'. The direct case is where the PLD simply contains a significant amount of tokens from a different language, as shown below (Roberts 2007: 237, 390).

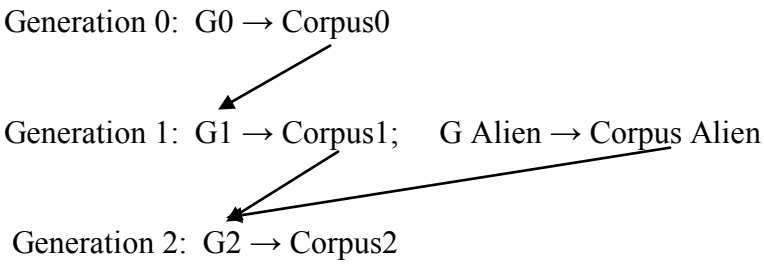
(4) Direct contact



This is the case where tokens from separate languages can be combined into a single set of PLD for children acquiring a single language, G2 in (4). According to Roberts, because the younger group receives distinct PLD which is Corpus1 *and* Corpus Alien, their grammar will change from that of the older group. However, as Lucas (2009: 151) points out, this type of contact-induced change in PLD does not seem very plausible since there is now widespread consensus that children raised in a bilingual environment successfully differentiate the grammatical systems of the languages from a very early age (see Meisel 2004).

The indirect case of contact arises where Generation 1 uses a second language in interaction with Generation 2. The indirect case is schematised in (5) below.

(5) Indirect contact



Generation 0 consists of monolinguals. Speakers of Generation 1 acquire a second language (i.e. G Alien) in addition to their first language (G1). They interact with Generation 2 in their L1 and L2. As has been argued (see Lenneberg 1967, among others), the process of acquiring an L2, particularly as an adult, is typically much longer, more laborious, and ultimately less successful than that of acquiring an L1. Since Generation 2 is exposed to both Corpus1 (i.e. L1 output of Generation 1) and Corpus Alien (i.e. L2 output of Generation 1) as PLD, Generation 2 may acquire a slightly different grammar from that of generation 1. The main difference between direct and indirect contact is that in the direct case Generation 1 uses some tokens from a different language typically as a result of transfer of elements from one grammar into another, on the other hand, in the indirect case Generation 1 uses a different language (L2) that a speaker acquires as a result of imperfect learning. In effect, the PLD of the next generation is altered, which makes abductive change possible. Before considering Lucas' model, we now turn to King's case study of Prince Edward Island French, as Roberts (2007: 238-242) treats this as a case of direct contact in his model.

6.3.2 P-stranding in Prince Edward Island French

King (2000) discusses the occurrence of preposition stranding in Prince Edward Island French (PEI French, hereafter) spoken in Canada, arguing that it is due to intense contact with English.[76] It is worth considering the PEI French case in some depth, since the situation looks very similar to Colloquial Welsh. Although standard French disallows P-stranding,[77]

[76] French has been spoken in Acadia (Prince Edward Island, New Brunswick and Nova Scotia) since the early seventeenth century (King 2000: 7), but only 4.2 percent of the population of PEI were native speaker of French according to the 1991 census, and only 2.3 percent spoke the language at home. 86 percent of these people lived in a single area, Prince County (p.19). King (2000: Chapter 6) also documents a large amount of lexical borrowing and code-switching due to very extensive contact with English.

[77] Some prepositions called 'orphan prepositions' allows dislocation of the prepositions and their complement in European French as well, as many researchers (Bouchard 1982, Zribi-Hertz 1984,

PEI French widely allows P-stranding as in English. The examples in (6) below illustrate P-stranding in *wh*-question, relative clause and pseudo-passive, respectively:

(6) a. Où ce-qu' elle vient de? PEI French
where that she comes from
'Where does she come from?'
b. Ça, c' est le weekend que je me souviens de.
that it is the weekend that $1_{SG\ REFL}$ remember of
'That's the weekend that I remember.' (King 2000: 136)
c. Ce lit-là a été couché dedans.
this bed has been slept in.
'This bed has been slept in.' (King 2000: 141)

Vinet (1984: 239) notes that the use of P-stranding is partly observed in Quebec French as well. P-stranding in relative clauses is acceptable for some speakers of Quebec French, although Vinet characterised the following examples as sounding odd:

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among others) have pointed out. In general, French allows orphan prepositions in topicalization as in (i) .

(i) Cette valise, je voyage toujours avec.
this suitcase I travel always with
"This suitcase, I always travel with it." (King 2000: 137)

Orphan prepositions can be found in relative clauses in colloquial varieties of French including Quebec French as in (ii).

(ii) la fille que je sors avec
the girl that I go-out with
"the girl that go out with" (King 2000: 137)

Both Zribi-Hertz and Bouchard argues that there is no movement in the case of orphan prepositions. Rather, in those cases the empty DP position is filled by a null pronoun *pro*, not by a copy/trace. They support this claim with the observation that relative clauses are immune to the subjacency effects which we would expect if movement were involved, as shown below.

(iii) la fille [$_{CP}$ que je connais très bien [$_{NP}$ le gars [$_{CP}$ qui sort avec]]]
the girl that I know very well the guy who go-out with
* "the girl that I know very well the guy went out with" (King 2000: 137)

(iii) is perfectly acceptable in colloquial French but its English counterpart is ungrammatical. Therefore, the dislocation in the case of orphan prepositions is not derived by way of movement. On the other hand, PEI French does show subjacency effects in relevant constructions, therefore PEI French is the case for P-stranding (see King 2000: 140).

(7) a. % Marie est une fille que j' ai confiance en. Quebec French
Marie is a girl that I have confidence in
'Marie is a girl that I trust.'
b. % le gars que l' ai parlé à
the guy that I have spoken to
'the guy I spoke to' (King 2000: 138)

In this variety of French, however, P-stranding is not found in *wh*-questions as in (8a) or in passives (8b).

(8) a.* Quelle fille as-tu confiance en? Quebec French
which girl have you confidence in
'Which girl do you trust?
b. * Marie a ètè parlè à.
Marie has been spoken to
'Marie has been spoken to.' (King 2000: 139)

These examples above are ungrammatical in Quebec French, but are in fact grammatical in Prince Edward Island French.

We have seen while Quebec French allows P-stranding only in relative clauses, PEI French widely allows P-stranding. King (2000) argues that the difference is due to lexical borrowing. More specifically, lexical borrowing has triggered reanalysis of the PEI French preposition system. Although both PEI French and Quebec French have borrowed verbs from English, only PEI French has also borrowed prepositions. In addition to French-origin verbs plus French-origin prepositions as already shown in (6), English-origin verbs plus French-origin preposition (9a), French-origin verbs plus English-origin preposition (9b), and English-origin verbs plus English-origin preposition (9c) are all possible.

(9) a. Quoi ce-que l'avion a crashé dedans? PEI French
what that the plane has crashed into
'What did the plane crash into?'
b. Quoi ce-qu' il a parlé about?
what that he has talked about
'What did he talk about?' (King 2000: 143)
c. Qui ce-qu' a été layé off?
who that has been laid off
'Who were laid off?' (King 2000: 142)

Given the large amount of lexical borrowings, Roberts (2007) suggests that this is a clear case of direct contact in his model.

The occurrence of P-stranding seems to be the result of direct borrowing. Thomason and Kaufman (1988) argue that once a certain threshold of language contact has been reached, the linguistic results will include borrowing of items from closed categories *and* the borrowing of syntactic rules. However, interestingly P-stranding in PEI French does not work in exactly the same way as P-stranding in English. Hornstein and Weinberg (1981) point out there are clear restrictions on where stranding can take place in English, as illustrated in (10).

(10) * Who did Pugsley give a book yesterday to?

The positioning of the preposition following the adverb *yesterday* prohibits the close relationship needed for reanalysis of the verb *give* in this case plus preposition *to* as a complex verb (see 1.4.3 for the reanalysis approach). Hornstein and Weinberg suggest that this is because the verb must c-command the stranded preposition. In (11), PP is not c-commanded by the verb because the adverb intervenes and PP is outside of VP. PEI French, however, allows examples equivalent to (10):

(11) a. Quoi ce-que tu as parlé hier à Jean de __? PEI French
what that you have spoken yesterday to John of
?? 'What did you speak yesterday to John about?'
b. Quoi ce-que tu as parlé hier de __ à Jean?
what that you have spoken yesterday of to John
?? 'What did you speak yesterday about to John?' (King 2000: 146)

All native speakers of English whom King polled considered English translations of (11) odd at best. This suggests that the structural relationship between the verb and the preposition is not identical between English and PEI French. King (2000: 147) states that this result, the extreme freedom of P-stranding occurrence in PEI French, is understandable if we consider the fact that French does not have the strong adjacency requirements found in English in a variety of constructions.[78]

Based on the above arguments, King (2000) concludes that lexical borrowing has triggered reanalysis of the PEI French preposition system, rather than the result of direct syntactic borrowing of English-like P-stranding structure. However, this conclusion does not readily work in the Welsh case. Because Welsh has not borrowed English preposition systematically, only exceptions are *off* and *rownd* '(a)round' (Rottet 2005: 58).[79] Therefore, lexical borrowing of prepositions cannot be the trigger of the introduction of P-stranding in the case of Welsh.

6.3.3 Lucas (2009)

This section reviews Lucas' (2009: chapter 3) model which is relevant to the indirect type of contact-induced change discussed in Roberts (2007). Lucas suggests a psycholinguistic-based account of triggers of change involving language contact, and argues that this account can be integrated into the acquisition-based model of abductive change. More specifically, he proposes the mechanism of contact-induced grammatical change, mainly based on the work of van Coetsem (1988, 2000) on second language acquisition and first language attrition.

[78] King however does not specify which constructions she refers to. Roberts (2007: 241) states the following regarding this; "[i]t could in fact be connected to the possibility of raising a participle to a slightly higher structural position than occupied by English particles, allowing the verb a wider range of c-command possibilities."

[79] Rottet suggests that these borrowed words are adverbs in the context of phrasal verbs. If these English-origin words are limited in the use of adverb, there is no borrowed preposition in Welsh except for the use of code-switching.

Van Coetsem redefines certain terms used in contact linguistics which often cause confusion in the field (see also Winford 2007). According to van Coetsem, 'transfer' is the introduction of material from one language into another, that is, any kind of cross-linguistic influence. In all cases of crosslinguistic influence, there is a source language (SL) and recipient language (RL), by definition, the direction of transfer of material is always from the SL to the RL. Speakers who transfer SL to RL are called 'agents'. On the one hand, a transfer that the agent makes to the recipient language is said to occur under 'RL agentivity', on the other hand, a transfer that the agent makes to the source language is said to occur under 'SL agentivity'. The former is the equivalent of 'borrowing' and the latter is the case of 'imposition'. Van Coetsem (1988: 3) defines 'borrowing' and 'imposition' as follows. If the recipient language speaker is the agent, as in the case of an English speaker using French words while speaking English, the transfer of material from the SL to the RL is borrowing. On the other hand, if the source language speaker is the agent, as in the case of a French speaker using his French articulatory habits while speaking English, the transfer of material from the SL to the RL is imposition.

The distinction of borrowing and imposition is based on the notion of language 'dominance'. 'Dominance' here is considered as a purely psycholinguistic, not social, notion. Van Coetsem (2000: 52) discusses language dominance in terms of 'proficiency', and makes the point that a speaker may become more proficient in an L2 than his/her L1 under certain circumstances. Lucas (2009: 119) considers two conflicting definitions of dominance, as follows:

(12) a. A speaker's dominant language is whichever of her L1, L2, L3, etc., is most accessible at any given time.
b. A speaker's dominant language is her L1. Any other language subsequently acquired is necessarily non-dominant.

Though van Coetsem does not define 'proficiency', his notion of dominance is close to (12a). Under the first definition of dominance in (12a), an L2 can become dominant with respect to an L1. However, Lucas points out that this definition would appear to have the unwelcome consequence that transfer under RL agentivity into one's L1 (i.e. the case of borrowing) becomes logically impossible. If a speaker transfers some material of his/her L2 into his/her L1 at a given time, then this is presumably because that material is more accessible to the

speaker at that time than its L1 counterpart. However, under the first definition of dominance, this would be a case of imposition under SL agentivity, that is, transfer from the dominant to the non-dominant language. For this reason, Lucas adopts the second definition of dominance in (12b). Under this definition, a speaker's dominant language is always an L1 which s/he acquired from birth, regardless of its accessibility at any given time.

If we adopt the second definition of dominance as in Lucas, we have the following consequences. A transfer that a speaker makes to his/her L1 is under RL agentivity corresponds to borrowing. For example, a morpho-phonological integration from an L2 to an L1 is an instance of RL agentivity. On the other hand, a transfer that a speaker makes to his/her L2 is under SL agentivity which corresponds to imposition. As we already saw with van Coetsem's example of French-English bilinguals above, SL agentivity can be found when a speaker imposes the phonology of an L1 on an L2, which is known as 'foreign accent'. In the case of 'balanced' bilinguals, the distinction between borrowing and imposition breaks down. I define balanced bilinguals are those who have undergone the simultaneous acquisition of two first language (i.e. two L1 acquisition).

Lucas (2009) suggests that if bilinguals represent 'transfer' in van Coetsem's definition at all, this is to minimize the processing effort associated with the use of two distinct languages. Lucas makes this point referring to Altenberg's (1991) study on first language attrition. I follow Lucas' definition of 'attrition' here; "some bilingualism-induced alternation in a speaker's L1 competence and/or performance" (2009: 112). Altenberg investigates the effects of L1 attrition on syntax. She conducted acceptability judgement tasks on two native speakers of German who had been living in the United States for over forty years and who spoke fluent but non-native English. To minimize processing and performance factors, the tests are carried out without limitation of time. The test sentences consist of four types: those whose word order is the same in English and German, those whose word order is grammatical in English but ungrammatical in German, grammatical in German but not in English, and grammatical in neither German nor English. The overall results showed that both subjects had a firm grasp of word order in both German and English. However, for several German sentences whose word order is ungrammatical in standard German, one or both subjects judged them to be fairly acceptable, as in (13).

(13) *? Der Mann, dessen Gepäck steht da kommt gleich zurück
the man whose luggage is standing there is coming right back
(Antenberg 1991: 194)

Interestingly, in follow-up interviews conducted several weeks after the judgement tests, both subjects stated that all of these sentences were fairly unacceptable in German and expressed surprise at their own judgements on these sentences. Lucas (2009: 115) suggests the following why these marginal or ungrammatical sentences were judged acceptable in the judgement tests first time; "a reasonable answer seems to be that this was not because the sentences were grammatical in the subjects' colloquial variety in its original unattrited states, nor because their underlying grammatical *competence* had been attrited and brought into line with English, but because processing diffuculties caused by strong activation of the relevant English structures in the experimental setting resulted in performance-based attrition (despite the experimenter's efforts to test competence rather than performance ...)".

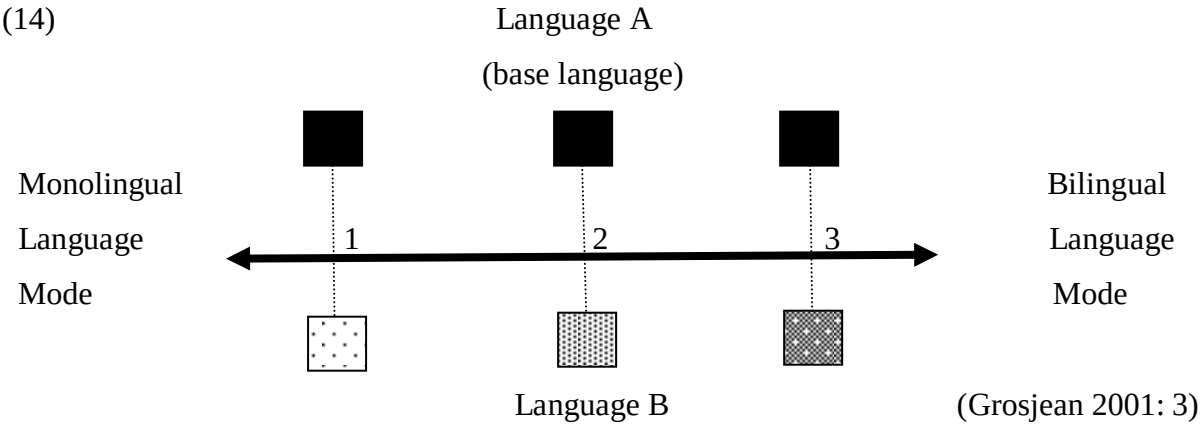
Although the above-mentioned main ideas have already been pointed out elsewhere (see especially Winford 2005), the significance of Lucas' work is that his model can be integrated into the acquisition-based model of abductive change. In his model, transfer is not change itself, but it does change the trigger experiences of the next generation by way of alternation of PLD. Syntactic change happens if children acquire their grammatical competence on the basis of a set of PLD which is affected by the result of transfer of the older group. Moreover, Lucas argues that we need to consider performance factors to account for triggers of change in a language contact situation. In particular, a bilingual speaker produces utterances of one language unexpected from his/her mental grammar of that language, due to minimarizing the processing burden. Consequently, as a younger group is exposed to the innovative utterances, the competence of the younger group may be different from the one of the older group.

Under the acquisition-based model of abductive change in (2), children are exposed to the older group's E-language not their I-language. It seems plausible to account for triggers of change which children are exposed at the level of performance. I will develop this idea of syntactic change in a bilingual setting using Grosjean's notion of bilingual mode in the next section.

6.4 Bilingualism

Grosjean (1982, 2001, etc.) proposed the concept of 'bilingual mode'; the idea that bilinguals decide which language to use and how much of the other language is needed based on psychosocial and linguistic factors. Grosjean (2001: 3) defines 'language mode' as "the state of activation of the bilingual's languages and language processing mechanisms at a given point in time". The figure below visualizes language mode in the case of the use of two languages in relatively stable bilinguals. Language A represents the base language being produced or perceived at the given time by a bilingual. A level of activation is shown by the degree of darkness of the square; black for a highly active and white for a deactivated language. Three hypothetical positions are presented from number 1 to 3.

(14)



(Grosjean 2001: 3)

In position 1, language B is only very slightly active (but not completely inactive), so the bilingual is said to be at, or close to, a monolingual mode. Position 2 is at an intermediate mode. In position 3, language B is highly active (but not as active as the base language), and the bilingual is said to be in a bilingual mode. In all three positions, the base language is fully active as it is the language that governs language processing.

Although position 1, 2, and 3 are cut-off points for the sake of convenience, language mode is a continuum. A number of factors influence the language mode continuum, such as the nature of participants (proficiency, language attitudes, relationship between them, etc.), and the situation (degree of formality, presence of monolinguals, topic of conversation, etc.). If two bilinguals who share the same languages interact with each other in an informal setting where they feel comfortable mixing languages, there is a fair chance that they will be in a bilingual mode. In Wales, virtually all Welsh speakers are bilingual in Welsh and English. Moreover, previous research (e.g. Deuchar 2005, Stammers 2009, and Davies 2010) shows that Welsh-English bilinguals code-switch very often in an informal setting. Therefore, they

presumably have both Welsh and English highly-activated when conversing with other Welsh-English bilinguals.

Much psycholinguistic research supports the idea of bilingual mode. In the context of contact-induced grammatical change, we need to know whether syntactic information of a non-base language affects production of the base-language. I would like to briefly discuss a recent study by Hatzidaki, Branigan, and Pickering (2011) here. They argue for an interference account that the activation of the non-base language can affect lexical processing in the base language.[80] They further argue that bilingual syntactic processing similarly shows interference[81] from the non-base language. Hatzidaki *et al*. (2011) investigate subject-verb agreement in highly proficient bilingual speakers of Greek and English. Some words are divergent in syntactic number between Greek and English. For example, the English word *money* is syntactically singular, whereas the Greek counterpart is syntactically plural, although these two words refer to the same concept. By comparing subject-verb agreement between divergent nouns like *money* and convergent nouns like *tree* which share syntactic number in Greek and English, they examine syntactic interference in Greek-English participants and English-Greek participants.

The result shows that both Greek-English and English-Greek bilinguals sometimes, although rarely, produced incongruent responses with divergent nouns (e.g. The money *are* useful.), but never with convergent nouns (e.g. The tree *are* useful.). Moreover, in the case of English-Greek bilinguals, they produced incongruent responses when speaking their L1 (English) and L2 (Greek).[82] These results suggest that bilingual speakers would activate not only a lexical item but also the syntactic features associated with the lexical item of the non-base language to some extent, even when the non-base language is not produced in an

[80] There is widespread consensus that words from both languages are activated during lexical processing. Code-switching shows strong evidence for this. However, some research suggests that activation of the non-base language (Language B in (14)) does not affect lexical processing in the base language (see Costa 2005). Under such an account, words are tagged for the language with which they are associated and the processor simply ignores features with the *wrong* tag, so that only words from the base language are selected.

[81] 'Interference' here roughly corresponds to 'transfer' in van Coetsem (1988, 2000) and Lucas (2009). I temporarily adopt the term 'interference' following the psycholinguistic tradition.

[82] In contrast, Greek-English bilinguals produced incongruent responses only in L2 (English). This might be because Greek has richer morphology; in Greek both the noun and the determiner are marked for number, whereas the English determiner *the* does not distinguish number morphologically.

utterance.[83] This study demonstrates that bilingual speakers' language systems do affect each other during language production.

The above arguments suggest that bilingual speakers show transfer (in Lucas / van Coetsem's term) in syntax, since they activate two or more languages in the course of processing in more or less degree depending on the situation. This idea does not conflict with Lucas' suggestion of transfer due to minimize the processing effort associated with the use of two distinct languages. Given the notion of bilingual mode, we can straightforwardly understand the Regress Problem on how a speaker produces innovative utterances. Bilinguals produce unexpected E-language from its I-language because of the activation of a non-base language in terms of processing. This explains how the P-stranding option comes into Welsh grammar in the first place. Welsh-English bilinguals activate syntactic knowledge of English, the P-stranding option in my case study, while they are speaking Welsh. The activation of English syntactic knowledge may cause the production of P-stranding in Welsh as a performance error (although 'error' here has no negative connotation). In colloquial Welsh, P-stranding is acceptable for many speakers especially among younger speakers (Willis 2000: 557), this can be understood that the younger group acquires the P-stranding option from the older group's PLD.

6.5 Synchronic and diachronic implications of Welsh P-stranding

Along the lines of Lucas (2009), I have argued that we need to consider the role of performance factors to solve the Regress Problem. The previous section discussed in some detail how speakers produce an innovative utterance in a bilingual setting. It should be emphasised that performance factors play a role as a trigger of change, not change itself. Change is a set of differences between parents' grammar and children's grammar as we saw Hale's model of language change in (3). Syntactic change takes place if children acquire an innovative form in their mind. In this section, we will consider implications of the introduction of an innovative form into a grammar both synchronically and diachronically, focusing on the occurrence of P-stranding in Welsh. We will look at synchronic implications, considering the idea of multiple grammars proposed in Roeper (1999). We then turn to diachronic implications of multiple grammars in terms of Kroch's competing grammars framework (cf. Kroch 1989).

[83] In fact, Hatzidaki *et al*. also tested two-language production (i.e. code-switching context) where a subject noun and a verb come from different languages (Greek and English). In such cases, participants produced more incongruent responses than one-language production.

We first consider learnability of more than one grammar in child language acquisition. Roeper (1999) claims that a speaker has multiple grammars within every language; in this sense, every speaker is bilingual. He demonstrates that children during acquisition periods have simultaneous access to multiple grammars. For example, children produce both utterances at a certain stage of acquisition:

(15) a. Him want
b. He wants

Roeper argues that *Him want* first occurs in children's grammar due to 'economy of representation' assumed in Chomsky (1995). Intuitively, economy favours less structure (in terms of representation) and shorter movement (in terms of derivation). (15a) does not presuppose AGR-features on the head of T(ense), so it is more economical. Roeper further argues that representations like (15a) can be generated directly from UG without an input trigger. Then, (15a) *He wants* comes into children's grammar alongside of (15b) *Him want*, this time due to 'meaning explicitness'. Adults, like children, are more or less explicit depending on the social occasion. For instance, one enters a shop and says either *Milk* or *I want milk*, the latter is more explicit. In a similar vein, Roeper argues that (15b) is more explicit because of the presence of AGR-features which contains information of Person, Number, and Tense. These two criteria, economy on the one hand and meaning explicitness on the other, have opposite characteristics, in other words, economy of representation favours less, meaning explicitness favours more, elaborated structures. However, (15a) *Him want* eventually disappears in favour of meaning explicitness. This kind of empirical fact suggests that two (or more) grammars are in fact learnable. As long as both options are available in PLD, an acquirer presumably keeps two grammars in his/her mental repertoire.

The way he discusses multiple grammars is not clear between the two:

(16) a. A speaker has more than one grammar.
b. A single grammar generates different structures.

The latter (16b) leads to the optionality problem assumed in Minimalism (see Fukui 1993; Miyagawa 2011, among others). Chomsky (1995: chapter 2) proposes general principles of economy that require derivations and representations to be minimal in cost. There should be

no elements and operations that are superfluous and unmotivated. Chomsky states that this economy approach "tends to eliminate the possibility of optionality in derivation" (p.146). However, the former case (16a) is not a problem, otherwise, we cannot explain why *real* bilinguals who speak multiple languages can have more than one grammar in their mind. The Welsh case at stake is presumably the former case, that is, a speaker with two grammars: Literary Welsh and Colloquial Welsh. As mentioned in chapter 1, the difference between the two varieties is extensive in the Welsh language today, and there are prescriptive pressures on *correctness* in Literary Welsh.

In fact, Roeper (1999) considers social register as one of possible solution to account for formal optionality. He speculates that a speech register has a formal dimension in the following way; "[f]ormal or informal speech registers are recognizeable as a choice of a different application of principles within UG" (Roeper 1999: 183). For instance, in English, subjects in a main clause can be omitted with certain verbs in an informal register, such as *sounds good to me* and *seems like a good idea*, even though English is not a *pro*-drop language unlike Romance languages. Roeper argues that different grammars may be localized by speech register. This seems to suggest that English speakers also have two grammars, i.e. formal English and informal English. We could understand the above child language acquisition data (*Him want*, as opposed to *He wants*) in a similar manner, that is, child English and adult English are two distinct grammars.

In my case study, the non-P-stranding option is associated with the literary variety whereas the P-stranding option is associated with the colloquial variety. It is very likely that prescriptive pressure influences the two options. For example, the educational grammar of Welsh by King (2003) states that "you really cannot end a sentence with a preposition in Welsh". It is also noted that in prepositional relatives an overt pronoun is required with non-inflectable preposition such as *efo* 'with', whereas the pronoun can be dropped with inflectable preposition such as *ar* 'on', "because the extra syllable *-ni* [of *arni* 'on her' RH] is not strictly speaking the preposition, and so can end the sentence" (p.308). King's statement clearly suggests that the P-stranding option is *bad* prescriptively, although P-stranding under relative clauses, as well as under *wh*-questions, is frequently observed colloquially as we saw in chapter 2. This situation corresponds to what Kroch describes as 'syntactic diglossia' in which the competing forms may differ in social register (Kroch 2000: 702).

Diachronically speaking, this situation corresponds to the case of grammars in competition developed by Kroch and his associates. Kroch (1989) views the process of

change as grammatical systems in competition; "when one grammatical option replaces another with which it is in competition across a set of linguistic contexts" (p.200). He argues that one grammatical option eventually wins out over the use of the other option. As suggested, if the two options in Welsh are the case of grammars in competition, we can predict that the non-P-stranding option will be replaced by the P-stranding option over the period of time, although the prescriptive pressure may slow down its speed.

A similar situation can be found in the development of English P-stranding which started to be observed in the 13th century (Denison 1993: 125). On the basis of the detailed corpus analysis, Yanez-Bouza (2007) finds that prescriptivism indeed affected the usage of P-stranding in the history of English. She argues that the prescriptive pressure against ending sentences with prepositions goes back to the mid/late 17th century due to the normative tradition embraced with ideals of correctness and politeness by grammarians and literary writers. It is observed that this prescriptive pressure has a real influence on use of P-stranding from early 18th century to early 19th century. Yanez-Bouza argues that this influence is only temporary, as prescriptivism was fading away in the late 19th century.

However, this prescriptive pressure seems to remain in present-day English. For instance, the study by McDaniel, McKee and Bernstein (1998) demonstrates that there is a significant difference between children and adults on the acceptability of P-stranding and pied-piping in English. They carried out experiments on stranding and pied-piping in relative clauses both in a production task and a judgement task comparing groups of children and adults. The result shows that neither children nor adults produce prepositional pied-piping in the elicited production task; they only produce P-stranding in relative clauses. In the acceptability judgement task, on the other hand, adults accept pied-piping, and an older group of children (9;1-11;11) accept pied-piping much more than younger groups (3;5-5;11 and 6;3-8;11). On the basis of this result, McDaniel *et al*. (1998) argue that "preposition pied-piping is not a natural option in English, but rather a prescriptive artefact probably picked up during schooling" (p.309). Furthermore, a longitudinal study also confirms this point. Sugisaki and Snyder (2003) analyse the utterances of P-stranding and pied-piping in Spanish and English children, using corpora from the CHILDES database (MacWhinney 2000). Spanish children do not show any use of P-stranding. Crucially, in the corpora of English children, no example of pied-piping is found before the acquisition of P-stranding. The above studies on English seem to suggest that the prescriptive pressure affects people's use of a language.

I finally consider when the P-stranding option came into Welsh. Borsley *et al*. (2007: 116) suggest that the appearance of P-stranding is "a twentieth-century innovation from language contact". I claim that it is linked to the rise in bilingualism in Wales in the twentieth-century. Currently, virtually all the Welsh speakers are bilingual in Welsh and English. As I argued in the previous section, the activation of English syntactic knowledge may cause the production of P-stranding in Welsh. Under the PF feature checking analyses developed in chapter 4, Coloquial English has no AGR-features on P. This leads to the production of P-strading in Welsh. As a result of the exposure to P-stranding utterances, children acquire the grammatical system that a preposition bears no AGR-features alongside of the native Welsh grammaticall system that has AGR-features on a prepsotion.

6.6 Conclusion

This chapter has investigated the occurrence of P-stranding in Colloquial Welsh from a diachronic point of view. My arguments primarily rely on the acquisition-based model of language change assumed in a generative approach, that is, children may acquire an innovative grammar if they are exposed to different triggering experience as PLD from that of older generation. Along the line of Lucas (2009), I argued that we need to consider the role of performance factors to account for the Regress Problem. This account provides the possibility to reconcile the formal approach which focuses on competence and functional approaches focus on performance.

In Wales, virtually all Welsh speakers are bilingual in Welsh and English, and they code-switch very often in informal setting. Considering this sociolinguistic situation, and accepting the concept of bilingual mode as proposed by Grosjean, I suggest that Welsh bilinguals produce the P-stranding option found in English since they activate syntactic information in both languages in terms of processing. This psycholinguistic process changes the triggering experiences of the next generation as PLD, which may lead to syntactic change.

I also argued that currently Welsh speakers possess two grammars. One is Literary Welsh associated with the non-P-stranding option and the other is Colloquial Welsh associated with the P-stranding option. Diachronically, I suggested that this situation is the case of Kroch's competing grammars. I predict that the non-P-stranding option will be replaced by the P-stranding option over the period of time. However, there is a prescriptive rule against ending sentences with preposition in Welsh, as observed in history of English. As

long as Welsh speakers are aware of it, this prescriptive pressure may slow down the speed of the replacement process.

CHAPTER 7:
CONCLUSION

In this conclusion chapter, I first review the discussion in this dissertation, and then consider remaining problems for future research.

The main aim of this disseration was to provide an account on the following generalization on prepositional *wh*-constructions in Welsh.

(1) Generalization on prepositional A'-dependencies in Welsh:

a. Literary Welsh: a head P is followed by its pronominal complement
(i.e., resumptive pronouns in relatives, *wh*-elements in interrogatives)

b. Colloquial Welsh: a head P is followed by a trace left by movement.
(i.e., P-stranding is possible)

I conducted acceptability judgement tests to check the availability of P-stranding. The results show that the P-stranding option is currently available alongside the resumptive pattern in relatives and pied-piping in *wh*-questions, although the acceptability greatly varies between speakers.

I showed Willis' arguments that Welsh *wh*-dependencies in both movement and resumptive structures obey successive cyclicity. In the resumptive structure of prepositional relatives, Willis (2011) proposes that a null *wh*-operator is inserted from the lexicon (Merge) in the specifier of P, then that operator moves though specifers of v and C following successive cyclicity. Although I largely adopted Willis' analyses, his treatment of P-stranding is not conclusive. He suggests that speakers who allow P-stranding either possess a *wh*-version of some functional projection at the left edge of P by creating an escape hatch for movement from within PP, or else P is not a phase head for them.

To capture the generalization (1), I proposed the PF feature checking approach to Welsh P-stranding, based on Ackema and Neeleman (2004). I argued that the availability of P-stranding depends on the availability of PF checking between a P head and its complement. I assumed that the crucial difference between the two varieties is that P in Literary Welsh possesses AGR-features, but P in Colloquial Welsh does not. If PF feature checking of AGR-features takes place between a P head and its DP complement, that DP will be unable to move out of the complement position. This is the situation in Literary Welsh. In Colloquial Welsh,

however, PF feature checking does not hold between P and its complement due to the lack of AGR-features on P. Therefore, a complement of P can be extracted, which makes P-stranding possible in this variety.

I also considered diachronic implications of the occurrence of P-stranding. Using the notion of Grosjean's 'bilingual mode', I suggested that the occurrence of P-stranding in Colloquial Welsh is due to the activation of English syntactic knowledge in terms of processing while Welsh-English bilinguals are speaking Welsh. Under the PF feature checking analyses, English presumably possesses no AGR-features on P. This leads to the production of P-strading in Welsh. As a result of the exposure to P-stranding utterances, children acquire the grammatical system that a preposition bears no AGR-features. This leads to the syntactic change that allows P-stranding in Colloquial Welsh.

There are, however, remaining problems to be solved. I would like to point out three among others. First, we need further research on what socio-linguistic factors of informants are relevant to the acceptability of P-stranding. In my judgement tests, there are some informants consistantly disallow P-stranding sentences and some prefers them. the amount of exposure to the literary language seems to be related to the acceptability. However, some other factors such as age might be more relevant.

Second, syntactic features of Welsh resumption were not very revealing. In chapter 3, I tested island constraints and week crossover effects to see whether Welsh resumptives show movement properties. However, the data on these phenomena were not clear. Further investigation on these data is needed to reveal the nature of Welsh resumptives.

Third, we need more research on P-stranding generalizations in Welsh that we saw in chapter 5. This dissertation is probably the first study which focuses on Welsh P-stranding in this length, and as far as I am aware, no one has been investigated those generalizations in Welsh so far. The analyses developed in chapter 5 may be still speculative, but I leave it for the feature research.

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Appendixes: Acceptability judgement

Appendix A: Instructions

Thanks very much for your participation! This survey is for my dissertation. I am looking at how people today use the Welsh language in their everyday life. I am particularly interested in whether, for you, certain types of sentences are possible or impossible, natural sounding or strange.

Please carefully read the sentences listed below. I would like you to indicate your reaction to the sentence. Please mark your response 5, 4, 3, 2 or 1 beside each sentence. Use 5 for sentences that sound completely natural to you and they are something you would say. Use 1 for sentences that sound completely unnatural to you and no one would say them. If your feelings about the sentence are somewhere between these extremes, use one of the middle responses, 4, 3, or 2. Please do not use 0.

The survey consists of 72 sets of sentences, which sometimes only vary very slightly. Please select your response for each sentence. You may want to use 5 or 1 for all sentences in a set. There are no right or wrong answers. Though some of the sentences you read may or may not be acceptable in formal writing, please evaluate them based on whether or not they sound natural to you.

At the end of the survey, you will find a questionnaire about your background. I would be grateful if you could provide some information about you. This information only collected for research purpose and are strictly anonymous.

Appendix B: Test sentences

Set 1
a. Mi wnes i gyfarfod y dyn pwy gafodd y wobr. __
b. Mi wnes i gyfarfod y dyn a gafodd y wobr. __
c. Mi wnes i gyfarfod y dyn gafodd y wobr. __
d. Mi wnes i gyfarfod y dyn cafodd y wobr. __

Set 2
a. Dyma'r anrhegion iddyn y plant. __
b. Dyma'r anrhegion i'r plant. __
c. Dyma'r anrhegion i nhw. __
d. Dyma'r anrhegion iddo'r plant. __
e. Dyma'r anrhegion iddyn nhw. __

Set 3
a. Beth mae o'n chwilio am? __
b. Beth mae o'n chwilio amdano? __
c. Beth mae o'n chwilio amdano fo? __
d. Am be mae o'n chwilio? __
e. Beth mae o'n chwilio am fo? __

Set 4
a. Cafodd Emrys ei daro o gan Rhodri. __
b. Cafodd Emrys ei daro gan Rhodri. __
c. Cafodd Emrys taro gan Rhodri. __

Set 5
a. Dyna'r hogyn mae ei fam yn poeni amdano fo. __
b. Dyna'r hogyn mae ei fam o'n poeni amdano. __
c. Dyna'r hogyn mae ei fam yn poeni amdano. __
d. Dyna'r hogyn mae ei fam o'n poeni amdano fo. __
Mae *fo / o* yn cyfeirio at *y hogyn*.

Set 6
a. Mi weles blant yn y dre neithiwr. __
b. Mi weles fi plant yn y dre neithwr. __
c. Mi weles i blant yn y dre neithwr. __
d. Mi weles plant yn y dre neithwr. __

Set 7
a. Pwy welest ti wraig? __
b. Pwy welest ti ei wraig? __
c. Pwy welest ti ei wraig o? __
d. Gwraig pwy welest ti? __

Set 8
a. Pa ddinas wnest ti glywed sôn byddwn ni'n ymweld â hi? __
b. Wnest ti glywed sôn byddwn ni'n ymweld â Efrog Newydd? __
c. Pa ddinas wnest ti glywed sôn byddwn ni'n ymweld â? __

Set 9
a. Mi wnaeth fy athro droi i lawr y cynnig.__
b. Mi wnaeth fy athro wrthod y cynnig. __
c. Mi wnaeth fy athro droi'r cynnig lawr. __
d. Mi wnaeth fy athro droi'r cynnig i lawr. __
e. Mi wnaeth fy athro droi lawr y cynnig. __

Set 10
a. Dyma'r dyn wnes i chwarae tenis efo ddoe. __
c. Dyma'r dyn efo pwy wnes i chwarae tenis ddoe. __
b. Dyma'r dyn wnes i chwarae tenis efo fo ddoe. __
d. Dyma'r dyn bwy wnes i chwarae tenis efo ddoe. __

Set 11
a. Dyna'r llyfrau mae Ieuan wedi ei brynu. __
b. Dyna'r llyfrau mae Ieuan wedi brynu. __
c. Dyna'r llyfrau mae Ieuan wedi prynu. __
d. Dyna'r llyfrau mae Ieuan wedi eu prynu. __

Set 12
a. Lle dan ni'n mynd i? __
b. Lle dan ni'n mynd iddo fo? __
c. Lle dan ni'n mynd i fo? __
d. I le dan ni'n mynd? __
e. Lle dan ni'n mynd iddo? __

Set 13
a. Dyna car fi. __
b. Dyna fy nghar i. __
c. Dyna car i. __
d. Dyna fy nghar. __

Set 14
a. Dyma'r llyfr wnaeth Mair sôn amdano fo. __
b. Dyma'r llyfr am beth wnaeth Mair sôn. __
c. Dyma'r llyfr wnaeth Mair sôn amdano. __
d. Dyma'r llyfr wnaeth Mair sôn am. __
e. Dyma'r llyfr beth wnaeth Mair sôn am. __
f. Dyma'r llyfr beth wnaeth Mair sôn amdano. __

Set 15
a. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod efo p'un. __
b. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod efo pa. __
c. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod efo pwy. __
d. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod pa. __
e. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod efo pa fyfyrwyr. __
f. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod p'un efo. __
g. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod pa fyfyrwyr efo. __
h. Mi wnaeth Bedwyr adael efo myfyrwyr, ond dw i ddim yn gwybod pwy efo. __

Set 16
a. Dyna'r dyn wnaeth ei wraig o adael. __
b. Dyna'r dyn wnaeth ei wraig o adael fo. __
c. Dyna'r dyn wnaeth ei wraig adael fo. __
d. Dyna'r dyn wnaeth ei wraig adael. __
Mae *fo / o* yn cyfeirio at *y dyn*.

Set 17
a. Rhoddwyd prês i'r capel gan Mair. __
b. Mi wnaeth Mair roi prês i'r capel. __
c. Cafodd y capel ei roi prês iddo gan Mair. __
d. Cafodd y capel ei roi prês iddo fo gan Mair. __
e. Cafodd y capel ei roi prês i gan Mair. __

Set 18
a. Mae rhywun yn canu yn maes parcio. __
b. Lle mae pwy wneud beth? __
c. Pwy sy'n wneud beth lle? __
d. Beth mae pwy yn wneud lle? __
e. Lle mae beth pwy sy'n wneud? __
f. Pwy sy'n wneud lle beth? __

Set 19
a. Mi wnes i ymweld â'r ysgol oedd John a Enlli yn arfer mynd iddi hi. __
b. Mi wnes i ymweld â'r ysgol lle oedd John a Enlli yn arfer mynd i. __
c. Mi wnes i ymweld â'r ysgol oedd John a Enlli yn arfer mynd iddi. __
d. Mi wnes i ymweld â'r ysgol oedd John a Enlli yn arfer mynd i. __
e. Mi wnes i ymweld â'r ysgol i le oedd John a Enlli yn arfer mynd. __
f. Mi wnes i ymweld â'r ysgol lle oedd John a Enlli yn arfer mynd iddi. __

Set 20
a. Dw i wedi ei fwyta o. __
b. Dw i wedi ei fwyta. __
c. Dw i wedi bwyta'r siocled. __
d. Dw i wedi bwyta fo. __
e. Dw i wedi bwyta o. __
f. Dw i wedi fwyta o. __
g. Dwi wedi ei fwyta fo. __

Set 21
a. Dan ni angen pwnc i siarad am. __
b. Dan ni angen pwnc i siarad amdano fo. __
c. Dan ni angen pwnc i siarad amdano. __
d. Dan ni angen pwnc i siarad am fo. __
e. Dan ni angen pwnc i siarad amdano o. __

Set 22
a. Ceith enfys ei gweld yn eglur ar hyn o bryd. __
b. Dan ni'n gweld enfys yn eglur ar hyn o bryd. __
c. Caith enfys ei gweld yn eglur ar hyn o bryd. __
d. Gwelir enfys yn eglur ar hyn o bryd. __

Set 23
a. Mae rhywun wedi dwyn rhywbeth, ond o'n i ddim yn medru gweld pwy. __
b. Mae rhywun wedi dwyn rhywbeth, ond o'n i ddim yn medru gweld pwy beth. __
c. Mae rhywun wedi dwyn rhywbeth, ond o'n i ddim yn medru gweld beth pwy. __
d. Mae rhywun wedi dwyn rhywbeth, ond o'n i ddim yn medru gweld beth. __

Set 24
a. Pa iath oeddech chi'n siarad mewn? __
b. Pa iath oeddech chi'n siarad ynddi? __
c. Yn mha iath oeddech chi'n siarad? __
d. Pa iath oeddech chi'n siarad mewn hi? __
e. Mewn pa iath oeddech chi'n siarad? __
f. Pa iath oeddech chi'n siarad yn? __

Set 25
a. Dyna'r ysbyty lle ges i fy ngeni. __
b. Dyna'r ysbyty ces i fy ngeni. __
c. Dyna'r ysbyty lle ces i fy ngeni. __
d. Dyna'r ysbyty ges i fy ngeni. __

Set 26
a. Dw i'n cofio am hynny. __
b. Dw i'n cofio amdani hi. __
c. Dw i'n cofio amdani. __
d. Dw i'n cofio am hi. __
e. Dw i'n cofio amdani hynny. __

Set 27
a. Gan bwy gest ti'r llythyr 'na? __
b. Pwy gest ti'r llythyr 'na ganddo? __
c. Pwy gest ti'r llythyr 'na ganddo fo? __
d. Pwy gest ti'r llythyr 'na gan? __
e. Pwy gest ti'r llythyr 'na gan fo? __

Set 28
a. Dyna'r hogyn dw i wedi clywed sôn bod athrawon yn poeni amdano'n ofnadwy. __
b. Dyna'r hogyn dw i wedi clywed sôn bod athrawon yn poeni amdano fo'n ofnadwy. __
c. Dyna'r hogyn dw i wedi clywed sôn bod athrawon yn poeni am yn ofnadwy. __
Mae *fo / o* yn cyfeirio at *y hogyn*.

Set 29
a. Oes gen ti ryw ddarnau arbennig wyt ti isio gwrando arnyn nhw? __
b. Oes gen ti ryw ddarnau arbennig beth wyt ti isio gwrando ar? __
c. Oes gen ti ryw ddarnau arbennig wyt ti isio gwrando arnyn? __
d. Oes gen ti ryw ddarnau arbennig ar beth wyt ti isio gwrando? __
e. Oes gen ti ryw ddarnau arbennig wyt ti isio gwrando ar? __
f. Oes gen ti ryw ddarnau arbennig beth wyt ti isio gwrando arnyn? __

Set 30
a.Wnest ti ddeud “pumdeg punt”? __
b. Wnest ti ddeud beth? __
c. Wnest ti ddeud faint? __

Set 31
a. Mae’r llyfr ’na wedi cael ei siarad amdano. __
b. Mae’r llyfr ’na wedi cael ei siarad amdano fo. __
c. Siaradwyd am y llyfr ’na. __
d. Mae rhywun wedi siarad am y llyfr ’na. __
e. Mae’r llyfr ’na wedi cael ei siarad am. __

Set 32
a. Roedden nhw’n siarad am rhywbeth, ond dw i ddim yn gwybod amdano beth. __
b. Roedden nhw’n siarad am rhywbeth, ond dw i ddim yn gwybod beth. __
c. Roedden nhw’n siarad am rhywbeth, ond dw i ddim yn gwybod beth am. __
d. Roedden nhw’n siarad am rhywbeth, ond dw i ddim yn gwybod beth amdano. __
e. Roedden nhw’n siarad am rhywbeth, ond dw i ddim yn gwybod am beth. __

Set 33
a. Pa ferch wyt ti’n sôn amdani hi? __
b. Pa ferch wyt ti’n sôn am? __
c. Am fa ferch wyt ti’n sôn? __
d. Pa ferch wyt ti’n sôn am hi? __
e. Pa ferch wyt ti’n sôn amdani? __

Set 34
a. Does neb erioed wedi saethu at y llwynog ’na. __
b. Dydy’r llwynog ’na erioed wedi cael ei saethu ato. __
c. Dydy’r llwynog ’na erioed wedi cael ei saethu ato fo. __
d. Ni saethwyd erioed at y llwynog ’na. __
e. Dydy’r llwynog ’na erioed wedi cael ei saethu at. __

Set 35
a. 1981 ydy'r flwyddyn pryd ges i fy ngeni. __
b. 1981 ydy'r flwyddyn ges i fy ngeni. __
c. 1981 ydy'r flwyddyn ces i fy ngeni. __
d. 1981 ydy'r flwyddyn pryd ces i fy ngeni. __

Set 36
a. Mae o'n mynd i Siapan, ond wnes i anghofio gofyn am faint. __
b. Mae o'n mynd i Siapan, ond wnes i anghofio gofyn pa mor hir. __
c. Mae o'n mynd i Siapan, ond wnes i anghofio gofyn faint. __
d. Mae o'n mynd i Siapan, ond wnes i anghofio gofyn faint am. __
e. Mae o'n mynd i Siapan, ond wnes i anghofio gofyn pa mor hir am. __
f. Mae o'n mynd i Siapan, ond wnes i anghofio gofyn am pa mor hir. __

Set 37
a. Sortiwch allan o! __
b. Sortiwch allan eich bywyd! __
c. Sortiwch fo allan! __
d. Sortiwch allan fo! __
e. Sortiwch o allan! __
f. Sortiwch eich bywyd allan! __

Set 38
a. Pwy gest ti ginio efo fo? __
b. Efo pwy gest ti ginio? __
c. Pwy gest ti ginio efo? __

Set 39
a. Lle mae'r papur dw i wedi ei weld yma? __
b. Lle mae'r papur dw i wedi gweld yma? __
c. Lle mae'r papur dw i wedi ei weld fo yma? __
d. Lle mae'r papur dw i wedi weld yma? __
e. Lle mae'r papur dw i wedi ei weld o yma? __
f. Lle mae'r papur dw i wedi gweld fo yma? __

Set 40
a. Mi fwytes i reis bore 'ma. __
b. Mi wnes i fwyta reis bore 'ma. __
c. Bwytes i reis bore 'ma. __
d. Fwytes i reis bore 'ma. __
e. Wnes i fwyta reis bore 'ma. __
f. Fe fwytes i reis bore 'ma. __

Set 41
a. Dyma'r anrheg â beth dw i'n mynd i ddod i'r parti. __
b. Dyma'r anrheg dw i'n mynd i ddod â hi i'r parti. __
c. Dyma'r anrheg beth dw i'n mynd i ddod â i'r parti. __
d. Dyma'r anrheg dw i'n mynd i ddod â i'r parti. __
e. Dyma'r anrheg ba dw i'n mynd i ddod â i'r parti. __

Set 42
a. Dyma'r ddynes oeddwn ni'n clywed sôn bod Alun yn chwilio amdani. __
b. Dyma'r ddynes oeddwn ni'n clywed sôn bod Alun yn chwilio amdani hi. __
c. Dyma'r ddynes oeddwn ni'n clywed sôn bod Alun yn chwilio am. __
Mae *hi* yn cyfeirio at *y ddynes*.

Set 43
a. Mae o'n dibynnu arnon i a Megan. __
b. Mae o'n dibynnu ar i a Megan. __
c. Mae o'n dibynnu arnon ni. __
d. Mae o'n dibynnu arna i a Megan. __
e. Mae o'n dibynnu ar fi a Megan. __

Set 44
a. Mi wnaeth Bethan droi ymlaen y teledu. __
b. Mi wnaeth Bethan roi'r teledu ymlaen. __
c. Mi wnaeth Bethan droi'r teledu ymlaen. __
d. Mi wnaeth Bethan roi ymlaen y teledu. __

Set 45
a. Roedden nhw'n neis iawn i siarad efo nhw. __
b. Roedden nhw'n neis iawn i siarad efo. __
c. Roedden nhw'n neis iawn i siarad. __

Set 46
a. Roedden nhw'n sôn am y plentyn. __
b. Roedden nhw'n sôn amdano o. __
c. Rodden nhw'n sôn amdano fo. __
d. Roedden nhw'n sôn am fo. __
e. Roedden nhw'n sôn amdano y plentyn. __

Set 47
a. Roedd Megan yn siarad efo rhywun, ond dw i ddim yn gwybod efo pwy. __
b. Roedd Megan yn siarad efo rhywun, ond dw i ddim yn gwybod pwy. __
c. Roedd Megan yn siarad efo rhywun, ond dw i ddim yn gwybod pwy efo. __

Set 48
a. Mi wnaeth y heddlu ffeindio'r myfyrwyr wnaeth y carcharor werthu cyffuriau i. __
b. Mi wnaeth y heddlu ffeindio'r myfyrwyr wnaeth y carcharor werthu cyffuriau iddo. __
c. Mi wnaeth y heddlu ffeindio'r myfyrwyr wnaeth y carcharor werthu cyffuriau iddyn nhw. __
d. Mi wnaeth y heddlu ffeindio'r myfyrwyr wnaeth y carcharor werthu cyffuriau iddo fo. __
e. Mi wnaeth y heddlu ffeindio'r myfyrwyr wnaeth y carcharor werthu cyffuriau iddyn. __

Set 49
a. Rôn i'n clywed bod nhw'n siarad amdana fi. __
b. Rôn i'n clywed bod nhw'n siarad am i. __
c. Rôn i'n clywed bod nhw'n siarad amdana i. __
d. Rôn i'n clywed bod nhw'n siarad am fi. __

Set 50
a. Dw i angen rhywun i fyw. __
b. Dw i angen rhywun i fyw efo. __
c. Dw i angen rhywun i fyw efo fo. __
d. Dw i angen rhywun i fyw efo hi. __

Set 51
a. Gofalwyd am y defaid gan y ci. __
b. Cafodd y defaid eu gofalu amdanyn gan y ci. __
c. Cafodd y defaid eu gofalu am gan y ci. __
d. Mi wnaeth y ci ofalu am y defaid. __
e. Cafodd y defaid eu gofalu amdanyn nhw gan y ci. __

Set 52
a. Daeth Mari â llyfrau mawr i'r ysgol, ond dw i ddim yn gwybod pa ddosbarth ar gyfer. __
b. Daeth Mari â llyfrau mawr i'r ysgol, ond dw i ddim yn gwybod pa ddosbarth. __
c. Daeth Mari â llyfrau mawr i'r ysgol, ond dw i ddim yn gwybod ar gyfer pa ddosbarth. __

Set 53
a. Mae John wedi sortio'r papurau. __
b. Mae John wedi sortio allan y papurau. __
c. Mae John wedi trefnu'r papurau. __
d. Mae John wedi sortio'r papurau allan. __

Set 54
a. Cafodd y carped ’ma ei sathru ar. __
b. Mi wnaeth rhywun sathru ar y carped ’ma. __
c. Cafodd y carped ’ ma ei sathru arno. __
d. Cafodd y carped ’ma ei sathru arno fo. __
e. Sathrwyd ar y carped ’ma. __

Set 55
a. Mi wnaeth o weld i. __
b. Mi wnaeth o weld fi. __
c. Mi wnaeth o fy ngweld i. __
d. Mi welodd o fi. __
e. Mi welodd o i. __

Set 56
a. Mi wnaeth Rhianon droi i ffwrdd y teledu. __
b. Mi wnaeth Rhiannon ddifodd y teledu. __
c. Mi wnaeth Rhianon droi ffwrdd y teledu. __
d. Mi wnaeth Rhianon droi y teledu i ffwrdd. __
e. Mi wnaeth Rhianon droi y teledu ffwrdd. __

Set 57
a. Wyt ti isio dod efo fi? __
b. Wyt ti isio dod efo o? __
c. Wyt ti isio dod efo i? __
d. Wyt ti isio dod efo fo? __

Set 58
a. Mi wnaeth rhywun adael y dosbarth yn gynnar, ond doedd yr athro ddim wedi sylweddoli pwy. __
b. Mi wnaeth rhywun adael y dosbarth yn gynnar, ond doedd yr athro ddim wedi sylweddoli pwy pryd. __
c. Mi wnaeth rhywun adael y dosbarth yn gynnar, ond doedd yr athro ddim wedi sylweddoli pryd. __
d. Mi wnaeth rhywun adael y dosbarth yn gynnar, ond doedd yr athro ddim wedi sylweddoli pryd pwy. __

Set 59
a. Dw i’n meddwl ei fod hi’n gwybod yr ateb. __
b. Dw i’n meddwl bod Megan yn gwybod yr ateb. __
c. Dw i’n meddwl mae Megan yn gwybod yr ateb. __
d. Dw i’n meddwl ei bod hi’n gwybod yr ateb. __

Set 60
a. Lle dan ni'n mynd i? __
b. Lle dan ni'n mynd iddo fo? __
c. Lle dan ni'n mynd i fo? __
d. I le dan ni'n mynd? __
e. Lle dan ni'n mynd iddo? __

Set 61
a. Mi wnaeth y gweinidog wrthod y cynnig. __
b. Mi wnaeth y gweinidog droi o i lawr. __
c. Mi wnaeth y gweinidog droi i lawr fo. __
d. Mi wnaeth y gweinidog droi fo i lawr. __
e. Mi wnaeth y gweinidog droi i lawr o. __

Set 62
a. Pwy sy'n dawnsio yno? __
c. Beth mae pwy yn wneud? __
b. Pwy sy'n gwneud beth? __
d. Beth mae pwy yn gwneud? __

Set 63
a. Dw i'n cytuno â dy farn di. __
b. Dw i'n cytuno â. __
c. Dw i'n cytuno â dy farn. __
d. Dw i'n cytuno â hi. __

Set 64
a. Efo pwy wnest ti siarad? __
c. Pwy wnest ti siarad efo fo? __
b. Pwy wnest ti siarad efo? __

Set 65
a. Pa ddinas wyt ti'n gwybod pryd wnes i ymweld â? __
b. Wyt ti'n gwybod pryd wnes i ymweld â Athen? __
c. Pa ddinas wyt ti'n gwybod pryd wnes i ymweld â hi? __

Set 66
a. Mi wnaeth Sioned brynu blodau, ond dw i ddim yn gwybod pwy ar gyfer. __
b. Mi wnaeth Sioned brynu blodau, ond dw i ddim yn gwybod pwy. __
c. Mi wnaeth Sioned brynu blodau, ond dw i ddim yn gwybod ar gyfer pwy. __

Set 67
a. Mae'r gadair 'ma wedi cael ei eistedd arni hi gan John. __
b. Mae'r gadair 'ma wedi cael ei eistedd ar gan John. __
c. Eisteddwyd ar y gadair 'ma gan John. __
d. Mae'r gadair 'ma wedi cael ei eistedd arni gan John. __
e. Mae John wedi eistedd ar y gadair 'ma. __

Set 68
a. Dyna'r ddynes bwy werthodd Ieuan y ceffyl i. __
b. Dyna'r ddynes werthodd Ieuan y ceffyl iddi. __
c. Dyna'r ddynes werthodd Ieuan y ceffyl iddi hi. __
d. Dyna'r ddynes i bwy werthodd Ieuan y ceffyl. __
e. Dyna'r ddynes werthodd Ieuan y ceffyl i. __
f. Dyna'r ddynes bwy werthodd Ieuan y ceffyl iddi. __

Set 69
a. Pwy wyt ti'n meddwl sy'n mynd i dalu? __
b. Pwy wyt ti'n feddwl sy'n mynd i dalu? __
c. Pwy wyt ti'n ei feddwl sy'n mynd i dalu? __

Set 70
a. Dyma'r ddynes mae ei gŵr hi'n chwilio amdani hi. __
b. Dyma'r ddynes mae ei gŵr yn chwilio amdani hi. __
c. Dyma'r ddynes mae ei gŵr hi'n chwilio amdani. __
d. Dyma'r ddynes mae ei gŵr yn chwilio amdani. __
Mae *hi* yn cyfeirio at *y ddynes*.

Set 71
a. Mae'r plant wedi torri'r drws. __
b. Mae'r plant wedi torri i lawr y drws. __
c. Mae'r plant wedi torri'r drws lawr. __
d. Mae'r plant wedi torri'r drws i lawr. __
e. Mae'r plant wedi torri lawr y drws. __

Set 72
a. Dw i'n hoffi ti. __
b. Dw i'n dy hoffi di. __
c. Dw i'n dy hoffi. __
d. Dw i'n hoffi di. __
e. Dw i'n dy hoffi ti. __

Appendix C: Questionnaire

I would be very grateful if you could provide the following information to help my study.

(1) Are you: __
   a. Male
   b. Female

(2) Date of birth: __

(3) Please indicate the areas where you have lived for significant periods of your life:
   e.g. Place: Ruthin, Denbighshire Date: 1980-1998
   London, England Date: 1998-2008
   Caernarfon, Gwynedd Date: 2008-present

   Place: Date:

(4) Since when have you been able to speak Welsh? __
   a. Since I was 2 years old or younger
   b. Since I was 4 years old or younger
   c. Since primary school
   d. Since secondary school
   e. I learned Welsh as an adult

(5) Since when have you been able to speak English? __
   a. Since I was 2 years old or younger
   b. Since I was 4 years old or younger
   c. Since primary school
   d. Since secondary school
   e. I learned English as an adult

(6) Which language(s) did your mother speak to you while you were growing up? __

a. Welsh
b. English
c. Welsh & English
d. Other
e. N/A

(7) Which language(s) did your father speak to you while you were growing up? __

a. Welsh
b. English
c. Welsh & English
d. Other
e. N/A

(8) Through which language(s) were you predominantly taught at primary school? __

a. Welsh
b. English
c. Welsh & English
d. Other

(9) Through which language(s) were you predominantly taught at secondary school? __

a. Welsh
b. English
c. Welsh & English
d. Other

(10) How often do you watch / listen to Welsh programmes on television, radio or other media? __

a. Almost everyday
b. Several times a week
c. About once in a week
d. About once in a month
e. Less than once in a month

(11) How often do you read Welsh in newspapers, magazines, books, or on the internet? __

a. Almost everyday
b. Several times a week
c. About once in a week
d. About once in a month
e. Less than once in a month

(12) Make a list below of five of the people you speak to most in your everyday life, either in person or on the phone. Please specify relationship beside the numbers, e.g. your partner, your child, a friend, a workmate etc. (Please do not give the names of these people, just state your relationship with them.) Then note which language(s) you mostly speak with that person in an alphabet.

a. Welsh
b. English
c. Equally Welsh & English
d. Another language

Relationship: Language (a, b, c or d)

1.
2.
3.
4.
5.

Participant's Consent

I hereby give my permission for the information I have given on the above questionnaire to be used for research purpose only subject to strict preservation of my anonymity.

Name:

Date:

This is the end of the survey. This survey is part of research carried out by Ryuichiro Hirata for his PhD dissertation entitled Preposition stranding in Welsh. Many many thanks for your time and help with it!!

Appendix D: Results of the acceptability judgements

Sentence	5	4	3	2	1	No. of P	Mean
1a	0	0	0	1	11	12	1.1
1b	5	6	0	1	0	12	4.3
1c	10	2	0	0	0	12	4.8
1d	0	2	3	3	4	12	2.3
2a	0	0	0	0	12	12	1.0
2b	12	0	0	0	0	12	5.0
2c	0	1	2	6	3	12	2.1
2d	0	0	0	2	10	12	1.2
2e	11	1	0	0	0	12	4.9
3a	3	3	3	0	3	12	3.3
3b	1	2	4	2	3	12	2.7
3c	2	1	3	2	4	12	2.6
3d	12	0	0	0	0	12	5.0
3e	0	0	0	1	11	12	1.1
4a	0	0	0	0	12	12	1.0
4b	11	0	1	0	0	12	4.8
4c	0	0	1	0	11	12	1.2
5a	2	4	2	2	2	12	3.2
5b	3	3	3	2	1	12	3.4
5c	6	4	1	1	0	12	4.3
5d	4	3	3	1	1	12	3.7
6a	3	5	3	1	0	12	3.8
6b	0	0	0	2	10	12	1.2
6c	12	0	0	0	0	12	5.0
6d	0	1	0	4	7	12	1.6
7a	0	0	0	1	11	12	1.1
7b	0	0	0	2	10	12	1.2
7c	0	2	0	0	10	12	1.5
7d	12	0	0	0	0	12	5.0
8a	1	2	3	1	5	12	2.4
8b	7	3	1	0	1	12	4.3
8c	1	2	3	1	5	12	2.4
9a	2	2	3	4	1	12	3.0
9b	9	1	1	1	0	12	4.5
9c	4	3	1	3	1	12	3.5
9d	6	2	2	1	1	12	3.9
9e	3	3	3	2	1	12	3.4
10a	5	3	3	0	1	12	3.9
10b	0	1	2	1	8	12	1.7

10c	9	0	2	1	0	12	4.4
10d	0	0	2	1	9	12	1.4
11a	3	2	0	3	4	12	2.8
11b	3	3	1	1	4	12	3.0
11c	5	5	0	1	1	12	4.0
11d	3	2	0	3	4	12	2.8
12a	4	4	0	1	3	12	3.4
12b	1	1	0	2	8	12	1.8
12c	0	0	0	1	11	12	1.1
12d	11	1	0	0	0	12	4.9
12e	0	0	1	3	8	12	1.4
13a	1	4	0	1	6	12	2.4
13b	10	0	0	0	2	12	4.3
13c	0	0	0	1	11	12	1.1
13d	8	2	2	0	0	12	4.5
14a	6	2	1	2	1	12	3.8
14b	1	0	0	2	9	12	1.5
14c	4	4	3	1	0	12	3.9
14d	4	5	0	0	3	12	3.6
14e	0	0	0	2	10	12	1.2
14f	0	0	0	1	11	12	1.1
15a	4	0	0	0	8	12	2.3
15b	1	0	0	0	11	12	1.3
15c	9	0	1	1	1	12	4.3
15d	0	1	1	1	9	12	1.5
15e	6	4	1	1	0	12	4.3
15f	0	0	2	1	9	12	1.4
15g	0	0	0	2	10	12	1.2
15h	0	0	1	4	7	12	1.5
16a	2	3	0	3	3	11	2.8
16b	3	3	3	0	3	12	3.3
16c	2	4	0	3	3	12	2.9
16d	5	2	2	2	2	9	2.8
17a	4	4	2	1	1	12	3.8
17b	10	1	1	0	0	12	4.8
17c	0	0	0	0	12	12	1.0
17d	0	0	0	0	12	12	1.0
17e	0	0	0	0	12	12	1.0
18a	3	2	1	3	3	12	2.9
18b	1	0	0	0	11	12	1.3
18c	1	3	0	0	8	12	2.1
18d	0	2	1	0	9	12	1.7
18e	0	0	0	1	11	12	2.8

18f	0	0	0	0	12	12	1
19a	3	5	2	1	1	12	3.7
19b	3	2	2	2	3	12	3.0
19c	3	8	0	0	1	12	4.0
19d	3	1	2	4	2	12	2.9
19e	3	1	2	4	2	12	2.9
19f	3	4	2	2	1	12	3.5
20a	5	4	0	2	1	12	3.8
20b	4	6	0	1	1	12	3.9
20c	8	4	0	0	0	12	4.7
20d	5	2	1	2	2	12	3.5
20e	0	1	1	6	4	12	1.9
20f	1	2	4	4	1	12	2.8
20g	8	0	1	1	2	12	3.9
21a	4	3	1	2	2	12	3.4
21b	5	2	2	1	2	12	3.6
21c	4	5	3	0	0	12	4.1
21d	0	0	1	2	9	12	1.3
21e	0	1	0	1	10	12	1.3
22a	0	1	3	4	3	11	2.2
22b	9	3	0	0	0	12	4.8
22c	0	0	2	3	6	11	1.6
22d	5	3	1	3	0	12	3.8
23a	8	4	0	0	0	12	4.7
23b	0	0	0	0	12	12	1.0
23c	0	0	0	0	12	12	1.0
23d	8	2	0	1	1	12	4.3
24a	1	1	1	3	6	12	2.0
24b	5	3	3	1	0	12	4.0
24c	10	2	0	0	0	12	4.8
24d	0	0	0	2	10	12	1.2
24e	4	6	0	0	2	12	3.8
24f	0	2	3	3	4	12	2.3
25a	11	1	0	0	0	12	4.9
25b	1	0	1	4	6	12	1.8
25c	5	4	2	1	0	12	4.1
25d	2	2	1	3	4	12	2.6
26a	8	0	1	2	1	12	4.0
26b	6	4	1	0	1	12	4.2
26c	8	3	1	0	0	12	4.6
26d	0	0	0	6	6	12	1.5
26e	0	0	0	0	12	12	1.0
27a	11	1	0	0	0	12	4.9

27b	0	0	3	5	4	12	1.9
27c	0	1	3	1	7	12	1.8
27d	1	1	3	3	4	12	2.3
27e	0	0	0	0	12	12	1.0
28a	2	4	2	4	0	12	3.3
28b	3	1	7	1	0	12	3.5
28c	1	0	3	5	3	12	2.3
29a	10	0	0	2	0	12	4.5
29b	0	1	1	3	7	12	1.7
29c	2	4	1	1	4	12	2.9
29d	0	0	0	2	10	12	1.2
29e	3	3	2	1	3	12	3.2
29f	0	1	0	5	6	12	1.7
30a	11	0	1	0	0	12	4.8
30b	6	2	0	0	4	12	3.5
30c	7	1	0	0	4	12	3.6
31a	2	0	0	1	9	12	1.8
31b	0	0	0	2	10	12	1.2
31c	4	5	1	1	1	12	3.8
31d	10	1	0	0	1	12	4.6
31e	0	2	1	3	6	12	1.9
32a	0	1	0	2	9	12	1.4
32b	8	3	0	1	0	12	4.5
32c	0	1	0	2	9	12	1.4
32d	0	0	3	0	9	12	1.5
32e	9	2	1	0	0	12	4.7
33a	3	3	2	3	1	12	3.3
33b	5	4	0	0	3	12	3.7
33c	7	0	0	0	5	12	3.3
33d	0	0	0	2	10	12	1.5
33e	5	5	1	1	0	12	4.2
34a	9	2	0	0	1	12	4.5
34b	1	1	3	1	6	12	2.2
34c	0	4	0	3	5	12	2.3
34d	2	5	3	1	1	12	3.5
34e	1	2	3	3	3	12	2.6
35a	2	2	1	1	6	12	2.4
35b	11	1	0	0	0	12	4.9
35c	4	5	2	0	1	12	3.9
35d	1	1	2	2	6	12	2.1
36a	10	1	1	0	0	12	4.8
36b	10	1	1	0	0	12	4.8
36c	0	2	0	1	9	12	1.6

36d	0	0	1	1	10	12	1.3
36e	0	0	1	3	8	12	1.4
36f	5	3	0	2	2	12	3.6
37a	0	0	0	0	12	12	1.0
37b	5	3	0	2	2	12	3.6
37c	6	2	1	1	2	12	3.8
37d	0	0	0	0	12	12	1.0
37e	11	0	1	0	0	12	4.8
37f	7	3	0	1	1	12	4.2
38a	2	0	2	3	5	12	2.3
38b	10	2	0	0	0	12	4.8
38c	7	3	0	1	1	12	4.2
39a	4	4	1	1	2	12	3.6
39b	2	2	2	2	4	12	2.7
39c	0	1	1	2	8	12	1.6
39d	3	4	1	2	2	12	3.3
39e	0	1	1	2	8	12	1.6
39f	0	1	1	0	10	12	1.4
40a	7	4	0	1	0	12	4.4
40b	9	3	0	0	0	12	4.8
40c	3	3	1	4	1	12	3.3
40d	6	2	1	2	1	12	3.8
40e	10	1	1	0	0	12	4.8
40f	3	3	2	4	0	12	3.4
41a	0	0	1	2	9	12	1.3
41b	2	0	0	4	6	12	2.0
41c	0	0	1	3	8	12	1.4
41d	2	0	2	2	6	12	2.2
41e	0	0	0	1	11	12	1.1
42a	3	3	3	1	2	12	3.3
42b	0	2	3	3	4	12	2.3
42c	1	1	5	1	4	12	2.5
43a	1	2	1	1	7	12	2.1
43b	0	0	0	1	11	12	1.1
43c	11	1	0	0	0	12	4.9
43d	9	1	2	0	0	12	4.6
43e	3	6	0	2	1	12	3.7
44a	0	1	2	3	6	12	1.8
44b	8	2	1	1	0	12	4.4
44c	11	1	0	0	0	12	4.9
44d	3	6	0	2	1	12	3.7
45a	6	2	1	1	2	12	3.8
45b	4	4	2	1	1	12	3.8

45c	0	0	0	3	9	12	1.3
46a	10	2	0	0	0	12	4.8
46b	4	4	2	1	1	12	3.8
46c	8	2	1	0	1	12	4.3
46d	0	0	2	2	8	12	1.5
46e	0	0	0	1	11	12	1.1
47a	10	1	1	0	0	12	4.8
47b	7	3	1	1	0	12	4.3
47c	0	0	2	3	7	12	1.6
48a	1	4	2	1	4	12	2.1
48b	1	0	1	2	8	12	1.7
48c	4	4	0	0	4	12	3.3
48d	1	0	0	0	11	12	1.3
48e	1	0	1	3	6	11	1.7
49a	8	2	0	2	0	12	4.3
49b	0	1	0	0	11	12	1.3
49c	9	2	1	0	0	12	4.7
49d	1	2	1	2	6	12	2.2
50a	0	0	1	2	9	12	1.3
50b	6	3	0	0	3	12	3.8
50c	8	0	0	0	4	12	3.7
50d	6	1	1	0	4	12	3.4
51a	2	4	4	0	2	12	3.3
51b	1	1	1	2	7	12	1.9
51c	1	2	1	2	6	12	2.2
51d	10	2	0	0	0	12	4.8
51e	1	2	3	1	5	12	2.4
52a	0	0	0	2	10	12	1.2
52b	0	0	1	3	8	12	1.4
52c	10	2	0	0	0	12	4.8
53a	8	0	2	0	2	12	4.0
53b	5	2	1	3	1	12	3.6
53c	9	2	0	0	1	12	4.5
53d	8	2	0	2	0	12	4.3
54a	1	2	3	2	4	12	2.5
54b	10	0	1	0	1	12	4.5
54c	1	1	5	3	2	12	2.7
54d	0	1	4	3	4	12	2.2
54e	4	5	2	0	1	12	3.9
55a	0	1	0	1	10	12	1.3
55b	4	3	1	2	2	12	3.4
55c	8	3	0	0	0	11	4.3
55d	10	1	1	0	0	12	4.8

55e	4	5	2	0	1	12	3.9
56a	0	0	5	2	5	12	2.0
56b	5	2	2	2	1	12	3.7
56c	1	1	4	2	4	12	2.4
56d	8	3	1	0	0	12	4.6
56e	6	2	2	1	1	12	3.9
57a	12	0	0	0	0	12	5.0
57b	0	0	1	0	11	12	1.2
57c	0	0	0	1	11	12	1.1
57d	8	0	1	0	3	12	3.8
58a	8	4	0	0	0	12	4.7
58b	0	0	0	2	10	12	1.2
58c	7	2	2	1	0	12	4.3
58d	0	0	0	0	12	12	1.0
59a	4	2	2	2	1	11	3.3
59b	10	1	1	0	0	12	4.8
59c	2	1	1	1	7	12	2.2
59d	11	0	1	0	0	12	4.8
60a	3	3	1	1	4	12	3.0
60b	0	1	1	2	8	12	1.6
60c	0	0	0	0	12	12	1.0
60d	12	0	0	0	0	12	5.0
60e	1	0	0	2	9	12	1.5
61a	11	1	0	0	0	12	4.9
61b	4	3	1	2	2	12	3.4
61c	0	0	0	0	12	12	1.0
61d	5	1	2	1	3	12	3.3
61e	0	0	0	0	12	12	1.0
62a	7	2	1	1	1	12	4.1
62b	1	2	0	2	7	12	2.0
62c	9	3	0	0	0	12	4.8
62d	0	2	1	1	8	12	1.8
63a	8	2	1	0	1	12	4.3
63b	0	2	1	0	9	12	1.7
63c	5	4	2	0	1	12	4.3
63d	8	2	2	0	0	12	4.5
64a	11	0	1	0	0	12	4.8
64b	2	2	1	0	7	12	2.3
64c	5	5	0	0	2	12	3.9
65a	0	0	0	1	11	12	1.1
65b	11	0	1	0	0	12	4.8
65c	1	0	1	2	8	12	1.7
66a	0	0	1	1	10	12	1.3

66b	0	0	0	0	12	12	1.0
66c	11	1	0	0	0	12	4.9
67a	0	0	1	2	9	12	1.3
67b	2	1	0	2	7	12	1.0
67c	3	3	2	2	2	12	4.9
67d	0	3	2	2	5	12	1.3
67e	12	0	0	0	0	12	5.0
68a	0	0	0	1	11	12	1.1
68b	6	1	1	1	3	12	3.5
68c	5	2	0	1	4	12	3.3
68d	1	2	0	0	9	12	1.8
68e	4	3	3	0	2	12	3.6
68f	0	0	1	0	11	12	1.2
69a	10	1	0	1	0	12	4.7
69b	5	3	2	1	1	12	3.8
69c	1	3	3	2	3	12	2.5
70a	5	1	2	2	2	12	3.4
70b	4	1	4	0	3	12	3.1
70c	9	1	1	1	0	12	4.5
70d	8	1	2	1	0	12	4.3
71a	10	2	0	0	0	12	4.8
71b	0	0	4	3	5	12	1.9
71c	6	1	1	1	3	12	3.5
71d	8	2	1	1	0	12	4.4
71e	1	2	3	5	1	12	2.8
72a	4	2	1	3	2	12	3.3
72b	9	0	3	0	0	12	4.5
72c	2	4	3	2	1	12	3.3
72d	0	0	0	0	12	12	1.0
72e	1	3	0	2	6	12	2.3