Irish gaps and resumptive pronouns in HPSG*

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1 Introduction

Unbounded dependency constructions in Irish, such as relative clauses (RCs), can be made with both gaps, as in (1a), and resumptive pronouns (RPs), as in (1b).

(1) a. *an fear a dúirt mé a shíl mé a beadh* ____ *ann*
the man AL said I AL thought I AL would-be ____ there
the man that I said that I thought would be there ((McCloskey 1979) (3b) p. 151)

b. *an t-úrscéal ar mheas mé gur thuig mé* ***é***
the novel AN thought I GO understood I **it**
the novel that I thought I understood ((McCloskey 1979) (16b) p. 155)

This paper will sketch an HPSG treatment of such constructions and their interactions with the distribution of sentence-initial particles. The data are drawn from published sources, primarily from the work of McCloskey (McCloskey 1979; 1985; 1990; to appear), and at several points, we adopt close analogues of McCloskey's analyses into HPSG. In certain cases however we offer a different interpretation of the data.

The structure of this paper is as follows. Section 2 presents the core data. Section 3 outlines an HPSG analysis of RCs and argues for a treatment of RPs in terms of non-local feature propagation. Section 4 extends the analysis to constituent questions, and section 5 discusses extraction of adjunct NPs.

2 Basic data

2.1 Relative clauses

We will first illustrate the basic range of facts with RCs and then look at questions in section 4.

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Gaps can be used in subject and direct object position. (Adjunct gaps are discussed in section 5).

(2) **Subject gap**

an fear a dúirt mé a shíl mé a beadh ____ *ann*
the man AL said I AL thought I AL would-be ____ there
the man that I said that I thought would be there ((McCloskey 1979) (3b) p. 151)

(3) **Direct object gap**

an scríbhneoir a mholann na mic léinn ____
the writer AL praise the students ____
the writer whom the students praise ((McCloskey 1979) (6) p. 6)

RPs can occur in these positions, as well as as objects of prepositions and nouns.

(4) **Subject RP**

an fear ar shíl mé go raibh ***sé*** *breoite*
the man AN thought I GO was **he** ill
the man that I thought was ill ((McCloskey 1990) (55))

(5) **Direct object RP**

an t-úrscéal ar mheas mé gur thuig mé ***é***
the novel AN thought I GO understood I **it**
the novel that I thought I understood ((McCloskey 1979) (16b) p. 155)

(6) **RP object of preposition**

an fear a dtabharann tú an t-airgead ***dó***
the man AN give you the money to-**him**
the man to whom you give the money ((McCloskey 1979) (3) p. 6)

(7) **RP object of noun**

an fear a bhfuil ***a*** *mháthair san otharlann*
the man AN is **his** mother in-the hospital
the man whose mother is in the hospital ((McCloskey 1979) (4) p. 6)

As these examples illustrate, RPs occur very freely in Irish, in all argument positions, and are in overlapping distribution with gaps.

2.2 Aside: synthetic agreement and null pronouns

In example (6), there is no overt, syntactically independent item corresponding to the RP; rather, the preposition bears special synthetic agreement. (McCloskey 1979), (Sells 1984), and (McCloskey and Hale 1984) argue convincingly that this agreement takes the place of overt resumption in these examples and that they should be treated exactly as if they contained an RP and not a trace (note that the prepositions do not bear this agreement with an overt object.) (McCloskey and Hale 1984) furthermore gives several arguments that where such synthetic agreement is present, there is a pronominal element with phrase structural effects which should thus be treated as phonologically null but syntactically present. This entails that examples like (6) contain phonologically null RPs.

Prima facie, null RPs seem theoretically unattractive, insofar as their postulation blurs the distinction between resumptives and gaps. However, we accept the argument of (McCloskey and Hale 1984), as there remain enough overt empirical differences to base the differentiation on: the use of synthetic agreement, and the form of the sentence-initial particles, which we now describe.

2.3 Basic particle pattern

Irish has set of sentence-initial particles whose distribution is sensitive to the presence of gap dependencies and RP constructions. The "default" particle GO is used as the normal subordinating conjunction:[1]

(8) *Dúirt mé gur shíl mé go mbeadh sé ann*
said I GO thought I GO would-be he there
I said that I thought that he would be there ((McCloskey 1979) (3a) p. 151)

As the contrast between (8) and example (1a) in section 1 shows, AL is used on every finite clause within a gap dependency, replacing GO in embedded clauses. As seen in (1b) of section 1, AN is used at the top of a resumptive dependency; lower clauses in the dependency keep their usual GO marking. (Other exceptional particle patterns are possible; see section 3.3). These rules apply not only to RCs, but to all the gap and RP constructions with finite verbs in the language: constituent questions, clefts, "reduced clefts," and comparative and equative clauses (See (McCloskey 1990) for examples). The particle pattern is the same whether the RP is overt or is only manifested by synthetic agreement.

[1]The three particles are glossed as GO, AN, and AL. These actually correspond to various surface forms which inflect for tense and negation and affect the first consonant of the following word, complexities we ignore here.

3 An HPSG approach

3.1 Treatment of RPs

(Vaillette 2001) examined very similar gap and RP constructions in modern Hebrew and gave arguments that the latter should be treated as an unbounded dependency on a par with gap constructions by analyzing both with nonlocal feature propagation. While traces place their LOCAL value into SLASH and propagate this upward, RPs have a nonlocal feature RESUMP which stores their index and propagates similarly.[2] A lexical rule creates an RP from a regular pronoun by putting its index into storage. RCs are constructionally constrained to retrieve an index either from RESUMP or from an NP in SLASH. Traces are barred from occurring as the object of a noun or preposition (as in Irish), while RPs can freely occur.

We will adopt this treatment for Irish as well. Section 3.4 goes more deeply into the motivation for this move, but first we discuss how the particle alternations are to be captured on this approach.

3.2 Treatment of particles

(McCloskey 1979) treats the particles AL, AN, and GO as complementizers, but (Sells 1984) argues that they are actually preverbal particles attaching directly to finite verbs and are sentence-initial only because the verbs themselves are. (McCloskey 2001) defends the complementizer view but in fact does not actually contradict the preverbal particle view: he claims that Irish complementizers lower from C to T to form a "morphological and prosodic complex with the finite verb" (p. 73). The motivation for a level of representation where the particles are complementizers seems to be largely internal to GB/minimalist theory, and we will therefore follow Sells' treatment of them as preverbal particles *simpliciter*.

(Bouma, Malouf, and Sag 2001) sketches how the alternation of Irish particles can be captured in HPSG. That article describes an approach to extraction where the verb assembles the SLASH values of its complements, as well as of its adjuncts, which are treated essentially as complements. The particles are markers which attach to the verb in a *head-marker-phase* and select the verb over SPEC. AL demands that its verb have a nonempty SLASH value, while GO requires an empty one.

We will instead use the more traditional propagation mechanism of (Pollard and Sag 1994), where the features are passed up from daughters to mother in accordance with the nonlocal feature principle. We will assume that RESUMP is propagated similarly. Rather than having the particles directly constrain the nonlocal feature values of the verb, we have them do so indirectly by giving verbs a HEAD feature PRTCL-TYPE with values *go*, *al*, and *an*, and having the particles constrain this value (GO's verb must have HEAD PRTCL-TYPE value *go*, etc.). Then the nonlocal features can be constrained at the clause level by saying: (i) a clause with HEAD PRTCL-TYPE value *go* must have an empty SLASH value; (ii) a clause with a nonempty INHER SLASH value must have HEAD PRTCL-TYPE value *al*, and conversely; and (iii) a clause with a non-empty TO-BIND RESUMP value must have a HEAD PRTCL-TYPE value *an*, and conversely. (Looking at the TO-BIND RESUMP value

[2] A similar approach was used in (Moosally 1994) for Arabic RCs.

in (iii) confines the constraint on AN to the top level). These generalizations can be expressed as the following constraints on clauses:

$$\text{(G1)} \quad \left[\text{HEAD PRTCL-TYPE } go\right] \longrightarrow \left[\text{INHER SLASH } eset\right]$$

$$\text{(G2)} \quad \left[\text{INHER SLASH } neset\right] \longrightarrow \left[\text{HEAD PRTCL-TYPE } al\right]$$

$$\text{(G3)} \quad \neg\left[\text{INHER SLASH } neset\right] \longrightarrow \neg\left[\text{HEAD PRTCL-TYPE } al\right]$$

$$\text{(G4)} \quad \left[\text{TO-BIND RESUMP } neset\right] \longrightarrow \left[\text{HEAD PRTCL-TYPE } an\right]$$

$$\text{(G5)} \quad \neg\left[\text{TO-BIND RESUMP } neset\right] \longrightarrow \neg\left[\text{HEAD PRTCL-TYPE } an\right]$$

Figure 1 shows the structure assigned to example (4), an RC with an RP.[3]

3.3 Generalizations and exceptions

Although (G1)–(G5) cover the basic data, they are contradicted by exceptions we will discuss below (labeled with 'E' in what follows, and taken to apply to clauses).[4]

There are various options for the formal interpretation of the generalizations and their exceptions. The generalizations could be encoded as defaults using the techniques of (Asher and Lascarides 1996) and the exceptions allowed to override them, for instance by being associated with more specific constructional types.

Alternatively, the system of generalizations and exceptions can just be thought of as an abbreviatory convention. The exceptions can be treated as normal constraints of the grammar while (G1)–(G5) are given a special status. Each of the Gs will have its antecedent conjoined with the conjunction of the negations of the antecedents of its exceptions to form the spelled-out constraint actually used in the grammar. This is the interpretation we will use in this paper.

3.4 Arguments for a nonlocal feature approach to resumption

Section 3.1 introduced an analysis of RPs with nonlocal feature propagation, used in (Vaillette 2001) for Hebrew. Two kinds of arguments were given for a this analysis in the case of Hebrew.

[3]The REL-IND feature picks out the feature abstracted over in the semantics of the RC. We assume a multiply-branching structure for Irish clauses for concreteness; nothing in the present discussion hinges on this decision.

[4]In fact, only exceptions to (G2) and (G5) are discussed in this paper. Others may exists depending on how the data are analyzed: e.g. the prepositional question construction discussed in (McCloskey 1979) ch. 3 and (McCloskey 1990) has AN marking on a gap construction and thus constitutes a *prima facie* violation of (G4).

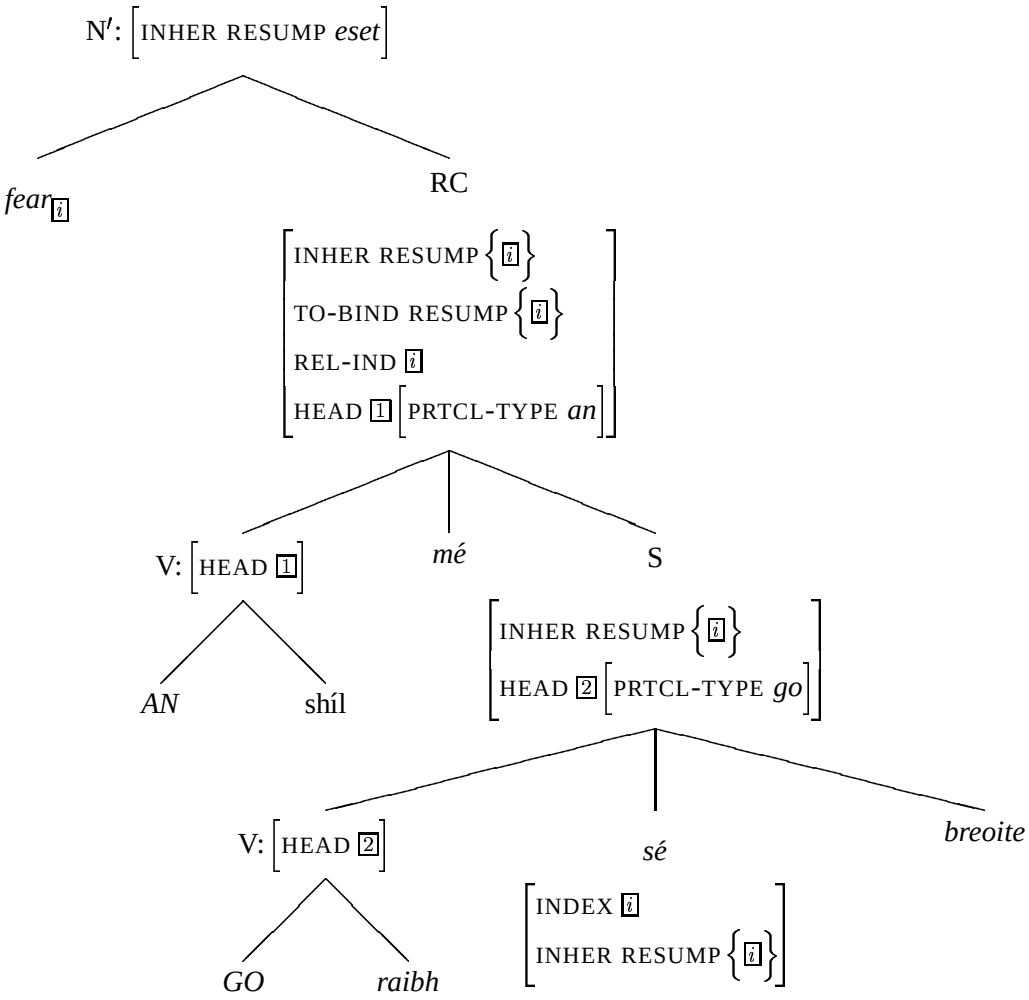

Figure 1: RC with embedded subject RP *sé*

First of all, the property of having its index in store can differentiate the RP from other pronouns which happen to be coindexed with it. This is shown to be important in the analysis of the crossover effects RPs are subject to.

Secondly, RESUMP propagation provides a local marking on intermediate nodes between the foot and top of a resumptive construction. This simplifies the analysis of Hebrew parasitic gaps, which can be licensed by RPs.

How do these argument apply to Irish? The crossover data are parallel to those for Hebrew.[5] However, as discussed in (Vaillette 2001), this differentiation can also be achieved without nonlocal

[5]In fact, the technique of using epithets to detect crossover constraints, used for Hebrew RPs in (Shlonsky 1992), is taken from McCloskey's discussion of Irish crossover in (McCloskey 1990).

feature propagation, as long as some feature (e.g. ISA-RP $+/-$) can be appropriately constrained to mark only RPs, so this does not prove the need for nonlocal feature propagation.

As to the second argument, Irish does not allow parasitic gaps, so the reasoning does not carry over. Nonetheless, the exceptional particle pattern discussed in the next section does demonstrate the need for a representation in which intermediate nodes in an RP construction are formally marked.

The alternative to nonlocal feature propagation explored in (Vaillette 2001) is called the "operator binding" approach, and is analogous to the GB treatment of Irish RPs in (McCloskey 1990). It is a global well-formedness constraint stated with explicit quantification, which says that an RC node must dominate a pronoun with the appropriate marking (ISA-RP +) and retrieve its index. (The GB approach represents this as a binding relationship between the RP and a null operator in the SPEC position of the CP corresponding to the RC.) (9) illustrates how a feature FOUND-RP feature can be constrained to retrieve indices in this way. Crucially, intermediate nodes are not marked as participating in the dependency on this approach.

(9) Operator binding approach:

$$\boxed{1}\left[\text{FOUND-RP}\left\{\boxed{2}\right\}\right] \longrightarrow$$
$$\boxed{2}\left[\text{ISA-RP}\ +\right] \wedge \textit{dominates}(\boxed{1},\boxed{2}) \wedge$$
$$\neg\exists\ \boxed{3}\left(\textit{dominates}(\boxed{1},\boxed{3}) \wedge \textit{dominates}(\boxed{3},\boxed{2}) \wedge \boxed{3}\left[\text{FOUND-RP}\left\{\boxed{2}\right\}\right]\right)$$

In the case of Irish, there are two apparent advantages of such an operator binding approach. The first is that it accounts without further stipulations for the insensitivity of RPs to the island constraints in Irish that gaps obey:

(10) *na dánta sin nach bhfuil fhios againn cén áit ar*
the poems 'sin' AL/AN is knowledge at-us what place AN
cumadh ***iad*** / **____*
were-composed **them** / **____*
those poems that we do not know where they were composed ((McCloskey 1990) (27))

The nonlocal feature approach has to stipulate that one feature, SLASH, obeys such constraints, while another, RESUMP, does not.

The operator binding approach would also seem to receive support from the particle alternations for the following reason. On the one hand, the replacement of GO by AL as in (1a) on all clauses between the foot and top of gap dependencies can be seen as overt manifestation of the property of containing a gap, which the SLASH feature marks locally on all the intermediate nodes. On the other hand, the RP dependency as in (1b) shows no such intermediate manifestation; this is simply accounted for if there is no nonlocal feature marking the clauses. (This argument is

made in (Sells 1984) ch. 5). However, one RP construction does exhibit intermediate marking. This strongly motivates RESUMP propagation, although this construction is evidently rather rare, making the data perhaps unreliable. The next section discusses this phenomenon.

3.5 The AN-AN pattern

(McCloskey 1990) discusses a particle pattern found with RPs different from the AN-GO pattern exemplified in (1b). The alternative is an AN-AN pattern where the intermediate particles surface not as the default GO, but rather as AN.

(11) *an talamh ar mheas mé a raibh an ceol ag teacht as*
the land AN thought I AN was the music coming from-it
the land that I thought the music was coming from ((McCloskey 1990) (51) p. 218)

Here, AN flags intermediate nodes in a resumption construction as AL does for extraction. The existence of such a pattern strongly suggests that Irish resumption must, at least sometimes, be associated with a mechanism like nonlocal feature propagation which marks intermediate nodes as participating in the dependency. Using such account, we can make AN-marking on all but the highest clause with a non-empty INHER RESUMP value possible, though not obligatory.

Another take on the data might be that the AN-AN shows the need for nonlocal feature propagation within this construction, but not in general. We could compromise and use an operator binding treatment for the basic AN-GO pattern, while using nonlocal feature propagation only in the AN-AN pattern. AN on the highest clause in an RC would then be triggered both by RESUMP retrieval and by "operator binding" of an RP in the clause. AN on lower clauses would only appear in the presence of a nonempty RESUMP value. In other words, we would add the exception (E1) to (G5):

(E1) $\left[\text{INHER RESUMP } \textit{neset}\right] \longrightarrow \left[\text{HEAD PRTCL-TYPE } \textit{an}\right]$ (Overrides (G5))

This "compromise" approach would be closer in spirit to McCloskey's (1990) account. Whereas RPs are normally only associated with a null operator in the SPEC of the highest CP, he takes the AN-AN pattern to involve null operators exceptionally occurring in all the intermediate CPs. AN marking is claimed to correlate with the presence of such an operator.

One constraint the analysis must respect is, as McCloskey points out, that if AN marking is used on any intermediate clauses, it must be used on all:

(12) *an talamh ar dhúirt tú ar / *gur mheas tú a raibh an ceol*
the land AN said you AN / *GO thought you AN was the music
ag teacht as
come from-it
the land that you said you thought the music was coming from
((McCloskey 1990) (63),(64))

Assuming that the RESUMP feature is used only for the AN-AN pattern, this uniformity is handled straightforwardly by (E1). On the other hand, if the RESUMP propagation is used with all RPs, we need to enrich indices with some arbitrary, unconstrained feature ("AN-TRIGGER") which obligatorily triggers AN marking when present (and thus disallows it when absent).

Revised version:

(E1′) $\left[\text{INHER RESUM}\left\{\left[\text{AN-TRIGGER } +\right]\right\}\right] \longrightarrow \left[\text{HEAD PRTCL-TYPE } \textit{an}\right]$ (Overrides (G5))

Although the option of using RESUMP propagation with all RPs requires this extra marking, it has the advantage of requiring only one mechanism for unbounded dependencies rather than needing both feature propagation and operator binding. For this reason, we will adopt this option.

4 Constituent Questions

The analysis so far has focused on RCs. However, gaps and RPs occur with the same distribution and same pattern of particle alternation other unbounded dependencies of the language. This section will examine constituent questions.

The primary constituent question construction in Irish consists of a nominal wh-phrase, followed by a clause with a gap or RP coindexed with the wh-phrase, as in (13)–(16).

(13) *Cé a dhíol* ____ *an domhan*
who AL sold ____ the world
Who sold the world? ((McCloskey 1979) (1a) p. 52)

(14) *Cé a mheas tú AL chonaic tú* ____
who AL thought you AL saw you ____
Who did you think you saw? ((McCloskey 1979) (3a) p. 52)

(15) *Cén t-oifigeach ar shíl tú go mbeadh* ***sé*** *i láthair?*
which officer AN thought you that would-be **he** present
Which officer did you think would be present? ((McCloskey 1990) (3b), appendix)

(16) *Cén fear a bhfaigheann tú an t-arigead* ***uaidh***
which man AN get you the money from-**him**
Which man did you get the money from? ((McCloskey 1979) (2a) p. 52)

Adjectival and adverbial questions can be formed from what is syntactically an equative construction (see (McCloskey 1979) p. 72ff.) and will not be dealt with here. For example:

(17) *Cé chomh minic agus a thigeann sé*
'cé' as often as AL comes he
How often does he come? ((McCloskey 1979) (51a) p. 72)

(McCloskey 1979) argues that the clause in NP-questions can be simply treated as syntactically equivalent to an RC. On this assumption, the particle distribution in questions falls out automatically. (We hypothesize that other constructions such as clefts can be given a similar treatment but do not pursue this idea further here.) To capture this idea in HPSG, we give questions a special construction type with the following constraints.

(18) *np-question*:

$$\left[\begin{array}{l} \text{Q-DTR } \boxed{1}\ \text{NP}:\left[\begin{array}{l}\text{WH } +\\ \text{INDEX } \boxed{i}\end{array}\right] \\ \text{HD-DTR } \left[\begin{array}{l}\textit{rel-cl}\\ \text{REL-IND } \boxed{i}\\ \text{MOD } \boxed{1}\end{array}\right] \end{array}\right]$$

Here the RC is treated as the head, while the questioned NP is the value of a Q-DTR attribute. The semantics can be handled by the Semantics Principle of (Pollard and Sag 1994), where the wh-word introduces a quantifier to be retrieved. Figure 2 shows the structure for (15), a question with an RP.

We use a special *np-question* construction because other standard options for combining the NP and RC parts do not give the right effect. For instance, the NP could be treated as the head an modified by the RC,[6] or as a head selecting the RC as a complement, but then the entire question ought to be a nominal projection and have a nominal semantics (of type *restricted-index* instead of *psoa*). Finally, *np-question* needs to be immune to the generalizations (G1)–(G5) so that it is the non-local features of the HEAD-DTR RC that determine the form of the highest particle.

5 NP adverbials

In Irish, as in English, a restricted class of nouns such as *oíche* 'night' form bare NP adverbials (BNPAs) which can be used on their own in adverbial function:

(19) *D'imigh siad an oíche sin*
left they the night that
They left that night ((McCloskey 1979) (48b) p. 170)

[6]This would automatically guarantee the equation of the RC's MOD value with the wh-NP's SYNSEM, which must be stipulated in (18). This equation is appealed to in the analysis of NP adverbial extractions below.

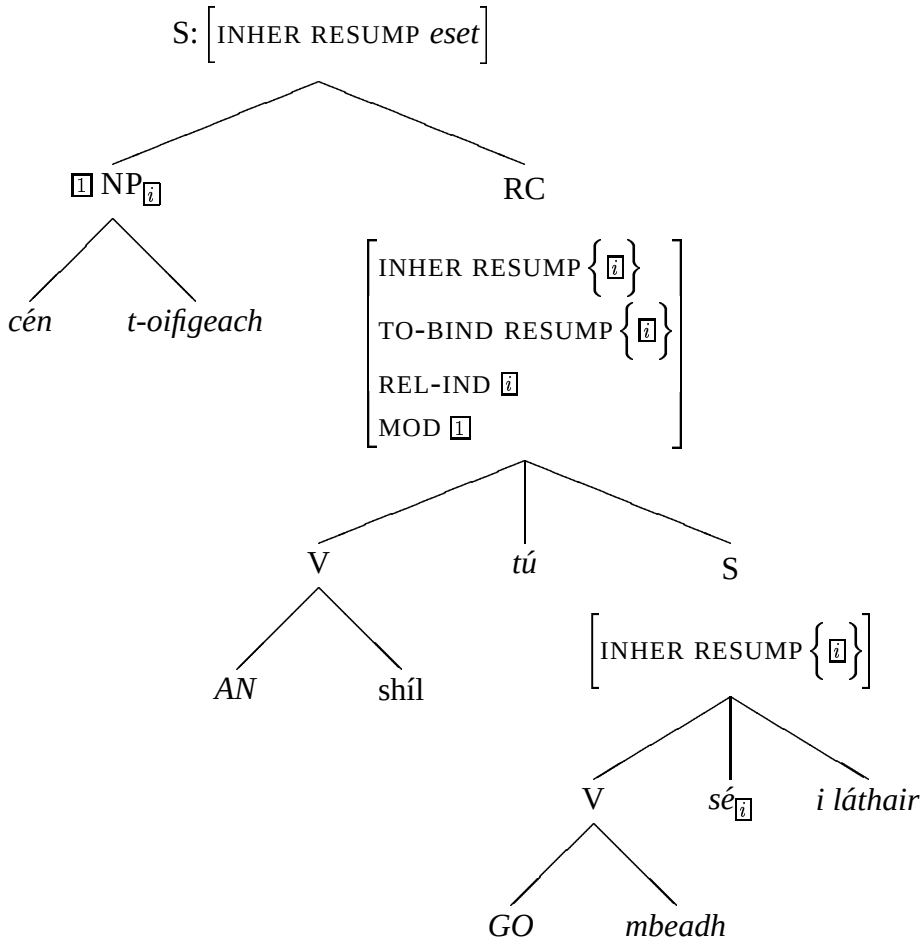

Figure 2: Question with embedded subject RP *sé*

BNPA gaps can occur in unbounded dependencies, e.g.:

(20) *Cén uair a tháinig siad 'na bhaile*
which time AL came they home
When did they come home? ((McCloskey 1979) (46c) p. 169)

There are no overt BNPA pronouns ((McCloskey 1990) fn. 11), so such dependencies never involve an overt RP. One would therefore expect them to pattern with other NP extractions and manifest recursive AL marking. However, other markings are possible or, in some cases, required. For instance, *fáth* 'reason' requires AN-marking in the associated dependency (other nouns like *áit* 'place' allow but do not require AN) :

(21) a. *Cén fáth ar dhúirt tú sin?*
what reason AN said you that
Why did you say that?

b. **Cén fáth a dúirt tú sin?*
what reason AL said you that
Why did you say that? ((McCloskey to appear) (67) p. 33)

(McCloskey to appear) presents an account of such exceptional marking in which true adjunct extraction is always marked by AL, while AN marking manifests non-movement (either null resumption, or base generation of the adverbial in SPEC of CP).[7] In this section we will explore a different account. This account builds off earlier suggestions of McCloskey. (McCloskey 1979) appeals to lexical selection of the particle by the BNPA noun: "what [these examples] seem to require is that we let the requirements of subcategorization over-ride [the general constraints on particle distribution]" (p. 171).[8] The phenomenon is also discussed in (McCloskey 1985), where an analysis is sketched that allows adjunct movement to trigger exceptional AN marking on all the clauses involved.

For our account, we first need to require as in (22) that an RC with a BNPA gap modify the right kind of noun. Such nouns will be identified with a head type *bnpa-noun*. "BNPA" is used in the AVMs as an abbreviation for NP[HEAD *bnpa-noun*]. Following the HPSG analysis of English BNPAs in (Whitman 1998), we assume *bnpa-noun* may bear a MOD feature which allows BNPAs to (optionally) modify VPs.

(22) $\left[\begin{array}{l} \textit{rel-cl} \\ \\ \text{TO-BIND SLASH}\left\{\text{BNPA}\right\} \end{array}\right] \longrightarrow \left[\ \ldots \text{ HEAD MOD } \ldots \text{ HEAD } \textit{bnpa-noun}\right]$

*bnpa-noun*s can then select a particular particle. To this end, we allow PRTCL-TYPE as an appropriate feature for *bnpa-noun*. *fáth* is lexically specified to require AN:

(23) *fáth*
$\left[\begin{array}{l} \text{PRTCL-TYPE } \textit{an} \\ \text{HEAD } \textit{bnpa-noun} \end{array}\right]$

In contrast, *uair* 'time' which requires AL (McCloskey 1979 p. 170) would have PRTCL-TYPE *al*, and nouns tolerating both would be lexically underspecified.

The following exception to (G2) and (G5) states that an RC modifying an AN-selecting BNPA-noun must be marked with AN:

[7] McCloskey further justifies this by noting the insensitivity of some adjunct extractions, namely of locative or temporal adverbials, to island constraints; however, this argument is weakened by the simultaneous sensitivity of manner adverbials to islands ((McCloskey to appear) fn. 21).

[8] (McCloskey to appear) draws attention to a semantic correlate to particle selection: reason adverbials require AN; temporal and manner adverbials allow AL or AN; and durative and frequency adverbials only allow AL. However, his analysis does not appeal to a semantic explanation for the correlation.

(E3) $\left[\begin{array}{l}\text{HEAD MOD}\left[\begin{array}{l}\text{HEAD}\left[\begin{array}{l}\textit{bnpa-noun}\\ \text{PRTCL-TYPE } \textit{an}\end{array}\right]\\ \text{INDEX } \boxed{i}\end{array}\right]\\ \text{TO-BIND SLASH}\left\{\text{BNPA}_{\boxed{i}}\right\}\end{array}\right] \longrightarrow \left[\text{HEAD PRTCL-TYPE } \textit{an}\right]$

(Overrides (G2) and (G5))

In example (24), although the highest particle is AN, the lower particle has the form AL as is expected in an extraction.

(24) *Cén fáth ar dhúirt tú a tháinig sé*
which reason AN said you AL came he
Why did you say he came? ((McCloskey 1979) (50a) p. 171)

However, when the top particle is AN, the intermediate particles may also be AN:

(25) *an áit as a gceaptar a dtáinig bundadh an Uachtaráin Reagan*
the place is AN they-think AN came ancestors the President Reagan
where it is thought President Reagan's people originated ((McCloskey 1985) (110d) p. 80)

To account for this, the information from the BNPA-noun's PRTCL-TYPE can be passed down further in the clause by equating it with the BNPA-trace's PRTCL-TYPE value. Assuming this has been done (see below), another exception to (G2) and (G5) causes the AN marking on the trace to trigger AN marking on the intermediate clauses:

(E4) $\left[\text{INHER SLASH}\left\{\text{BNPA: }\left[\text{PRTCL-TYPE } \textit{an}\right]\right\}\right] \longrightarrow \left[\text{HEAD PRTCL-TYPE } \textit{an}\right]$

(Overrides (G2) and (G5))

However, so that AL is still allowed to surface on lower clauses in examples like (24), it must be optional to pass this information down to the trace when the PRTCL-TYPE of the BNPA is *an*. In other words, we state the constraint (26) but no corresponding constraint for AN-selecting BNPAs:

(26) $\left[\begin{array}{l}\text{HEAD MOD}\left[\begin{array}{l}\text{HEAD}\left[\begin{array}{l}\textit{bnpa-noun}\\ \text{PRTCL-TYPE } \textit{al}\end{array}\right]\\ \text{INDEX } \boxed{i}\end{array}\right]\\ \text{INHER SLASH}\left\{\boxed{1}\,\text{BNPA}_{\boxed{i}}\right\}\end{array}\right] \longrightarrow \boxed{1}\left[\text{HEAD PRTCL-TYPE } \textit{al}\right]$

Since the wh-NP in a constituent question is made available to the RC daughter via MOD by (18), the triggering of exceptional particle patters functions the same in BNPA questions as in RCs modifying BNPAs.

(McCloskey to appear) presents new data that pose some problems for this account. First of all, examples of BNPA extractions are given with the particle pattern AN-GO:

(27) *insan áit ar cheap an fear eile go raibh an t-airgead curtha*
in-the place AN thought the man other GO was the money buried
in the place where the other man thought thought the money was buried

((McCloskey to appear) (73a))

Secondly, AN-selecting BNPAs are show to be able to take an AL-AN pattern:[9]

(28) *Cén fáth a dúirt Pól a raibh Seán ann*
what reason AL said Paul AN was Sean there
Why did Paul say that John was there?

McCloskey uses such data to argue for a non-movement approach to adjunct gaps. Since the particle pattern in (27) is the same as is routinely seen with RPs, as in (1b), AN-marked extractions with nouns like *áit* which optionally allow AN are taken to actually be resumptive structures where the adverbial RP is null. This also correctly predicts the possibility of an AN-AN pattern with such nouns.

The account given for nouns like *fáth* that *require* AN is different. The analysis of the triggering of particles in (McCloskey to appear) is that GO marks a CP with no operator in its SPEC position, AL a CP with an operator which has moved into it, and AN a CP with an operator but which has not moved. With *fáth*, a null adverbial is taken to base generated in the SPEC position of a CP. In examples like (21), this lack of movement forces AN marking. However, the adverbial may be base generated in the SPEC of a lower CP and then move to a higher one, accounting for (28).

Returning to example (27), it is clear that the adverbial is construed as coming from the lower clause. For our account, this would require that AN-selecting BNPAs instead be lexically specified HEAD PRTCL-TYPE *an* $\vee$ *go* and that we add another exception like (E4) for when the BNPA noun has PRTCL-TYPE *go*. This is quite unattractive, especially compared to McCloskey's analysis which requires no further stipulations. On the other hand, McCloskey has no explanation of why adverbial RPs exists but cannot be overt (as they can for instance in Hebrew; cf. (Glinert 1989) p. 363).

The second problem, how to deal with (28), also presents a serious challenge to our approach: evidently we would have to allow AN-selecting nouns to tolerate AL, but only when there exists a lower AN-marked clause in the same dependency. It is unclear how to incorporate such an observation, or indeed whether we should accept the necessity of making it. On the other hand,

[9]From the Christian Brothers' *Graiméar Gaeilge na mBráithre Críostaí*, M. H. Mac an Ghoill agus a Mhac, Tta, Dublin, 1960. Cited in (McCloskey to appear), ex. (69).

although McCloskey's account predicts such examples, it seems to have no explanation of the opposite pattern found in examples like (24), where the lower particle with an AN-selecting noun is AL. The analysis of mixed patterns with AN-selecting nouns thus remains an unresolved problem on either account.

6 Conclusion

This paper has sketched an HPSG analysis of resumptive pronoun and gap constructions in Irish. We have focused particularly on relative clauses and constituent questions but believe that the same analysis can be extended to other gap and resumptive constructions. We analyze resumptives with a nonlocal feature RESUMP which is propagated like the SLASH feature used for gaps. This is supported by the existence of a particle pattern that marks intermediate clauses in resumptive dependencies. We have also discussed some exceptional particle patterns associated with bare NP adverbials and shown how they can be incorporated into the analysis, though certain unresolved problems remain.

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